BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

STRATAGOLD CORPORATION

EAGLE GOLD PROJECT

HEAP LEACH FACILITY CONSTRUCTION SUMMARY REPORT FOR PHASE 1A

PROJECT NO.: 0792023 DATE: September 24, 2019

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street
Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900
Fax (604) 684-5909

September 24, 2019
Project No.: 0792023

Mark Ayranto, Chief Operating Officer
Victoria Gold Corp.
1050 West Pender Street, Suite 1000
Vancouver, BC

Dear Mark,

Re: Eagle Gold HLF Phase 1A Construction Completion Report

Please find enclosed a final report summarizing the consulting services that BGC has provided to Strata Gold Corporation (SGC)[1] with respect to construction of Phase 1A of the Eagle Gold Heap Leach Facility (HLF). We appreciate the opportunity to work with you on this interesting project.

Yours sincerely,

BGC ENGINEERING INC.
per:



Troy Meyer, P.Eng.
Principal Geotechnical Engineer

[1] SGC is a directly held, wholly owned subsidiary of Victoria Gold Corporation, and is the proponent of the Eagle Gold Project.

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LIST OF ACRONYMS

ADR	Absorption, Desorption, and Refining
ASTM	American Society for Testing and Materials
BGC	BGC Engineering Inc.
CWP	Construction Work Plan
EBA	EBA Consultants now part of Tetra Tech, Inc.
EPCM	Engineering, Procurement, and Construction Manager
GCL	Geosynthetic Clay Liner
HDPE	High Density Polyethylene
HLF	Heap Leach Facility
IFC	Issued for Construction
JDS	JDS Energy and Mining
LDRS	Leak Detection and Recovery System
LLDPE	Linear Low Density Polyethylene
ODF	Over Liner Drain Fill
PLS	Pregnant Leach Solution
QA	Quality Assurance
QC	Quality Control
RFI	Request for Information
SDR	Standard Dimension Ratio
SGC	Strata Gold Corporation
UCS	Unconfined Compressive Strength

1.0 INTRODUCTION

This report summarizes the quality assurance (QA) and engineering services provided by BGC Engineering Inc. (BGC) for construction of Phase 1A of the Heap Leach Facility (HLF) at StrataGold Corporation's (SGC) Eagle Gold Project located in Yukon Territory, Canada.

The HLF design and technical specifications are presented in the Eagle Gold Project Heap Leach Facility Detailed Design Report issued by BGC and dated January 8, 2018 (BGC, 2018). Construction activities were completed with the oversight of the project Engineering, Procurement, and Construction Manager (EPCM) JDS Energy and Mining (JDS). Earthworks were completed by Pelly Construction Ltd (Pelly), Cobalt Construction Inc (Cobalt), and Ewing Construction (Ewing). Steel piping installation was performed by Heavy North Construction Ltd (Heavy North), and Priority Steel Erectors Ltd (Priority Steel). Geosynthetic materials for the HLF and Event Pond liner systems were supplied by various vendors through JDS and installed by Layfield Group Ltd. (Layfield). Concrete cloth spillway lining was installed by Titan Environmental and supplied by Concrete Canvas Ltd. Surveying services were provided by Underhill Geomatics Ltd (Underhill) under the direction of JDS, and Eshemuta Construction Surveyors (Eshemuta) under the direction of Pelly. Drilling services were provided by Pelly through their subcontractor, Midnight Sun Drilling Inc. (Midnight Sun). The following components of the HLF were constructed under direct oversight by BGC between September 2017 and early July 2019:

- Confining Embankment
- In-Heap Pond
- Phase 1A Heap Leach Facility Pad (partial)
- HLF Underdrain System up to Phase 1A Pad limits and the Monitoring Vault battery limits
- In-Heap Pond Spillway
- Event Pond and Emergency Spillway.

BGC provided direct oversight, while Tetra Tech provided QA for liner installation between September 2018 and June 2019.

The following components were partially constructed during this period:

- Phase 1A Pad area was partially constructed. BGC's work scope included QA oversight for the placement of Pregnant Leach Solution (PLS) pipework and Overliner Drain Fill (ODF) on the In-Heap Pond area and the upper Phase 1A Pad. However, BGC's scope did not include QA oversight during PLS pipework and ODF placement on the Phase 1A Pad above the In-Heap pond area (generally above elevation 938m).
- HLF Monitoring instrumentation was partially installed. The HLF In-Heap Pond and Event Pond Leak Detection and Recovery System (LDRS) piezometers were installed. Standpipes were installed in the confining embankment under BGC direction; however, responsibility for installing the piezometers in the confining embankment standpipes, as well as the Pad piezometers and data relay system, was with SGC personnel.

2.0 OBJECTIVE AND SCOPE OF WORK

BGC performed QA and on-site engineering during construction of Phase 1A of the HLF at the Eagle Gold Project within the limits described herein. These services were performed between September 2017 and early July 2019. Off-site engineering support was also performed by BGC intermittently throughout this time period. The scope of work included:

- Acting as on-site engineering representative for BGC and SGC
- Attending regular construction and safety meetings with contractors and the JDS construction management team, as well as other meetings requested by JDS or SGC
- Performing on-site inspections to evaluate field conditions, making recommendations to JDS, documenting construction progress and preparing related field reports
- Overseeing the QA monitoring program, which includes monitoring QC processes, testing, and data to ensure that deficiencies were identified and addressed.
- Completing foundation approvals (inspection and approval) prior to placement of fill
- Directing QA monitoring of earthworks operations, borrow material record testing, and in-place materials testing, to the extent required by the Specifications
- Reviewing QA and QC test data and observed field conditions with the JDS construction managers to make recommendations regarding work deficiencies and possible remedial actions
- Reporting to the JDS construction managers, and logging in daily report summaries of observations from visual inspections, laboratory results, and other observations reported by field personnel
- Reporting deviations from the construction documents to the JDS construction managers
- Providing input to responses for Request for Information (RFI), shop/working drawings, and other Contractor submittals when requested by the JDS construction manager.
- Assisting with design of additional related engineering work requested by JDS
- Helping resolve discrepancies in the contract documents noted by JDS or SGC
- Communicating with JDS field construction managers and QC monitoring personnel in accordance with the provisions of the Technical Specifications
- Reviewing and approving changes to the Technical Specifications
- Proactively recommending construction or design improvements to the JDS construction managers to enhance the design constructability and performance within project budget constraints

3.0 GENERAL PROJECT DESCRIPTION

3.1. Main Project Features

A general project description is presented in the following sections. Major construction areas are shown in Figure 1.



Figure 1: HLF Construction Areas.

3.1.1. Underdrain System

The HLF underdrain system provides for the collection and conveyance of subsurface water flows beneath the lined HLF Pad and Confining Embankment to limit upward pressure on the liner system and prevent the buildup of phreatic levels in the embankment fills. The HLF underdrain system consists of a network of lateral drains below the Phase 1A Pad area, finger drains below

the In-Heap Pond and Confining Embankment, and an underdrain header pipe trench that extends from the toe of the Confining Embankment to the upper limit of the Phase 1A Pad. Flows in the underdrain system are conveyed to collector pipes that discharge to a monitoring vault at the downstream toe of the Confining Embankment. The vault is configured to allow for sampling of seepage flows for water quantity and is equipped with a system that can either pump return flows to the HLF for use as make up water or allow seepage to flow to the environment if discharge criteria are met. The battery limits for QA oversight for the HLF underdrain system by BGC started several meters upstream of the monitoring vault at a containment berm and extended to the upstream limit of the Phase 1A Pad. The monitoring vault and connections to the underdrain pipes were the responsibility of JDS.

The underdrain system installed at the Event Pond consists of a loop drain system located directly below the Event Pond floor's perimeter. Finger drains were also installed along the north cut slope and connected to the loop drain to manage seepage water along the slope. The Event Pond underdrain system discharges to the ground surface via a solid HDPE pipe adjacent to and north of the Dublin Gulch access road.

3.1.2. Confining Embankment

The Confining Embankment was designed to provide heap stability and containment of process solutions in the In-Heap Pond. The Confining Embankment was constructed as an earthfill/rockfill structure with a double-lined upstream face. The tallest section of the final embankment measured 40 m from the natural ground elevation at the downstream toe to the crest.

3.1.3. In-Heap Pond

The In-Heap Pond is the double-lined impoundment area directly upstream of the confining embankment below elevation 940m. The In-Heap Pond will provide storage and an extraction point for PLS. The In-Heap Pond was constructed with three zones:1) the PLS zone which provides the collection point for PLS, 2) the Leak Detection and Recovery Sump (LDRS) to monitor and collect fluids that have accumulated in the liner system's leak detection layer, and 3) the closure sump which contains the inlet for the pipe that will transport fluids from the In-Heap pond by gravity at the time of closure. The design includes the ODF and the PLS recovery piping system over the liner within the In-Heap Pond.

3.1.4. Phase 1A Pad

The Phase 1A Pad area was constructed for ore storage and leaching between elevations 940m and 990m above the In-Heap Pond. The design includes a single composite liner system comprised of a geomembrane over geosynthetic clay liner (GCL), ODF and PLS recovery piping. The overall HLF design allows for future expansion of the Pad up the Ann Gulch drainage basin. The next planned expansion (Phase 1B) would be constructed between the upper limit of Phase 1A at elevation 990m and the Interceptor Ditch (approximate elevation 1050m).

3.1.5. Interceptor Ditch

The Interceptor Ditch was constructed at approximate elevation 1050m to divert surface water flows in the upper Ann Gulch basin around the Phase 1 Pad, and In-Heap Pond areas. The Interceptor Ditch consists of a geotextile and rip-rap lined channel that would convey any intercepted flows from east to west and into the environment west of the Phase 1 Heap Leach area.

3.1.6. In-Heap Pond Spillway

The In-Heap Pond spillway was constructed to safely convey flows from the In-Heap Pond to the Event Pond. The design included a concrete box culvert and spillway lined with Fabri-Form grout-filled revetment. The design was modified during construction to include HDPE culverts and concrete cloth revetment. Section 5.7 provides additional details.

3.1.7. Event Pond and Emergency Spillway

The double-lined Event Pond was designed to contain excess fluid during HLF operations. A LDRS inclined riser pipe was constructed on the western end of the Event Pond to monitor and recover leakage from the liner system's leak detection layer. A concrete cloth-lined Emergency Spillway was constructed to allow discharge from the Event Pond to environment. The design included Fabri-Form revetment which was modified during construction to incorporate concrete cloth revetment. Section 5.8 provides additional details.

3.1.8. HLF Liner System

The HLF liner system was designed to contain PLS for recovery and to prevent the release of process solutions to the environment. The liner system constructed in the Event Pond and In-Heap pond consists of a double liner system with a geocomposite leak detection layer between two textured Linear Low Density Polyethylene (LLDPE) liners. The double liner system was placed over a GCL as an additional layer of protection and cushioning. The HLF single composite liner system within the Phase 1A footprint (above Elevation 940m) was constructed with GCL overlain by textured LLDPE liner.

3.2. Site Conditions

Site conditions are discussed in the following subsections. Additional detail is in the Design Report and its appendices (BGC, 2018).

3.2.1. Topography

The HLF site topography is described as moderate to high relief, with ground elevation varying from approximately 880 to 1400 masl. The HLF is situated in the Ann Gulch drainage which is a first-order tributary to Dublin Gulch.

3.2.2. Climate and Hydrology

The property lies within the Mayo Lake–Ross River Eco-region in central Yukon. The area is characterized by a “continental” type climate, with moderate annual precipitation and a large temperature range. Summers are short and can be hot, while winters are long and cold with moderate snowfall. Rainstorms can occur frequently during the summer and may contribute 30% to 40% of the annual precipitation. Higher elevations are generally snow-free by mid-June. Freezing temperatures may occur at any time during the year, including summer or fall.

The mean annual temperature for the area is approximately -3°C, with an annual range of 63.5°C for the period of record. The estimated mean annual precipitation at the Eagle Gold site ranges from 350 mm to over 600 mm, depending on elevation. This climate description has been summarized from Stantec (2012b), Knight Piesold (2013) and Lorax (2017).

The hydrology of the region is generally characterized by large snowmelt runoff during the spring freshet, which quickly tapers off to low summer stream flows interspersed with periodic increases in flow associated with intense rainfall events (Stantec 2012).

3.2.3. Geology

Geologic conditions in the Dublin Gulch area have been strongly influenced by the geotectonic forces that produced the Eagle Zone deposit. The folding, faulting and plutonic activities have resulted in relatively weak rock mass with relatively poor mechanical properties. Further, with frost fracturing and permafrost common at the latitude of the project site, shallow subsurface processes and rock/soil characteristics are more complex.

Overburden soils encountered on the sloping ground at the HLF site typically consist of a veneer of organic soils overlying a blanket of colluvium, which overlies weathered bedrock. Placer tailings (fill remainders of previous dredge mining operations) cover most of the valley bottom of Dublin Gulch, which is outside the footprint of the HLF.

The bedrock encountered in the area is generally classified as metamorphosed sedimentary rock, with a variably deep weathering profile (BGC 2018). The intact rock strength of the encountered rock types is highly variable, ranging between R0 class (i.e., corresponding to < 1 MPa Unconfined Compressive Strength, UCS) and R4 (50-100 MPa UCS). The average intact strength is estimated to be approximately R2 (5-25 MPa UCS) in the metasedimentary rock, depending upon the degree of weathering, but with significant variability across the site.

4.0 CONSTRUCTION MANAGEMENT

BGC performed QA oversight, inspections and documentation, review of technical submittals, and responded to technical queries from the contractors. BGC participated in progress meetings, schedule meetings and safety meetings.

JDS provided EPCM services for the project and directly managed all construction contractors, which included:

- Pelly: Construction contractor for large earthworks including the HLF foundation preparation, underdrains, borrow and quarry development, and major fills (Confining Embankment and Event Pond construction). Surveying and record drawing production was performed by Eshemuta as a direct subcontractor to Pelly. Drilling services were provided by Midnight Sun Drilling, Ltd. for Pelly.
- Layfield: Liner installation contractor and liner QC.
- Titan Environmental: Concrete Canvas revetment supplier and installer.
- Heavy North: Steel LDRS and PLS piping.
- Priority Steel: Steel LDRS and PLS piping.
- Cobalt: Heavy earthwork support, specifically excavation of unsuitable material from Phase 1A heap Pad and spillway invert areas.
- Ewing: Heavy earthwork support, specifically excavation of unsuitable material from the Phase 1A heap Pad and labor support for Layfield's liner installation.
- Nuway Crushing: Aggregate production.
- Underhill: Surveying for JDS performed on works completed by Heavy North and Layfield. Periodic site aerial photography and site topographic surveys.
- Tetra Tech (EBA): HLF earthworks QC and QA for liner installation.

The BGC Resident Engineers did not direct, supervise, or monitor contractor or sub-contractor daily activities (other than those related to immediate construction QA issues); however, BGC did offer suggestions or input related to construction methods or scheduling, and collaborated with the JDS construction managers about ideas for efficient and safe construction.

4.1. Organization Structure and Responsibilities

An organizational chart maintained by JDS is included as Figure 2.

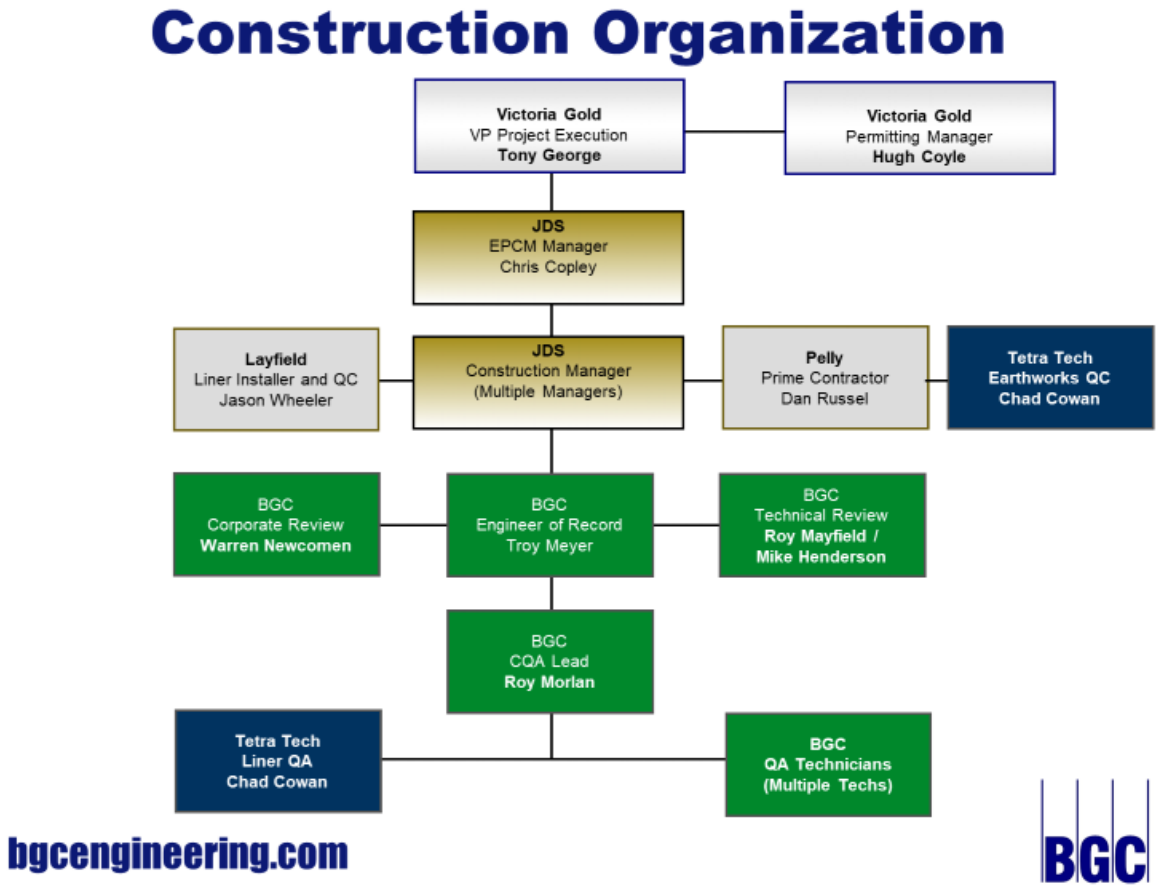


Figure 2: Construction organization chart.

5.0 CONSTRUCTION OBSERVATIONS, CHANGES, AND QA/QC TEST RESULTS

HLF design details and technical specifications were included in the design report (BGC 2018). Construction performed during the BGC oversight period (between September 2017 and early July 2019) was generally completed in conformance with the design technical specifications. Construction observations and instances where designs were modified to accommodate field conditions or construction limitations are discussed in this section. Construction Work Plans (CWPs) developed for the construction are included in Appendix 1. Requests for Information (RFI's) are included in Appendix 2. Technical memorandums developed by BGC for the construction are included in Appendix 3. Material QC testing results are included in Appendix 4. QA approvals and documentation are included in Appendix 5. BGC, Tetra Tech, and Pelly daily reports are included in Appendix 6. Tetra Tech's Liner QA Report is included in Appendix 7. Drawings issued for construction (IFC), including those modified after construction began, are included in Appendix 8. Record drawings are included in Appendix 9. Appendix 10 provides a summary of construction quantities provided by JDS.

Construction criteria and specifications discussed in this section are outlined in detail in the HLF Detailed Design Report, the RFI responses, and the applicable Technical Memorandums.

5.1. Material Production and Borrow Areas

5.1.1. Borrows

Six Borrow Areas were developed, two for rock fill material (Eagle Pit and ADR Quarries), two as part of construct and fill activities (Confining Embankment Event Pond Excavations), and two for construction fill material (Dublin Gulch and Kilometer 41 Borrows). The stockpile management plan developed for material produced at these borrows was updated regularly. A copy of the plan and its updates are included in Appendix 1. All Material 4 – ODF and Material 5 – Select Drain Fill was produced by Nuway's mobile crushing plant up to June 30, 2019. ODF produced after June 30 was generated by the mine's permanent ore crushing system. A figure showing the borrow areas is included below.

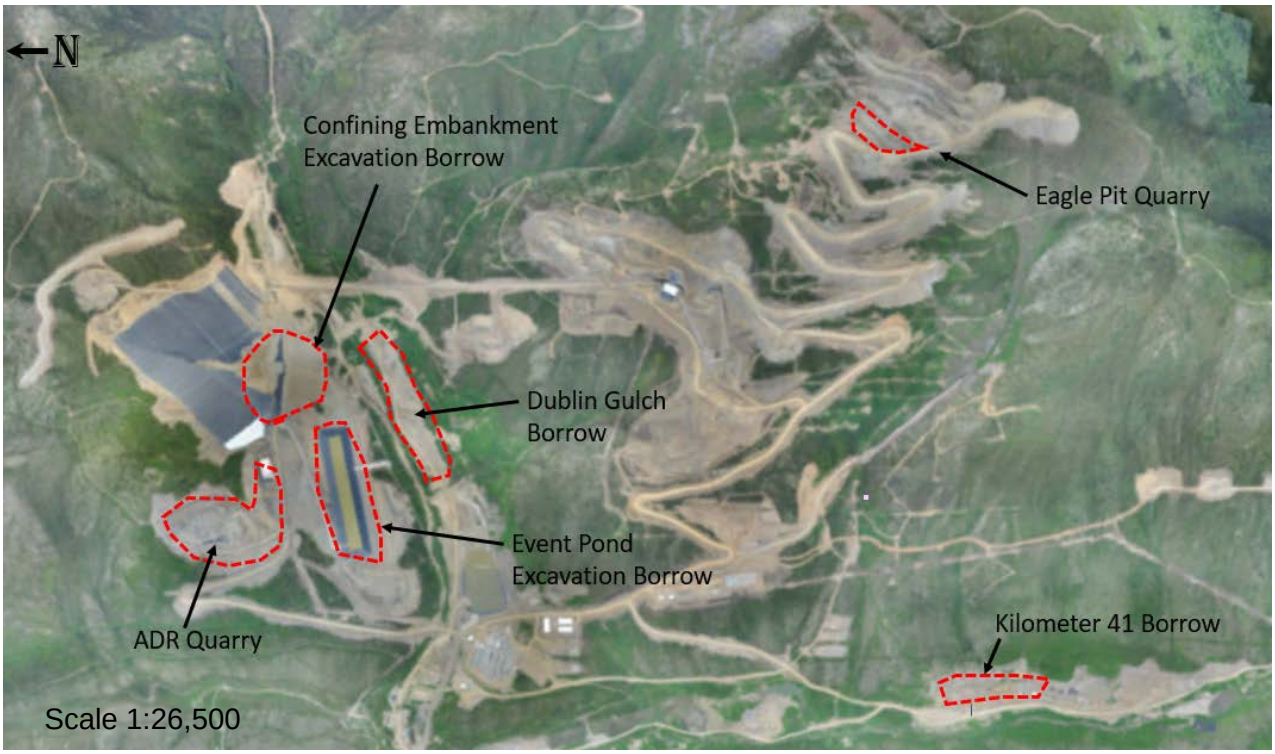


Figure 3: Borrow Locations.

5.1.1.1. Kilometer 41 Borrow

The Kilometer 41 borrow contained primarily placer tailings and alluvium and was located near the entrance to the mine at Kilometer 41. The material consisted of sand, gravel, cobbles and boulders excavated from historicplacer tailings deposits in the Haggart Creek valley. Borrowed material was a mixture of well-rounded granite/grano-diorite, quartzite, and meta-sedimentary rocks. Rock particles from this source were generally hard and strong.

Material excavated from this quarry was used to produce Material 4 –ODF, Material 5 – Select Drain Fill and Material 2 – Select Fill for the HLF construction.

5.1.1.2. Dublin Gulch Borrow

The Dublin Gulch borrow was located just south of the HLF footprint in the Dublin Gulch valley and consisted mostly of historic placer tailings with some in-situ alluvial material. The material consisted of sand, gravel, and boulders and was a mixture of well-rounded granite/grano-diorite, quartzite, and meta-sedimentary rocks and sand. Rock particles from this source were generally hard and strong.

Material excavated from this borrow area was used to produce Material 5 – Select Drain Fill, Material 2 – Select Fill, and Material 4 – ODF.

5.1.1.3. Event Pond Borrow

The Event Pond Borrow was located within the footprint of the required Event Pond excavation. After topsoil, frozen material, and highly-weathered / decomposed bedrock was removed the remaining material from the Event Pond excavation was hauled directly to the Confining Embankment for construction. Material used for construction generated form the Event Pond borrow consisted of organic free colluvium (gravelly sand and cobbles) or weathered quartzite bedrock with some phyllite lenses. Some ripping was needed while bedrock was excavated but no blasting was required at the Event Pond Borrow.

Material excavated from the Event Pond Borrow was used as either Material 3 – Structural Fill or Material 7 – Rockfill, depending on the observed particle size ranges of the material.

Some ice rich and/or wet material from this borrow was considered unsuitable as embankment fill and was wasted. The waste pile for this material was designed and managed by JDS and is located directly west of the Event Pond construction.

5.1.1.4. ADR Borrow

The ADR Borrow was a quarry located within the footprint of the required adsorption, desorption, and refining (ADR) plant excavation limits and included the adjacent hillside just west of the ADR area. The quarried material consisted of moderately weathered to relatively competent quartzite interbedded with some phyllite. The material was generally strong and hard. Ripping with large dozers and blasting was required to excavate material from the ADR Borrow.

Material excavated from the ADR Quarry was used as Material 3 – Structural Fill or Material 7 – Rockfill.

5.1.1.5. Eagle Pit Borrow

The Eagle Pit Borrow was a quarry located at mining Block 1285-01 of the Eagle Pit. The material consisted mostly of weathered to highly weathered quartzite and meta-sediments. Material 4 – ODF and Material 2 – Select Fill was produced from this quarry, which was transported to the HLF via the mine's conveyor system. Material produced from this quarry was generally weaker than the other sources used to produce ODF. ODF produced from this source met requirements of the Technical Specifications; however, more waste product (rejected fines) was produced in the processing at the crushing/screening plant.

Prior to June 30, 2019, ODF produced from the Eagle Pit Borrow was crushed by Nuway at their mobile plant. ODF produced after June 30 was processed by the mine's permanent crushing system. After June 30, 2019, SGC had direct oversight and management for the production, transportation, placement, QA, and QC of this material on the Phase 1A Pad.

5.1.1.6. Confining Embankment Excavation Borrow

Excavated material within the footprint of the Confining Embankment was originally intended to be used as Material 3 – Structural Fill for the embankment construction. However, the material

was generally near or slightly over optimum moisture content upon excavation and the generated stockpile froze over the 2017-2018 winter construction hiatus. Therefore, the stockpiled material was disposed in a waste stockpile and the entire fill volume for the HLF Confining Embankment and Event Pond embankments was generated from the Event Pond and ADR borrows. The waste material stockpile was designed and managed by JDS and is located downslope of the mine's primary and secondary crusher, directly east of the Eagle Pup Road.

5.1.2. Material Production

5.1.2.1. Material 1 – Site Grading Fill

Material 1 – Site Grading Fill was originally intended to establish design grades in specific portions of the Phase 1A heap Pad. Material requirements for site grading fill were changed during construction to allow Material 3 – Structural Fill and Material 7 - Rockfill to be used at the Engineer's discretion. This change was made to accommodate the availability of material during construction. Therefore, Material 1 was not produced or used.

It should be noted that the quantities table in Appendix 10 denotes the main spillway fill as Material 3/7. and the QC test data in Appendix 4 denotes the gradation tests as Material 1, which is an error. The correct designation of the material placed in the main spillway is Material 3/7.

5.1.2.2. Material 2 – Select Fill

Material 2 – Select Fill was used as bedding for liner systems. Material 2 was also used as transition material between geotextiles and other fills when additional protection of the geotextile was needed (such as placement of coarse fill over geotextile). Material 2 was produced by Nuway as a byproduct (fines reject) of the crushing/screening production of Material 5 – Select Drain Fill and Material 6 – ODF. The term used for this material on-site was 'reject sand' as the material consisted of well-graded sand. Material 2 was produced predominantly from the Kilometer 41 Borrow and the Dublin Gulch Borrow with a minor portion being produced from the Eagle Pit Borrow.

<u>Material Criteria</u>

The gradation allowed for Material 2 per the Technical Specifications was 35 to 100% passing #200 mesh, 60 to 100% passing sieve No. 4, and a maximum size of 75mm. The material was to be placed within +/- 2% of the optimal moisture which was measured as 95% per standard Proctor testing (ASTM D-698). Compaction criteria were modified from the Technical Specifications based on a test fill documented in Field Memorandum CTFM-01. See Section 5.2 for compaction control details.

<u>Minor Modification to Material Criteria</u>

Although gradation of reject sand fell partially outside the material requirements of the technical specification, specifically having less than 35% passing #200 mesh size and 60% material passing the No. 4 sieve size, it was approved for use as liner bedding and underdrain pipe trench

backfill. The modification was approved because it met the design intent of providing a densely compacted material that is free of oversize material (which could pose a risk of puncturing the liner system). The material produced was generally less than 12.5 mm in size and was graded. The requirement for QC testing for Atterberg Limits and permeability testing were removed since gradations showed the material to be a well-graded sand and field inspections noted that the material was non-plastic.

QA/QC During Production

The QC requirements for Material 2 production are included in Table 1 below.

Test	Required Test Frequency	Actual Test Frequency
Gradation (ASTM D-422)	Minimum 1 per soil type or 1 per 3,000 m^3, whichever is more frequent	1 per every 854 m^3

Table 1: Material 2 QC Testing Frequency

The testing frequency table in Section 3.9 of the specification document (BGC 2018) indicates laboratory permeability for Material 2. However, the actual material criteria in Section 3.6 of that document did not require this testing. The BGC design engineer confirmed the testing was not required.

A total of 17 gradation tests were completed. Samples were typically collected at the crushing facility. Gradation results are presented in Figure 4.

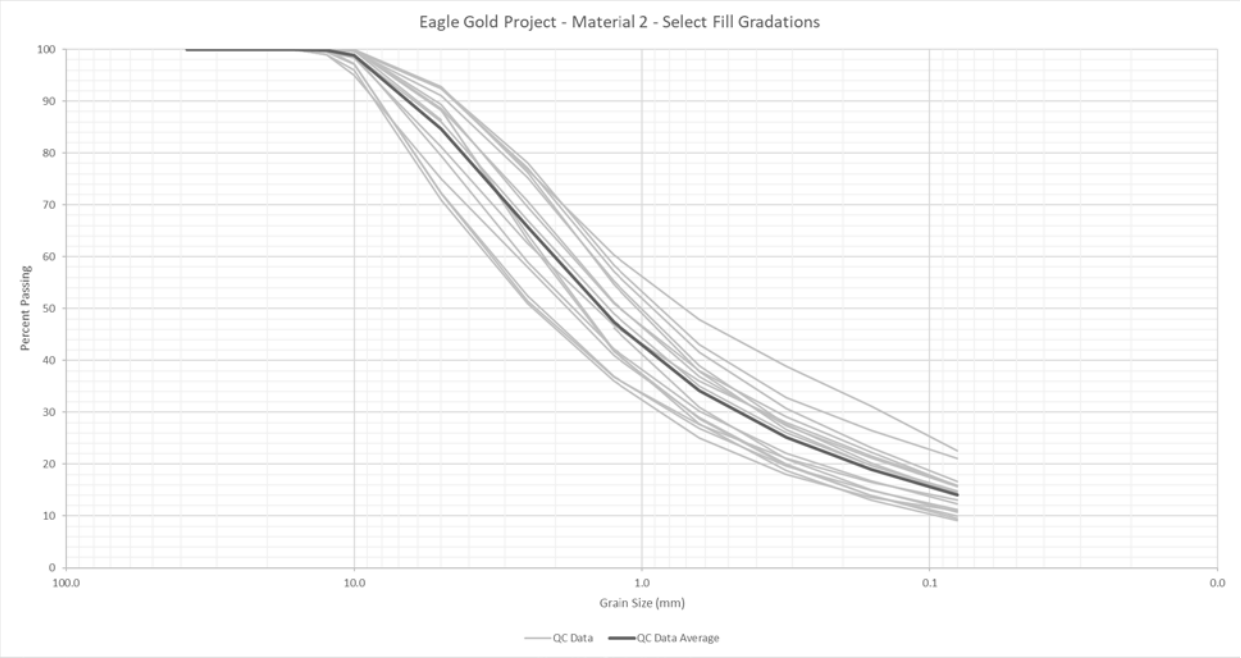


Figure 4: Material 2 – Select Fill Gradation Testing Results.

5.1.2.3. Material 3 – Structural Fill

Material 3 – Structural Fill was used to construct portions of the Confining Embankment. Structural Fill was sourced predominately from the ADR Borrow and the Event Pond Borrow.

Material Criteria

General requirements for Material 3 included a minimum of 10% material passing #200 mesh with less than 30% material larger than 19 mm and a maximum particle size of 150 mm. Gradation testing of the structural and rock fill was not required. The CQA Engineer visually inspected the structural fill in conjunction with measurement of the size of select stones and determined its compliance with the gradation requirements.

Minor Modification to Material Criteria

The maximum size for Material 3 was increased from 150 mm to 200 mm as discussed in EPCM-RFI-002. Material 3 was used in the Confining Embankment between elevation 891.25m and 940m (crest elevation). Material 3 was replaced with Material 7 – Rockfill in the Event Pond berm construction.

QA/QC During Production

Material 3 was produced directly from the excavation at the Event Pond Borrow and from blasted material at the ADR quarry. No processing was performed.

Daily observations made by BGC related to the quality of Material 3 borrowed are included in BGC's daily reports. Material 3 borrowed met the requirements in the Technical Specifications. The material visually appeared well graded, generally consisting of sandy gravel with an upper size ranging to approximately 150mm to 200mm, which BGC approved.

Compaction control during construction was achieved based on method specifications developed by the test fills (see Section 5.3).

5.1.2.4. Material 4 – Overliner Drain Fill (ODF)

Material 4 – ODF was used as drainage material over the liner system in the In-Heap Pond and the Phase 1A area. ODF material was produced from the Kilometer 41 Borrow, the Dublin Gulch Borrow, and the ADR Borrow. ODF production QA was performed by BGC on-site until June 25. After June 25 QA for production of ODF was performed by SGC. Production of ODF material until June 25 was exclusively performed by Nuway and QC testing was exclusively performed by Tetra Tech. The following section discusses QA during production performed by BGC.

Material Criteria

Material 4 production requirements included a 38-mm maximum particle size, less than 5% material finer than No. 200 sieve size, and an operating (loaded) permeability of no less than $2x10^{-4}$ m/s.

No modifications were made to the technical specification requirements for ODF.

QA/QC During Production

Gradation analysis was required to produce Material 4 at a minimum frequency of 1 test per 5,000 m^3 produced. The frequency of testing used exceeded this requirement. As of June 31, 2019, a total of 156 gradation tests were performed on 81,000 m^3 of ODF produced resulting in about 1 test per 520 m^3 produced. The higher frequency allowed for better control of the ODF production.

Test	Required Test Frequency	Actual Test Frequency
Gradation (ASTM D-422)	Minimum 1 per 5,000 m^3	1 per 520 m^3

Table 2: Material 4 QC Testing Frequency

ODF gradations generally met the requirements in the Technical Specifications with an average of 3.2% material passing No.200 sieve size and 99.9% material smaller than 38mm. A total of 17 gradation tests reported over 5% of the material passing the No.200 sieve size. On average these tests reported 6.6% material passing the No. 200 sieve size. In each of these cases adjustments were made in production and the material tested again after production resumed. The subsequent tests reported less than 5% material passing the No. 200 sieve. Due to the low volume of material produced the material with greater than 5% material passing No. 200 sieve was not removed but instead was combined with material that passed the criteria. The exception to this were tests SA 107, SA 108, SA 109, and SA 110 analyzed in September 2018. The results for these tests reported between 5.1% and 8.4% material passing the No. 200 sieve size. This material was reprocessed and subsequently fell within the design specifications.

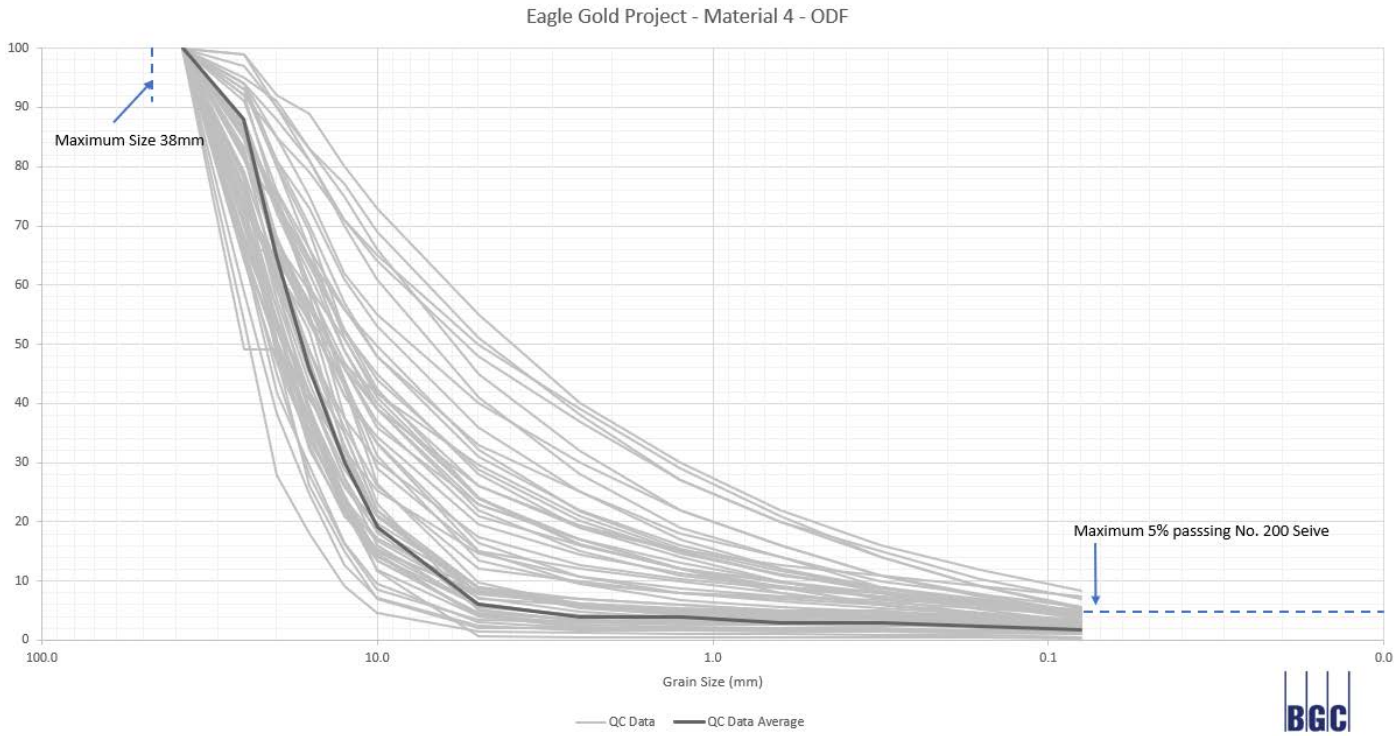


Figure 5: Material 5 – ODF Gradations

Laboratory analysis for permeability of the ODF was conducted in September 2017 by loaded, rigid wall constant head testing. Two samples were analyzed (Comp 1 and Comp 2). The results for Comp 1 reported a permeability of $1.2x10^{-2}$ m/s at a pressure loading of 100 psi and $3.4x10^{-3}$ m/s at a pressure loading of 400 psi. The results for Comp 2 reported a permeability of $1.7x10^{-1}$ m/s at a pressure loading of 100 psi and $6.4x10^{-2}$ m/s at 400 psi.

Although not required by the Technical Specifications, durability testing was performed on the ODF when visual field screening performed by BGC indicated a change in material strength. A total of four samples were analyzed for durability per ASTM 131 (LA Abrasion) and ASTM D4644 (Slake Durability). Two of the samples were analyzed from material produced in 2017 at the Kilometer 41 Borrow (Comp 1 and Comp 2) and two samples were analyzed in 2018 from material collected from the Eagle Pit Borrow (ODF 1 and ODF 2).

Comp 1 and Comp 2 reported material losses of 31.6% and 35.7%, respectively. ODF 1 and ODF 2 reported losses of 17% and 20%, respectively. Results less than 40% are typically considered durable (USBR 2014). All samples reported a second cycle slake durability index greater than 98% indicating virtually no change to the specimen.

ODF produced before June 30, 2019 was processed by Nuway at their mobile crushing and screening facility. Tetra Tech provided QC testing for the material and BGC provided QA and confirmation that the material met the requirements of the Technical Specifications. It is BGC's understanding that all ODF produced after June 30 was processed by SGC at their mine crushing

facility and that QC was also performed by SGC. BGC's scope did not include being present on-site after June 30 and so therefore BGC did not provide QA or confirmation of the material produced or placed at the HLF (generally above elevation 938m on the Phase 1A Pad). QA was conducted by others under SGC's direction.

5.1.2.5. Material 5 – Select Drain Fill

Material 5 – Select Drain Fill was placed in underdrain and seepage collection trenches as a medium for flow. Material 5 – Select Drain Fill was produced by Nuway from the Kilometer 41 Borrow.

Material Criteria

The select drain fill is required to have an operational permeability of greater than $1x10^{-4}$ m/s. The gradation specification for Select Drain fill called for a 12.5 mm maximum particle size and a maximum of 3% material smaller than the #200 mesh.

Minor Modifications to Material Criteria

The maximum material smaller than #200 mesh was increased from 3% to 5%. A maximum particle size of 25 mm was also approved. These changes were justified by permeability testing (see Appendix 4 for test results) and the requirement of placement of a cushion layer of Material 2 over the drain trenches to cushion the liner system.

QA/QC During Production

QC requirements for Material 5 – Select Drain fill consisted of at least 1 sample collected for gradation testing every 5,000 m^3 produced. A total of 53 gradation tests were performed on 8,000 m^3 of Material 5 produced. Samples were typically collected at the crushing facility. Material 5 gradations met the requirements of the modified criteria with an average of 2.0% material below No.200 sieve size and 100% material smaller than 25mm.

Two tests reported greater than 5% material passing sieve No. 200. SA37 collected the morning of October 12, 2018 reported 5.2% passing sieve No. 200. A subsequent test (SA38) was performed the afternoon of the same day and reported 2.2% passing sieve No. 200. SA46 collected the morning of May 19, 2018 reported 7.8% passing sieve No. 200. A subsequent test (SA47) collected the afternoon of the same day reported 1.7% passing sieve No. 200. In both cases the material was inspected by the Engineer and it was determined that the higher fines results were likely caused by sampling technique.

It should be noted that the final gradation requirements for Material 5 – Select Drain Fill were the same as some of the concrete aggregate produced on-site for construction unrelated to the HLF. Because of this, in many cases Tetra Tech erroneously used the header 'Concrete Aggregate' or 'Concrete Mix Gradation' in some of the grain size analysis reports.

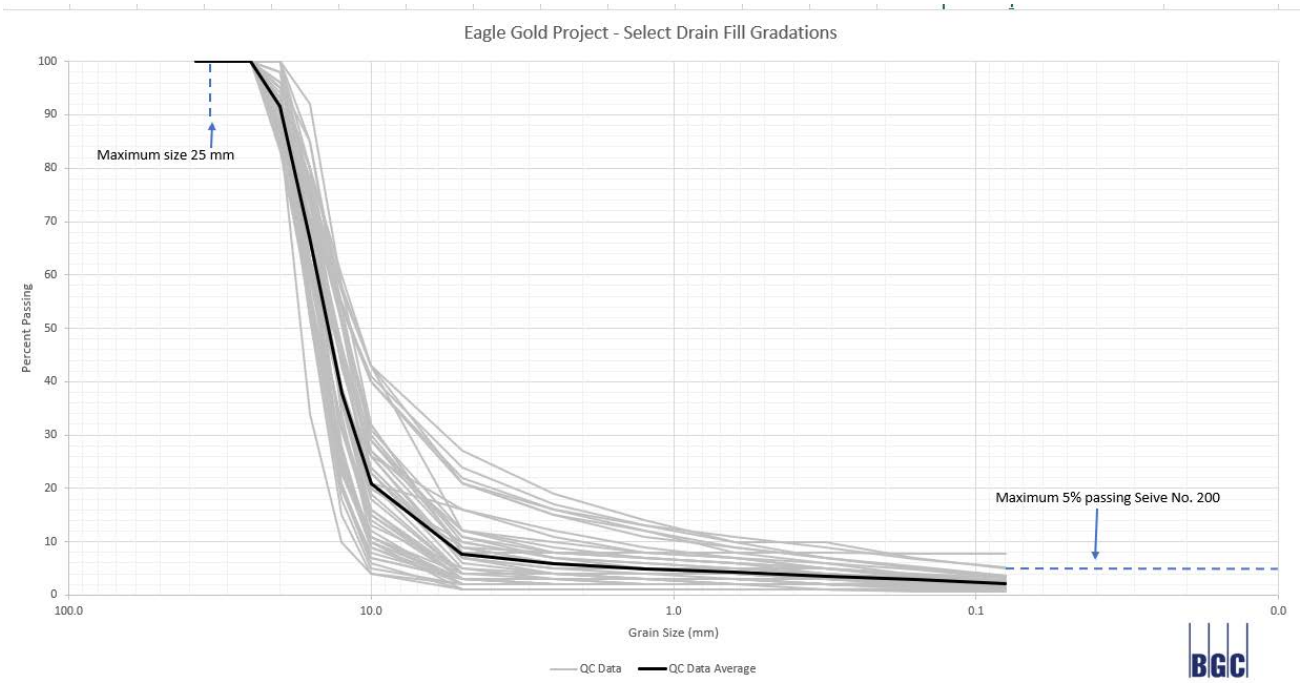


Figure 6: Material 5 – Select Drain Fill QC Gradation Results.

Field permeability testing was performed on a representative sample of the Select Drain Fill. The results of the test reported a permeability greater than $1x10^{-2}$ m/s.

5.1.2.6. Material 6 – Pipe Trench Backfill

Material 6 – Pipe Trench Backfill was initially included in the design as backfill over the underdrain header pipe trench. This material was replaced with Material 5 and, therefore, was not produced.

5.1.2.7. Material 7– Compacted Rockfill

Material 7 – Rockfill was used in the construction of the Confining Embankment below elevation 918.25m and the Event Pond embankments. Rockfill was blasted, excavated, and hauled directly from the borrow sources. No further processing was performed.

Material Criteria

Specifications for Material 7 included a maximum particle size of 300 mm and more than 30% particles larger than 19 mm.

Minor Modifications to Material Criteria

Gradation criteria for Material 7 were modified after completion of test fills discussed in Field Memorandum CTFM-02. The maximum particle size was increased to 0.75 m.

QA/QC During Production

Visual QC inspections of the quarried and placed material were performed daily by Pelly and Tetra Tech and included in their daily reports. QA observations were also made by BGC and included in the BGC daily reports, when applicable. Laboratory gradation were not required due to the material's maximum particle size.

QA/QC observations reported that the material generally conformed with requirements in the Technical Specifications. On occasions where material appeared gap-graded or contained a high content of softer rock such as phyllite it was temporarily stockpiled and mixed with harder quartzite rock. Compaction control during construction was achieved based on method specifications developed by the test fills (see Section 5.3 and Field Memorandum CTFM-02).

5.1.2.8. Material 8 – Anchor Trench Backfill

Material 3 and finer fraction Material 7 was used as anchor trench backfill and, therefore, Material 8 was not produced.

5.1.2.9. Material 9 – Road Wearing Coarse

Material 9 – Road Wearing Coarse was not used or produced.

5.1.2.10. Material 10 – Rip Rap

Material 10 – Rip Rap was sourced from the Dublin Gulch Borrow. No processing was necessary.

Material Criteria

Maximum particle size should not exceed the maximum lift thickness for this material. No material smaller than No. 200 sieve size should be present as determined by visual inspection.

Modifications to Material Criteria

No modifications were made to the material criteria.

QA/QC During Production

BGC's field engineer performed visual inspection of the Rip Rap material to confirm its suitability. These inspections are included in the BGC daily reports.

5.2. Underdrain System

5.2.1. Construction Criteria

Typical underdrain construction consisted of the following components:

- Perforated, corrugated, N-12 polyurethane (PE) piping with bell style joints secured with wire ties. Lateral drains and the Event Pond underdrains were designed and installed with these drain pipes. Finger drains installed to collect and convey groundwater seepage

during construction were either constructed with these corrugated pipes or as a gravel "French" drain, as determined by BGC in the field.

- Material 5 – Select Drain Fill was used as granular drain rock medium. No compaction was required for placement.
- Material 2 – Select Fill was used as cover over the underdrain Select Drain Fill and geotextile to provide a separation between upper fills or a cushion below the liner system.
- 12 oz non-woven geotextile was used between the Select Drain Fill and the natural ground and/or backfill material.
- Solid walled HDPE SDR 17 pipe was used from Station 0+000 to 0+158 m and solid walled HDPE SDR 11 was used from the Station 0+158 to 0+790 m. Solid walled pipe was joined using a butt fusing or electrofusion method.

5.2.2. QA/QC Requirements and Observations

BGC provided visual inspection and approval for the majority of the underdrain construction. This included verification that the specified geotextile, drain pipes, and aggregate were used and that the drainage network was properly spaced to capture visible seeps and to meet the requirements of the design. Construction for portions of the Lateral Drains and the Event Pond underdrains were performed when BGC was not on-site. These construction activities were reported by Pelly in their daily reports between December 17, 2018 and March 2, 2019. Underdrains construction performed when BGC was not on-site was reported by Pelly and JDS as being constructed in accordance to the design and Technical Specifications.

5.2.2.1. Fill Materials

Material 2 – Select Fill and Material 5 – Select Drain Fill were used in the construction of the underdrains. No compaction was required for the placement of Material 5.

A test fill was performed on June 30, 2018 to determine the best compaction method and to replace the QC testing requirements for Material 2. The results from the test fill are discussed in Field Memorandum CTFM-01. A Standard Proctor test was also performed on the Material 2 to determine the optimum moisture and density. Additionally, in-situ field moisture and density measurements were taken during the test fill using a nuclear density gauge. The results of the test fill indicated that >9% maximum dry Proctor density was achieved at >6% moisture and a minimum of 3 passes with 6,000 kg vibratory compactor. This method was used and tracked for placement of Material 2 throughout the construction of the HLF and replaced the field density testing requirements.

Four field density readings were also collected in the central underdrain pipe trench as verification of method developed to compact Material 2. Results from the testing all reported >99% compaction.

5.2.2.2. Solid Walled HDPE Pipe Installation QC Testing

All solid-walled HDPE pipe used in the underdrain header pipe trench, including the HLF closure pipe, was joined by butt-fusing per ASTM F2620 or electro-welding per ASTM F1055.

Electrofusion was not used for the closure pipe which was required to undergo pressure testing. All other underdrain header pipes will have gravity flow conditions and are not designed for pressure flow. All welding QC was performed and documented by Pelly. This included destruction of some welds to perform visual inspection. All welding documentation and testing performed by Pelly is included in Appendix 4.

A pressure test was performed on the HDPE closure pipe. The pipe was visually inspected by BGC during the test and no leaks or significant changes in pressure were observed during the testing. The leak testing was discussed in the Field Memorandum FM-04 HDPE Pipe Leak Test delivered to JDS on June 21.

5.2.2.3. Underdrain Construction Approvals and Tracking

All underdrain construction was reviewed and approved by BGC. Records of this approval were maintained by Pelly and are included in Appendix 5. As-built survey electronic data is available through JDS.

5.2.3. Construction Completed

Underdrain construction began in May 2018 and advanced to March 2019. Underdrain construction was typically completed after subgrade or foundation preparation for any given area of the HLF. As construction progressed the underdrain system was expanded to include additional fingers in response to observed seepage. Construction was typically performed by Pelly using Link Belt and CAT excavators, Volvo articulated trucks as well as a CAT D10 dozer when cutting the header drain trench. As-built drawings for the Underdrain system constructed at the HLF are included in Appendix 9.

5.2.3.1. HLF Underdrain Header Pipe Trench and Finger Drains

The HLF Underdrain Header Pipe Trench was constructed below the Phase 1A Pad area starting at elevation 990 m and ending downstream of the embankment toe at the Monitoring Vault. Twenty-one finger drains were extended from the HLF Underdrain Header Pipe Trench between Station 0+0.000m to 0+475 to capture seepage observed during construction. Finger drains typically consisted of an excavated trench lined with 12-oz non-woven geotextile and filled with Material 5 – Select Drain Fill. All finger drains sloped towards and were connected to the header drain trench.

5.2.3.2. Artesian Source Drain

In 2017 an artesian groundwater source was identified in the HLF Confining Embankment footprint. It was reported to BGC that the source was the result of an exploratory drill hole completed in 2015. In 2018 Pelly's drilling subcontractor, Midnight Sun, attempted to plug the boring. The attempt consisted of drilling several holes at and around artesian spring and filling the borings with grout. The attempts were unsuccessful. BGC designed a piped finger drain to direct

water from the artesian spring to the underdrain header pipes. The design of the finger drain was discussed in the Field Memorandum FM-06.

5.2.3.3. Embankment East Underdrain

A separate underdrain was installed on the east side of the embankment to capture seepage observed during construction. The drain was constructed per the typical underdrain design and included a corrugated, perforated pipe. This drain does not connect to the main HLF underdrain system and terminates downstream of the embankment toe. The discharge for this drain initially measured 0.25 L/min during construction. As of March 30, 2019, no discharge has been observed from this underdrain.

5.2.3.4. Lateral Drain Construction

Ten lateral drains extend from the HLF Underdrain Header Pipe Trench above Elevation 940 m and extend throughout the remaining footprint of the HLF Phase 1A Pad. Piping from the underdrains is connected to the HLF underdrain header pipes.

5.2.3.5. Monitoring Vault Connection

The connection between the underdrain system and monitoring vault was completed on June 25, 2019 by JDS. The underdrain transition to the monitoring vault connection consists of a lined containment berm with gravel fill. The underdrain HDPE header pipes are booted through the liner at the berm and are insulated and heat traced between the berm and the vault. Water collecting just upstream of the containment berm in the drain rock placed around the underdrain headers flows into a perforated pipe which runs into the monitoring vault in a separate solid HDPE pipe. All of the header pipes also discharge into the monitoring vault where they can be sampled and tested. From the monitoring vault all streams are either routed to a tank and pumping system which sends the water to the Event Pond or ADR, or they are discharged through one HDPE drain line that exits at Dublin Gulch. The outfall was covered with coarse rock for protection.

5.2.3.6. Event Pond Underdrain System Construction

An underdrain loop was installed along the bottom perimeter of the Event Pond. Finger drains running along the north slope of the Event Pond excavation were installed to capture seepage observed during construction. These finger drains connect to the underdrain loop. The Event Pond Underdrain discharges uphill from the Dublin Gulch access road via a solid walled 150-mm HDPE pipe buried under the Event Pond south berms.

5.2.3.7. In-heap Pond Spillway Underdrain Construction

Seepage observed during construction of the In-heap Pond Spillway was collected in an underdrain installed running parallel to the spillway between the channel and the cut slope to the north. The drain discharges west of the Event Pond and spillway.

5.2.4. Approved Minor Modifications, Rationale and Clarifications to the Design

The following minor modifications approved by the Engineer of Record were made to the design during construction activities.

- At JDS's request BGC modified the design of the Event Pond underdrain discharge pipe. The modifications eliminated the non-woven geotextile and allowed for either a 150-mm or a 200-mm HDPE pipe. These modifications are discussed in BGC-RFI-014 and BGC-RFI-017.
- At JDS's request the closure drain pipe was modified from 300-mm SDR 9 HDPE to 150-mm SDR 11 HDPE. This was discussed in CC204-RFI-007.
- Electrofusion welding was approved for use on the underdrain head and closure pipes. This was discussed in CC204-RFI-008. Pelly used both electrofusion and standard butt-welding techniques in construction of the underdrain header pipes.
- Horizontal seams were allowed for the 12-oz geotextile used in underdrain construction. No horizontal seems were allowed within 2 m of the Confining Embankment toe. This was discussed in CC204-RFI-10.
- The use of split couplings was approved for use in the underdrains. This is discussed in CC204-RFI-015. However, during 2018 construction no split couplers were used. Corrugated drain pipes were connected using bell joints and bailing wire, per the Technical Specifications.
- Finger drains were built in response to groundwater seeps observed from the Confining Embankment and In-Heap Pond subgrade. Final finger drain locations and designs were developed by BGC's field personnel. Finger drains typically consisted of a trench excavated to depths between 0.5 m and 1.5 m into the subgrade, wrapped with 12-oz geotextile, filled with a 0.3-m to 1-m thick layer of Material 5 – Select Drain Fill, sloped towards and connected to the underdrain header trench. The requirements for finger drains are discussed in CC204-RFI-036 and CC204-RFI-037. Technical memorandum FM-03 Seeps and Finger Drains was also delivered to JDS on June 13, 2018 and discusses finger drain criteria.
- The portion of the HLF underdrain from Station 0+000 to 0+020 was modified to accommodate field conditions encountered. Specifically, there was a steep dip in bedrock that did not allow this portion to be founded on Type 3 bedrock and an accumulation of runoff that saturated the subgrade, requiring the saturated portions of the subgrade to be removed. This area was over-excavated and backfilled with zoned material ranging from Material 7 -Rip Rap to Material 3 – Structural Fill to stabilize the subgrade. The header drain between Stations 0+000 and 0+020 was completed over this stabilized area. These revisions are discussed in CC204-RFI-017.
- Modifications to the connection between the HLF underdrains and the Monitoring Vault were completed on April 20, 2019. The modifications included a lined berm and perforated pipe to allow water from the underdrain gravel to collect and drain into the monitoring vault through a perforated pipe. These minor modifications are detailed in BGC-RFI-036 and are reflected in revised IFC drawing XD-05-06.

- Event Pond Underdrain Discharge Winterization: Winterization was added to the Event Pond discharge and over the western portion of the Event Pond ring drain. These modifications are discussed in BGC-RFI-033.
- Spillway Underdrain: An underdrain was added directly north of the In-Heap Pond Spillway. The drain was added to deal with seepage into the spillway excavation from the slope directly north. This modification was discussed in CC204-RFI-048.
- Field fitting was needed to accommodate subsurface conditions encountered during construction. None of the field fitting performed affected the design intent of the underdrains. Examples of field fitting not represented in the RFIs included re-aligning the header drain trench approximately 4 m to the west to ensure it was in the valley low point, and modifications were made to the length and width of finger drains.
- Addition of finger drains from the 990-m bench to the lateral drain on the west side of the Phase 1A Heap Pad was added. This addition was discussed in BGC-RFI-034.

5.3. Confining Embankment

5.3.1. Construction Criteria

The HLF confining embankment and Phase 1A heap Pad consisted of the following components:

- The confining embankment foundation required removal of loose soils, highly weathered rock, and organic material. Foundation within the footprint of the confining embankment was to be excavated to Type 3 bedrock or better. Type 3 bedrock is defined in the Technical Specifications as weathered rock that has a confined compressive strength of between 1 MPa and 5 MPa. Type 3 bedrock would require a moderate effort to excavate with a heavy excavator.
- An earthfill/rockfill confining embankment constructed of Material 3 – Structural Fill and Material 7 – Compacted Rockfill. Material placement requirements included:
    - Material 3 – Structural Fill: Compaction criteria were developed based on test fills discussed in field memorandums CTFM-03 and CTFM-04. Final compaction requirements were a minimum 3 pass cycles (each consisting of one forward and one backward pass) using a 9,000 kg or 2 pass cycles using a 13,000 kg vibratory compactor in lifts up to 0.5m thick, a moisture content between 3% and 8%. QC requirements included meeting 95% of the measured proctor result of 2,270 kg/m^3.
    - Material 7 – Rockfill: Compaction criteria were developed based on test fills discussed in field memoranda CTFM-02 and CTFM-05. Final compaction requirements were a minimum of 4 pass cycles of a minimum 9,000 kg vibratory compactor in lifts up to 0.9 m thick.
    - Fill lifts were required to be kept free of excess snow and moisture.

5.3.2. QA/QC Requirements

5.3.2.1. Foundation Inspections and Approvals

BGC provided visual inspection and approval for all foundations within the footprint of the embankment. BGC also provided QA review of the QC data collected by Tetra Tech and

approvals of each lift during construction of the embankment. Approvals were tracked by Pelly and are included in Appendix 5.

Type 3 bedrock foundation approvals were provided by BGC within the footprint of the embankment. These foundation approvals consisted of surveying the bounds of the approved area, visually inspecting the cleared foundation, using a rock hammer to determine hardness, taking photos of the approved areas, and creating a photographic log of the approved areas.

5.3.2.2. Material 3 – Structural Fill and Material 7 – Rockfill.

Both Material 3 – Structural Fill and Material 7 – Rockfill were approved for use in construction of the confining embankment. Testing frequencies for these materials were not provided in the Technical Specifications and instead test fills were developed to provide a method specification for use of the materials. The methods for placing and compacting Materials 3 and 7 are discussed in memorandums CTFM-02, CTFM-03, CTFM-04, and CTFM-05. The memoranda provide the requirement for moisture conditioning and compaction efforts for use of these materials. Additionally, protocols and limitations for placing material in extreme cold were developed in Field Memorandum FM-08 to accommodate fill placement in the winter months. These memorandums are included in Appendix 3. Material 7 – Rockfill was used in construction of the confining embankment below elevation 918.25m and Material 3 – Structural Fill was used from elevation 918.25m to the crest (940m).

Laboratory testing for grain size analysis and moisture/density relationship was not required or practical for Materials 3 and 7 due to the large fraction material present. However, Tetra Tech provided the following field information on a daily basis:

- Visual confirmation that the material gradation and moisture met the requirements set forth in the applicable test fill.
- Visual confirmation and tracking that the compaction requirements set forth in the applicable test fill were being performed by the Tetra Tech.
- Daily field density and moisture readings from placed and compacted lifts using a nuclear density gauge. Larger fraction material can create inaccurate density and moisture results with a nuclear density gauge and, therefore, this testing was performed as field screening tool. The target density was >95% of the reference density determined during the Material 3 and Material 7 test fills (CTFM-02 through CTFM-05). If a density measurement was below 95% the reference density this area was recompacted and tested again until density was achieved. In-situ density results are included in Appendix 4.

5.3.3. Construction Completed

Construction of the HLF Embankment (from foundation preparation to fill completion) began in March 2017 and was completed in October 2018. Construction consisted of excavation and removal of unsuitable foundation material and placement and compaction of embankment fill.

5.3.3.1. Foundation Preparation

The embankment foundation was prepared by excavating to Type 3 bedrock. Pelly used a combination of D10 dozers, CAT and Hitachi excavators, and articulated haul trucks to accomplish this. As-built drawings for the Confining Embankment are included in Appendix 9. Digital as-built survey information is available through JDS.

5.3.3.2. Confining Embankment Fill

Placement Confining Embankment fill began in April 2018 and advanced to October 2018. The embankment was completed to a crest elevation of 940 m. Construction was performed in lifts ranging from 0.3 m to 0.9 m depending on the construction fill, equipment, and method used. Construction was performed by Pelly using Link Belt and CAT excavators and CAT D10 dozers for foundation preparation; Volvo articulated trucks and CAT 777 haul trucks were used to deliver and haul away material; CAT D10 dozers were used to spread material; and Volvo SD100F, CAT CS68D, CAT CS58D, or a loaded CAT 777 haul truck were used for compaction depending on the weight requirements for a specific lift. As-built drawings of the final embankment are included in Appendix 9.

Four borings were completed in the embankment crest for instrumentation. Standpipe piezometers were installed in three of the borings (VWP-01, VWP-02, and VWP-03). Vibrating wire piezometers are planned to be installed in the standpipes. As of BGC's demobilization on June 30 the vibrating wire piezometers had not been installed. An inclinometer instrument casing was installed in the fourth boring.

5.3.4. Minor Modifiations and Clarifications to the Design

The following minor modifications were made to the Confining Embankment design during the 2018 construction activities:

- BGC developed modifications to the alignment of the very eastern portion of the dam at the request of JDS. The dam crest alignment was shifted slightly north near the left abutment to allow a permanent access road to be maintained from Dublin Gulch to the dam crest and Lime Silo area. This change was discussed in BGC-RFI-010.
- BGC provided a re-alignment of the west HLF perimeter road to allow for a larger safety setback from the ADR plant cut which was excavated steeper than originally planned west of the HLF Pad. This revision was included in BGC-RFI-011.
- Central portion of the embankment crest was widened at JDS's request to accommodate construction equipment needed for LDRS and PLS piping installation. This change was discussed in BGC-RFI-012.
- The use of Material 7 – Rockfill was approved for embankment construction. This material replaced Material 3 in some embankment lifts. The zones of Material 3 and Material 7 were discussed in CC204-RFI-022 and EPCM-RFI-040. Construction criteria for Material 7 were developed based on the results of test fills done on the material. The test fills and criteria are discussed in technical memorandums CTFM-02 and CTFM-05.

- The connection between the subgrade and embankment at the toe and groins was redesigned to accommodate the field conditions, specifically the lack of Type 3 bedrock at the western toe of the embankment. This was discussed in EPCM-RFI-012.
- Minor modifications to the location of the vibrating wire piezometers were realized to accommodate field construction activities. One additional vibrating wire piezometer was added to the design to monitor pore pressures within the eastern portion of the embankment.

5.4. In-Heap Pond

5.4.1. Construction Criteria

Construction of the in-heap pond area consisted of preparing the subgrade, constructing the lined closure sump, constructing the lined LDRS sump, constructing the lined PLS sump, and installing the PLS recovery piping and ODF layer. Discussion of the liner installation is included in Section 5.10. The criteria for the remaining portions of the In-Heap Pond are included below.

- The In-Heap Pond was shaped to meet the volume and piping installation requirements of the HLF and sloping requirements for liner installation.
- The In-Heap Pond foundation was excavated down to Type 3 bedrock and included removal of all organic, ice rich, and soft or yielding soils. Areas were delineated for removal and backfilled with Material 3 or Material 7.
- In preparation for liner placement the liner subgrade was made smooth and free of jagged rocky surfaces. Where needed Material 2 – Site Grading Fill was used to create a smooth surface.
- The Closure Sump construction included the lined sump with a booted 150-mm HDPE SDR 11 closure drain pipe. The closure drain pipe criteria was to withstand a minimum of 100 psi of pressure, which was confirmed by testing. Both butt-fusion and electro-fusion was approved for joining the sections of the closure pipe. The closure sump was filled with ODF material and covered and sealed with the bottom layer of the LDRS liner.
- The LDRS sump was sealed with 60-mil (1.5-mm) LLDPE and 80-mil (2.0-mm) LLDPE liners. The leak detection layer of the liner system drained into the LDRS sump. The LDRS sump was filled with ODF material. A grid of corrugated, perforated 250-mm N-12 pipes were constructed to collect and direct seepage towards the LDRS pump casings. The LDRS pump casings consisted of steel 600-mm pipes which ended in a perforated hammer head configuration. The LDRS pump casings were designed by Hatch Ltd.
- The PLS sump was constructed above the LDRS sump. The PLS sump was filled with ODF material to elevation 917 m. A grid of corrugated, perforated, 450-mm N-12 PE pipe was constructed in the sump at elevation 915.6m. The 450mm solid walled SDR 11 HDPE PLS header pipes drained into this grid.
- A herring bone configuration of 100-mm and 250-mm corrugated, perforated N-12 PE collector pipes was placed within the In-Heap Pond starting at elevation 917 m.

5.4.2. QA/QC Requirements

The following quality control tracking was performed during construction of the in-heap pond area.

- BGC performed daily inspections of the subgrade for general conformance with the requirements of the technical specifications. Subgrade suitability was assessed by observing deflection during subgrade compaction with either a six-ton or nine-ton vibratory compactor. Subgrade approvals are included in Appendix 5.
- In isolated areas where Material 3 and Material 7 fill was used to achieve design grade and where Material 2 was used as bedding, placement and compaction was monitored by and documented by Pelly and/or Tetra Tech as required in Field Memorandums CTFM-01 through CTFM-05. These inspections were documented in Pelly and Tetra Tech's daily reports.
- BGC performed daily inspections of piping materials used, placement, spacing, and connections. Approvals for piping placement are included in Appendix 5.
- QA of liner placement within the In-Heap Pond was performed by Tetra Tech. Tetra Tech performed QA testing per the project technical specifications and reviewed all QC testing performed by Layfield. A Tetra Tech technician was present during all liner work. Tetra Tech provided daily reports that included test results, observations, and recommendations. Tetra Tech's Liner QA daily reports are included in Appendix 7. Issues reported by Tetra Tech in 2018 were addressed by Layfield. These included instances where weld tests failed or areas needed rewelding or patching. Liner QA is discussed in Section 5.10.

5.4.3. Construction Completed

The following In-Heap pond components were completed:

- Preparation of the subgrade for liner placement. This included excavation of finger drains, where needed, excavation to approved grade and shape, and placement of Material 2 – Bedding Sand where needed.
- Placement of the liner system along the In-Heap Pond and upstream embankment face. Liner installation is discussed in Section 5.10.
- Construction of the Closure Sump was completed by Pelly.
- Construction of the LDRS sump. Pelly completed the installation of all corrugated PE pipes and the placement of ODF. Layfield completed the liner system installation. The steel piping portions of the LDRS sump were completed by Heavy North.
- Construction of the PLS sump. Pelly completed the installation of all corrugated PE pipes and the placement of ODF. Layfield completed the liner system installation. Steel piping in PLS sump was completed by Heavy North and Priority Steel.
- Leak testing of the In-Heap Pond liner system was conducted on April 27, 2019. Holes in the liner system were identified and repaired during the leak test. The testing and repairs are discussed and documented in Field Memorandum FM-13. Liner QA is discussed in Section 5.10.
- Installation of a vibrating wire piezometer in the LDRS Sump instrument casing by Tetra Tech in July 2019.

Final Record Drawings for the In-Heap pond are being prepared by Pelly and JDS and were not available for this report.

5.4.4. Minor Modifications and Clarifications to the Design

The following minor modifications were made to the In-Heap Pond design during the 2018 construction activities.

- Modifications to the configuration of the LDRS and PLS pump casings were presented in BGC-RFI-028.
- The use of an off-the-shelf split coupler on the 100-mm and 250-mm collector pipes was reviewed and approved in CC204-RFI-031.
- A clarification to drawings EGHLF-XD-05-05 was issued in BGC-RFI-015. The clarification provided for one closure drain pipe outlet form the closure sump.
- The use of flanges to connect the corrugated, perforated PLS sump piping to the primary PLS drain pipes was allowed with the assumption that a minimum of 0.5 m of ODF be placed between the flange and the liner. This was discussed in CC204-RFI-045.
- The use of MarMac brand couplers to reinforce the coupler joints from corrugated header collector pipes to the solid-walled header pipes was approved with stipulations on how the coupler is affixed to the pipes. This is discussed in CC204-RFI-046.
- BGC approved the use of prefabricated 450-mm HDPE SDR 11 to 250-mm HDPE SDR 11 for the connection between the header pipes and the collector pipes. This replaced the 450-mm to 300-mm to 250-mm reducer in the IFC drawings. This is discussed in CC204-RFI-046.
- BGC approved the use of a pup-piece between the PLS manifold and the PLS pump header pipes. This is discussed in CC206-RFI-017

5.5. Phase 1A Heap Pad

5.5.1. Construction Criteria

The Phase 1A Heap Pad consisted of the lined area of the HLF between elevations 940 m and 990 m. It included perimeter berms along the eastern and western edges of the Phase 1A Heap Pad. Construction criteria included:

- The In-Heap Pond was shaped to meet the sloping requirements for liner installation.
- As with the In-Heap Pond, the Phase 1A Heap Pad subgrade foundation was excavated down to Type 3 bedrock and included removal of all organic, ice rich, and soft or yielding soils. Areas were delineated for removal and backfilled with Material 3 or Material 7. Subgrade was inspected by BGC and approved prior to liner installation. Subgrade approvals are included in Appendix 5.
- In isolated areas Material 3 and Material 7 fill was used to achieve design grade.
- In isolated areas Material 2 was used as liner bedding.
- A herring bone configuration of 100-mm and 250-mm corrugated, perforated N-12 PE collector pipes were included above the liner system in the Phase 1A Heap Pad area.

- Perimeter berms were required on the west and east side of the Phase 1A Heap Pad area. These structures were constructed with Material 3 – Structural fill or Material 7 – Rockfill.
- Requirements for placement of ODF within the Phase 1A Heap Pad and In-Heap Pond were developed during a test fill conducted on August 18 and 19, 2019. The recommendations from this test fill include placing 2 layers of geotextile between the geomembrane layers and the ODF. ODF thickness recommended was a minimum of 1.5 m thick in areas of heavy traffic and where traffic crosses pipework. In all other areas a minimum of 0.6 m was and still s recommended. It is also still recommended that haul truck speeds, braking, and turning must be done at slow speeds and controlled to prevent damage to the liner. The test fill is discussed in Field Memorandum FM-07 included in Appendix 3.

5.5.2. QA/QC Requirements

- BGC performed daily inspections of the subgrade for general conformance with the requirements of the technical specifications. Subgrade suitability was assessed by observing deflection during subgrade compaction with either a six-ton or nine-ton vibratory compactor. Subgrade approvals are included in Appendix 5.
- In isolated areas where Material 3 and Material 7 fill was used to achieve design grade and where Material 2 was used as bedding, placement and compaction was monitored by and documented by Pelly and/or Tetra Tech as required in Field Memorandums CTFM-01 through CTFM-05. These inspections were documented in Pelly and Tetra Tech's daily reports.
- Pelly provided spotters as QC during ODF placement to ensure that lift thickness and haul truck traffic were meeting the construction criteria. ODF placement was documented in Pelly's daily reports. Additionally, Pelly collected survey data to ensure that the minimum ODF cover over the liner was being met. BGC provided QA inspection of the construction activities daily and included any issues in the BGC daily reports.
- QA of liner placement was performed by Tetra Tech reporting to BGC. Tetra Tech performed QA testing per the project technical specifications and reviewed all QC testing performed by Layfield. A Tetra Tech technician was present during all liner work. Tetra Tech provided daily reports that included test results, observations, and recommendations. Tetra Tech's Liner QA daily reports are included in Appendix 7. Any issues reported by Tatra Tech in 2018 were addressed by Layfield. This included instances where weld tests failed or areas needed rewelding or patching.

5.5.3. Construction Completed

The following Phase 1A Heap Pad components were completed:

- Preparation of the subgrade for liner placement. This included excavation of finger drains, where needed, excavation to approved grade and shape, and placement of Material 2 – Select Fill (bedding sand) where needed.
- Placement of the liner system along the Phase 1A Heap Pad. Liner installation is discussed in Section 10.

The following components of the Phase 1A Heap Pad had not been completed when BGC demobilized from the site on June 30, 2019:

- ODF production and placement was only completed in the in-heap pond area and was pending above Elevation 918 m on the Phase 1A Pad.
- Installation of the Pad cell piezometers per Drawing XD-09-02 was not completed.

It is BGC's understanding that after June 30, 2019, SGC will produce and place ODF and will provide QC for this work. SGC will also provide confirmation and acceptance that the material produced meets the requirements of the Technical Specifications and that placement meets the design requirements and is performed in a manner that protects the HLF liner system. BGC has provided recommendations of a minimum amount of ODF cover over the exposed Phase 1A liner before winter months. This includes ODF cover of the center of Ann Gulch Valley and cover up to elevation 960 m. This cover was not completed prior to BGC's demobilization.

5.5.4. Minor Modifications and Clarifications to the Design

The following minor modifications were made to the design during the construction activities:

- BGC provided a re-alignment of the west HLF perimeter road to allow for a larger safety setback from the ADR plant cut which was excavated steeper than originally planned west of the HLF Pad. This revision was included in BGC-RFI-011 and is reflected in the revised IFC drawings (Appendix 9).

5.6. Interceptor Ditch

5.6.1. Construction Criteria

The Interceptor Ditch was constructed at elevation 1050 m between the proposed locations for the Phase 1B and Phase 2 Heap Pads. The purpose of the Interceptor Ditch is to safely collect and convey surface water run-off from above elevation 1050 m and divert flows above the Phase 1 Pad before the construction of Phase 2 is completed. General criteria for the Interceptor Ditch include:

- The ditch was sized to convey flows from the 100-yr 24-hr storm. The ditch is graded towards the west of the HLF into the environment west of the Heap pads. The outfall and discharge from the ditch were designed by others and are not included in this report.
- The Interceptor Ditch was designed with a minimum 1% slope from east to west.
- The Interceptor Ditch was lined with one layer of 12-oz non-woven geotextile then a 300-mm layer of riprap with D_{50}=150 mm.
- A 5-m wide access road was designed for the south (downhill) side of the Interceptor Ditch.

5.6.2. QA/QC Requirements and Observations

BGC was not present during the construction of the Interceptor Ditch. QC reporting for placement of the geotextile and riprap was provided by Pelly in their daily reports. QA for the riprap included visual inspection by BGC prior to its placement in the ditch.

5.6.3. Construction Completed

The Interceptor Ditch was constructed in early 2019.

5.6.4. Minor Modifications and Clarifications to the Design

A minor modification was made to the alignment of the interceptor ditch to optimize the cut and fill balance.

5.7. In-Heap Pond Spillway

5.7.1. Construction Criteria

The spillway design was revised in 2019 prior to construction. These changes and the related hydraulic calculations are disused in Field Memorandum FM-017 included in Appendix 3.

The spillway invert design, channel sizing, and channel alignment were revised on March 27, 2019 to account for an invert elevation of 937.5 m and the replacement of Fabri-Form concrete filled channel lining with Concrete Canvas brand concrete cloth liner. The primary reason for the material change was the lack of a concrete batch plant on-site at the time of installation. Five dual-walled 1200-mm, corrugated HDPE culverts were included to direct flow from the pond into the spillway. As with the previous iteration of the design the culverts were booted to the liner system and liner was extended from the top of the culverts to the crest elevation of 940 m.

The spillway liner system was revised to concrete cloth for the entire spillway. Spillway capacity criteria remain unchanged. Hydraulic calculations for the spillway are provided in FM-017 and revised IFC drawings relevant to the spillway are provided in Appendix 8.

Foundation requirements remained unchanged and the spillway was built on sections of bedrock or dense colluvium.

5.7.2. QA/QC Requirements

Subgrade preparation followed the requirements outlined in the design and Technical Specifications. Loose material was removed and the surface was excavated to dense colluvium or bedrock with Material 2 – Select Fill placed over the graded channel to provide a suitable subgrade and cushion for the Concrete Canvas revetment. QA inspection of the subgrade was performed by BGC and documented in the subgrade approval forms included in Appendix 5.

Representative samples of the concrete cloth were collected by Titan Environmental and sent to Concrete Canvas for destructive testing. The results from this testing are included in Appendix 4.

5.7.3. Construction Completed

The spillway excavation was completed by Pelly. The installation of the HDPE culverts was completed by Ewing on April 3, 2019. Titan Environmental completed the installation of the concrete cloth at the In-Heap Pond Spillway on May 18, 2019.

5.7.4. Minor Modifications and Clarifications to the Design

The following minor modifications were made to the design during construction as discussed in Field Memorandum FM-17.

- The alignment of the In-Heap Pond spillway was revised to optimize cut and fill once subsurface conditions were apparent.
- The use of Concrete Canvas (concrete impregnated liner cloth) was approved for use in the In-Heap Pond spillway.
- At JDS's request, the configuration of the spillway invert culverts were re-evaluated. The original design included concrete box culverts which were replaced with HDPE, corrugated 1200-mm culverts. No changes were made to the spillway capacity criteria.

Additionally, an underdrain was added adjacent to the north side of the spillway to collect seepage observed during construction that could affect the concrete cloth installation. The addition of the underdrain is discussed in CC204-RFI-048 included in Appendix 2.

5.8. Event Pond and Emergency Spillway

5.8.1. Construction Criteria

The Event Pond Emergency Spillway design was revised in 2019 prior to construction. As with the In-Heap Pond Spillway, these changes and the related hydraulic calculations are disused in Field Memorandum FM-017 included in Appendix 3.

The spillway channel sizing, channel alignment, and outlet were revised to account for the replacement of Fabri-Form concrete filled channel lining with Concrete Canvas brand concrete cloth liner. Hydraulic calculations for the spillway are provided in FM-017 and revised IFC drawings relevant to the spillway are provided in Appendix 8.

Foundation requirements remained unchanged and the spillway was built on sections of bedrock or dense colluvium.

5.8.2. QA/QC Requirements

Subgrade inspections and approvals were completed by BGC. The foundation was inspected by BGC to confirm that dense subgrade was achieved.

Representative samples of the concrete cloth were collected by Titan Environmental and sent to Concrete Canvas for destructive testing. The results from this testing are included in Appendix 4.

5.8.2.1. Material 7 – Rockfill.

Material 7 – Rockfill was approved for use in construction of the Event Pond berms. Testing frequencies for these materials were not provided in the Technical Specifications and instead test fills were developed to provide a method specification for use of the materials. The methods for placing and compacting Material 7 are discussed in memorandums CTFM-02 and CTFM-05. The memoranda provide the requirement for moisture conditioning and compaction efforts for use of

these materials. Additionally, protocols and limitations for placing material in extreme cold were developed in Field Memorandum FM-08 to accommodate fill placement in the winter months. These memorandums are included in Appendix 3

Laboratory testing for grain size analysis and moisture/density relationship was not required or practical for Material 7 due to the large fraction material present. However, Tetra Tech provided the following field information on a daily basis:

- Visual confirmation that the material gradation and moisture met the requirements set forth in the applicable test fill.
- Visual confirmation and tracking that the compaction requirements set forth in the applicable test fill were being performed by the Tetra Tech.

5.8.3. Construction Completed

The spillway excavation was completed by Pelly. Titan Environmental completed the installation of the concrete cloth at the Emergency Spillway on May 25, 2019.

5.8.4. Minor Modifications and Clarifications to the Design

The following minor modifications were made to the design during the construction activities.

- The use of Concrete Canvas brand, concrete impregnated liner cloth, was approved for use in the in-heap pond spillway.

5.9. Investigations Completed

Test pits were excavated to identify and delineate the areas of the subgrade with ice rich or frost-susceptible soils as required in the Foundation Improvement Plan. Ice rich and frost susceptible soils were identified and removed from within the Phase 1A Heap Pad area. These areas were confined to the central Ann Gulch drainage. The areas identified as having ice rich or frost susceptible soils were delineated by Pelly's survey crew and excavated by Pelly.

5.10. Liner System

QC for installation of the liner system was performed by Layfield. QA was performed by Tetra Tech. Installation of the In-Heap Pond and Event Pond liner system are summarized in Tetra Tech's QA report included in Appendix 7. The following primary changes to the design criteria were made:

- Conductive backed liner (to allow electrical leak survey) was not used. JDS asked to use normal liner due to the lack of available supply of conductive backed liner for the project. The leak testing was changed to hydro-testing for the In-Heap Pond and Event Pond. This is discussed in EPCM-RFI-022.
- Seaming liner at temperatures below 0°C was allowed if Layfield could show through prequalifying test that seams comply with project specifications. Minus 10°C is the lowest temperatures that geomembrane is allowed to be unrolled. These changes are discussed in BGC-RFI-016.

- BGC reviewed and approved the liner to pipe boot installation method proposed by Layfield. This is discussed in CC204-RFI-013.

Other variations to the design are discussed in Section 3.10 of Appendix 7.

6.0 RECORD DRAWINGS

Record drawings are included in Appendix 9 and are based on as-built survey data provided by JDS. Electronic files of the record drawings are available upon request from BGC and files of raw survey data are available through JDS.

Survey control for all earthworks was performed by Pelly's geomatics contractor, Eshemuta. Pelly completed record drawings for all major earthworks, including the following:

- Confining Embankment foundation preparation
- HLF subgrade preparation below elevation 940 m
- HLF subgrade preparation above elevation 940 m
- HLF underdrain system below 940 m
- HLF underdrain system above 940 m
- HLF ODF placement below 928 m
- In Heap Pond Spillway construction
- In-Heap Pond Construction and Emergency Spillway
- PLS piping layout below 940 m
- PLS piping layout above 940 m

Survey control for all work performed by Heavy North and Layfield was performed by JDS via their subcontractor Underhill. Record drawings provided by JDS or their contractors included:

- Steel LDRS Piping
- Steel PLS Piping
- Liner installation

7.0 REQUESTS FOR INFORMATION AND RESPONSES

A list of RFIs responded to and/or created by BGC during the 2018 and 2019 construction is included below. It should be noted that only RFI's developed for and answered by BGC are included.

RFI	From	Date Closed	Description
BGC-RFI-001	BGC	08/02/18	Request for plan to protect construction from surface water erosion.
BGC-RFI-002	BGC	06/01/18	Request for underdrain construction plan.
BGC-RFI-003	BGC	06/27/18	Request for materials management plan.
BGC-RFI-004	BGC	06/18/18	Request for testing of underdrain header pipes and closure pipe.
BGC-RFI-006	BGC	06/26/18	Request for a Phase 2 Water Management Plan
BGC-RFI-007	BGC	Obsolete	Request for a Material 2 reserve plan. RFI became obsolete once the use of Material 2 was no longer needed.
BGC-RFI-008	BGC	07/02/18	Request for embankment construction work plan.
BGC-RFI-009	BGC	Obsolete	Request for an embankment material zoning plan. This RFI became obsolete once BGC provided a material type recommendation.
BGC-RFI-010	BGC	NA	BGC provided a redesign of the embankment east crest and access road. This redesign was provided at the request of JDS. BGC provided the response as an RFI requesting acknowledgement. JDS verbally acknowledged the design change and directed Pelly to construct it. However, no official response was provided to formally close this RFI.
BGC-RFI-011	BGC	NA	BGC provided a redesign of the embankment west crest and access road. This redesign was provided at the request of JDS. BGC provided the response as an RFI requesting acknowledgement. JDS verbally acknowledged the design change and directed Pelly to construct it. However, no official response was provided to formally close this RFI.

BGC-RFI-012	BGC	NA	BGC provided a redesign of the central portion of the embankment crest to accommodate construction equipment. This redesign was provided at the request of JDS. BGC provided the response as an RFI requesting acknowledgement. JDS verbally acknowledged the design change and directed Pelly to construct it. However, no official response was provided to formally close this RFI.
BGC-RFI-013	BGC	NA	Summary of construction method for installation of the PLS and LDRS piping. This method was developed jointly by BGC, JDS, and Heavy North. The construction method was implemented, however, this RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-014	BGC	NA	Clarification to EGHLF-XD-05-03 (Event Pond Underdrain) at JDS's request. The clarifications were informally acknowledged by JDS. The RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-015	BGC	NA	Clarification to EGHLF-XD-05-05 (Closure Sump Piping) at JDS's request. The clarifications were informally acknowledged by JDS. The RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-016	BGC	NA	Clarification to Section 4.1.7.2 of the Technical Specifications (placement of liner in cold weather) at JDS's request. The clarifications were informally acknowledged by JDS. The RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-017	BGC	NA	Clarification to EGHLF-XD-03-03 (event pond underdrains) at JDS's request. The clarifications were informally acknowledged by JDS. The RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-018	BGC	10/18/18	Clarification to requirements for permafrost removal at the Event Pond at JDS's request.

BGC-RFI-019	BGC	10/18/18	Clarification to EGHLF-XD-05-04 and 05 at JDS's request.
BGC-RFI-020	BGC	10/17/18	BGC request for survey as-built drawings for closure sump steel plate.
BGC-RFI-021	BGC	Obsolete	Request for a water management plan for the Event Pond construction. This RFI was made obsolete by BGC-RFI-022.
BGC-RFI-022	BGC	10/18/18	BGC requested a water management plan for the Event Pond Construction.
BGC-RFI-023	BGC	10/21/18	BGC requested the source for material to be used as fill for construction of the Event Pond.
BGC-RFI-024	BGC	10/21/18	BGC requested a stockpile management plan for the material planned for construction of the Event Pond.
BGC-RFI-025	BGC	10/21/18	BGC requested a winterization plan for the Event Pond construction.
BGC-RFI-026	BGC	NA	ID not used due to RFI mis-numbering.
BGC-RFI-027	BGC	NA	At JDS's request BGC reviewed the suitability of ROM road material and substation ballast as ODF.
BGC-RFI-028	BGC	NA	Summary of a construction method developed by BGC, JDS, and Heavy North to place ODF and install PLS sump piping. The RFI receipt was not formally acknowledged and, therefore, it was not formally closed.
BGC-RFI-029	BGC	01/17/19	BGC requested the final spillway invert elevation required by Victoria Gold in order to finalize the spillway invert re-design.
BGC-RFI-030	BGC	01/29/19	BGC provided recommendations based on gradation and field permeability tests on an ODF produced from a source located within the ADR quarry that was not previously used.
BGC-RFI-031	BGC	02/04/19	Revision to the primary collector pipe spacing and the use of ODF sourced from the 1285-01 bench.
BGC-RFI-032	BGC	01/31/19	Rejection of the use of Coletenche liner for use as liner in the spillways until further information is provided.

BGC-RFI-033	BGC	04/07/19	Designs for winterizing the Event Pond underdrains. Includes winterization that reduced the size of the Event Pond LDRS sump.
BGC-RFI-034	BGC	04/17/19	Addition of a finger drain from the 990-m bench to the lateral drain on the west side of the Phase 1A heap Pad footprint.
BGC-RFI-035	BGC	04/18/19	Approval to use HDPE pipe for the inclined riser pipes at the Event Pond.
BGC-RFI-036	BGC	04/20/19	Design for the header trench transition to the monitoring vault at the HLF Confining Embankment.
CC204-RFI-006	Pelly	05/10/18	The use of blast rock for Material 3 or Material 7 in the Embankment and Event Pond fills.
CC204-RFI-007	Pelly	05/10/18	Clarification of closure drain pipe specifications.
CC204-RFI-008	Pelly	05/23/18	The use of electrofusion for underdrain pipes.
CC204-RFI-009	Pelly	05/17/18	Request for material quantities take-off.
CC204-RFI-010	Pelly	05/15/18	Clarification to horizontal seams in geotextile used in the underdrains.
CC204-RFI-012	Pelly	05/19/18	LDRS piping clarifications.
CC204-RFI-013	Pelly	05/17/18	Review of alternative designs for the liner to piping boots.
CC204-RFI-014	Pelly	05/17/18	Clarification related to the geotextile in the underdrains.
CC204-RFI-015	Pelly	05/25/18	Clarification to the underdrain piping.
CC204-RFI-017	Pelly	05/31/18	Redesign of embankment toe drain.
CC204-RFI-018	Pelly	05/26/18	BGC provided a map of boreholes within the footprint of the HLF.
CC204-RFI-020	Pelly	05/31/18	Clarification to the closure sump.
CC204-RFI-021	Pelly	06/03/18	Clarification to the In-Heap Pond subgrade.
CC204-RFI-022	Pelly	06/16/18	DWG created and provided for material zoning in the embankment.
CC204-RFI-030	Pelly	06/15/18	Clarification to LDRS piping.
CC204-RFI-031	Pelly	06/03/18	Request to review off the shelf alternative to split couplers used on collector pipes.

CC204-RFI-032	Pelly	06/01/18	BGC provided guidance on plugging monitoring wells within the footprint of the HLF.
CC204-RFI-033	Pelly	06/11/18	Clarification to LDRS piping.
CC204-RFI-034	Pelly	06/17/18	Clarification to the closure sump plate and rejection of the bolting plates together.
CC204-RFI-036	Pelly	06/14/18	Clarification on criteria for adding additional finger drains under the embankment.
CC204-RFI-037	Pelly	06/25/18	Clarification and flexibility on unplanned underdrain finger design. Review of construction methods and minor design revisions presented by Pelly.
CC204-RFI-044	Pelly	10/9/18	Clarification on rub sheets.
CC204-RFI-045	Pelly	12/01/18	Review of flanges proposed by Pelly for the PLS piping.
CC204-RFI-046	Pelly	12/07/18	Review of alternative materials proposed by Pelly for use in the collector piping.
CC204-RFI-047	Pelly	03/01/19	Approval to use CAT 745C haul trucks to place ODF.
CC204-RFI-048	Pelly	04/07/19	Finger drain design on the northern slope of the Event Pond.
CC204-RFI-049	Pelly	04/06/19	Approval of a 2:1 slope directly north of the In-Heap Pond Spillway near the spillway outlet.
CC206-RFI-017	Heavy North	12/14/18	Review of solution to improperly fabricated flanges for the PLS piping.
EPCM-RFI-012	JDS	05/11/18	Redesign of how the embankment toe and groin can be keyed in given the absence of bedrock foundation.
EPCM-RFI-022	JDS	07/11/18	Review of changes to the liner system proposed by JDS.
EPCM-RFI-040	JDS	08/01/18	BGC reviewed embankment zoning proposed by JDS and Pelly.

8.0 TECHNICAL MEMORANDUMS

A total of 12 technical memorandums were provided to JDS by BGC in 2018. A list of Technical Memorandums developed in 2018 is included below. Technical Memorandums are included as Appendix 3.

Memorandum	Date Issued	Description
CTFM-01	06/30/18	Material 2 test fill discussion.
CTFM-02		Material 7 test fill discussion.
CTFM-03	08/20/18	Material 3 test fill discussion.
CTFM-04	08/21/18	Material 3 test fill discussion.
CTFM-05		Material 7 test fill discussion. Included use of a loaded 777 haul truck for compaction and compaction during cold weather.
FM-01	9/12/17	Memo requested by JDS providing a description and photos of acceptable Type 3 bedrock foundation for the embankment.
FM-03	06/13/18	Discussion of the need for finger drains beyond the initial design in response to groundwater seeps observed throughout the HLF footprint
FM-04	06/21/18	Pipe leak test results and discussion.
FM-06	7/26/18	Design of the figure drain use to control the artesian groundwater seep.
FM-07	08/19/18	Procedure to conduct a test fill to determine how to use heavy equipment over the liner.
FM-08	10/27/18	Criteria for placement of material during extreme cold temperatures.
FM-09	10/01/18	2018 Instrumentation equipment and materials discussion.
FM-010	12/07/18	Revetment Criteria Memorandum
FM-011	12/14/18	BGC 2018 demobilisation discussion.
FM-012	04/12/19	Observation of Switchback 5 material for use as ODF
FM-013	04/27/19	In-Heap Pond Leak Test
FM-014	05/05/19	Field screening procedures for ODF sources
FM-015	05/02/19	Event Pond Leak Test

FM-016	05/18/19	Summary of the In-Heap and Event Pond leak tests.
FM-017	05/26/19	Revision to the in-heap pond spillway alignment.

9.0 CONSTRUCTION WORK PLANS

The following CWPs related to the Underdrain System Construction were developed by Pelly and reviewed by BGC and JDS.

- CC204 CWP Embankment Underdrain Leak Test: Work plan detailing how leak testing was to be performed and documented on the underdrain header pipes and closure sump pipe.
- CC204 CWP Underdrain Installation Water Management: A work plan detailing measures to control surface water erosion of completed and ongoing drain construction.
- CC204 CWP HLF Embankment Underdrain Installation: A work plan detailing how underdrain construction was to be performed, approved, and documented.
- CC204-CWP HLF Water Management: Work plan detailing water management during construction foundation preparation at the Confining Embankment.
- CC204-CWP Unsuitable Material Removal: Work plan detailing excavation of unsuitable material within the Confining Embankment footprint.
- CC204-CWP Embankment Phase 2 Water Management: Work plan detailing water control planning once embankment fill placement begins.
- CC204-CWP Embankment: Work plan detailing methods for construction of the HLF Confining Embankment.
- CC204-CWP Embankment Phase 2 Water Management: Work plan detailing water control planning once embankment fill placement begins. Also included water management after subgrade preparation at the in-heap pond.

10.0 DAILY REPORTING AND PHOTOGRAPHS

Daily reports, including daily construction photographs generated by BGC for QA and on-site engineering; Tetra Tech for earthworks QC services; and JDS's EPCM daily reports are included in Appendix 6.

Daily reports generated by Tetra Tech for liner installation QA are included in Appendix 7.

11.0 CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of Strata Gold Corporation. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

As a mutual protection to our client, the public, and ourselves, all documents and drawings are submitted for the confidential information of our client for a specific project. Authorization for any use and/or publication of this document or any data, statements, conclusions or abstracts from or regarding our documents and drawings, through any form of print or electronic media, including without limitation, posting or reproduction of same on any website, is reserved pending BGC's written approval. A record copy of this document is on file at BGC. That copy takes precedence over any other copy or reproduction of this document.

As part of BGC's engineering quality assurance procedures this report has been reviewed by Michael Henderson, P.Eng.

Yours sincerely,

BGC ENGINEERING INC.
per:



Troy Meyer, P.Eng
Principal Geotechnical Engineer

Reviewed by:
Mike Henderson, P.E.
Principal Geotechnical Engineer

REFERENCES

BGC (2018). Strata Gold, Eagle Gold Project, HLF Detailed Design Report. BGC Engineering.

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Lorax, (2017), Eagle Gold Hydrometerology Report, 13 March 2017.

Stantec (2012a), Eagle Gold Project, Environmental Baseline Report: Climate, prepared for Victoria Gold Corp., March 2012.

Stantec (2012b), Eagle Gold Project, Environmental Baseline Data Report: Hydrology 2011 Update, prepared for Victoria Gold Corp., June 2012.

USBR (2014). Reclamation Manual – Design Standards No 13 – Embankment Dams, Bureau of Reclamation, May 2014.

APPENDIX 1
Construction Work Plans

PELLY WORK PLANS

Work Plan:	HLF Embankment	**Revision:** 03
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:** 2018-05-09

OBJECTIVE

The objective of this CWP is to outline the scope of work pertaining to the HLF Embankment while highlighting methods to minimize environmental impact and safety hazards.

SUMMARY

The scope of work includes:

Item No.	Description
0.00	Water management including installation of sediment control fences and direction of drainage to downstream sump where appropriate and practical
4110.1.01	Clearing and grubbing of all trees, brush and surface debris to the embankment limits provided by the client
4110.1.02	Stripping of all topsoil within the HLF embankment footprint to be stockpiled for movement to the designated topsoil stockpile
2220.5.01	Supply and install culvert for Dublin Creek temporary crossing - Completed
4110.1.07	Construction of heap leach area sediment basin at base of HLF embankment - Completed
4110.1.03	Excavate HLF embankment footprint to type 3 rock
4110.1.04	Handle, place and compact embankment fill, including stockpiling as required
4110.1.05	Excavation from within Heap Leach to embankment (other)
4110.1.06	If unsuitable, premium cost to haul to waste
4110.5.01 4110.5.02 4110.5.03	Supply and install heap leach under drain system pipes including trenching, geotextile, bedding and backfill

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		02 June 18
Dan Russell Project Manager Pelly Construction Ltd.		June 4, 2018
Flo Foster Safety Supervisor Pelly Construction Ltd.		02 June 18
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.	CHRIS C.	6 JUN · 2018
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		6/2/18
Roy Morlan Senior Engineering Geologist BGC		6/01/18

Work Plan:	HLF Embankment	**Revision:** 03
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:** 2018-05-09

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication, limit foot traffic in area
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

ENVIRONMENT

Critical Items	Precautions and Actions
Water Management Plan	Sediment control fences will be placed on boundaries of work areas in proximity to waterways; direction of water to downstream sump where appropriate and practical
Spill Containment	Equipment spill kits, preshift inspections before operating, work area spill kit

HOLD POINTS

Hold Point	Description	Responsible	Initial
1	Survey to flag out clearing limits for embankment footprint	Pelly	
2	Starting survey asbuilt of stripped embankment footprint to be agreed upon by Pelly and JDS before excavation	Pelly/JDS	
3	Approval of ITP-001 for HLF embankment excavation	Pelly/JDS	
4	Inspection of type 3 rock within embankment excavation following procedures outlined in ITP-001(continuous)	BGC	
5	Final survey asbuilt of approved excavation section outlined in ITP-001 to be agreed upon by Pelly and JDS	Pelly/JDS	
6	Installation of C-3 culvert Dublin Creek temporary crossing to gain access to Topsoil B Stockpile	Pelly	
7	Approval of ITP-TBD for HLF embankment fill	Pelly/JDS	
8	Compaction testing of embankment fill following procedures outlined in ITP-TBD (continuous)	Tetra Tech	
9	Approval of ITP-002 for HLF underdrain system	Client Rep	
10	~~Required testing of piping installation following procedures as outlined in ITP-TBD~~ Approval of ITP-003 for verification of closure and underdrain system installation.	Client Rep	

SCOPE OF WORK

Item No.	Description	Responsible	Hold Point
	Construction Strategy 1. Water management – sediment fence installation, sediment pond construction and drainage control 2. Clearing and grubbing of all trees, brush and surface debris 3. Stripping of topsoil to be loaded and hauled to topsoil stockpile 4. Placement of C-3 culvert for temporary Dublin Creek crossing and		

Item No.	Description	Responsible	Hold Point
	culvert in Eagle Pup Creek to gain access to topsoil B stockpile 5. Excavate HLF embankment footprint to type 3 rock 6. Excavate underdrain trench (coincident with point 5), place bedding, pipes, geotextile, and backfill 7. Handle place and compact excavated material as embankment fill 8. Excavate, handle, place and compact heap leach sump area cut to embankment fill		
0.00 4110.1.07	1. <u>Water Management</u> 1.1. Small excavator will assist in installing sediment control fences on boundaries of work areas following specifications of Water Management Plan drawing G1.03 1.2. Excavate sediment pond at base of embankment 1.3. Excavate a diversion ditch above the working area 1.4. Water will be managed by Installation of pipes, ditches, and pumping when necessary 1.5. Direct drainage from within work areas to downstream sump where appropriate and practical	Pelly	
4110.1.01	2. <u>Clearing and Grubbing</u> 2.1. Survey to layout clearing limits for embankment provided by Client 2.2. D10 dozer to push trees, brush and surface debris to stockpile at base of slope; D6 dozer may be used in event that slope is too soft for D10 2.3. Grubbing piles will be windrowed along the base of the slope and levelled in place	Pelly	1
4110.1.02	3. <u>Stripping of topsoil and haul to stockpile</u> 3.1. D10/D6 dozer to strip topsoil down to rock and stockpile at base of slope; stockpiles to be staged along slope where excessive dozer push is required 3.2. Excavator to load topsoil into haul truck and transport to topsoil B (or other) stockpile approved by Client	Pelly	
2220.5.01	4. <u>Placement of C-3 culvert and culvert extension</u> 4.1. Dozer work required on north and south approach crossings to make suitable for haul traffic 4.2. Load and haul culvert bedding material from Pelly Laydown borrow to culvert placement area 4.3. C-3 Culvert to be placed within Dublin Creek at approx. 1.75km off of Dublin Road; culvert placement to follow specifications in Water Management Plan drawing C1.07 4.4. 800mm culvert will be placed within Eagle Pup creek extending current crossing to allow for haul truck access to topsoil B stockpile	Pelly	6

Item No.	Description	Responsible	Hold Point
4110.1.03 4110.1.06	5. Excavate HLF embankment to type 3 rock (approx. 138,000 m^3) 5.1. Starting survey asbuilt of stripped footprint within embankment clearing limits before excavation 5.2. Creation and approval of ITP-001 for HLF embankment excavation 5.3. Dozer to push embankment material down to type 3 rock and stockpile; excavator will be used where slopes exceed dozer capability and within areas deemed more suitable 5.4. Excavator to load haul trucks with excavated material and transport to suitable stockpile within embankment footprint 5.5. Excavated material deemed unsuitable by BGC Engineer will be loaded, hauled and placed to unsuitable stockpile outside of the embankment footprint. 5.6. Inspection, testing, and documentation to follow procedure outlined in ITP-001 5.7. Final survey asbuilt of excavated embankment footprint		2 3 4 5
4110.5.01 4110.5.02 4110.5.03	6. Installation of underdrain system 6.1. Coincident with point 5 in areas where underdrain system travels through the embankment 6.2. Creation and approval of ITP-002/003 for HLF underdrain system 6.3. Excavate underdrain trench to be field fit following existing geology and procedures out lined in ITP-002 6.4. Lay geotextile along pipe trench in parallel sections 6.5. Place select drain fill pipe base material 6.6. Fuse and place pipe into bedding following specifications outlined in IFC drawings 6.7. Placement of select drain fill around pipes 6.8. Close off geotextile envelope with minimum 0.5m overlap 6.9. Inspection, testing, and documentation to follow procedure outlined in ITP-003		9 10
4110.1.04	7. Handle, place and compact embankment fill (approx. 725,000 m^3) 7.1. Creation and approval of ITP-TBD for HLF embankment fill 7.2. Excavator to load haul trucks with excavated/stockpiled material to haul to placement position 7.2.1 Estimated Rockfill requirement– 407,000m^3 7.2.2 Estimated Structural fill requirement – 318,000m^3 7.3. The Rockfill section will be constructed in 0.9m thick lifts (subject to test fill results) with maximum particle size no greater than 2/3 the loose lift fill thickness 7.4. Test fills may be conducted to determine if a greater Rockfill lift thickness is permissible 7.5. The Structural fill section will be constructed in 0.3m thick lifts		7 8

Item No.	Description	Responsible	Hold Point
	with maximum particle size no greater than 2/3 the loose lift fill thickness 7.6. The Rockfill will key into the Structural fill horizontally by 1.0m for every 0.9m incremental vertical lifts 7.7. Every compacted lift will be scarified prior to placement of the next lift 7.8. Smooth and Grid drum packers to pack lift material 7.9. Inspection, testing and documentation to follow procedure outlined in ITP-TBD		
4110.1.04 4110.1.05 4110.106	8. <u>Excavate, handle, place and compact heap leach sump area to embankment fill</u> 8.1. Sump area will be excavated to design grade and load the unsuitable material to a stockpile. 8.2. Excavator to load haul trucks with stockpiled material to haul to placement position 8.3. Dozer will be used to spread material in loose lift thickness specified in drawings 8.4. Excavated material deemed unsuitable by BGC Engineer will be loaded, hauled and placed to unsuitable stockpile outside of the embankment footprint 8.5. Inspection, testing and documentation to follow procedure outlined in ITP-TBD (coincident with point 7)		

Work Plan:	HLF Embankment Phase 2 Water Management and Construction Plan	**Revision:**	01
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-26

OBJECTIVE

The objective of this CWP is to outline the water management and construction sequence of the Heap Leach Embankment.

SUMMARY

i) The scope of work includes:

1. Excavate 950-drainage ditch
2. Excavate Underdrain Header and Lateral pipe Trenches
3. Construct Temporary Containment Berms
4. Excavate Temporary Sumps
5. Install Underdrain Header Pipes
6. Install Underdrain Lateral Pipes
7. Install Riser Pipe
8. Well Decommissioning (Completed)

ii) Work Sequence

iii) Conceptual Drawing

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		June 26/18
Dan Russell Project Manager Pelly Construction Ltd.		
Declan McGovern General Foreman Pelly Construction Ltd.		June 26/18
Flo Foster & Tiffany Jewell Safety Supervisor Pelly Construction Ltd.		June 26 18
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.		
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		June 26, 2018 June 26/18
Roy Morlan & Daniel Granda Senior Engineering Geologist/Geotechnical Engineer BGC		June 26, 2018

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

ENVIRONMENT

Critical Items	Precautions and Actions
Spill Containment	Equipment spill kits, preshift inspections before operating, work area large spill kit

SCOPE OF WORK

Description	Responsible
1. **Excavate the 950-drainage ditch** • Topsoil to be stripped and placed above the intended ditch area • Excavate a ditch to bedrock along the perimeter of the work area • The drainage ditch will provide a positive drainage toward the east side	Pelly
2. **Excavate Underdrain Header and Lateral pipe trenches** • Excavate Header pipe trenches to be contained within bedrock foundation • The header trench shall be excavated upstream to the 950m elevation • The trenches shall be excavated as per IFC drawing EGHLF-XD-03-04 • Excavate Lateral pipe trenches as per drawings from finish grade • All excavation prior to backfill to be approved by BGC	Pelly BGC
3. **Construct Temporary Containment Berms** • Construct within the Header trench as needed while progressing the construction from the bottom to the top • The upstream side of the berm shall be lined with a geomembrane liner • A back-up pump will be on standby ready to convey water safely away from construction activities in the HLF area when required • The temporary berm will be removed when it's no longer needed	Pelly

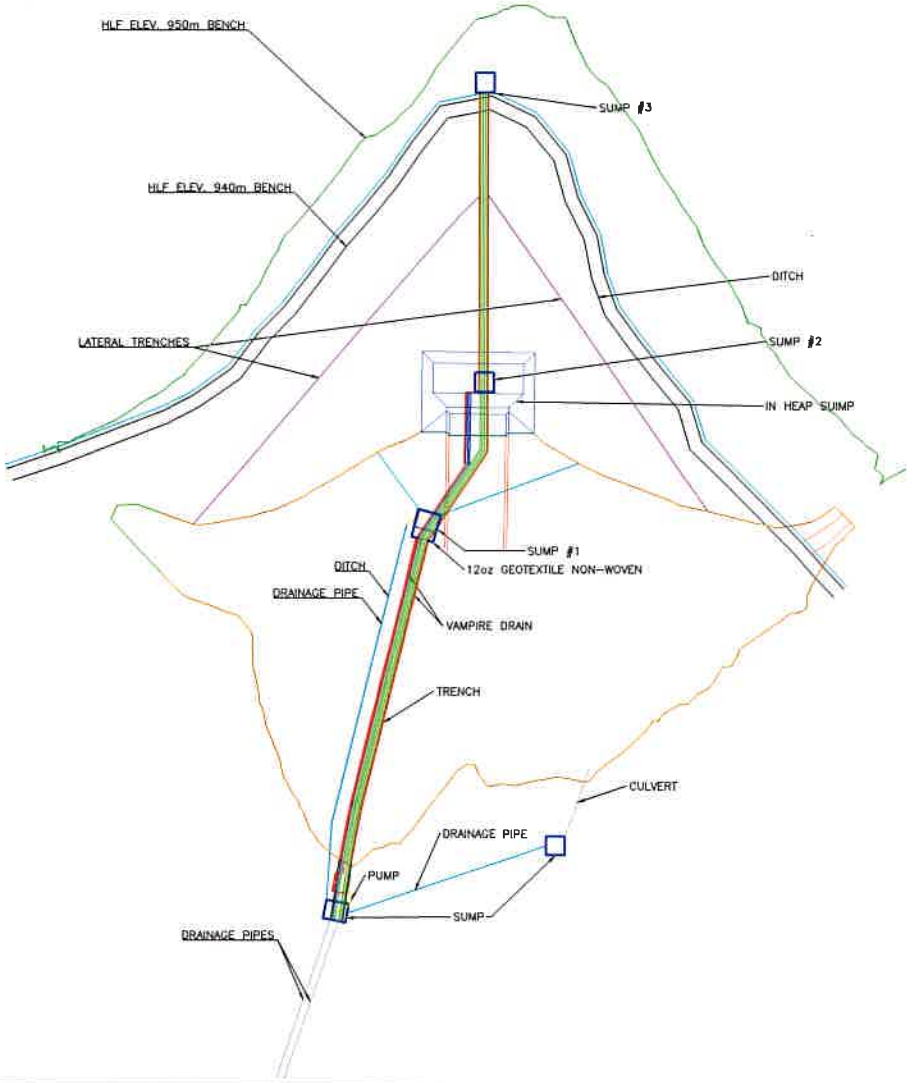
Description	Responsible
4. **Excavate Temporary Sumps** • Excavate temporary sump(s) as needed • Minimum dimensions: 5m x 5m x 1m deep (max. 2m deep) • Trenches will be excavated to direct all downslope water into the temporary sump • A back-up pump will be on standby ready to convey water safely away from construction activities in the HLF area when required • The temporary sump will be backfilled[1] when it's no longer needed	Pelly
5. **Install Underdrain Header Pipes** • The underdrain header pipes shall be installed as per IFC drawing EGHLF-XD-03-03 and 03-04	Pelly BGC
6. **Install Underdrain Lateral Pipes** • The underdrain lateral pipes shall be installed as per IFC drawing EGHLF-XD-03-03 and 03-04	Pelly BGC
7. **Install Riser pipe(s)** • Install geomembrane liner in the sump or dam • Connect the Riser pipe(s) to the underdrain pipe(s) • Place rip-rap or cobble stones in the sump area • Remove riser pipe when it's no longer required	Pelly
8. **Well Decommissioning (Completed)** • See attached completion reports	Pelly BGC

Notes:

1. Pelly has identified potential water problem that could affect the backfill compaction requirement of the structural/rock fill which will require input from BGC

WORK SEQUENCE

1. Establish the 950 drainage ditch
2. Install a temporary berm/sump at STN 1+90 (Sump 1)
3. Install five (5) – 150mm SDR 17 HDPE pipes from STN 0+29 to STN 1+80
4. Connect the Riser pipe to an underdrain header pipe
5. Excavate the header trench upstream beyond the Embankment footprint (STN 3+70)
6. Install a temporary berm/sump at STN 3+60 (Sump 2)
7. Install four (4) – 150mm SDR 11 HDPE pipes from STN 1+80 to STN 3+50
8. Install one (1) – 150mm SDR 11 HDPE pipe from STN 1+80 to STN 2+73
9. Install three (3) – 150mm SDR 11 HDPE pipes from STN 2+73 to STN 3+28
10. Disconnect the Riser pipe at STN 1+80 and reconnect at STN 3+50
11. Install a temporary berm/sump at STN 5+10 (Sump 3)
12. Excavate the header trench upstream to STN 5+00
13. Excavate the lateral trenches
14. Install four (4) – 150mm SDR 11 HDPE pipes from STN 3+50 to STN 5+00
15. Install two (2) - 100mm ADS N12 Perforated pipes to connect to the header drain pipes
16. Disconnect the Riser pipe at STN 3+50 and reconnect at STN 5+00



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1 SHOWING REALIGNMENT OF UD AND CLOSURE PIPES ANS WATER DRAINAGE PLAN

ISSUES:

REV.	YY/MM/DD	INT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

CLIENT:

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF UNDERDRAIN AND CLOSURE PIPE REALIGNMENT AND SUMP LOCATIONS

DRAWING SCALE: H 1:1000 V 1:1000

DATE:	18/06/24	DWG No:	EMB-008-01
SURVEYED:	E J /BAX	CHECKED:	
DRAWN:	C M /BAX	APPROVED:	

DRAWING FILE: 180624 UD AND CLOSURE SITE PLAN

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
DG10-399C	Ann Gulch	Exploration hole	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
120.3m	459652.073, 7101594	None	2018-06-08

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & pull instrument	Crystal Beaudry	Alex Therriault		
6/8/2018	Observe/report	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

Metal Casing 1m deep

INSTRUMENTATION REMOVAL

none

PLUG MATERIAL

Grout

PLUG VOLUME

2.2m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Remove casing	YES	
2	Grout Borehole	YES	
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459548, 7101624	None	2018-06-07

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/7/2018	Observing/notes	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

Grout

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Remove monument casing	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
Unnamed well next to MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459541, 7101639	None	2018-06-06

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/6/2018	Observing/notes	Dan Granda	Dominic Korn		

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe removed

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

grouting from bottom to top with a tremie pipe

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Casing removed	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

StrataGold Corporation	Pelly Construction Ltd.	PARTNERS IN ACHIEVING MAXIMUM RESOURCE DEVELOPMENT VALUE	JDS Energy & Mining Inc.

Work Plan:	HLF Embankment Underdrain pipe installation Plan	**Revision:**	0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-01

OBJECTIVE

The objective of this CWP is to outline the scope of work plan pertaining to the HLF Embankment Underdrain pipe installation.

SUMMARY

The scope includes:

1. HLF Embankment Underdrain Installation Water Management Plan Approval
2. HLF Embankment Type 3 Foundation ITP Approval
3. HLF Embankment Toe Redesign ITP Approval
4. Material List
5. Equipment List
6. Haul Route
7. Work Sequence
8. Plan-View Map

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		June 4/18
Dan Russell Project Manager Pelly Construction Ltd.		June 19/2018.
Declan McGovern General Foreman Pelly Construction Ltd.		6/4/18
Flo Foster Safety Supervisor Pelly Construction Ltd.		June 04, 2018
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.		June 19/18
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		06/07/18
Roy Morlan & Daniel Granda Senior Engineering Geologist/Geotechnical Engineer BGC		6/4/18

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication, limit foot traffic in area
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

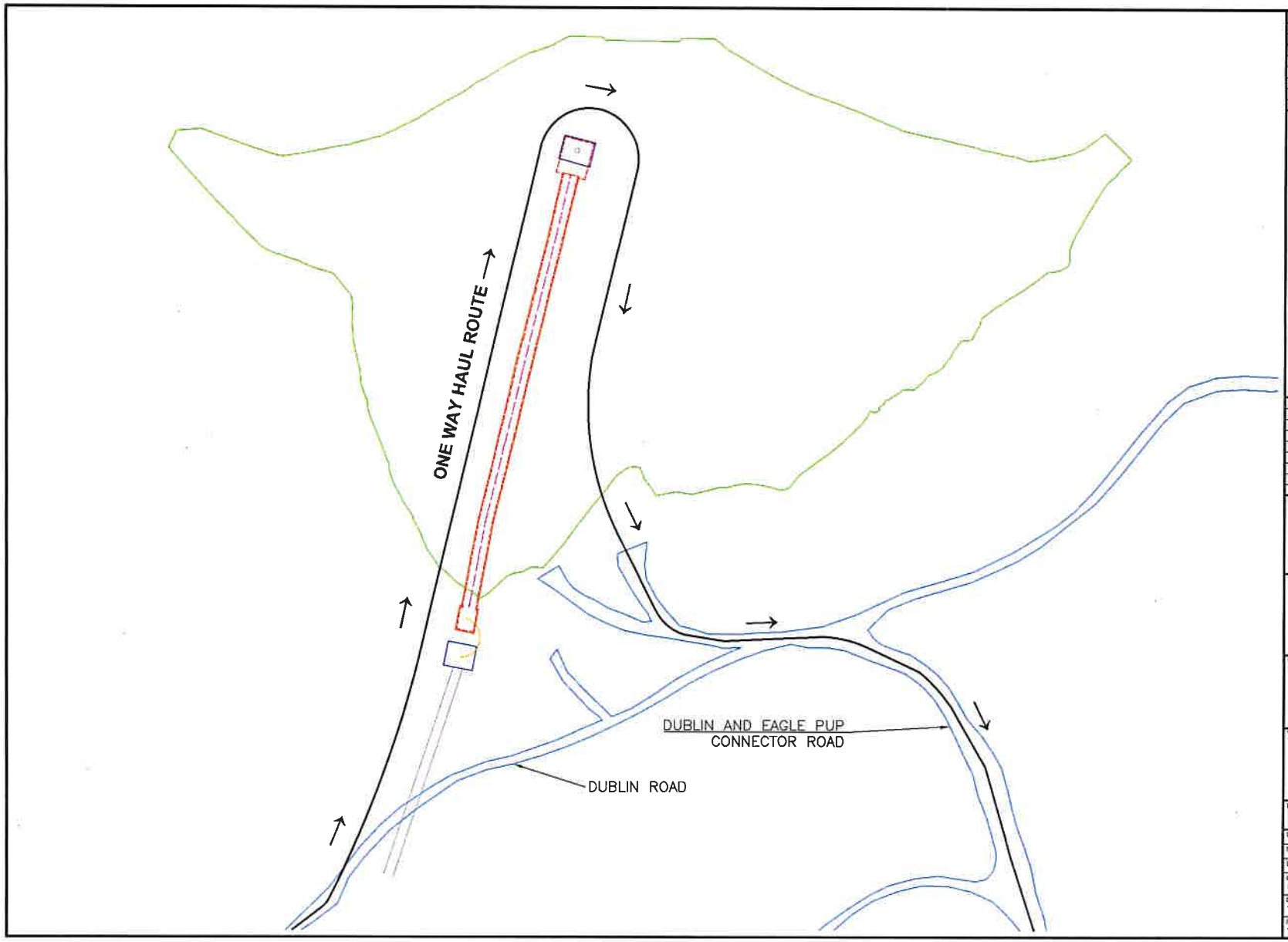
ENVIRONMENT

Critical Items	Precautions and Actions
Spill Containment	Equipment spill kits, preshift inspections before operating, large work area spill kit

SCOPE OF WORK

Description	Responsible
1. **HLF Embankment Underdrain Installation Water Management Plan Approval** • Signed BGC approval of the HLF Embankment Underdrain Installation Water Management Plan	Pelly BGC
2. **HLF Embankment Type 3 Foundation ITP approval** • Signed BGC approval of the HLF Embankment Type 3 Foundation ITP	Pelly BGC
3. **HLF Embankment Toe Redesign ITP approval** • Signed BGC approval of the HLF Embankment Toe Redesign ITP	Pelly BGC
4. **Material list** • Select Drain Fill • Non-woven Geotextiles • SDR11 HDPE pipes • SDR17 HDPE pipes	Pelly
5. **Equipment list** • 49t Excavator – Load Select Drain Fill • 40t ADT – Haul Select Drain Fill • 25t Excavator – Placement Select Drain Fill	Pelly

Description	Responsible
6. Haul Route • The 40t ADT will haul from Nuway stockpile to the trench via Dublin Gulch then exit via Eagle-Pub road back to the Nuway stockpile	Pelly
7. Work Sequence • Pelly will work from the bottom to the top • Surveyors will layout station numbers every 10m • Geotextiles will be installed with the seams running parallel to the trench • Each geotextile overlay must maintain a 0.5m overlap • Select Drain Fill shall be directly hauled from the Nuway Stockpile to the trench to minimize dilution • Select Drain fill to be used as a ballast • Minimum 0.1m of Select Drain fill material to be placed on top of the geotextiles • Install five (5) – 150mm SDR17 HDPE pipes from STA 0+29 to STA 1+80 • Install four (4) – 150mm SDR 11 HDPE pipes from STA 1+180 to STA 3+93 • Install one (1) – 150mm SDR 11 HPDE pipe from STA 1+180 to STA 2+73 • Install three (3) – 150mm SDR 11 HDPE pipes from STA 2+73 to STA 3+28 • Minimum 0.5m of Select Drain fill material to be placed on top of the HDPE pipes • Finish wrapping the Select Drain Fill with the geotextiles • Backfill 1.0m of compacted Structural Fill on top of wrapped geotextiles	Pelly



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
C1	[illegible].dwg

DRAWING NOTES:

1. BLUE LINES DENOTE EXISTING ROADS
2. BLACK LINES DENOTE HAUL ROUTE
3. GREEN LINES DENOTE EMBANKMENT PERIMETER
4. ORANGE LINES DENOTE UNDERDRAIN AND CLOSURE PIPE TRENCH
5. BLUE LINES DENOTE SUMPS
6. GREY LINES DENOTE DRAINAGE PIPES
7. ARROWS REPRESENT ONE WAY TRAFFIC DIRECTION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/06/01	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

Eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT HAUL ROUTE EXECUTION PLAN

DRAWING SCALE: H 1:1500

DATE: 18/06/02	DWG NO: EMB-HR-001
SURVEYED:	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 180501 EMB HAUL ROUTE EXECUTION PLAN.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Work Plan:	HLF Embankment Underdrain installation Water Management Plan	**Revision:**	03
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-01

OBJECTIVE

The objective of this CWP is to outline the water management during the installation of the Underdrain pipes at the Heap Leach Embankment.

SUMMARY

The scope of work includes:

1. Excavate a drainage ditch at the 940m elevation around the HLF perimeter
2. Excavate a sump outside the Embankment area
3. Create temporary sumps as needed within the Embankment area
4. Develop a vampire drain
5. Install Raiser pipe(s)

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		02 June 18
Dan Russell Project Manager Pelly Construction Ltd.		June 4, 2018
Declan McGovern General Foreman Pelly Construction Ltd.		02 June 18
Flo Foster Safety Supervisor Pelly Construction Ltd.		02 June 18
Roman Bilobrowka / CHRIS C Site Manager JDS Energy & Mining Inc.		2-JUN-2018
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		6/2/18
Roy Morlan & Daniel Granda Senior Engineering Geologist/Geotechnical Engineer BGC		6/2/18

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication, limit foot traffic in area

Work Plan:	HLF Embankment Underdrain installation Water Management Plan	**Revision:**	03
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-01

Potential Hazard	Precautions and Actions
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

ENVIRONMENT

Critical Items	Precautions and Actions
Spill Containment	Equipment spill kits, preshift inspections before operating, work area large spill kit

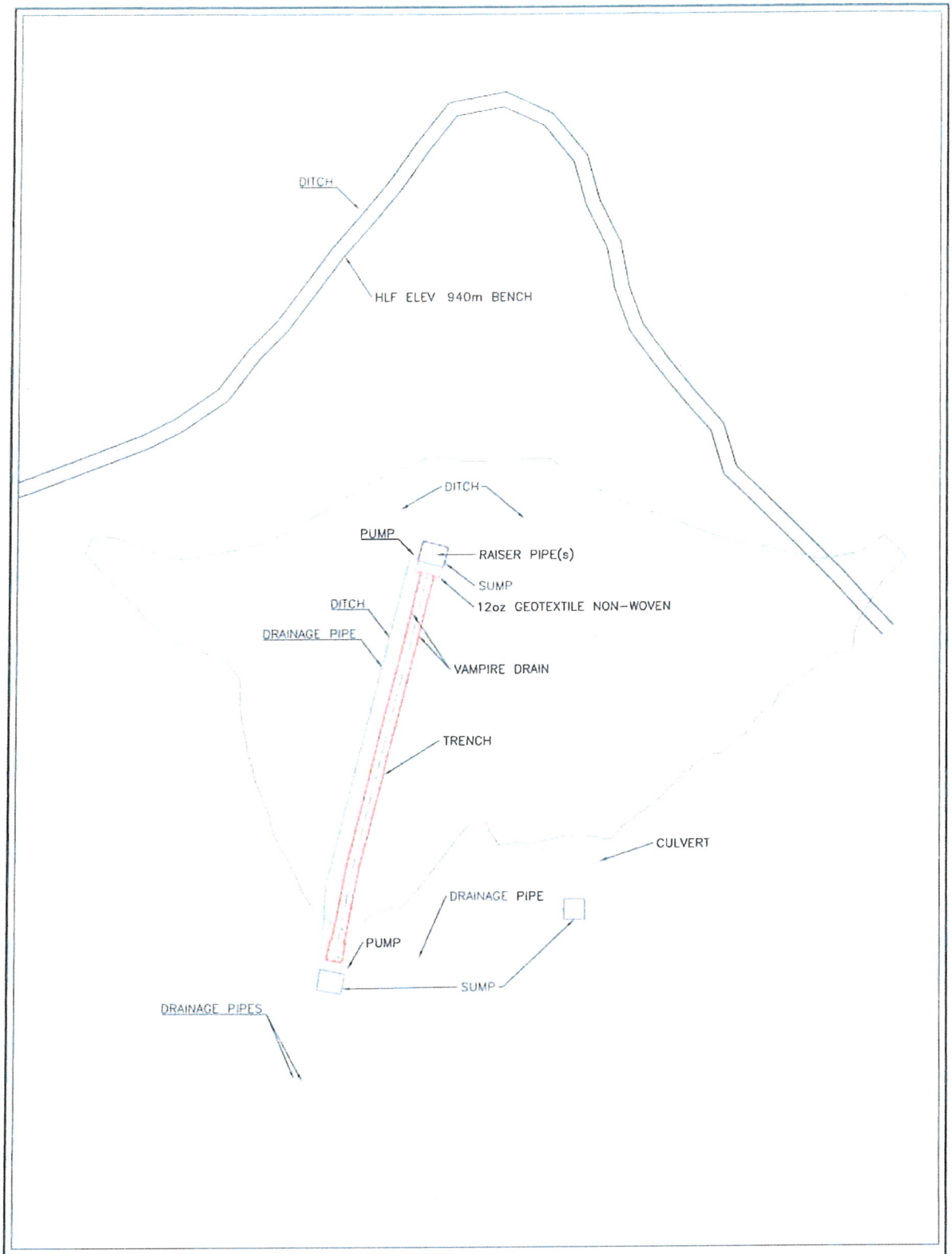
SCOPE OF WORK

Description	Responsible
1. **Excavate the 940-elevation drainage ditch** • Excavator to strip the topsoil and place above the intended ditch area • Excavator to excavate a 1m deep ditch along the perimeter of the HLF area starting at the 940m elevation • The drainage ditch will provide a positive drainage (min. 2%) toward the east side • The 940m ditch will tie-in with the existing 1010m ditch at the east side of the embankment	Pelly
2. **Excavate a sump outside the Embankment area** • Excavate a sump at the south side of the Embankment toe area • Extend the existing 6" pipe (west side of the underdrain trench) to the new sump • Install an 8" pipe along the western side outside the embankment toe to capture surface water • A submersible pump will be use to pump the water from the new sump to the existing 12" pipes (to the Exfiltration sump)	Pelly
3. **Create Temporary sumps within the Embankment area** • Excavate temporary sump(s) into the Type 3 material within the Embankment area as needed • The location of the sump(s) must be approved by BGC • Minimum dimensions: 10m x 10m x 1m deep (max. 2m deep) • Two trenches will be excavated to direct all downslope water into the temporary sump • A pump will be on standby ready to relocate the water directly into the two 12" pipes (Exfiltration sump) when necessary • The temporary sump will be backfilled[1] using structural fill when it's no	Pelly

Description	Responsible
longer required	
4. <u>Develop a vampire drain</u> • Excavate a 30cm x 30cm deep vampire drain on both sides of the underdrain trench • The vampire drain will be backfilled using Select Drain Fill when it's no longer required	Pelly
5. <u>Install Riser pipe(s)</u> • Excavate a trench between the temporary sump and the underdrain pipe • Install geotextile in the sump • Connect the Riser pipe(s) to the underdrain pipe(s) • Backfill the trench after connecting the Riser pipe(s) to the underdrain pipe(s)	Pelly

Notes:

1. Pelly has identified potential water problem that could affect the backfill compaction requirement of the structural fill that will require input from BGC



REFERENCE DRAWINGS

NO.	DRAWING #
01	8147.dwg

DRAWING NOTES:

1. GREEN LINES DENOTE EMBANKMENT PERIMETER
2. CYAN LINES DENOTE DITCH LOCATIONS
3. ORANGE LINES DENOTE EMBANKMENT UNDERDRAIN AND CLOSURE TRENCH
4. DASHED RED LINES DENOTE VAMPIRE DITCHES RUNNING LENGTH OF EMBANKMENT TRENCH
5. GOLD LINES DENOTE PUMP LINE LOCATIONS
6. BLUE LINES DENOTE SUMP LOCATIONS
7. GREY LINES DENOTE DRAINAGE PIPES AND CULVERT
8. BLACK LINES DENOTE HLF ELEV 940m BENCH @ 2% GRADE

ISSUES

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/05/31	CM	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT WATER MANAGEMENT PLAN

DRAWING SCALE: H 1:1750

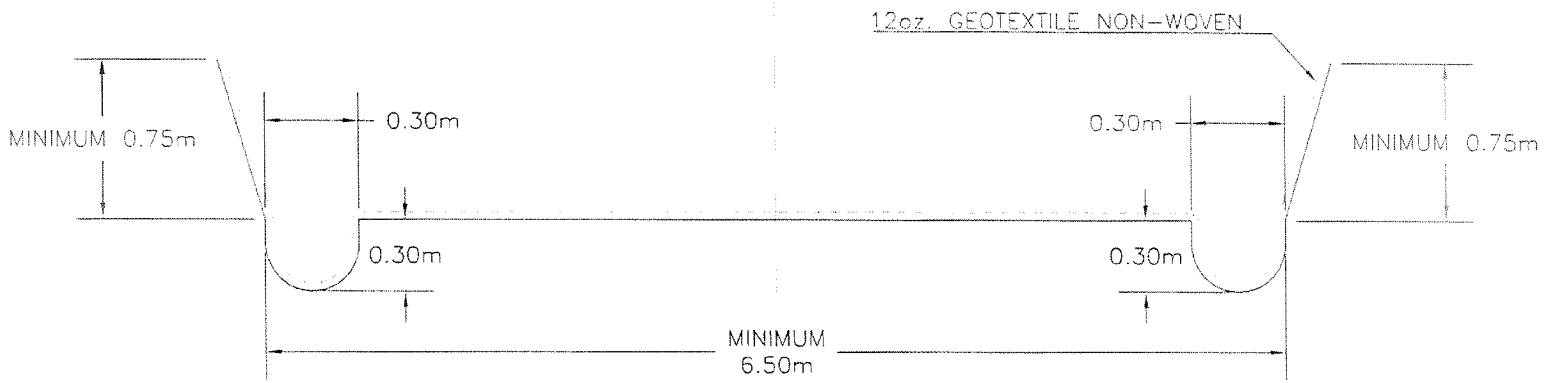
DATE: 18/05/31 | DWG No: E-EM-WM-001

DRAWING FILE: 180531 HLF WATER MANAGMENT PLAN dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

DRAWING NOTES:

1. ALL DIMENSIONS SHOWN IN METERS.

ISSUES:

REV	COMMOD	INIT.	DESCRIPTION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT CLOSURE AND UNDERDRAIN TRENCH SECTION VIEW

DRAWING SCALE:
NOT TO SCALE

DATE:	18/05/21	DWG No:	EGM-XXX-XXX
SURVEYED:	C.R.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE:
18/05/21 EMB WM TRENCH SECTION.dwg

DRAWING VIEW:
11x17 LANDSCAPE

PROJECT No.
17003

SHEET:
001

Work Plan:	HLF Embankment Underdrain Pipe Leak Test	**Revision:**	0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-20

OBJECTIVE

The objective of this CWP is to outline the procedure and provide results of a leak test to be completed on the underdrain pipe(s) to be installed within the HLF Embankment in Response to BGC RFI-004.

SUMMARY

The scope of work includes:

1. Test pipe for leaks following guidelines outlined in ASTM F2164-13
2. Monitor and record test results
3. Approval of tested pipe

SAFETY

Potential Hazard	Precautions and Actions
Outlined in attached JHA	Job Hazard assessment completed for work to be done

SCOPE OF WORK

Description	
1. **Test pipe for leaks** **Test Pipe:** The test pipe will consist of approx. 150m length of HDPE SDR 17 pipe to be used as the closure pipe between station 0+29.3 (upstream vault contact) and 1+81.4 SDR 17 to SDR 11 connection as per drawing EGHLF-XD-03-05. • Pipe leak test will be completed guided by procedures and safety precautions included in ASTM F2164-13 (attached). Most recently fused pipe will be selected as a spot test to prove quality of welds and free of any leaks. In the event that the selected pipe fails the procedure, all pipes will then have to be tested as quality assurance. **Procedure:** • Flanges will be fused onto the selected pipe consisting of a cap and gasket to seal pressure at one end and introduce water and pressure into the other end. • The pipe will be placed into a confining ditch where all welds in question are visible. Pipe will be placed in a constant graded position to minimize undulations and air pockets. • The pipe will be filled with water to capacity. • Pneumatic pressure will be introduced into the pipe in stages of 20 – 30 psi up 100 psi agreed upon by BGC representative. Each stage must sustain constant pressure for 15 minutes while remaining free of any leaks. • The pipe will be required to sustain 100 psi of constant pressure and be	

Work Plan:	HLF Embankment Underdrain Pipe Leak Test	**Revision:** 0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:** 2018-06-20

Description	
free of any leaks for a period of 4 hours. • Pressure will be reduced to a constant pressure of 90 psi for 1 hour while remaining free of any leaks. • Pipe to be drained of water and marked as the tested pipe to be used as the closure pipe during construction.	
2. **Monitor and record test results:** • Pressure was introduced into pipe in stages up 100 psi remaining free of any leaks • Pipe sustained 100 psi of constant pressure for 4 hours while remaining free of any leaks • Pressure was reduced and pipe sustained 90 psi of constant pressure for 1 hour while remaining free of any leaks	Pelly BGC D.S. RM D.S. RM D.S. RM
3. **Approval of tested pipe:** • Approved tested pipe has been flagged to be used as the closure pipe during HLF Embankment Underdrain Construction **Signatures of Approval:** Roy Morlan Senior Engineering Geologist/Geotechnical Engineer BGC	**Date** June 21, 2018 **Signature**

Work Plan:	HLF Embankment Unsuitable Material Removal	**Revision:**	01
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-29

OBJECTIVE

The objective of this CWP is to outline the scope of work pertaining to the removal and dumping of unsuitable material from the HLF Embankment while highlighting methods to minimize environmental impact and safety hazards.

SUMMARY

The scope of work includes:

1. Environmental Bird Survey
2. Install Silt Fencing
3. Clear Dump Area
4. Construct Dump
5. Placement of Unsuitable Material

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		June 29/18
Dan Russell Project Manager Pelly Construction Ltd.		
Flo Foster & Tiffany Jewell Safety Supervisor Pelly Construction Ltd.		29/06/18
Chris Copley Project Manager JDS Energy & Mining Inc.		29. JUN. 2018
Clint Abel and/or Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		June 29/18. June 29/18
Crystal Beaudry Environmental Coordinator Victoria Gold Corp.		June 29/18

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication, limit foot traffic in area
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

Work Plan:	HLF Embankment Unsuitable Material Removal	**Revision:**	01
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-29

ENVIRONMENT

Critical Items	Precautions and Actions
Water Management Plan	Sediment fence installation, effective drainage and sediment collection to avoid damage or clogging of drains and installed infrastructure per design and a monitoring plan to repair and maintain water management plan throughout construction.
Spill Containment	Equipment spill kits, preshift inspections before operating, work area large spill kit

SCOPE OF WORK

1. Environmental Bird Survey • Environmental personnel to perform a bird survey within the dump limits	**Victoria Gold**
2. Install Silt Fencing • Install silt fencing between the dump limit and the ditch at the 1,000m elevation	**Pelly**
3. Clear Dump Area • Dozer to strip all organic materials within the dump area • Trees and grubbing material to be windrowed and placed along the lower perimeter of the dump limit to aid with drainage and sediment/erosion control	**Pelly**
4. Construct Dump • Construct a containment berm utilizing rock pushed up from the floor of the dump area • Berm must be a minimum 4m high and 2m wide at the top • Widen the culvert crossing at the ditch 1,000m elevation to permit safe travel for ADT's	**Pelly**
5. Placement of Unsuitable Material • Excavator to load out the unsuitable material within the HLF area • 40t ADT's to haul material to the dump location • Dozer to pad the unsuitable material at the dump	**Pelly**

OBJECTIVE

The objective of this CWP is to coordinate the installation and operation of the heap leach embankment water management pipeline and pump.

SUMMARY

The scope of work includes:

1. Excavate exfiltration sumps
2. Temporarily install 6" Pump & 500 meters of 6" HDPE
3. Fuse 2 12" HDPE pipes 500 meters in length
4. Excavate discharge point for 2 12" HDPE lines at HLF exfiltration sump
5. Install 12 meter rig mat over the Dublin to support the 2 12" HDPE lines
6. Cut bench along the south side of the Dublin for 12" HDPE lines
7. Install 500 meter sections of 12" HDPE
8. Relocate 6" Pump to the Eagle exfiltration sump
9. Discharge water as required

SIGNATURES:

Stakeholder	Signature	Date
Terry Goodwin Safety Adviser JDS Energy & Mining	Terry Goodwin	30 March, 2018
Lindsay Rear Environmental Manager Victoria Gold Corp.		
Clint Abel Construction Superintendent JDS Energy & Mining Inc.		March 30, 2018
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.		March 30/18

SAFETY

Potential Hazard	Precautions and Actions
Pipe Fusing	Review JHA, Radios, PPE
Slippery/icy conditions	Dress appropriately, 3 point contact climbing on and off equipment, Icy condition may also require sand placement
Working near water	Install berms or barricades around sumps, life ring and rope, and install warning signage
Walking on uneven surfaces	Take your time, be aware and careful. Avoid walking through work area unless necessary.
Heavy lifting	Lift with legs, use equipment if possible, stretch

ENVIRONMENT

Critical Items	Precautions and Actions
Fueling Pump	Ensure containment berm is used when fueling pump
Spill Containment	Vehicles will be equipped with spill kits. Work area will have spill kits and drip trays.
Housekeeping	Ensure pipe shavings and cut-offs are bagged and properly disposed of on a regular basis

SCOPE OF WORK

Description	Responsible
1. <u>Excavate exfiltration sumps</u>	
• EX1200 to excavate 10 m X10 m X 4 m deep exfiltration sump on the east side of the Eagle diversion ditch – slope all four sides to ensure no unstable crests – construct 500 mm high berm around sump	Pelly
• EX1200 to remove the ice from the HLF exfiltration sump – Excavator to excavate ice from around the perimeter	Pelly
• Ice will be hauled to the west side of Topsoil Stockpile B	Pelly
• Excavate any sedimentation from the HLF exfiltration sump to ensure correct functionality	Pelly
• Place barricade around sump & install life ring with rope	JDS
2. <u>Temporarily install 6" Pump & 500 meters of 6" HDPE</u>	
• Place 6" pump at the HLF exfiltration sump – pump must be placed in containment	JDS
• Install 500 meter HDPE pipe from the HLF sump to the Eagle diversion sump	JDS
• Install 6" intake with strainer into exfiltration sump; connect to pump intake	JDS
3. <u>Fuse 2) 12" HDPE pipes 500 meters in length</u>	JDS
• Refer to attached Fusion Machine JHA before starting work	
• Lift sections of pipe into jaws using mechanical means (zoom boom, loader, excavator)	
• Clamp pipe in jaws	
• Face pipe using rotating facing blade; check for fit	
• Remove facing blade; install heating plate	
• Heat soak pipe for minimum 3 min 22 sec. at 30 psi + drag pressure	
• Release pipe, remove heat plate – maximum 15 sec. between heat soak and fusing /cooling	
• Fuse/cool pipe at 383 psi for minimum 8 min. 14 sec.	

Description	Responsible
• Release jaws • Pull section of pipe through until end is in the jaws using mechanical means (zoom boom, loader, excavator) • Load next section of pipe into jaws using mechanical means (zoom boom, loader, excavator) • Install flanges every 162 meters; fuse 6) 162 meter sections of pipe	
4. **Excavate discharge point for 2) 12" HDPE lines at HLF exfiltration sump** • Excavate inlet 2 meters below the surface on the south side – bottom of excavation must be wide enough to ensure good compaction can be achieved around the pipes when installed • Excavation must be sloped back for crew to work safety when compacting backfill material • Continue excavating access down to the Dublin road through the old wash out • Ensure excavation has positive drainage	Pelly Pelly
5. **Install 12 meter rig mat over the Dublin to support the 2) 12" HDPE lines** • Prepare level pads on both side of the Dublin without disturbing the stream bed • Slide the rig mat into place with an excavator	Ewing Ewing
6. **Cut bench along the south side of the Dublin for 12" HDPE lines** • Survey to layout out grade to ensure 12" HDPE lines have positive drainage with no low points from the HLF to the Eagle diversion exfiltration sump • Utilize a dozer or excavator to cut a 5 meter wide bench	Underhill Ewing
7. **Install 500 meter sections of 12" HDPE** • Using mechanical means (excavator, loader) drag sections of pipe into position • Backfill 12" HDPE pipes in the HLF exfiltration sump with select fill – Backfill must be compacted in 300 mm lifts to ensure no breaching occurs – Compact back to original sump surface • Placed backfill material over the 12" HDPE line crossing the Dublin access road – Access road will be temporarily closed during HDPE line install • Bolt up 3) consecutive sections of 166.7 meter 12" HDPE pipe	JDS JDS JDS JDS
8. **Relocate 6" Pump to the Eagle exfiltration sump** • Place 6" trash pump in containment in case of a spill • Install 6" intake with strainer into exfiltration sump; connect to pump intake • Install 6" line from Eagle exfiltration sump to the Forebay • Pump is only to be utilized in the case of an event that water flows are too great for the exfiltration sump to handle	JDS JDS JDS JDS
9. **Discharge water as required** • Water will discharge by gravity whenever sump levels rise to within 2 meters of capacity • In case of an emergency the 6" pump will be utilized to pump water to the Forebay	JDS JDS

Job Hazard Assessment (JHA)

Job Description: Heap Leach Water Management – HDPE Pipe Fusion
Project Name: Eagle Gold Project
Company Name(s): JDS Energy & Mining
Job Supervisor:
Written By: Clint Abel
Date: March 30, 2018

Tools/Equipment Required	Permits Required	PPE Required
• Fusion Machine • Loader	• Fusion Certificate	• Mandatory site PPE is required • Gloves • Hearing protection

*Pre-Job Meeting / Review JHA at Job Site

#	Task Step	Hazard(s)	Risk	Controls	Risk
1	Inspect all equipment before staring operation	• No wheel chocks • Oil leaks • Equipment damage • Machine wasn't shutdown correctly	6	• Ensure wheel chocks are in place on tire equipment • Daily inspection will reduce possible spills • Ensure equipment has no damage that could cause personal injuries • Ensure all necessary safeties are in place before starting the machinery	3
2	Warm up equipment & Inspect work area	• Operating cold machines • Changes to work area between shifts • Damage fusion machine generator	8	• Allow machine to warm up to reduce unnecessary damage to engine & hydraulics • Inspect work area to identify any changes to work area • Fusion machine must be at maximum RPM before plugging heating plate in, not doing so will damage onboard generator	1
3	Moving fusion machine into place	• Congested work areas • Ground conditions	9	• Park fusion machine in an area that will reduce any possible congestion • Inspect ground conditions to ensure good stability for equipment and footing	2

Job Hazard Assessment (JHA)

4	Place pipe into the fusion machine clamps	• Hit by pipe during setup • Pinch points between pipe and fusion machine • Over lifting heavy pipe	10	• Stay out of the line of fire when equipment is moving HDPE pipe into place • Insure good communication between operators and personal on the ground • One person to direct operator when loading pipe into fusion machine • Lift with your legs not your back – equipment should be utilized if pipe is to heavy	3
5	Securing HDPE pipe into fusion machine	• Stored energy on installed HDPE pipe • Pinch points between pipe and clamp	10	• Ensure equipment operator has safely placed the HDPE pipe in the fusing machine and support stand • Never place hands between pipe and clamp – flip upper portion of clamp over pipe and secure	3
6	Facing the pipe	• Cutting hands on cutter blades • Loose clothing getting caught in the cutter	10	• Never place hands near rotating blades when facing the pipe – wear gloves • Do not wear loose clothing that could entangle in the machine and cause serious injuries	3
7	Heat soak	• Burns from heating plate • Cleaning heating plate before each fusion	6	• Wear glove and ensure you never touch heating plate surface (400-450 F) • Use manufacture handle when using heating plate – use paper towel to clean hot surfaces	1
8	Fusion force	• Pinch Point between pipe ends once heating plate is removed	10	• Never place hands in pinch point when applying fusion force	3
9	Cold down	• Pipe failure	6	• Ensure correct cooldown time is achieved before releasing and moving the pipe	1
10	Releasing Clamps	• Possible stored energy when releasing clamps	6	• Use caution when releasing clamps to ensure no stored energy on fused pipe	1

Job Hazard Assessment (JHA)

11	Moving pipe to next fusion joint	• Damage to fusion machine	9	• Ensure all clamps, cutter, and heating plate are open and clear of the HDPE pipe • Raise hydraulic rollers on both ends of the machine to ensure pipe is clear of the lower portions of the clamps • Pull HDPE pipe slowly with equipment to the next fusion joint under the direction of a spotter	2
12	Housekeeping	• Tripping hazards • Garbage in the environment	3	• Ensure any cord, garbage, and pipe fittings are cleaned up • Cuttings and paper must be cleaned and removed each day	1
13		• •		• •	
14		• •		• •	
15		• •		• •	

	Printed Name	***Signature***	***Date***
Supervisor Responsible:			
HSE Coordinator:			
Department Head (>12):			
HSE Manager (>15):			
Mine Manager (>20):			

Job Hazard Assessment (JHA)

	RISK RATING				
	1 - Insignificant	2 - Minor	3 - Moderate	4 - Major	5 - Catastrophic
5 - Almost Certain >90%	11 (Medium)	16 (Significant)	20 (Significant)	23 (High)	25 (High)
4 - Likely 30%-90%	7 (Medium)	12 (Medium)	17 (Significant)	21 (High)	24 (High)
3 - Possible 10%-30%	4 (Low)	8 (Medium)	13 (Significant)	18 (Significant)	22 (High)
2 - Unlikely 3%-10%	2 (Low)	5 (Low)	9 (Medium)	14 (Significant)	19 (Significant)
1 - Rare <3%	1 (Low)	3 (Low)	6 (Medium)	10 (Medium)	15 (Significant)

Instructions

Job Hazard Assessment (JHA)

CONSEQUENCE TYPE	CONSEQUENCE DESCRIPTION				
	1 - Insignificant	2 - Minor	3 - Moderate	4 - Major	5 - Catastrophic
Injury	First aid case	Medical treatment case	Lost time injury	Permanent disability or single fatality	Numerous permanent disabilities or multiple fatalities
Environment	Lasting days or less; affecting small area (metres)	Lasting weeks; affecting limited area (hundreds of metres)	Lasting months; affected extended area (kilometres)	Lasting years; affecting area on sub-basin scale	Permanent impact; affecting area on a whole basin or regional scale
Property Damage	Less than $1,000	$1,000 to $10,000	$10,000 to $100,000	$100,000 to $1,000,000	More than $1,000,000
Production Loss	Less than 1 production shift loss	Less than 24 hours production loss	Production loss between 1 and 7 days	Production loss between 1 week and 1 month	Production loss for greater than 1 month

Identify the Job: Determine the job that will be assessed and the scope that will be covered by the JHA. If the job is too large or complex, it may need to be broken down into sections and multiple JHAs completed.

List Resources: Identify the tools/equipment, permits, and PPE required for the job.

List the Steps: Break the job down into the key tasks that are required to complete the job. The goal is to capture each of the steps and list them in the order that they are to be performed.

Identify the Hazards: For each step of the job, list all of the hazards associated with this step.

Rate the Risks: For each of the hazards, determine the **Likelihood** that the unwanted event will occur (e.g. Rare, Unlikely, Possible, Likely, Almost Certain). Then determine what the highest potential **Consequence** is (e.g. Insignificant, Minor, Moderate, High, Major). Assess both the Likelihood and Consequence on the Risk Matrix to determine the Risk Rating (1-25).

Identify the Controls: For each of the hazards, list the controls that are currently in place and any additional controls that will be added. Consider the Hierarchy of Controls (Elimination, Substitution, Engineering, Administration, PPE) and look for the most effective way(s) to control the hazard.

Rate the Residual Risks: Use the Risk Matrix to re-evaluate what the risk level will be after the controls are put in place.

Review and Approval: Depending on the level of residual risk (1-25), submit the JHA to the appropriate supervisors, managers, and HSE personnel for review and approval.

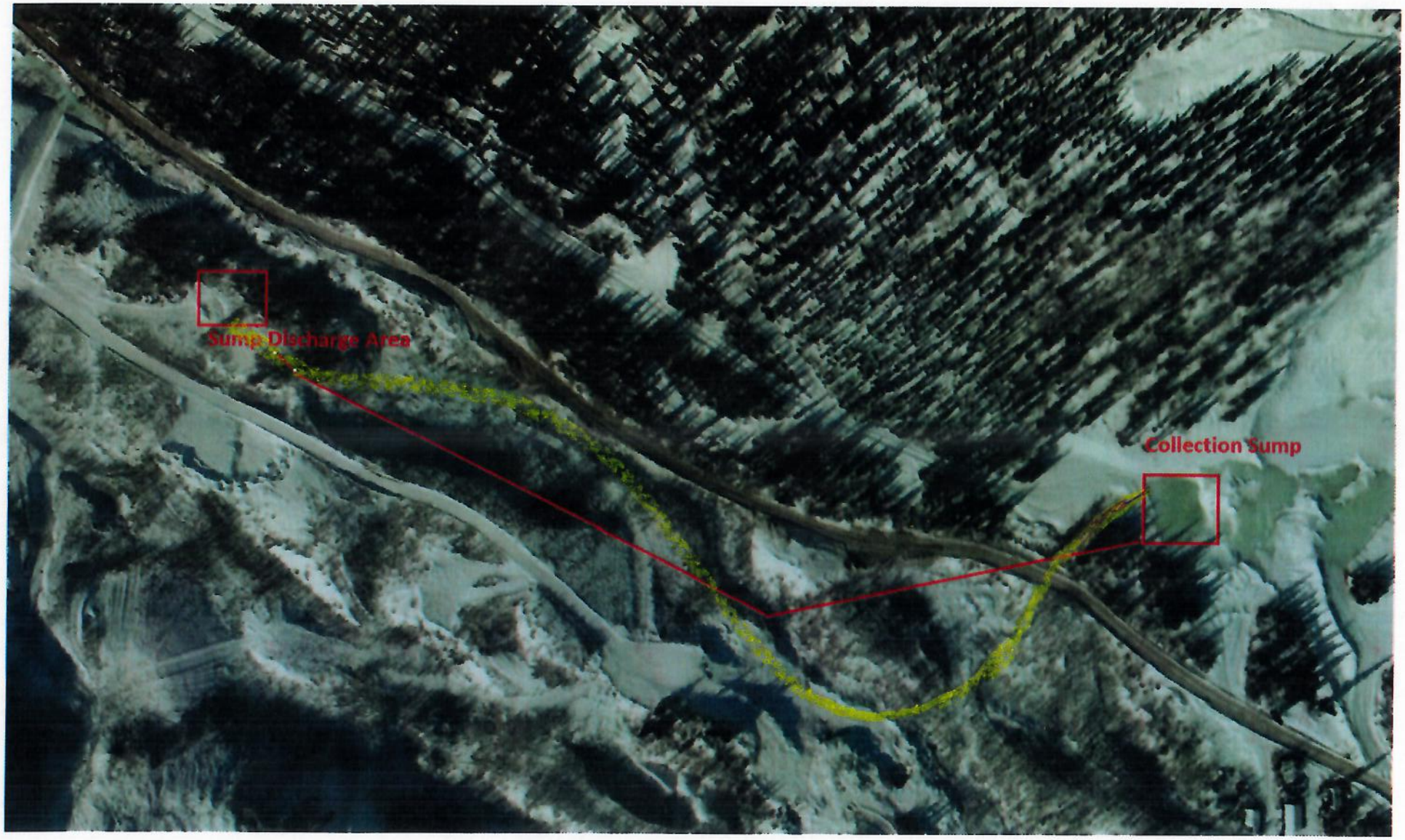
Pre-Job Meeting: Hold a meeting with all of the personnel and contractors who will be performing the job. Review the contents of the JHA and provide the opportunity for questions and comments. When the JHA has been reviewed, have all participants sign the JHA sign off sheet. If additional workers join the job, be sure to have them review and sign the JHA.

Monitor and Review: Supervise the work in order to make sure that the process is being followed. If the job is not going as planned in the JHA, stop and reassess the job. If changes are made to the JHA, make sure that the changes are reviewed with all participants.

JHA Sign-off Sheet

Project Name:			
JHA Title:		JHA Approval Date:	

Name *(Please Print)*	Company	Date	Signature


Sump Discharge Area
Collection Sump

TITAN ENVIRONMENTAL WORK PLANS

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USER GUIDE: JOINTING & FIXING

Concrete Canvas® is part of a revolutionary new class of construction materials called Geosynthetic Cementitious Composite Mats (GCCMs). It is a flexible, concrete filled geosynthetic, that hardens on hydration to form a thin, durable, water proof and fire resistant concrete layer. Essentially, it's concrete on a roll. The following guide provides useful information for installers, customers and specifiers of Concrete Canvas® GCCM (CC). It provides an overview of methods for jointing and fixing of CC material. The versatile nature of CC means that this document is not exhaustive and is intended for guidance purposes only.

1.0 Cutting Concrete Canvas® GCCM

1.1 Cutting Unset CC

A 'snap-off blade' utility knife can be used for cutting CC before it is hydrated or set. When cutting unset CC a 15-20mm allowance should be left from the cut edge due to potential loss of fill. For larger projects where numerous cuts are required it is recommended to use a powered disc-cutter, angle grinder or a self sharpening fabric cutter. If cutting with a disc cutter, it is recommended to wet the cut beforehand to minimise dust generation.



Cutting CC using a 'snap-off blade' utility knife



Cutting CC using a powered disc-cutter

1.2 Cutting Set CC

Set CC can be cut using the same tools used for cutting conventional concrete, such as disc cutters, angle grinders or good quality tile cutters. CC sheets can also be water-cut for applications where a high resolution is required such as for signage or sculptural works.



Cutting set CC using an angle grinder



Water-cut CC

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2.0 Fixing Specification

2.1 To Soil

Anchor Trench: Burying the perimeter edges of CC in an anchor trench is essential for the majority of installations. This will help prevent undermining from surface water and provide a neat edge termination. Used in conjunction with pegs or when back-filled with concrete an anchor trench provides an effective means of securing CC to the substrate. Typically anchor trenches are used at the crest and toe of a slope and along the shoulders of a channel and leading and trailing edges to prevent wind and water ingress. **We would therefore recommend anchor trenching the entire perimeter edge of CC wherever possible.**

Pegs: Galvanised steel J-pegs are available from Concrete Canvas® Ltd in lengths of 250mm and 380mm. Pegs may be sourced from alternate suppliers but must have a sufficiently sharp point to penetrate the CC and a head design that will capture the surface of CC. Peg length and spacing should be selected based on soil conditions and application. Pegs should be applied at joints where possible to secure adjacent layers together.

Soil Nails / Ground Anchors: For high load applications or where ground conditions are poor, such as with slope protection, slope stabilisation or for high flow applications, it is recommended to use CC in conjunction with soil nails, ground anchors or earth percussion anchors. The anchor plate design should be circular where possible or have radiused corners to avoid stress concentrations. The soil nail and anchor plate specification should be approved by a qualified geotechnical engineer.

2.2 To Concrete

Mortar: A suitable mortar can be used to join and seal CC to existing concrete infrastructure such as head walls and slabs. Most off-the-shelf mortars will bond well to the fibrous surface of CC. We recommend applying the mortar to the CC immediately after hydration or wetting the CC surface if applying post-set.

Masonry fixings (bolts/ nails): A range of conventional masonry fixings, such as self tapping masonry bolts, wedge anchors and “Hilti” type nails, can be used to fix CC to other concrete surfaces. We recommend a minimum shank diameter of 3mm and a minimum washer/head diameter of 16mm or clamping plate to prevent pull-through.

2.3 To Rock

Rock Bolts: For use on hard or rocky substrates, the number and type of rock bolt should be selected based on the pull-out force requirement. A suitable head design should be selected to prevent stress concentrations. A minimum head diameter of 16mm is normally recommended and plates up to 150mm are often used.













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2.4 To Steel

Hog rings: Ideal for fixing CC to wire mesh, gabion baskets or fencing, hog-rings are available in a range of sizes and can be applied with a manual or powered hog-ringer. The hog rings should be applied to CC prior to hydration.



Tech-screws: Self-drilling screws such as tech-screws are suitable for fixing CC to sheet steel. A washer may be required to prevent pull-through.



2.5 To Wood

Screws / Staples / Nails / Adhesive: A range of conventional fixings can be used to fix CC to substrates such as wood. In its pre-hydrated form CC behaves like a thick geotextile and can be fastened with suitable screws, staples, nails or adhesives.



2.6 Other

The flexible nature of CC means that it can be jointed, sealed and fixed using a large selection of products available on the market. The 3 following listed joints (3.0) are suitable for the majority of applications and summarised in the table at the end of this document (5.0). Some other fixings which may be useful are also shown in the images below.



Clamping band fixing



Pre-drilled galvinised steel bar fixing

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3.0 Jointing Specifications

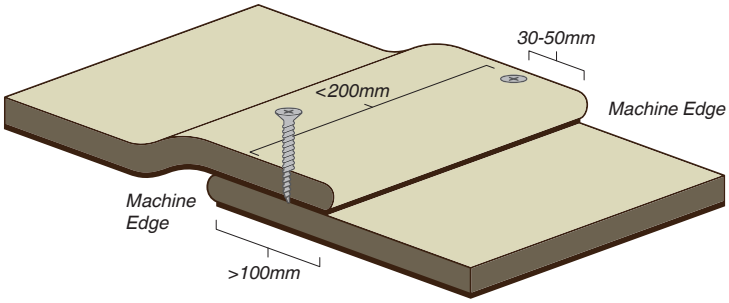


Fig 1. Standard Screwed Overlap Joint

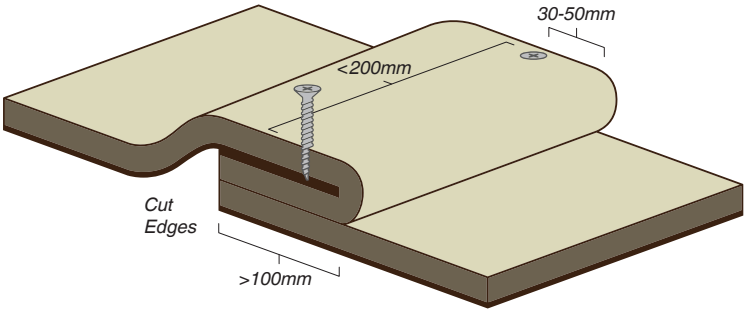


Fig 2. Screwed Knuckle Joint for Cut Edges of CC

3.1 Overlapped Joint

This joint is suitable for the majority of CC applications and involves overlapping adjacent sheets of CC by a minimum of 100mm, (see Fig.1.) For erosion control applications, care should be taken to position the overlap in the direction of water flow (like shingled roof tiles). When jointing cut edges of CC, the material can be folded back on itself to form a knuckle joint, (see Fig.2.) which covers the cut edge and improves the seal between layers. We would recommend securing the overlap with one of the following methods **- please note, it is important to hydrate the material under the overlap before fixing.**

3.2 Screws

Suitable for the majority of applications this joint is fast and simple to apply, it provides good mechanical strength but has limited impermeability. The screws should be applied at 200mm spacing (50mm for bund lining) and 30-50mm from the edge of the CC. The screws should be applied prior to setting but immediately after hydration (CC has 1-2 hours working time in a UK climate), so the concrete within CC will then set around the thread of the screws. For this reason it is important that the screws have a fully threaded shank and a minimum length equal to the full thickness of the joint. Collated screws allow for the use of an auto-fed screwdriver which provides a rapid means of creating a screwed joint. Suitable collated stainless steel screws are available from Concrete Canvas Ltd.



Stainless steel collated screws

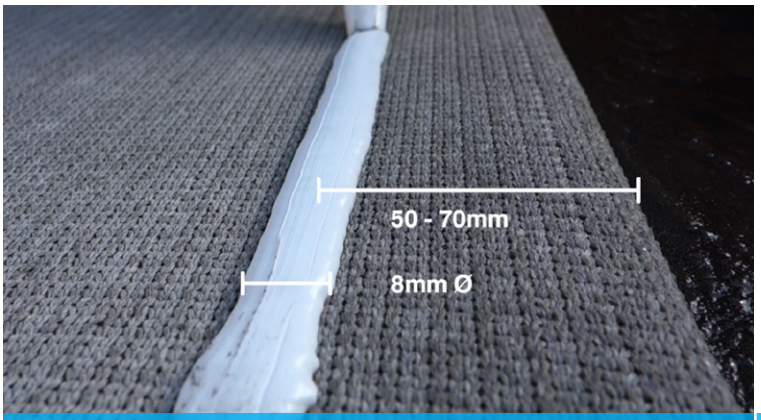


CC joint fixed using an autofed screwdriver

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3.3 Screws & Sealant

For applications where improved impermeability is required, CC can be jointed with a CC approved adhesive sealant using a caulking gun. This is applied as a single 8mm bead with the screws inserted through the sealant bead where possible to minimise leakage. An 8mm bead is equivalent to a coverage of 50g/m which is equivalent to 5.8m of joint for 290ml cartridge or 12m of joint from a 600ml cartridge. Suitable CC approved adhesive sealants are available from Concrete Canvas Ltd. 200mm screw spacing is suitable for most applications, 50mm is recommended for bund lining. It is important to hydrate under the overlap prior to applying the adhesive sealant in order to remove excess dust, ensuring contact with the fibrous top surface of the bottom CC layer and to provide moisture for curing. Surfaces may be damp during installation, but have no standing water.



Sealant applied to CC using caulking gun

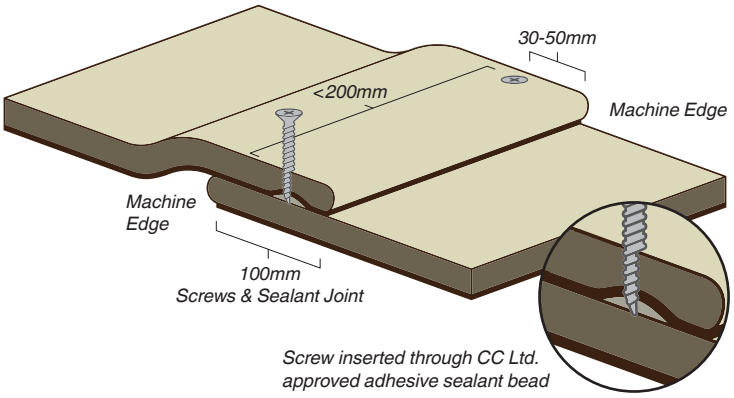


Diagram showing screw inserted through sealant bead

3.4 Hydration of the Overlap

In some circumstances for the above joints, it may not be possible to hydrate underneath the overlap prior to fixing. This is not generally advised, as the underlap material will only be partially hydrated, however it may be acceptable if certain conditions exist. For example, if the joint is going to be continually exposed to water due to the nature of the application, the underlap material will slowly hydrate through infiltration.

Please be aware, that in these instances, the joint strength may be compromised. For example a screwed joint relies on the CC setting around the thread of the screw to reach the strength values overleaf therefore the short-term strength will be significantly lower until full hydration is achieved. **Adhesive sealants also benefit from pre-hydration as this cleans the jointing surface of dry cement dust prior to the application of adhesive and helps to cure the adhesive during setting.** Joints will therefore typically achieve a long-term strength which is 30-40% lower than the published values if the underlap CC is not hydrated prior to jointing.



Automatic thermal welding machine



Handheld thermal welding machine

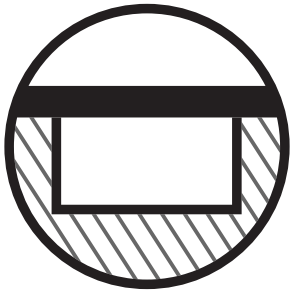
3.5 Thermal Bonding

Thermal Bonding can be used for applications where screws are not suitable, for example when applying CC onto a hard concrete substrate or geomembrane. The joint is formed using either a manual or automatic thermal welding machine to form a bond between the PVC backing of the CC and the polyester top surface.
Please refer to the *CC User Guide: Thermal Bonding* for more details.

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4.0 Installation Principles

The unique material properties of Concrete Canvas (CC) mean that it can be used for a variety of applications. Following the Four Installation Principles below will help ensure a successful installation.



Avoid Voids

1. Avoid Voids

Prepare the substrate so it is well compacted, geotechnically stable and has a smooth and uniform surface.

- For soil substrates, remove any vegetation, sharp or protruding rocks and fill any large void spaces. Ensure the CC makes direct contact with the substrate to minimise soil bridging or potential soil migration under the layer.
- For concrete substrates, remove any loose or friable material, cut away any protruding exposed re-bar and fill any large cracks or voids.

2. Secure Canvas



Secure Canvas

It is important to ensure that the CC is **Jointed** at every overlap between layers and that those layers are **Fixed** to the substrate.

- **Jointing:** Overlapped CC layers should be securely jointed together, typically this is achieved using stainless steel screws applied with an auto-fed screw gun at regular intervals. Correct screw placement will help ensure intimate contact between CC layers, prevent washout of the substrate, and limit potential weed growth. An adhesive sealant can be applied between the layers to improve the joint impermeability.

  A non-penetrative method of jointing is to 'thermally bond' the CC layers together. This also improves joint impermeability. For more jointing options see above.

- **Fixing:** When fixing to a soil substrate, ground pegs (eg J-pegs) are typically used. On rock or concrete substrates, CC layers can be jointed together and fixed to the substrate using masonry bolts, percussion anchors or shot fired masonry nails. Stainless steel fixings with washers are recommended.



Prevent Ingress

3. Prevent Ingress

It is important to prevent water or wind ingress between the CC and the substrate, both around the perimeter of the installation and along the joints.

- For soil substrates, this is typically achieved by capturing the entire perimeter edge of the CC within an anchor trench.
- On rocky or concrete substrates, the perimeter edge should be sealed with a concrete fillet or an adhesive sealant.
- All overlapped CC layers should be lapped in the direction of water flow.

4. Hydrate Fully



Fully Hydrate

It is critical to properly hydrate CC, taking into account the quantity of material used and ambient temperature conditions.

- Always ensure hydration through the fibrous top surface.
- Ensure to hydrate any overlapped areas and anchor trenched material prior to backfilling.
- Spray the fibre surface with water until it feels wet to touch for several minutes after hydration (the 'Thumb Test').
- Follow the *CC User Guide: Hydration*.

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5.0 Comparison Table

	TENSILE SHEAR STRENGTH*			IMPERME-ABILITY*	INSTALLATION				Recommendation
					Speed	*Skill*	*Tools Required*	*When to use*	
Screwed (200mm spacing)	●●●○○			●○○○○	Fast	Low	Autofeed Screwdriver	Most common joint used on 95% of applications	>30mm stainless steel screws with 200mm spacing installed using autofeed screwdriver
	CC5™	CC8™	CC13™						
	2.0 kN/m	4.0 kN/m	5.0 kN/m						
Screwed and Sealed (200mm spacing)	●●●◐○			●●○○○	Med	Low	Autofeed Screwdriver and Caulking Gun	For applications where a level of impermeability is required	>30mm stainless steel screws with 200mm spacing. Sealed with a CC approved adhesive sealant
	CC5™	CC8™	CC13™						
	3.5 kN/m	5.0 kN/m	5.0 kN/m						
Screwed and Sealed (50mm spacing)	●●●●○			●●○○○	Med	Low	Autofeed Screwdriver and Caulking Gun	For bund lining applications or use in exposed areas prone to significant wind uplift forces	>30mm stainless steel screws with 50mm spacing. Sealed with a CC approved adhesive sealant
	CC5™	CC8™	CC13™						
	7.0 kN/m	13.0 kN/m	15.0 kN/m						
Thermal Bond	●●●●●			●●●○○	Med-Fast	Med-High	Manual of Automatic Thermal Welder and Power Supply	Used where screws are not suitable due to a concrete substrate etc under the CC**▲	Use automatic welder such as a Leister Twinny T or S (The Twinny T has data logging capability) or manual welder such as Leister TRIAC AT with a 60mm slot nozzle
	CC5™	CC8™	CC13™						
	10.5 kN/m	17.0 kN/m	17.0 kN/m						

* Joint strength and impermeability data is intended for guidance purposes only. Joint performance may vary depending on the quality of the installation and the application conditions. Strength data is based on the ultimate strength of a tensile shear test in laboratory conditions, test based on BS EN 12317 1:2000.

** For bund lining or when a level of impermeability is required, and/or when screws are not suitable due to a non-penetrable substrate beneath, such as concrete.

▲ For containment critical applications, CC Hydro™ should be used.

See *CC Equipment List* for full details. *Dust hazard. Wear appropriate PPE. Consult CC & CCH SDS document.*

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INSTALLATION GUIDE: CHANNEL LINING

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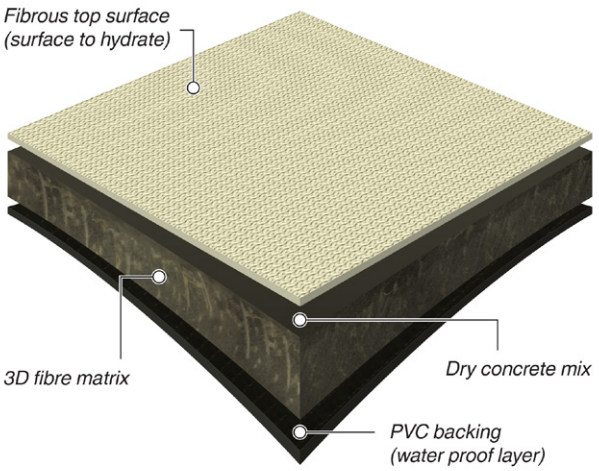
1.0 Introduction

1.1 Background

Concrete Canvas® is part of a revolutionary new class of construction materials called Geosynthetic Cementitious Composite Mats (GCCMs).

It is a flexible, concrete impregnated fabric that hardens on hydration to form a thin, durable, water proof and fire resistant concrete layer.

Essentially, it can be described as 'concrete on a roll' and is used for a wide variety of applications including the rapid lining of drainage channels, providing slope protection, weed suppression, culvert repair and general concrete remediation.



1.2 Scope

- This document provides guidance procedures for the installation of CC as **channel lining** in a manner that maximises safety, efficiency, and the physical integrity of the material and channel.
- This document provides useful information for installers, customers and specifiers of Concrete Canvas® GCCM (CC) and provides an overview of installation techniques for the lining of channels.
- The versatile nature of CC means that this document is not exhaustive and is intended for guidance purposes only. Exceptions to this guideline may be required to address site-specific and/or product-specific conditions.
- The performance of the CC is wholly dependent on the quality of its installation. It is the installer's responsibility to adhere to these guidelines where applicable and to the project specification and drawings.



CC Channel Lining, Glyncorrwg Colliery, Wales, UK

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2.0 Specification and Installation Essentials

2.1 Specifying the correct CC Thickness

CC is available in 3 thicknesses, CC5™ (5mm), CC8™ (8mm) and CC13™ (13mm).

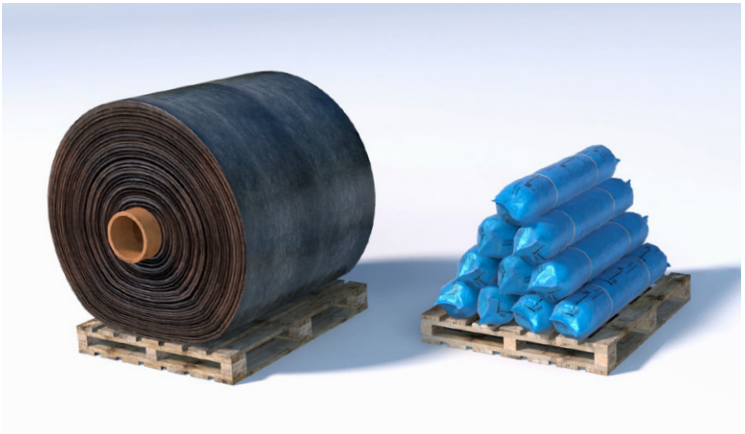
- CC5™ can be used to line channels with a solid substrate such as when relining an existing concrete channel or laying over a hard substrate such as rock. CC5™ may also be used for temporary works.
- CC8™ is the standard thickness specified for channel lining and is recommended unless either of the conditions above or below apply.
- CC13™ should be considered where a channel is to be trafficked, is exposed to high levels of debris, where water flow rates are above 8.6m/s or where the ground is particularly steep or unstable.

CC Type	Thickness (mm)	Roll Width (m)	Dry Weight (kg/sqm)	Batched Roll Coverage (sqm)	Batched Roll Length (m)	Bulk Roll Coverage (sqm)	Bulk Roll Length (m)
CC5™	5	1.0	7	10	10	200	200
CC8™	8	1.1	12	5	4.55	125	114
CC13™	13	1.1	19	N/A	N/A	80	73

2.2 Specifying the correct CC Roll Format

CC is available in **Bulk Rolls** or as smaller **Batched Rolls**.

- **Bulk Rolls** offer the quickest installation but must be deployed using heavy lifting equipment and a spreader beam. Bulk Rolls are generally more efficient to use than Batched Rolls, in terms of material use and transportation.
- For sites where this isn't suitable, man portable **Batched Rolls** can be installed without the need for plant and are well suited to smaller scale works in restricted access areas.
- CC is now also available in **Wide Rolls** of up to 4 times the standard roll width. Contact Concrete Canvas for further details.



CC Bulk Rolls and Batch Rolls



Wide Rolls of up to 4 times the standard roll width are now available



Manual lifting of CC Batch Rolls

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2.0 Specification and Installation Essentials

2.3 Specifying the correct CC Layup

CC can be laid along the length of the channel (longitudinal) or across the width (transverse).



Longitudinal Layup



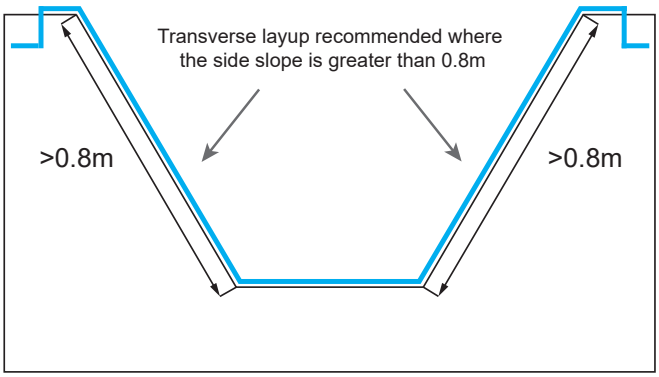
Transverse Layup

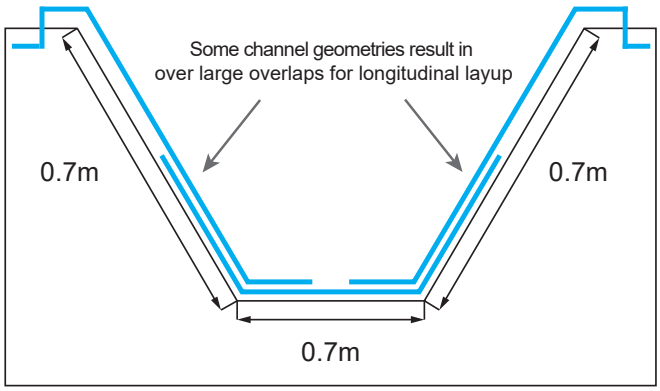
Laying longitudinally is typically faster than laying transversely. However a transverse layup may be preferable if:

- The channel side slope is greater than 0.8m as this makes securing the CC difficult when using a longitudinal layup.

or

- The channel geometry means that longitudinal layup is materially wasteful.

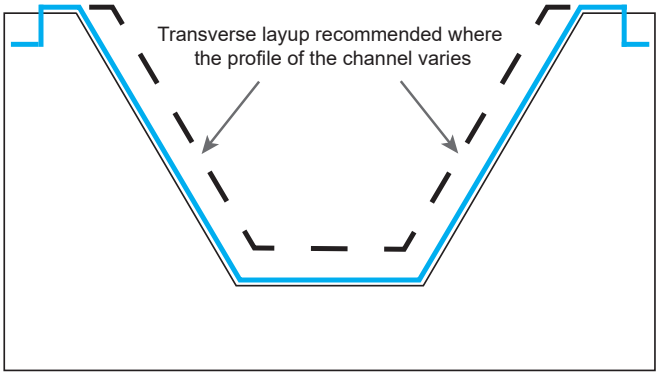


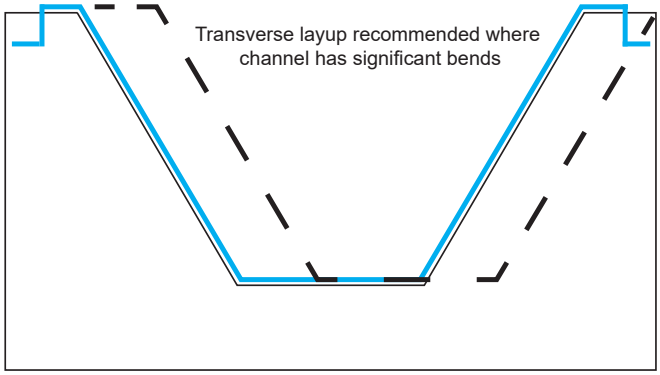


- The channel profile varies signifcantly along the channel length.

or

- The channel has significant and/or frequent sharp bends.





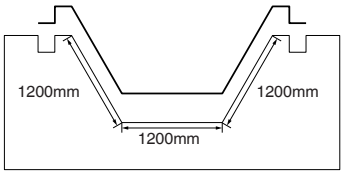
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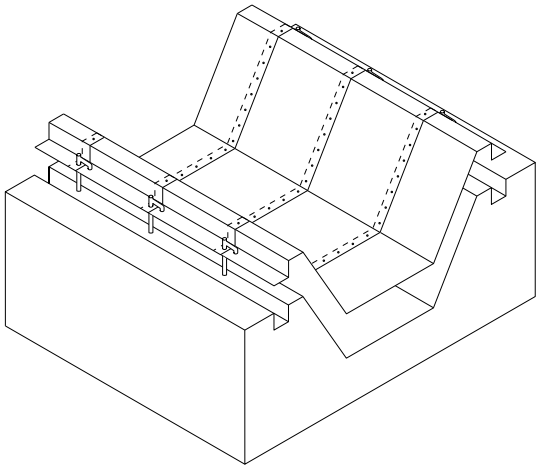
2.0 Specification and Installation Essentials

2.3 Specifying the correct CC Layup cont.

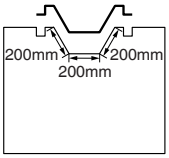
Typical layups are shown below. Consult *CC Standard Detail Drawing* for detailed information.

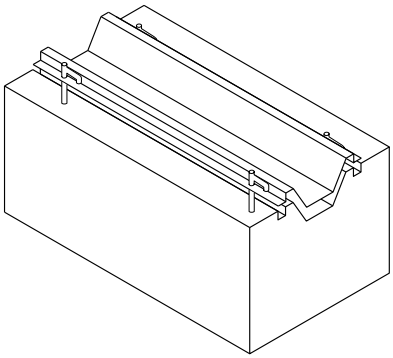
CC in a Transverse Layup



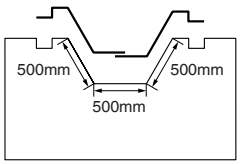


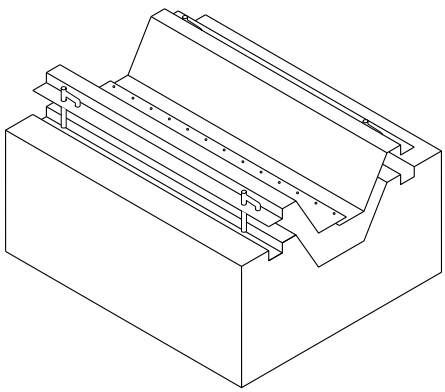
1 Layer of CC in a Longitudinal Layup



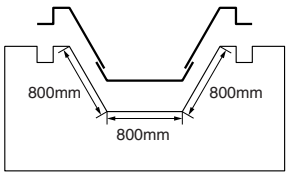


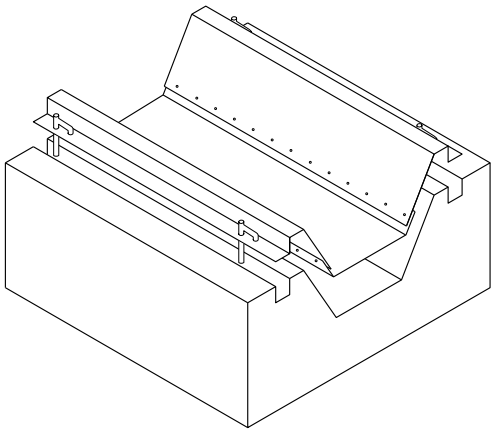
2 Layers of CC in a Longitudinal Layup





3 Layers of CC in a Longitudinal Layup



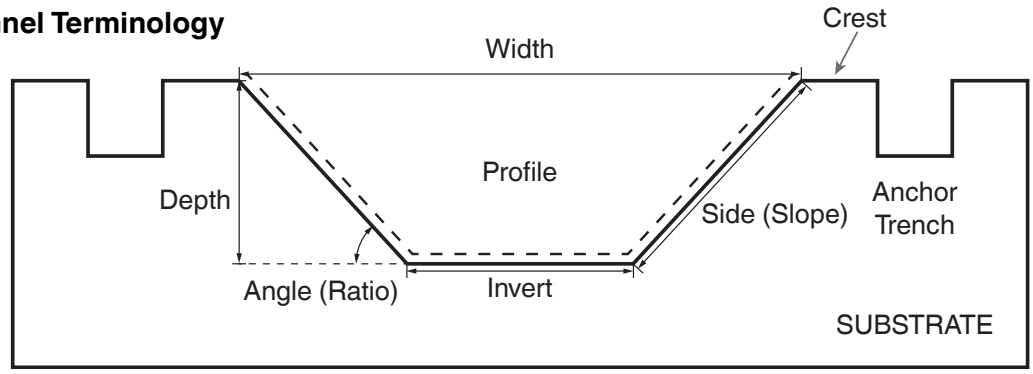


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2.0 Specification and Installation Essentials

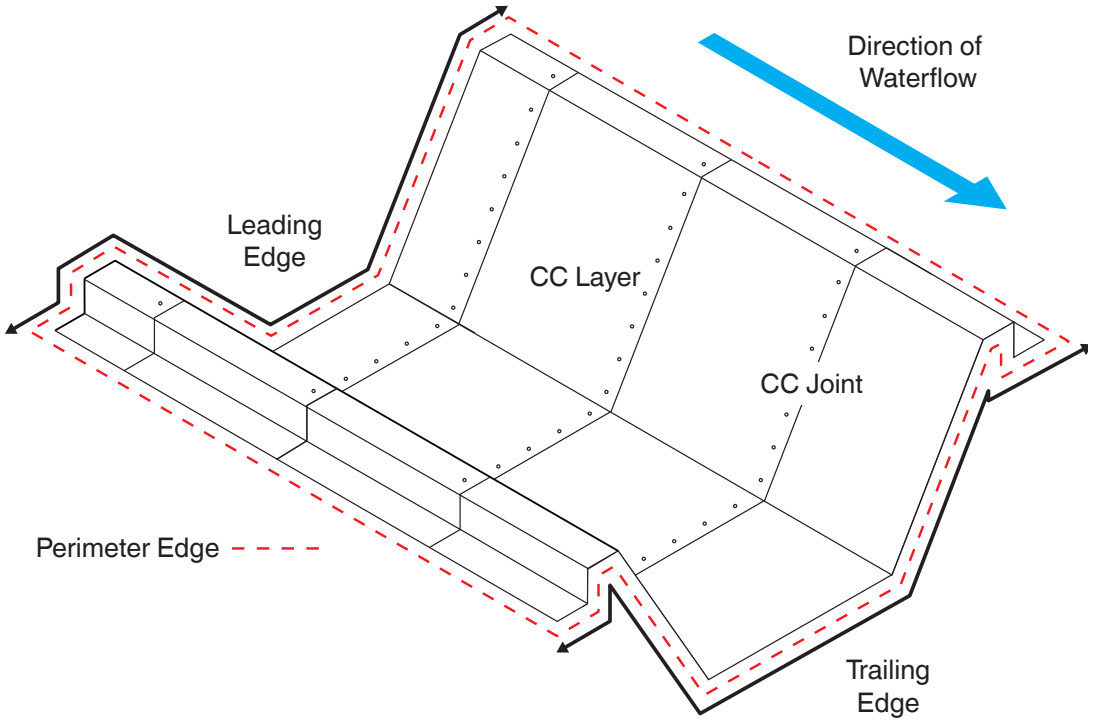
2.4 Terminology

Channel Terminology

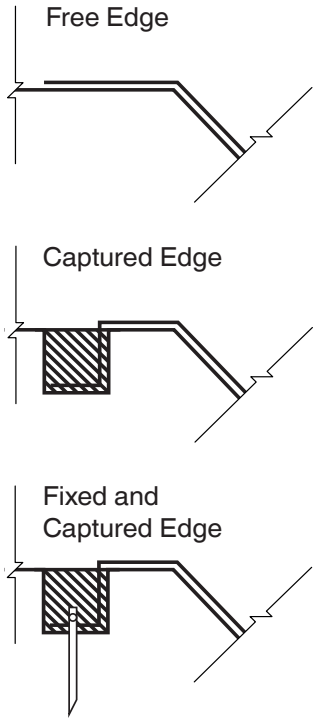


Termination Trenches at Leading and Trailing Edges.

CC Layup Terminology



CC Edge Terminology



2.5 Typical Jointing and Fixing Detail

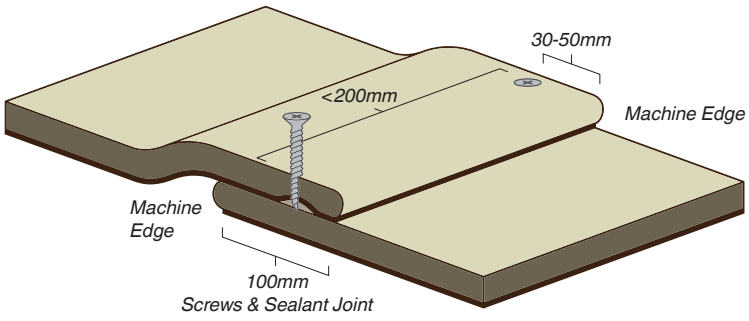


Illustration of a Screwed Overlap Joint

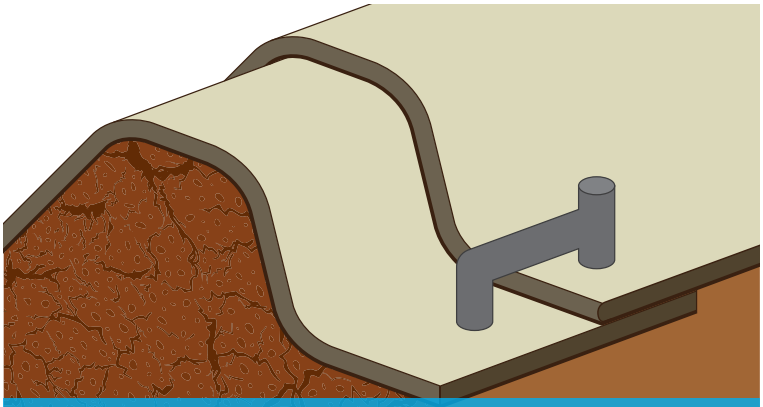
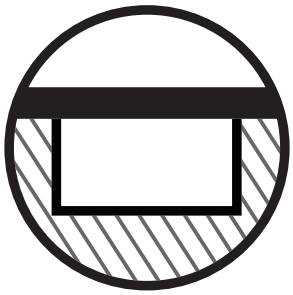


Illustration of a Pegged Anchor Trench

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3.0 Four Key Installation Principles of CC

The unique material properties of Concrete Canvas (CC) mean that it can be used for a variety of applications. Following the Four Installation Principles below will help ensure a successful installation.



Avoid Voids

1. Avoid Voids

Prepare the substrate so it is well compacted, geotechnically stable and has a smooth and uniform surface.

- For soil substrates, remove any vegetation, sharp or protruding rocks and fill any large void spaces. Ensure the CC makes direct contact with the substrate to minimise soil bridging or potential soil migration under the layer.
- For concrete substrates, remove any loose or friable material, cut away any protruding exposed re-bar and fill any large cracks or voids.



Secure Canvas

2. Secure Canvas

It is important to ensure that the CC is **Jointed** at every overlap between layers and that those layers are **Fixed** to the substrate.

- **Jointing:** Overlapped CC layers should be securely jointed together, typically this is achieved using stainless steel screws applied with an auto-fed screw gun at regular intervals. Correct screw placement will help ensure intimate contact between CC layers, prevent washout of the substrate, and limit potential weed growth. An adhesive sealant can be applied between the layers to improve the joint impermeability.

  A non-penetrative method of jointing is to 'thermally bond' the CC layers together. This also improves joint impermeability. For more jointing options see the *CC User Guide: Jointing and Fixing*.

- **Fixing:** When fixing to a soil substrate, ground pegs (eg J-pegs) are typically used. On rock or concrete substrates, CC layers can be jointed together and fixed to the substrate using masonry bolts, percussion anchors or shot fired masonry nails. Stainless steel fixings with washers are recommended.

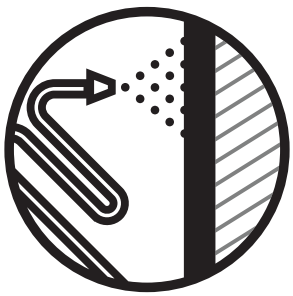


Prevent Ingress

3. Prevent Ingress

It is important to prevent water or wind ingress between the CC and the substrate, both around the perimeter of the installation and along the joints.

- For soil substrates, this is typically achieved by capturing the entire perimeter edge of the CC within an anchor trench.
- On rocky or concrete substrates, the perimeter edge should be sealed with a concrete fillet or an adhesive sealant.
- All overlapped CC layers should be lapped in the direction of water flow.



Fully Hydrate

4. Hydrate Fully

It is critical to properly hydrate CC, taking into account the quantity of material used and ambient temperature conditions.

- Always ensure hydration through the fibrous top surface.
- Ensure to hydrate any overlapped areas and anchor trenched material prior to backfilling.
- Spray the fibre surface with water until it feels wet to touch for several minutes after hydration (the 'Thumb Test').
- Follow the *CC User Guide: Hydration*.

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4.0 Installation Methodology

4.1 Equipment Required

- Sufficient CC to complete project
- Safety mask and gloves
- Cutting equipment, snap off knife or disc cutter
- Metal or plastic fixing pins
- Lump Hammer
- Screwdriver and stainless screws or alternative method to join the CC layers
- Water supply

See *CC Equipment List* for full details. Dust hazard. Wear appropriate PPE. Consult *CC SDS* document.



Equipment required

4.2 Site Preparation

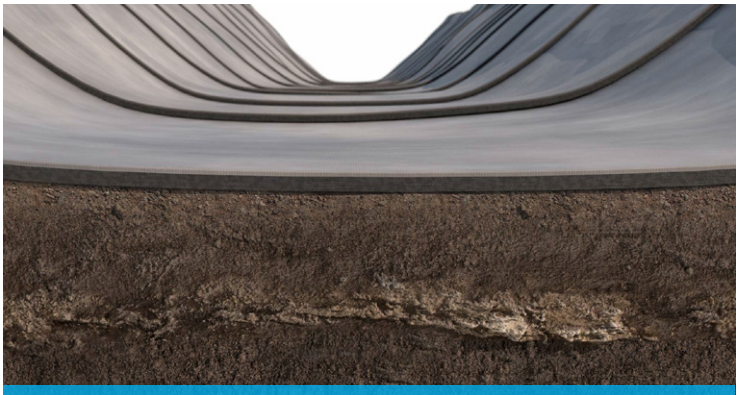
- Divert water (if lining an existing watercourse)
- Remove vegetation and grade channel to a uniform profile. CC will conform closely to the underlying channel profile
- Remove sharp or protruding rocks >25mm and fill large voids
- Excavate anchor trench into the shoulders of the channel (min. 150mm)
- Excavate Leading and Trailing Edge termination trenches (min. 150mm) along invert and side slopes (if CC is not to be fixed into existing infrastructure)



Substrate preparation & anchor trench

4.3 Deployment

- Verify if longitudinal or transverse layup deployment of CC is specified
- Begin at downstream end of channel and work up gradient
- Remove packaging and unroll CC in channel profile to suit specified layup, ensuring the fibrous top surface faces upwards, with the PVC membrane in contact with the ground.
- Inspect CC to ensure intimate contact with substrate and adjust to remove any void space behind.
- For transverse layup installations, tuck the Edge of the CC into the anchor trench before cutting to length
- If cutting with a disc cutter, it is recommended to wet the cut beforehand to minimise dust generation
- Ensure the Edge of the **first layer** of CC is either :
  - Suitably terminated into existing infrastructure and fixed to prevent water ingress, e.g. a screwed and sealed knuckle joint– see the *CC User Guide: Jointing and Fixing* for methodology or;
  - Tucked into a termination trench which is backfilled to prevent scour beneath CC.



CC orientation and contact with substrate



CC tucked into anchor trench prior to cutting

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4.0 Installation Methodology contd...

4.4 Overlapping Layers

- When positioning subsequent layers ensure there is at least a 100mm overlap in the direction of water flow (shingled like roof tiles) and that the material is in intimate contact with the ground.

4.5 Jointing and Fixing

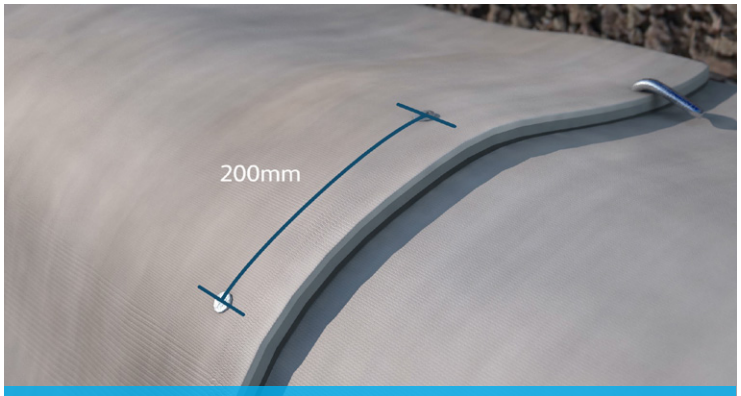
- Fix the material along the shoulder of the channel by inserting fixing pins through each overlap or at 2m intervals for longitudinal installations.
- Hydrate the material under the overlapped sections of the CC. Once hydrated, the material remains workable for 1 to 2 hours.
- Insert stainless screws at 200mm centres, at approximately 30–50mm from the edge of the CC. Ensure there is no rucking at the joint and both layers are in contact with each other
- Care shall be taken during installation to avoid damage occurring to the CC. Should the CC be damaged during installation and before hydration, the layer should be removed an replaced.
- It is essential that all exposed (i.e. unjointed) Edges of the CC should be secured during the installation to prevent water ingress underneath the CC which may cause wash-out of the substrate and subsequent undermining.
- Only install what can be fully installed and hydrated before the end of construction day to minimise any adverse effect on the installation and/or performance capabilities of the product.
- If installation continues the following working day, protect the Edge of the last layer of CC overnight with waterproof sheeting to enable jointing on return to work
- Ensure the Edge of the **last layer** of CC is either :
  - Suitably terminated into existing infrastructure and fixed to prevent water ingress, e.g. a screwed and sealed knuckle joint– see the *CC User Guide: Jointing and Fixing* for methodology or;
  - Tucked into a termination trench which is backfilled to prevent scour beneath CC.



Overlap CC Layers by a minimum of 100mm


Overlap in Direction of Water Flow


Hydration Under Joints Before Fixing



Fixing and Anchor Trench Pinning

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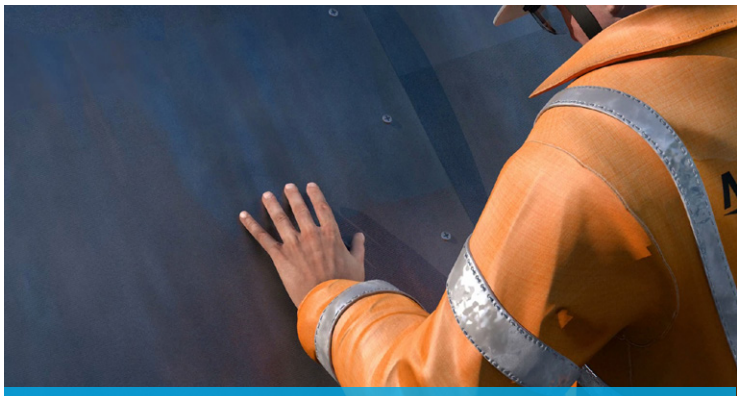
4.0 Installation Methodology contd...

4.6 Hydration

- After fixing and jointing, spray the CC with water to hydrate.
- Spray the fibre surface multiple times until the CC is fully saturated. The wet CC will first darken and then become lighter as it absorbs the water.
- Do not spray high pressure water directly onto the CC as this may wash a channel in the material.
- CC can be hydrated using fresh water or salt water and will hydrate and set underwater.
- It is not possible to over hydrate CC.
- A minimum volume of water equal to 50% of the material weight is required. For example, CC8 requires 6 litres of water per square meter.
- To check proper hydration, the CC should feel wet to the touch several minutes after hydration.
- It is not recommended to rely on rainfall to provide hydration.
- To determine whether the CC has been sufficiently hydrated simply press your thumb into the CC and release. If water is present in the depression in the CC, it has been sufficiently hydrated. If no water is observed, then more water must be applied.
- For more information on hydration and for extreme temperature installations, please consult the *CC User Guide: Hydration.*



Hydration



Hydration Touch Test

4.7 Setting

- **There is a working time of 1-2 hours after hydration.**
- **Backfill anchor trenches to create a neat termination and encourage surface water runoff to flow over the anchor trench and in to the CC channel.**
- **CC hardens to 80% strength in 24 hours and is then ready for use.**



Ensure Adequate Hydration, Don't Rely on Rainfall

4.8 Maintenance and Repair

- CC lined channels require minimal maintenance, provide long term scour protection, reduced silt generation and effective weed suppression.
- If damage is found during a periodic inspection, a patch can be placed over the damaged area extending a minimum of 150mm in all directions beyond the damaged area and attached with mortar or an approved sealant.



Backfill Anchor Trench

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Detailing Examples



Baffles can be formed by laying CC over fabricated wooden structures or sandbags



Sand bags can be used to compress joints during setting



A suitable mortar can be used to join and seal CC to existing infrastructure



Retrospective pipe penetration



CC can be easily manipulated to form ditch junctions and terminals



CC can be installed around existing infrastructure

Additional Reference Material:

- *CC User Guide: Jointing and Fixing*
- *CC Standard Detail Drawing - Transversse*
- *CC Standard Detail Drawing - Longitudinal*
- *CC & CCH User Guide: Hydration*
- *CC Equipment List*

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NUNA Innovations Inc.
Myra Falls - Channel Lining
Central Vancouver Island, Canada.
11,125m² - CC8™ (Bulk Rolls)
August 2016

CONCRETE CANVAS®

DATA SHEET

Concrete Canvas® GCCM Physical Properties*

Product	Nominal Thickness (mm)	Batch Roll Size (m^2)	Bulk Roll Size (m^2)	Roll Width (m)
CC5™	5	10	200	1.0
CC8™	8	5	125	1.1
CC13™	13	N/A	80	1.1

Product	Mass (unset) (kg/m^2)	Density (unset) (g/cm^3)	Density (set) (kg/m^3)
	EN1849 (Mean)	EN1849 (Mean)	
CC5™	7	1.43 - 1.54	+30-35%
CC8™	12	1.43 - 1.54	+30-35%
CC13™	19	1.43 - 1.54	+30-35%

Pre-Set Concrete Canvas® GCCM Properties

Setting

Working Time

1-2 hours subject to ambient temperature

CC will achieve 80% strength at 24 hours after hydration.

Method of Hydration

Spray the fibre surface with water until it feels wet to touch for several minutes after spraying.

Re-spray the CC again after 1 hour if:

- Installing CC5™
- Installing on a steep or vertical surface

Notes:

- An excess of water is always recommended. CC will set underwater and in seawater.
- CC must be actively hydrated. For example do not rely on rainfall or snowmelt.
- Use a spray nozzle for the best results (see CC equipment list). Do not jet high pressure water directly onto the CC as this may wash a channel in the unset CC.
- CC has a working time of 1-2 hours after hydration. Do not move or traffic CC once it has begun to set.
- Working time will be reduced in hot climates and increased in very cold climates.
- CC will set hard in 24 hours but will continue to gain strength over time.
- If CC is not sufficiently wetted, or dries out in the first 5 hours, the set may be delayed and strength reduced. If the set is delayed avoid trafficking the material and re-wet with an excess of water.

Refer to the *Concrete Canvas Hydration Guide* for installation in low temperatures or drying conditions.

- Low Temperature Conditions occur the ground surface temperature is between 0 and 5°C and rising or is expected to fall below 0°C in the 8 hours following hydration.
- Drying Conditions occur when there is one or more of: high air temperature (>22°C), wind (> 12km/h), strong direct sunlight or low humidity (<70%).

Other Information

* Occasionally there will be a Beam Fault (fabric imperfection under 100mm wide running across the width) in a Bulk Roll. This fault is unavoidable due to the manufacturing process and the fault will be clearly marked with a white tag, there will be a maximum of (1) one Beam Fault in any Bulk Roll. A joint may need to be made on site where there is a Beam Fault as the material at a fault will not reach the performance specified in this Data Sheet. The maximum un-useable material due to any Beam Fault will be 100mm. There are no beam faults in standard batched rolls.

* Indicative values

** For containment applications it is recommended to use CC Hydro™

Post-Set Concrete Canvas® GCCM Properties

Hydrated by immersion in accordance with ASTM D8030
Water:GCCM ratio of 0.33

Mechanical Performance

Very high early strength is a fundamental characteristic of CC. Typical strengths and characteristics are as follows:

Compressive strength to BS EN 12390-3
Testing on cementitious mix at a water:powder ratio of 0.3 to correspond to GCCM hydration by immersion.

24 hour (MPa)	50
28 day (MPa)	80

Flexural strength to ASTM D8058 at **24 hours**.

Mean (M.D.)	Initial Break (MPa)	Final Break (MPa)
CC5™	4.0	>10.0
CC8™	4.0	>6.0
CC13™	4.0	>6.0

Differential Ground Movement▲

Strain prior to PVC failure (min 50mm per 1m width)	>5%

Environmental Durability (minimum 50 year expected life)

Freeze-Thaw testing (ASTM C1185) ±20°C	200 Cycles
Freeze-Thaw testing (BS EN 12467:2004) ±50°C	100 Cycles
Soak-Dry testing (BS EN 12467:2004)	50 Cycles
Heat-Rain testing (BS EN 12467:2004)	50 Cycles
Water impermeability (BS EN 12467:2004)	Passed**
Root Resistance (DD CEN/TS 14416:2005)	Passed
Chemical Resistance (BS EN 14414)	
- Acid (pH 1.0) (56 day immersion at 50°C)	Passed
- Alkaline (pH 13.0) (56 day immersion at 50°C)	Passed
- Hydrocarbon (56 day immersion at 50°C)	Passed
- Sulfate Resistance (28 day immersion at pH 7.2)	Passed

Hydraulic Performance

Permissible Shear & Velocity CC8™▲▲ (ASTM D-6460)	
- Shear (Pa)	575
- Velocity (m/s)	8.62
Abrasion Resistance (ASTM C-1353)	
Approx 7.5x greater than 17MPa OPC (mm/1000 cycles)	0.15
Manning's Value (ASTM D6460)	n = 0.011

Other

Impact Resistance of Pipeline Coatings	
ASTM G13 (CC13™ only)	Passed
Embodied CO_2 to ISO 14040 and EN 15804	55%
Saving based on CC8™ Vs conventional concrete (cradle to gate)	
Coefficient of Thermal Expansion	
α (mm/mk)	0.012-0.015
Reaction to Fire; Euroclass B certification:	
BS EN 13501-1:2007+A1:2009	B-s1, d0
Flame Resistance: MSHA ASTP-5011	
Vertical and Horizontal Certification	Passed

▲Refer to CC Differential Ground Movement document.

▲▲Product exceeded large scale testing capabilities and was not tested to failure. To achieve these permissible values, the CC material must be properly anchored with a system designed to meet or exceed these values.

CE

Concrete Canvas Ltd.
CF37 5SP, United Kingdom
11

EN12467:2004
Concrete Canvas:
Fibre cement sheet
NT
Oversize sheets
Class 1, Category A
Reaction to Fire B-s1,d0

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APPENDIX 2
RFIs

REQUEST FOR INFORMATION

JDS RFI:	
Contractor RFI:	**BGC-RFI-001**
Site Location: EAGLE GOLD	
Date Submitted: May 21, 2018	

Subject: Heap Leach Facility – Water Control	**Project Zone/Area:** Heap Leach Facility
Contractor: BGC Engineering	**Station/Location:** Heap Leach Facility
Attention: Pelly Construction	**Discipline:** Civil

REQUEST

Related Drawings None	**Other Related Documents:**

Information Request/Description of Issue:

Information Request: BGC would like a better understanding of the water control plans to protect immediate construction and permanent constructions (such as embankment lifts, fills, liner installs, pond side slopes, ect) over this construction season and the winter season. For immediate construction, BGC would like to review water control plans prior to the placement of geotextile and drainrock in the pipe trench to ensure that a plan is in place to prevent siltation of these materials. Additionally, as is required in Section 2.3 of the Technical Specifications, the Owner should also be provided water control plans for review to ensure that they meet their permitting requirements.

Proposed Corrective Action

NA

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change	
	☐	Vendor Change	☐	Design Change	☐	Other	

Cost Impact:	
Schedule Impact:	

Requested by: Roy Morlan		**May 21, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

Answered by:

Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-001

RFI became obsolete. Response provided via pelly's answer to EPCM-RFI-013.

REQUEST FOR INFORMATION

JDS RFI:	
Contractor RFI:	**BGC-RFI-002**
Site Location: EAGLE GOLD	
Date Submitted: June 1, 2018	

Subject: Embankment Underdrain Construction Plan	**Project Zone/Area:** Heap Leach Facility
Contractor: BGC Engineering	**Station/Location:** Heap Leach Facility
Attention: Pelly Construction	**Discipline:** Civil

REQUEST

Related Drawings None	**Other Related Documents:**

Information Request/Description of Issue:

Information Request: BGC would like a better understanding of the embankment underdrain construction procedures to construct the Embankment Underdrain section protected by the Phase 1 Water Management Plan. A construction plan is requested for review; this plan should reflect the requirements presented in the design drawings and specifications for construction. It should include a plan view drawing of the hauling route, stockpiling areas for materials (if used), should account for possible damage of geotextile, include a survey control plan, health and safety plan given the current topography and have necessary access roads without damaging embankment underdrain construction site. Consideration of weather, equipment, resources should be considered.

Proposed Corrective Action

NA

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Cost Impact:	
Schedule Impact:	

Requested by: Daniel Granda		**June 1, 2018**
Name	Signature	Date

RESPONSE

☒ Approved ☐ Approved as noted ☐ Rejected as noted

Response: See attached Signed HLF Embankment Underdrain construction work plan

Answered by:	**Shipeng Zheng**	**2018-06-19**
Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Contractor's risk and expense.

StrataGold Corporation	Pelly Construction Ltd.	PARTNERS IN ACHIEVING MAXIMUM RESOURCE DEVELOPMENT VALUE	JDS Energy & Mining Inc.

Work Plan:	HLF Embankment Underdrain pipe installation Plan	**Revision:**	0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-01

OBJECTIVE

The objective of this CWP is to outline the scope of work plan pertaining to the HLF Embankment Underdrain pipe installation.

SUMMARY

The scope includes:

1. HLF Embankment Underdrain Installation Water Management Plan Approval
2. HLF Embankment Type 3 Foundation ITP Approval
3. HLF Embankment Toe Redesign ITP Approval
4. Material List
5. Equipment List
6. Haul Route
7. Work Sequence
8. Plan-View Map

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		June 4/18
Dan Russell Project Manager Pelly Construction Ltd.		June 19/2018.
Declan McGovern General Foreman Pelly Construction Ltd.		6/4/18
Flo Foster Safety Supervisor Pelly Construction Ltd.		June 04, 2018
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.		June 19/18
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		06/07/18
Roy Morlan & Daniel Granda Senior Engineering Geologist/Geotechnical Engineer BGC		6/4/18

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication, limit foot traffic in area
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

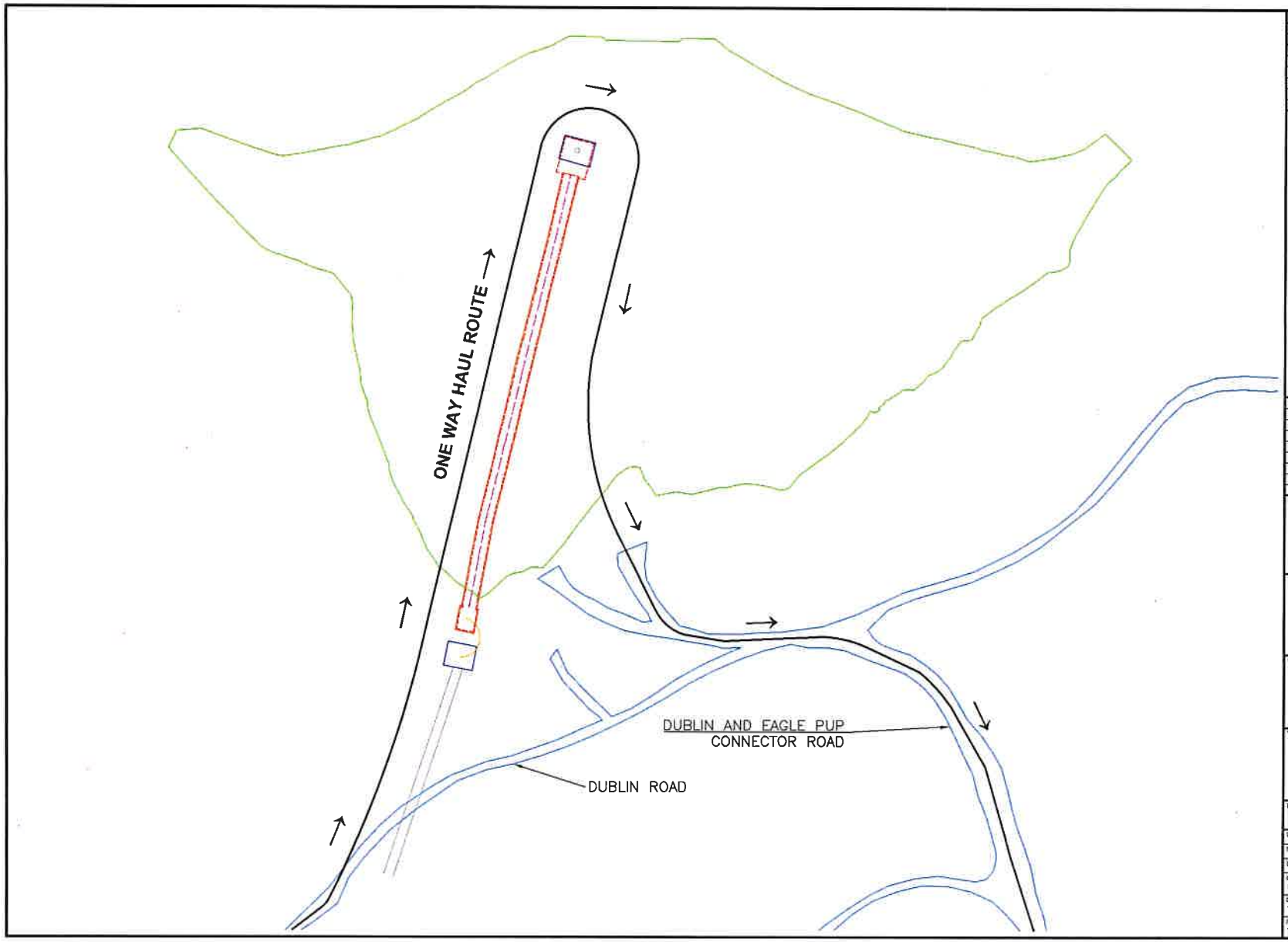
ENVIRONMENT

Critical Items	Precautions and Actions
Spill Containment	Equipment spill kits, preshift inspections before operating, large work area spill kit

SCOPE OF WORK

Description	Responsible
1. **HLF Embankment Underdrain Installation Water Management Plan Approval** • Signed BGC approval of the HLF Embankment Underdrain Installation Water Management Plan	Pelly BGC
2. **HLF Embankment Type 3 Foundation ITP approval** • Signed BGC approval of the HLF Embankment Type 3 Foundation ITP	Pelly BGC
3. **HLF Embankment Toe Redesign ITP approval** • Signed BGC approval of the HLF Embankment Toe Redesign ITP	Pelly BGC
4. **Material list** • Select Drain Fill • Non-woven Geotextiles • SDR11 HDPE pipes • SDR17 HDPE pipes	Pelly
5. **Equipment list** • 49t Excavator – Load Select Drain Fill • 40t ADT – Haul Select Drain Fill • 25t Excavator – Placement Select Drain Fill	Pelly

Description	Responsible
6. Haul Route • The 40t ADT will haul from Nuway stockpile to the trench via Dublin Gulch then exit via Eagle-Pub road back to the Nuway stockpile	Pelly
7. Work Sequence • Pelly will work from the bottom to the top • Surveyors will layout station numbers every 10m • Geotextiles will be installed with the seams running parallel to the trench • Each geotextile overlay must maintain a 0.5m overlap • Select Drain Fill shall be directly hauled from the Nuway Stockpile to the trench to minimize dilution • Select Drain fill to be used as a ballast • Minimum 0.1m of Select Drain fill material to be placed on top of the geotextiles • Install five (5) – 150mm SDR17 HDPE pipes from STA 0+29 to STA 1+80 • Install four (4) – 150mm SDR 11 HDPE pipes from STA 1+180 to STA 3+93 • Install one (1) – 150mm SDR 11 HPDE pipe from STA 1+180 to STA 2+73 • Install three (3) – 150mm SDR 11 HDPE pipes from STA 2+73 to STA 3+28 • Minimum 0.5m of Select Drain fill material to be placed on top of the HDPE pipes • Finish wrapping the Select Drain Fill with the geotextiles • Backfill 1.0m of compacted Structural Fill on top of wrapped geotextiles	Pelly



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
C1	[illegible].dwg

DRAWING NOTES:

1. BLUE LINES DENOTE EXISTING ROADS
2. BLACK LINES DENOTE HAUL ROUTE
3. GREEN LINES DENOTE EMBANKMENT PERIMETER
4. ORANGE LINES DENOTE UNDERDRAIN AND CLOSURE PIPE TRENCH
5. BLUE LINES DENOTE SUMPS
6. GREY LINES DENOTE DRAINAGE PIPES
7. ARROWS REPRESENT ONE WAY TRAFFIC DIRECTION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/06/01	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

Eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT HAUL ROUTE EXECUTION PLAN

DRAWING SCALE: H 1:1500

DATE: 18/06/02	DWG NO: EMB-HR-001
SURVEYED:	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 180501 EMB HAUL ROUTE EXECUTION PLAN.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-XXX

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan/Dan Granda**	**Date:**	**June 7, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-003**

Re: BGC-RFI-003: Construction Materials Management and Volume Reporting

1.0 INFORMATION REQUEST

BGC requests that JDS/Pelly provide a Materials Management Plan, which should include regular reporting. The purpose of this plan is to ensure that construction materials scheduled for use at the HLF construction are of sufficient volume, managed, protected, tested, and accounted for prior to use. As a component of the Materials Management Plan regular reporting of construction material status is also requested. At a minimum the information that BGC requires to perform QA and resident engineering services in regard to materials are:

- A plan view drawing including the locations of each stockpile and laydown yard where material is stored. The drawing should include labels of what material is being stored at each location. This drawing should be updated and redistributed if these locations change.
- A table and explanation of the volume of material stored, used, and/or moved. This should be updated at a minimum bi-weekly.
- Quality Control sampling results are reported to BGC by EBA. Frequency of testing is currently not reported. BGC requests that this EBA start correlating test results to material volumes and stockpile locations.
- Plans and description of methods to protect stockpiles from accidental use, contamination, instability, water and wind erosion, sun degradation, and general weather.
- A materials production/procurement schedule.

Response:

Answered by:

Name	Signature	Date

June 18, 2018

Attention: Roy Morlan : BGC Engineering

Re: Strata Gold – Eagle Gold Project
Contract No. YG403 – Heap Leach Facility
Subject: Stockpile Management Plan

Response to BGC-RFI-003

Response:

The produced Heap Leach Facility (HLF) fill materials are to be managed by the EPCM team while Pelly Construction will manage stockpiled materials excavated from the ADR Plant pad and HLF abutment.

EPCM Managed Materials

Attached drawing VICEAG05E-220-9900-0001 illustrates the produced stockpiles locations, material type, specification, total quantity produced, contractor responsible for placement, and engineering firm responsible for materials specification.

- HLF Materials
    1. Spec #6 – Pipe Bedding (SDF) Select Drain Fill
    2. Spec #7 – Overliner Drain Fill (ODF)

- Material Testing
    - Sieve analysis testing will continue to be performed by Tetra-tech.

- Quantity
    - Produced stockpiles will be surveyed weekly; updated quantities and newly produced stockpiles will be shown in an updated revision of drawing VICEAG05E-220-9900-0001 and distributed to the appropriate parties.

- Identification
    - Signs are to be placed at the toe of each stockpile identifying the material type and contractor responsible for placement.

- Tracking
    - Placed material quantities to be tracked by recording the number of loads by truck type.

Pelly Construction Managed Materials

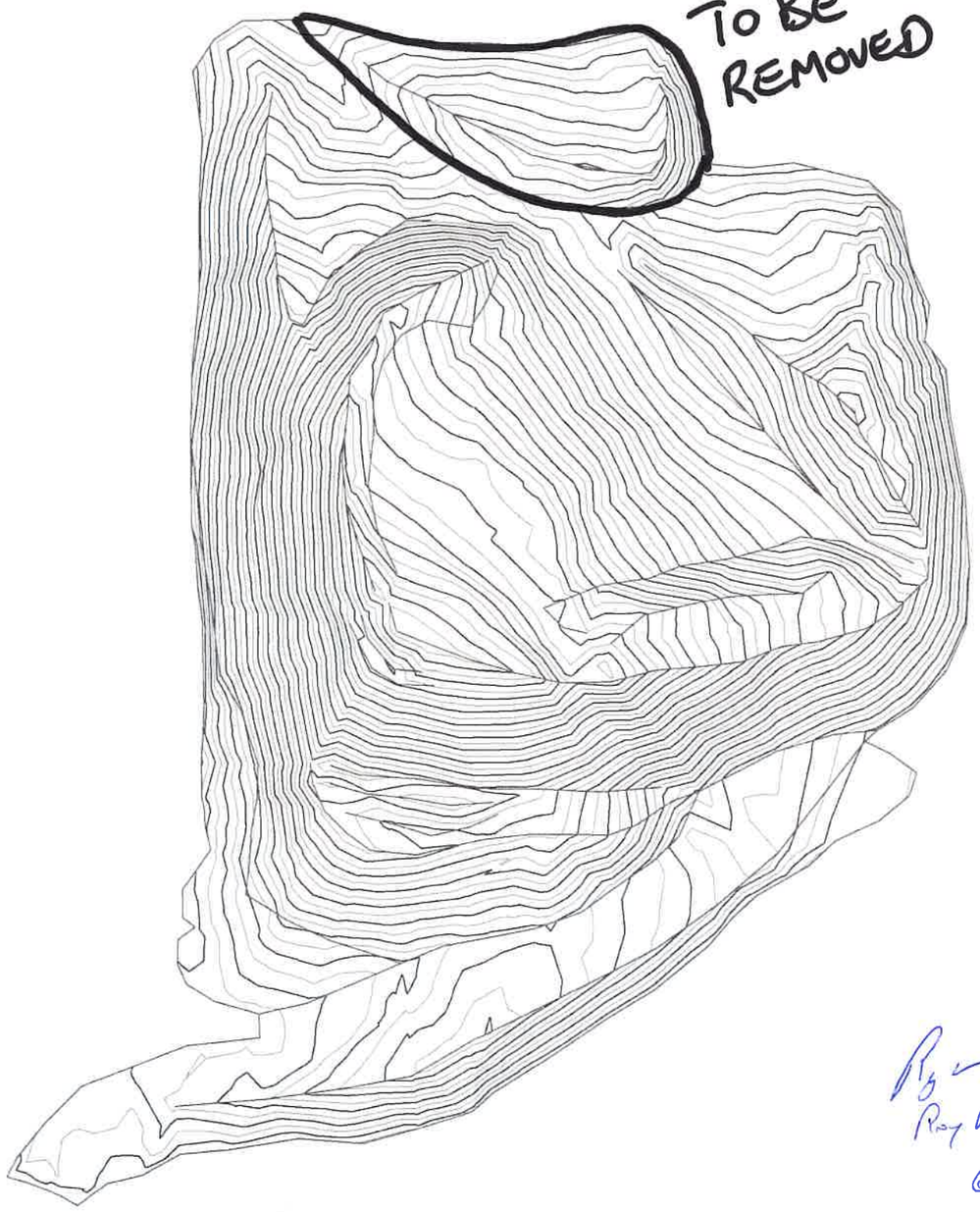
Attached drawings EMB008-1 and EMB008-2 illustrates stockpiled locations, material type, and quantity.

- Structural Fill
  1. 82,181 m3 contained within the HLF Embankment footprint
  2. 55,912 m3 at the ADR Pad stockpile
  3. Estimated 34,300 m3 will be structural fill for the remainder of the unexcavated ADR Pad material

- Rockfill
  1. 89,995m3 at the ADR Pad stockpiles
  2. Estimated 68,700 m3 will be rockfill for the remainder of the unexcavated ADR Pad material

- Quantity
  - Produced stockpiles will be surveyed prior to excavation

- Tracking
  - Placed material quantities to be tracked by recording the number of loads by truck type.



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
180601 EMBANKMENT STOCKPILE VOLUME	1.000	1.000	12484.78sq.m	52.97 Cu. M.	~~86549.75 Cu.~~ M.	86496.77 Cu. M.<Fill>
Totals			12484.78sq.m	52.97 Cu. M.	86549.75 Cu. M.	86496.77 Cu. M.<Fill>

$2,181.50

Ray Moylan
6-27-19

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. SHOWING VOLUME OF STOCKPILED MATERIAL ON THE HLF EMBANKMENT EAST_

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR..

CLIENT:

---

eshemuta
Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

HLF EMBANKMENT
STOCKPILE VOLUMES

DRAWING SCALE: H 1:750

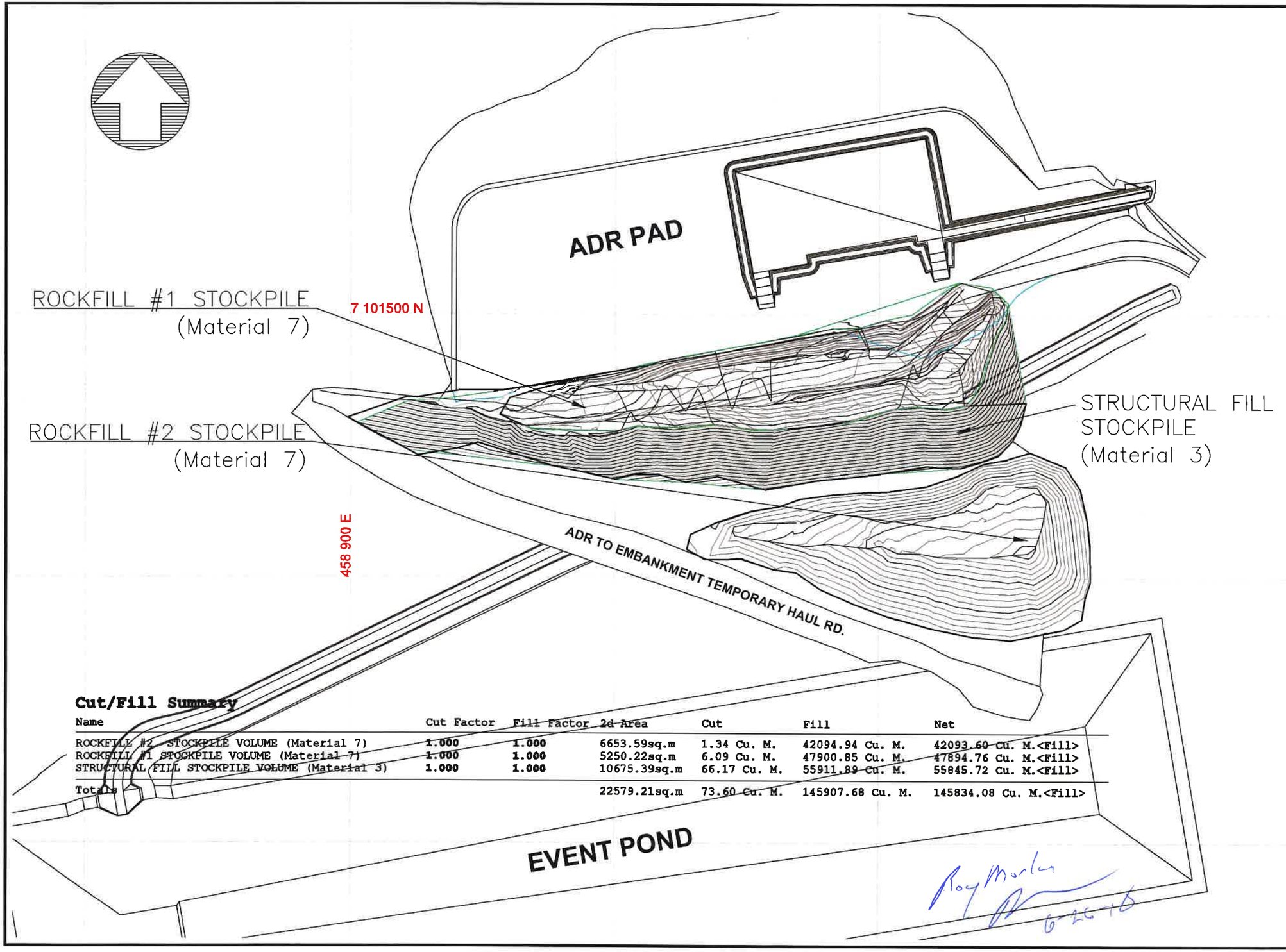
DATE: 18/06/24	DWG No: EMB-008-1
SURVEYED: E.J./JCB	CHECKED:
DRAWN: C.B./BAX	APPROVED:

DRAWING FILE: 180624 HLF EMB Stockpile Volume_rev1

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
ROCKFILL #2 STOCKPILE VOLUME (Material 7)	1.000	1.000	6653.59sq.m	1.34 Cu. M.	42094.94 Cu. M.	42093.60 Cu. M.<Fill>
ROCKFILL #1 STOCKPILE VOLUME (Material 7)	1.000	1.000	5250.22sq.m	6.09 Cu. M.	47900.85 Cu. M.	47894.76 Cu. M.<Fill>
STRUCTURAL FILL STOCKPILE VOLUME (Material 3)	1.000	1.000	10675.39sq.m	66.17 Cu. M.	55911.89 Cu. M.	55845.72 Cu. M.<Fill>
Totals			22579.21sq.m	73.60 Cu. M.	145907.68 Cu. M.	145834.08 Cu. M.<Fill>

Roy Marlow 6-26-18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. Showing Volume of Excavated Coarse and Fines material placed on the Event Pond Slope, south of the ADR Pad.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR.

CLIENT:

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

ADR PAD EXCAVATION STOCKPILE VOLUMES

DRAWING SCALE: H 1:1250

DATE: 18/06/26	DWG No: 182150-003
SURVEYED: E.J	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 180622 ADR PAD EX. STOCKPILE_rev3

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-004

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan/Dan Granda**	**Date:**	**June 10, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-004**

Re: BGC-RFI-004: Leak Test for fused HDPE Pipes in Underdrain

1.0 INFORMATION REQUEST

BGC requests that JDS/Pelly provide a procedure to verify HDPE pipes are few of leaks due to debris found during the fusing stage (e.g. hydrostatic pressure test) to verify that the HDPE pipe fusing can withstand at a minimum 50 metres of hydraulic head without leaks. Conditions observed are attached as pictures below.

This test will verify seal quality for placement on drains.




NE
E
SE
30
60
90
120
150
87°E (T)
64°2'7"N, 135°49'57"W ±16.4ft
2839ft
08 Jun 2018, 14:57



Response:

Answered by:

Name	Signature	Date

Roy Morlan

From: Dean Serelo <dean@pelly.net>
Sent: Saturday, June 16, 2018 8:37 AM
To: D'Arcy Comerford; Roy Morlan
Cc: Dan Russell; Matt Coverdale; Calvin Goldschmidt; Shipeng Zheng
Subject: RE: BGC-RFI-004

Hi D'Arcy,

Pelly will be following the test procedure guidelines outlined in ASTM F2164-13. As discussed with BGC site Engineer, we will be testing the pipe that has been most recently fused as a spot test for the remainder of the pipes. This pipe will be tested to a maximum pressure of 100 psi and will be flagged to be used as the closure pipe within the underdrain construction. A detailed procedure will follow along with the test results.

Dean Serelo, EIT

Field Engineer

PELLY CONSTRUCTION LTD.

Victoria Gold Project

From: D'Arcy Comerford <darcyc@jdsmining.ca>
Sent: June 11, 2018 3:04 PM
To: Dean Serelo <dean@pelly.net>; Shipeng Zheng <shipeng@pelly.net>
Cc: Dan Russell <dan@pelly.net>; Matt Coverdale <MattC@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Subject: FW: BGC-RFI-004

Find attached RFI from BGC for your response. RFI is regarding testing of underdrain HDPE piping.

Thanks

D'Arcy

From: DGranda@bgcengineering.ca
Sent: June 10, 2018 7:25 PM
To: RMorlan@bgcengineering.ca; Calving@jdsmining.ca; darcyc@jdsmining.ca; brandenf@jdsmining.ca; clinta@jdsmining.ca
Cc: TMeyer@bgcengineering.ca; EMatthews@bgcengineering.ca
Subject: BGC-RFI-004

Gentlemen,

As you may already know, conditions at the site until very recently have been full of rain storms, mud, debris and variable temperatures.

We conducted an inspection of Pelly's pipe fusing station and have concern that the pipes that will be installed may not meet the design criteria due to mud, and conditions mentioned in the start of this email.

The specifications in section 4.1.2 provide guidelines that refer to ASTM standards. We suggest these documents be used and also conduct a field test to make sure the pipes have no leaks given that once buried, it will be costly to fix, replace, etc. We hope to work with Pelly as needed to develop a plan to verify the quality of the seals and verify that they will withstand the hydrostatic pressures of the design without leaks.

Let me know if you have any questions.

Thanks

BGC ENGINEERING INC.
per:

Roy Morlan, P.G., P.M.P.
Senior Engineering Geologist

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
701 12th Street, Suite 211
Golden, CO, USA, 80401
Telephone: 720.598.5982 ext. 52104
Cellular: 303.253.5268
www.bgcengineering.ca

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-004

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Dan Granda**	**Date:**	**June 11, 2018**
Copied:	**Troy Meyer/Roy Morlan**	**Record:**	**BGC-RFI-006**

Re: **BGC-RFI-006: Water Management Plan Phase 2**

1.0 INFORMATION REQUEST

BGC requests that JDS/Pelly provide a Water Management Phase 2 Plan for the embankment construction, protection from erosion of finer compacted material. The Phase 1 plan submitted and previously accepted only covers the construction of the underdrain trench. Intense rainfall and runoff could potentially cause erosion of finer compacted materials and oversaturate materials that could cause delays in construction. The Water Management Phase 2 should include a work plan and a plan view drawing of the construction footprint with proposed features to protect construction efforts.

Response:

Answered by:

Name Signature Date

Work Plan:	HLF Embankment Phase 2 Water Management and Construction Plan	**Revision:**	01
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-26

OBJECTIVE

The objective of this CWP is to outline the water management and construction sequence of the Heap Leach Embankment.

SUMMARY

i) The scope of work includes:

1. Excavate 950-drainage ditch
2. Excavate Underdrain Header and Lateral pipe Trenches
3. Construct Temporary Containment Berms
4. Excavate Temporary Sumps
5. Install Underdrain Header Pipes
6. Install Underdrain Lateral Pipes
7. Install Riser Pipe
8. Well Decommissioning (Completed)

ii) Work Sequence

iii) Conceptual Drawing

SIGNATURES:

Stakeholder	Signature	Date
Jason Abel Superintendent Pelly Construction Ltd.		June 26/18
Dan Russell Project Manager Pelly Construction Ltd.		
Declan McGovern General Foreman Pelly Construction Ltd.		June 26/18
Flo Foster & Tiffany Jewell Safety Supervisor Pelly Construction Ltd.		June 26 18
Roman Bilobrowka Site Manager JDS Energy & Mining Inc.		
Clint Abel & Mike Blusson Earthworks Superintendent JDS Energy & Mining Inc.		June 26, 2018 June 26/18
Roy Morlan & Daniel Granda Senior Engineering Geologist/Geotechnical Engineer BGC		June 26, 2018

SAFETY

Potential Hazard	Precautions and Actions
Heavy Equipment	JHA's/SOP's, Radios, PPE
Workplace Congestion	Maintain radio communication
Steep Slopes	Stay within operator's abilities, operate on slopes in dry conditions when possible and must travel facing down the slope.

ENVIRONMENT

Critical Items	Precautions and Actions
Spill Containment	Equipment spill kits, preshift inspections before operating, work area large spill kit

SCOPE OF WORK

Description	Responsible
1. **Excavate the 950-drainage ditch** • Topsoil to be stripped and placed above the intended ditch area • Excavate a ditch to bedrock along the perimeter of the work area • The drainage ditch will provide a positive drainage toward the east side	Pelly
2. **Excavate Underdrain Header and Lateral pipe trenches** • Excavate Header pipe trenches to be contained within bedrock foundation • The header trench shall be excavated upstream to the 950m elevation • The trenches shall be excavated as per IFC drawing EGHLF-XD-03-04 • Excavate Lateral pipe trenches as per drawings from finish grade • All excavation prior to backfill to be approved by BGC	Pelly BGC
3. **Construct Temporary Containment Berms** • Construct within the Header trench as needed while progressing the construction from the bottom to the top • The upstream side of the berm shall be lined with a geomembrane liner • A back-up pump will be on standby ready to convey water safely away from construction activities in the HLF area when required • The temporary berm will be removed when it's no longer needed	Pelly

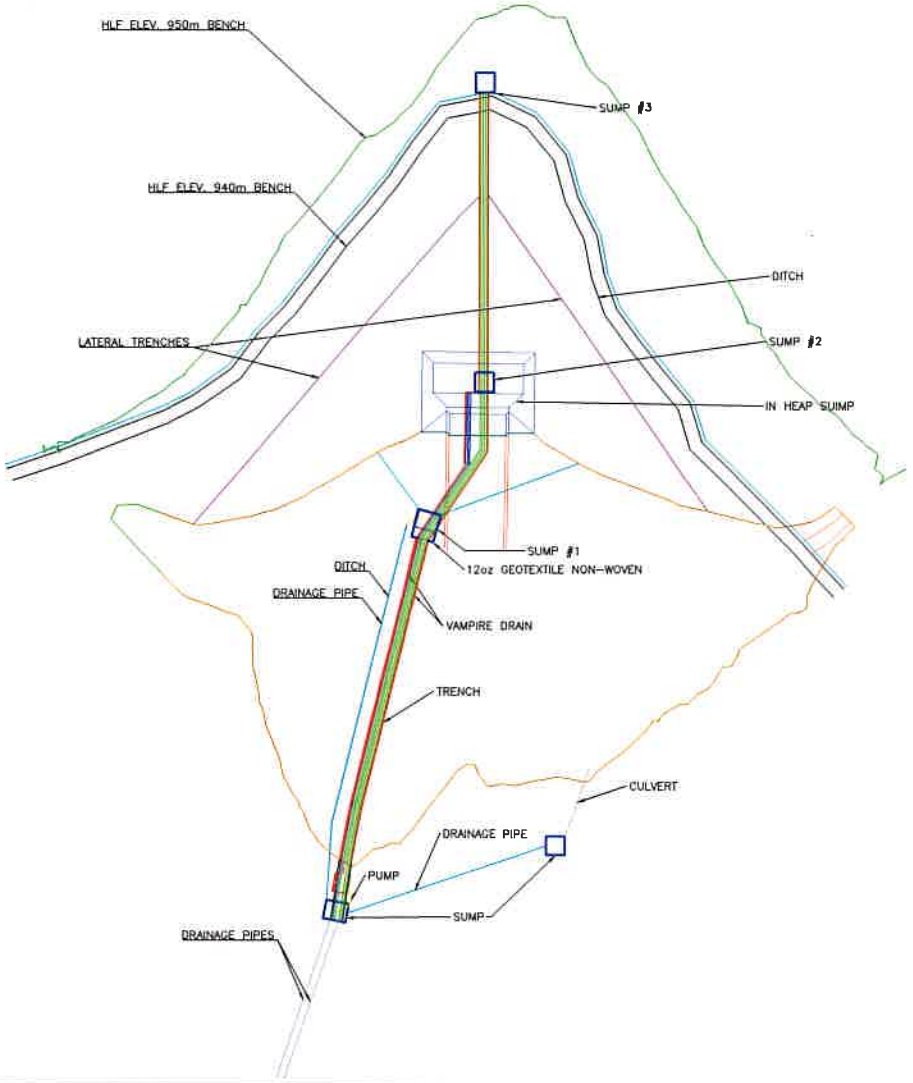
Description	Responsible
4. **Excavate Temporary Sumps** • Excavate temporary sump(s) as needed • Minimum dimensions: 5m x 5m x 1m deep (max. 2m deep) • Trenches will be excavated to direct all downslope water into the temporary sump • A back-up pump will be on standby ready to convey water safely away from construction activities in the HLF area when required • The temporary sump will be backfilled[1] when it's no longer needed	Pelly
5. **Install Underdrain Header Pipes** • The underdrain header pipes shall be installed as per IFC drawing EGHLF-XD-03-03 and 03-04	Pelly BGC
6. **Install Underdrain Lateral Pipes** • The underdrain lateral pipes shall be installed as per IFC drawing EGHLF-XD-03-03 and 03-04	Pelly BGC
7. **Install Riser pipe(s)** • Install geomembrane liner in the sump or dam • Connect the Riser pipe(s) to the underdrain pipe(s) • Place rip-rap or cobble stones in the sump area • Remove riser pipe when it's no longer required	Pelly
8. **Well Decommissioning (Completed)** • See attached completion reports	Pelly BGC

Notes:

1. Pelly has identified potential water problem that could affect the backfill compaction requirement of the structural/rock fill which will require input from BGC

WORK SEQUENCE

1. Establish the 950 drainage ditch
2. Install a temporary berm/sump at STN 1+90 (Sump 1)
3. Install five (5) – 150mm SDR 17 HDPE pipes from STN 0+29 to STN 1+80
4. Connect the Riser pipe to an underdrain header pipe
5. Excavate the header trench upstream beyond the Embankment footprint (STN 3+70)
6. Install a temporary berm/sump at STN 3+60 (Sump 2)
7. Install four (4) – 150mm SDR 11 HDPE pipes from STN 1+80 to STN 3+50
8. Install one (1) – 150mm SDR 11 HDPE pipe from STN 1+80 to STN 2+73
9. Install three (3) – 150mm SDR 11 HDPE pipes from STN 2+73 to STN 3+28
10. Disconnect the Riser pipe at STN 1+80 and reconnect at STN 3+50
11. Install a temporary berm/sump at STN 5+10 (Sump 3)
12. Excavate the header trench upstream to STN 5+00
13. Excavate the lateral trenches
14. Install four (4) – 150mm SDR 11 HDPE pipes from STN 3+50 to STN 5+00
15. Install two (2) - 100mm ADS N12 Perforated pipes to connect to the header drain pipes
16. Disconnect the Riser pipe at STN 3+50 and reconnect at STN 5+00



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1 SHOWING REALIGNMENT OF UD AND CLOSURE PIPES ANS WATER DRAINAGE PLAN

ISSUES:

REV.	YY/MM/DD	INT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

CLIENT:

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF UNDERDRAIN AND CLOSURE PIPE REALIGNMENT AND SUMP LOCATIONS

DRAWING SCALE: H 1:1000 V 1:1000

DATE:	18/06/24	DWG No:	EMB-008-01
SURVEYED:	E J /BAX	CHECKED:	
DRAWN:	C M /BAX	APPROVED:	

DRAWING FILE: 180624 UD AND CLOSURE SITE PLAN

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
DG10-399C	Ann Gulch	Exploration hole	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
120.3m	459652.073, 7101594	None	2018-06-08

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & pull instrument	Crystal Beaudry	Alex Therriault		
6/8/2018	Observe/report	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

Metal Casing 1m deep

INSTRUMENTATION REMOVAL

none

PLUG MATERIAL

Grout

PLUG VOLUME

2.2m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Remove casing	YES	
2	Grout Borehole	YES	
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459548, 7101624	None	2018-06-07

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/7/2018	Observing/notes	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

Grout

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Remove monument casing	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
Unnamed well next to MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459541, 7101639	None	2018-06-06

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/6/2018	Observing/notes	Dan Granda	Dominic Korn		

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe removed

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

grouting from bottom to top with a tremie pipe

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Casing removed	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-007

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Dan Granda**	**Date:**	**June 11, 2018**
Copied:	**Troy Meyer/Roy Morlan**	**Record:**	**BGC-RFI-007**

Re: BGC-RFI-007: Material Type 2 Production/Stockpile Reserve Plan

1.0 INFORMATION REQUEST

BGC requests that JDS/Pelly provide a Material Type 2 Reserve Plan.

Gathering sufficient and low moisture type 2 material proved to be difficult during the construction of the embankment toe (RFI-017). To avoid future delays and to plan for future needs of approved type 2 material, BGC requests a reserve plan with the following goals:

- Lowering the moisture content during favorable weather conditions by material spreading on dry surfaces.
- Creating multiple elevated stockpiles of drier type 2 materials.
- Grading surfaces to avoid water ponding near stockpiles and on stockpiles.
- Covering stockpiles with tarps or other materials until used.

The main purpose is to prepare, reserve, protect and have Material Type 2 ready for use during construction.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-007

RFI became obsolete. No response needed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-008

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Dan Granda/Roy Morlan**	**Date:**	**June 22, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-008**

Re: **BGC-RFI-008: QC Plan and Schedule**

1.0 INFORMATION REQUEST

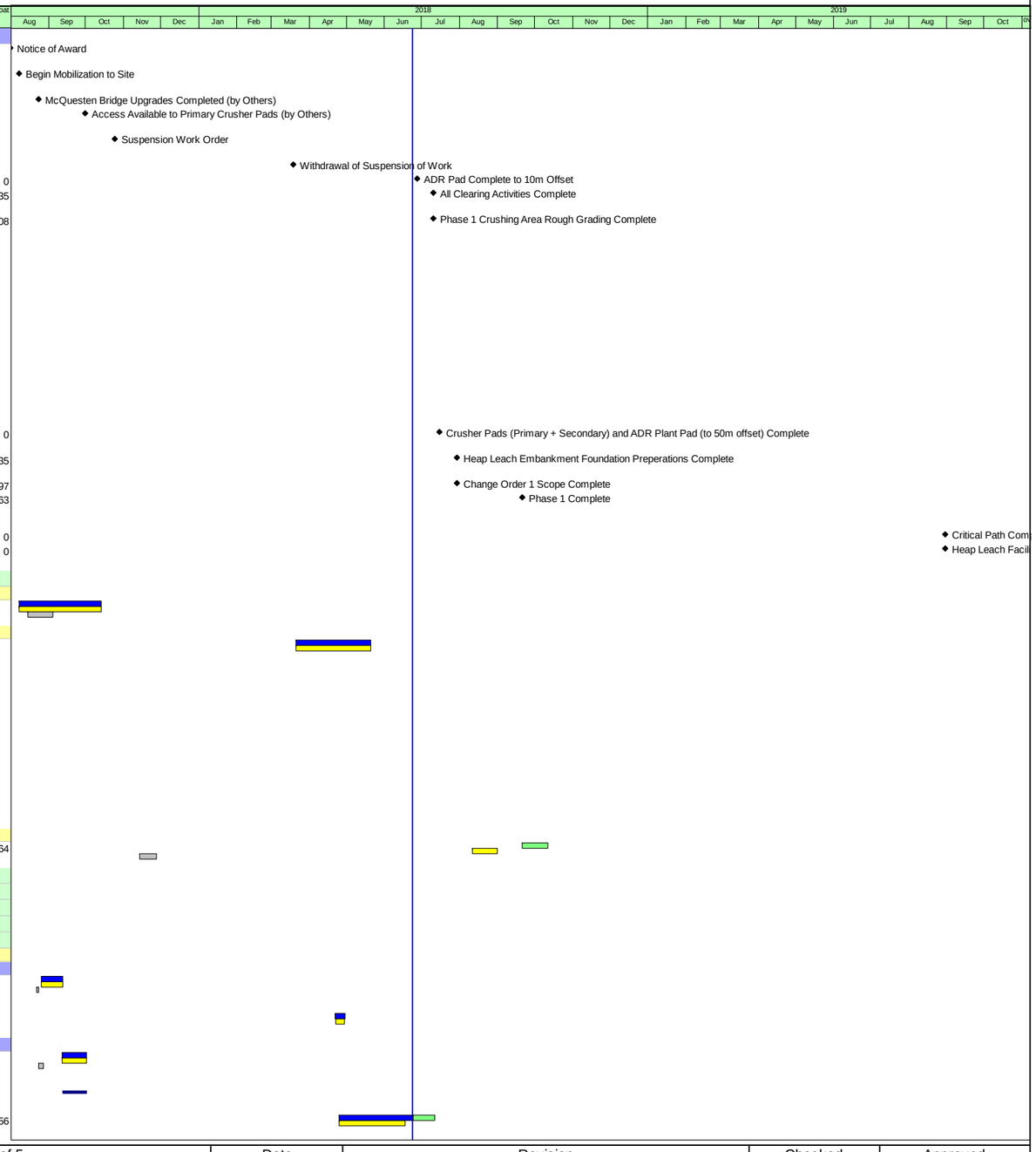
BGC requests Pelly provide a QC plan and schedule for the HLF construction. The plan should take into account the different phases of construction, including potential for 2 shifts working 24 hours per day. BGC would like to verify that adequate QC is planned for construction and testing. This will also help BGC plan the QA monitoring schedule. The QC plan and schedule should reference to the anticipated construction schedule.

Response:

Answered by:

Name Signature Date

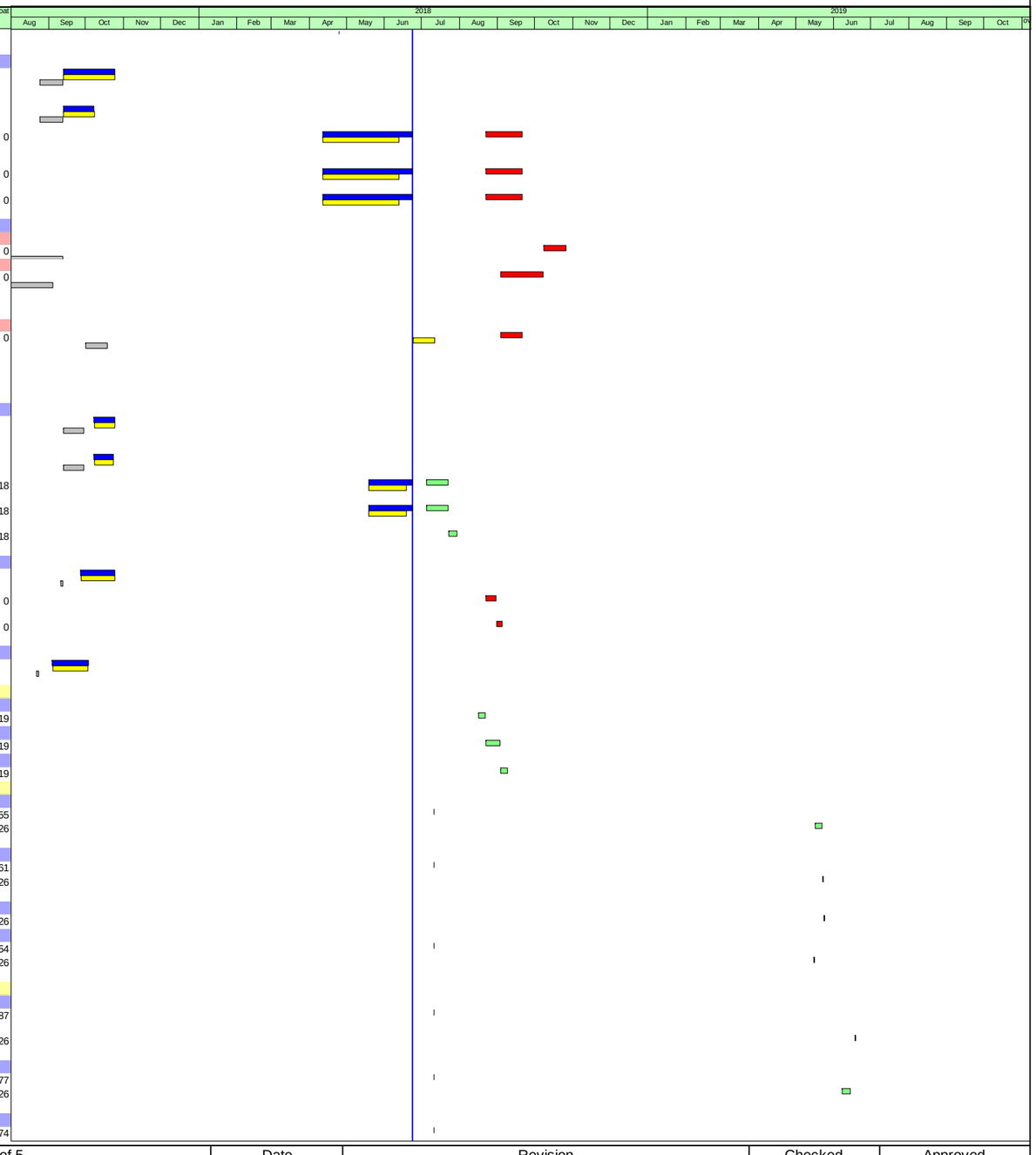
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG- Eagle Gold - Pending Work								
M1	Original Contract	Notice of Award	0	01-Aug-17 A			M2	
M2	Original Contract	Begin Mobilization to Site	0	08-Aug-17 A		M1	EG-1000, M3	
M3	Original Contract	McQuesten Bridge Upgrades Completed (by Others)	0		24-Aug-17 A	M2	EG-1130	
M4	Original Contract	Access Available to Primary Crusher Pads (by Others)	0	01-Oct-17 A				
M10		Suspension Work Order	0	25-Oct-17 A				
M11		Withdrawal of Suspension of Work	0		19-Mar-18 A			
M20		ADR Pad Complete to 10m Offset	0		27-Jun-18*	EG-1160		0
M6	Original Contract	All Clearing Activities Complete	0		10-Jul-18	EG-1010, EG-1070, EG-1840, EG-1420	M8	235
M7	Original Contract	Phase 1 Crushing Area Rough Grading Complete	0		10-Jul-18	EG-1060, EG-2100, EG-2070	M8, EG-3180, EG-3170, EG-3160, EG-3150, EG-3140, EG-3130, EG-2970, EG-2980, EG-2990, EG-3000, EG-3010, EG-3020, EG-3030, EG-3040, EG-3050, EG-3090, EG-3080, EG-3070, EG-3060	108
M21		Crusher Pads (Primary + Secondary) and ADR Plant Pad (to 50m offset) Complete	0		15-Jul-18*	EG-2080, EG-1890, EG-2100		0
M5	Original Contract	Heap Leach Embankment Foundation Preperations Complete	0		29-Jul-18	EG-1470, EG-1490, EG-1510, EG-1520	EG-1750	35
M22	CO 1	Change Order 1 Scope Complete	0		29-Jul-18	EG-2090, EG-1930	M17	397
M8	Original Contract	Phase 1 Complete	0		20-Sep-18	M6, M7, EG-1400, EG-1260, EG-1750, EG-2860, EG-2770	EG-1030, M17	163
M17		Critical Path Completion Date	0		30-Aug-19*	M8, M22, M15		0
M15		Heap Leach Facility Complete	0		30-Aug-19	EG-2960, EG-2580	M17	0
EG-.7200 Mobilization								
EG-.7200.1 Mobilization - Phase 1								
EG-1000	Original Contract	Mobilization Phase 1	67	08-Aug-17 A	14-Oct-17 A	M2	EG-1410	
EG-.7200.2 Mobiilzation - Phase 2								
EG-1800	CO 1	Mobilization Phase 2	61	21-Mar-18 A	21-May-18 A	EG-1870, EG-1880	EG-1080, EG-1040, EG-3200, EG-3190, EG-3210, EG-3220, EG-3230, EG-3240, EG-3250, EG-3260, EG-3270, EG-3280, EG-3120, EG-3110, EG-3100, EG-2550, EG-3060, EG-2970	
EG-.7200.3 Demobilization								
EG-1030	Original Contract	Demobilization	21	21-Sep-18	11-Oct-18	M8		264
EG-.2120 Crusher Area Pads								
EG-.2130 90 Day Storage Pad								
EG-.2150 Process Plant Pad								
EG-.2220 On-Site Roads								
EG-.4110 Heap Leach Facility								
EG-.4110.1 Heap Leach Mass Earthworks								
EG-.4110.1.1 Clearing - HLF Embankment & Pad								
EG-1410	Original Contract	Clearing - HLF Embankment & Pad	18	26-Aug-17 A	12-Sep-17 A	EG-1000	EG-1780, EG-1770, EG-1420	
EG-1420	CO 1	Clearing - HLF Embankment & Pad	8	22-Apr-18 A	30-Apr-18 A	EG-1410	M6	
EG-.4110.1.2 Topsoil - HLF Embankment & Pad (Haul to Stockpile)								
EG-1720	Original Contract	Push and Clear Topsoil Material	20	12-Sep-17 A	02-Oct-17 A	EG-1780, EG-1770	EG-1200, EG-1430, EG-1900	
EG-1770	Original Contract	Hauling of Topsoil at HLF Embankment to Topsoil Stockpile B	19	12-Sep-17 A	02-Oct-17 A	EG-1410	EG-1720	
EG-1900	CO 1	Push and Clear Topsoil Material	78	25-Apr-18 A	11-Jul-18	EG-1720	EG-1910	356



Remaining Level of Effort | CO 1 Baseline | Critical Remaining Work
Actual Level of Effort | Actual Work | Milestone
Original Contract Baseline | Remaining Work

Date	Revision	Checked	Approved
28-Jun-18	Heap Leach Facility Pending Work Critical Path Schedule	M. Billowits	D. Russell

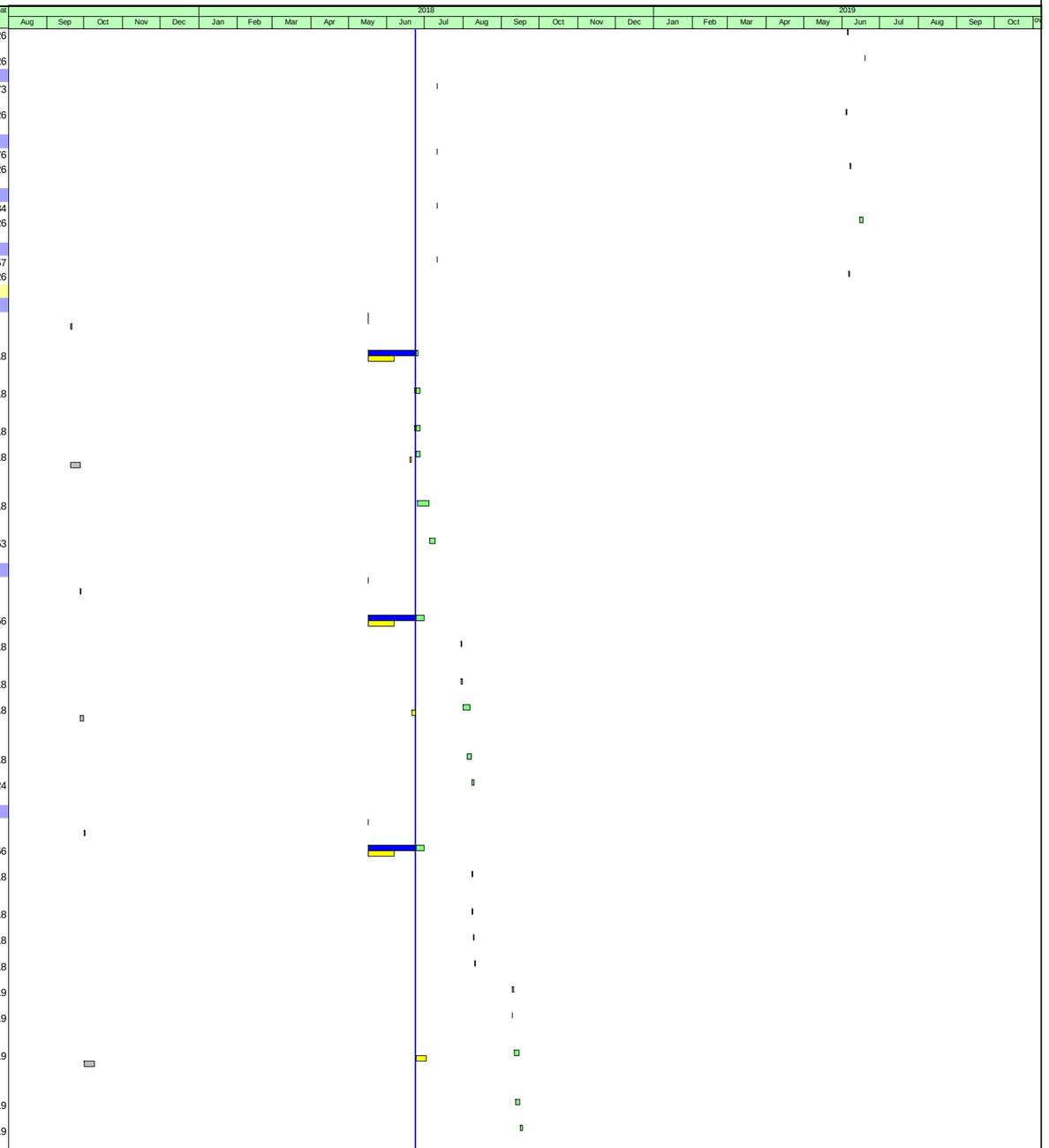
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-1910	CO 1	Hauling of Topsoil at HLF Embankment to Topsoil Stockpile B	0	25-Apr-18 A	25-Apr-18 A	EG-1900	EG-1750	
EG-.4110.1.3 Excavate Embankment to Rock Foundation*								
EG-1430	Original Contract	Excavate Embankment to Rock Foundation 2017*	42	13-Sep-17 A	24-Oct-17 A	EG-1720	EG-1440, EG-1470, EG-1480	
EG-1440	Original Contract	Stockpile Excavated Embankment to Rock Foundation 2017	25	13-Sep-17 A	08-Oct-17 A	EG-1430	EG-1470, EG-1450	
EG-1450	Original Contract	Excavate Embankment to Rock Foundation 2018	103	12-Apr-18 A	20-Sep-18	EG-1440	EG-1460, EG-1530, EG-1540	0
EG-1460	Original Contract	Stockpile Excavated Embankment to Rock Foundation 2018	103	12-Apr-18 A	20-Sep-18	EG-1450	EG-2110	0
EG-2110	Original Contract	Rework on Conditionally Approved Areas	103	12-Apr-18 A	20-Sep-18	EG-1460	EG-1750	0
EG-.4110.1.4 Handle, place, and compact embankment fill, including stockpiling as required								
EG-.4110.1.4.1 Excess cut from event ponds 330, 000 m3								
EG-1730	Pending	Haul and Place from Event Pond	19	08-Oct-18	26-Oct-18	EG-1740	EG-2530	0
EG-.4110.1.4.2 Excess cut from ADR Plant 265, 000 m3								
EG-1740	Pending	Haul and Place Excess Cut from ADR Plant	35	03-Sep-18	07-Oct-18	EG-1280, EG-1750, EG-1530, EG-1090	EG-1730	0
EG-.4110.1.4.3 Reuse, place and compact excavation to Rock foundation 138,000m3								
EG-1750	Original Contract	Place and Compact Excavation to Rock Foundation on Embankment	18	03-Sep-18	20-Sep-18	M5, EG-1910, EG-2040, EG-2460, EG-2110	M8, EG-1740	0
EG-.4110.1.5 Excavation from within Heap Leach to embankment (or other)*								
EG-1470	Original Contract	Excavation from within Heap Leach to embankment (or other)* 2017	17	08-Oct-17 A	25-Oct-17 A	EG-1430, EG-1440, EG-1480	EG-1490, M5, EG-1690	
EG-1490	Original Contract	Stockpile Excavations from within in Heap Leach to embankment 2017	16	08-Oct-17 A	24-Oct-17 A	EG-1470	M5	
EG-1500	Original Contract	Excavation from within Heap Leach to embankment (or other)* 2018 (180,000)	65	19-May-18 A	22-Jul-18	EG-2800	EG-1510	18
EG-1510	Original Contract	Stockpile Excavations from within in Heap Leach to embankment 2018	65	19-May-18 A	22-Jul-18	EG-1500	M5, EG-1520	18
EG-1520	Pending	Excavation from within Heap Leach to embankment (or other)* 2018 (20,000 m3)	7	23-Jul-18	29-Jul-18	EG-1510	M5, EG-2780	18
EG-.4110.1.6 * If unsuitable, premium cost to haul to waste								
EG-1480	Original Contract	* If unsuitable, premium cost to haul to waste 2017	28	27-Sep-17 A	25-Oct-17 A	EG-1430	EG-1470	
EG-1540	Original Contract	* If unsuitable, premium cost to haul to waste 2018	9	22-Aug-18	30-Aug-18	EG-1450	EG-1530	0
EG-1530	Pending	* If unsuitable, premium cost to haul to waste (15,800 m3)	5	31-Aug-18	04-Sep-18	EG-1450, EG-1540	EG-1740	0
EG-.4110.1.7 Construction of Sediment Basin								
EG-1780	Original Contract	Construct Sediment Basin	3	04-Sep-17 A	03-Oct-17 A	EG-1410	EG-1720	
EG-.4110.2 Heap Leach - Interceptor Ditch								
EG-.4110.2.1 Topsoil - HLF Diversion Ditch (Doze Aside)								
EG-2320	Pending	Topsoil - HLF Diversion Ditch (Doze Aside)	6	16-Aug-18	21-Aug-18	EG-2460	EG-2330	19
EG-.4110.2.2 Construct interceptor ditch (stockpile excavation as ditch spoil)								
EG-2330	Pending	Construct interceptor ditch (stockpile excavation as ditch spoil)	12	22-Aug-18	02-Sep-18	EG-2320	EG-2340	19
EG-.4110.2.3 Construct interceptor ditch (install Rip Rap)								
EG-2340	Pending	Construct interceptor ditch (install Rip Rap)	6	03-Sep-18	08-Sep-18	EG-2330	EG-2850	19
EG-.4110.3 Heap Leach - Closure Sump								
EG-.4110.3.1 Supply and Install 300mm SDR9 HDPE (to Monitoring Vault)								
EG-3200	Pending	Supply 300mm SDR9 HDPE (to Monitoring Vault)	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2350	155
EG-2350	Pending	Install 300mm SDR9 HDPE (to Monitoring Vault)	6	17-May-19	22-May-19	EG-3200, EG-2380	EG-2360	26
EG-.4110.3.2 Supply and Install 300mm Perforated N-12 Header, incl all fittings								
EG-3190	Pending	Supply 300mm Perforated N-12 Header, incl all fittings	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2360	161
EG-2360	Pending	Install 300mm Perforated N-12 Header, incl all fittings	1	23-May-19	23-May-19	EG-2350, EG-3190	EG-2370	26
EG-.4110.3.3 Load, Haul, and Place 36mm Backfill								
EG-2370	Pending	Load, Haul, and Place 36mm Backfill	1	24-May-19	24-May-19	EG-2360	EG-2910	26
EG-.4110.3.4 Supply and Install steel protection/guide plates								
EG-3210	Pending	Supply steel protection/guide plates	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2380	154
EG-2380	Pending	Install steel protection/guide plates	1	16-May-19	16-May-19	EG-3210, EG-2900	EG-2350	26
EG-.4110.4 Heap Leach Leak Detection & Recovery System								
EG-.4110.4.1 Supply and Install LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap								
EG-3220	Pending	Supply LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2390	187
EG-2390	Pending	Install LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap	1	18-Jun-19	18-Jun-19	EG-2440, EG-3220	EG-2420	26
EG-.4110.4.2 Supply and Install LDRS pump/instrument casing - 600MM STD STEEL PIPE								
EG-3230	Pending	Supply LDRS pump/instrument casing - 600MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2400	177
EG-2400	Pending	Install LDRS pump/instrument casing - 600MM STD STEEL PIPE	7	08-Jun-19	14-Jun-19	EG-3230, EG-2430	EG-2440	26
EG-.4110.4.3 Supply and Install primary casing rub sheet - 16OZ GEOTEXTILE								
EG-3240	Pending	Supply primary casing rubbing sheet - 16OZ GEOTEXTILE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2410	174



Remaining Level of Effort
Actual Level of Effort
Original Contract Baseline
CO 1 Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Date	Revision	Checked	Approved
28-Jun-18	Heap Leach Facility Pending Work Critical Path Schedule	M. Billowits	D. Russell

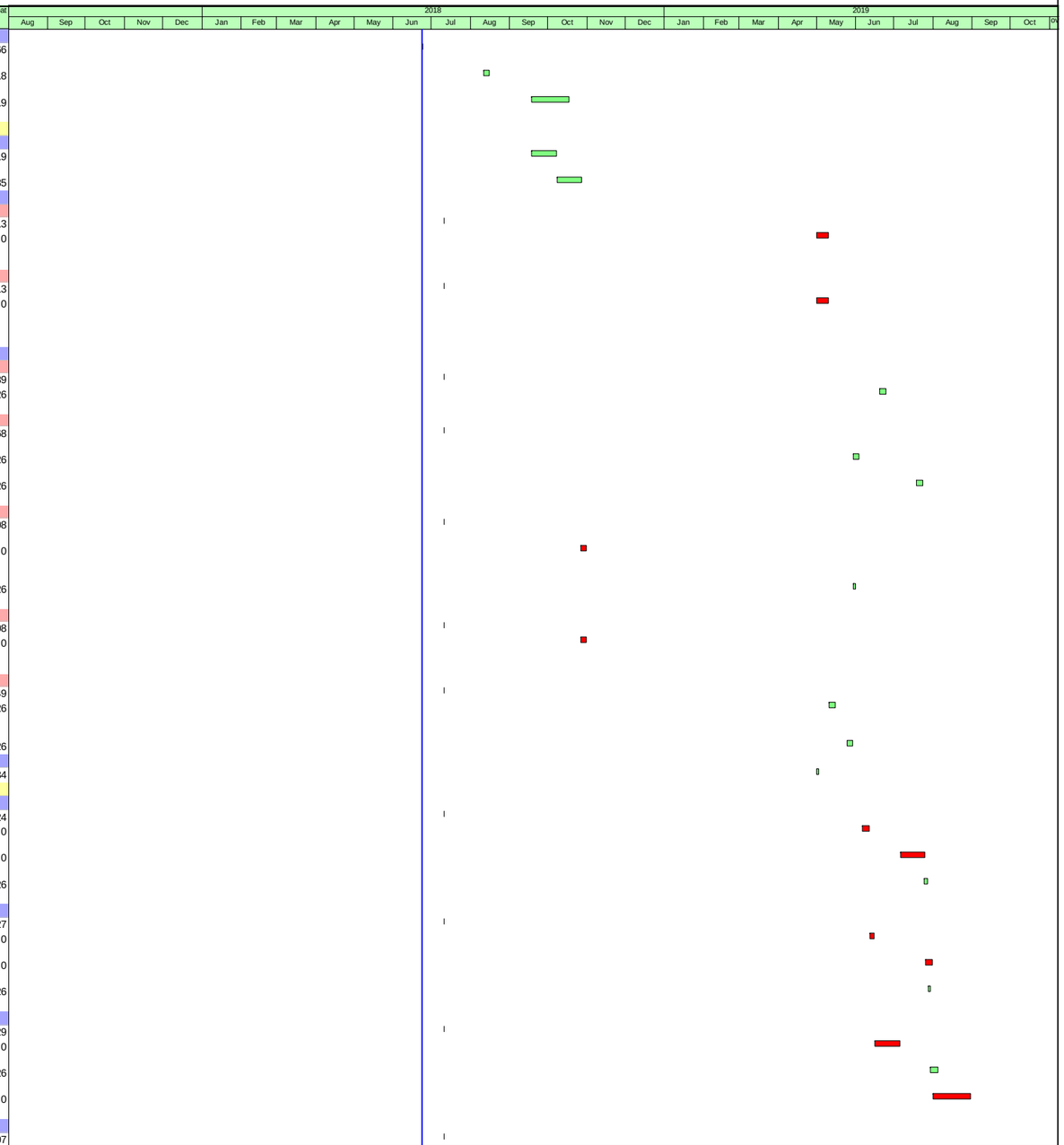
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-2410	Pending	Install primary casing rubbing sheet - 16OZ GEOTEXTILE	1	05-Jun-19	05-Jun-19	EG-3240, EG-2870	EG-2450	26
EG-2420	Pending	Insert 16oz Geotextile over fill as per dwg EGHLF-XD-05-04	1	19-Jun-19	19-Jun-19	EG-2390	EG-2500	26
EG-.4110.4.4 Supply and Install secondary casing rub sheet - 2MM LLDPE								
EG-3250	Pending	Supply Secondary Casing Rub Sheet - 2MM LLDPE on top of 16 oz Geotextile from Closure Sump	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2870	173
EG-2870	Pending	Install Secondary Casing Rub Sheet - 2MM LLDPE	1	04-Jun-19	04-Jun-19	EG-3250, EG-2510	EG-2410	26
EG-.4110.4.5 Supply and Install casing anchor piping - 200MM STD STEEL PIPE								
EG-3260	Pending	Supply casing anchor piping - 200MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2430	176
EG-2430	Pending	Install casing anchor piping - 200MM STD STEEL PIPE	1	07-Jun-19	07-Jun-19	EG-3260, EG-2450	EG-2400	26
EG-.4110.4.6 Supply and Install LDRS steel manifolds - 600MM SCH 40, incl. spigots								
EG-3270	Pending	Supply LDRS steel manifolds - 600MM SCH 40, incl. spigots	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2440	184
EG-2440	Pending	Install LDRS steel manifolds - 600MM SCH 40, incl. spigots	3	15-Jun-19	17-Jun-19	EG-2400, EG-3270	EG-2390	26
EG-.4110.4.7 Supply and Install steel protection/guide plates								
EG-3280	Pending	Supply steel protection/guide plates	0	11-Jul-18	11-Jul-18	EG-1800, M7		357
EG-2450	Pending	Install steel protection/guide plates	1	06-Jun-19	06-Jun-19	EG-2410	EG-2430	26
EG-.4110.5 Heap Leach Underdrain System								
EG-.4110.5.1 Supply & Install Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE								
EG-1690	Original Contract	Supply Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 1+80	0	17-May-18 A	17-May-18 A	EG-1470	EG-1760, EG-1680, EG-1820	
EG-1820	Original Contract	Assembly of Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 1+80	40	17-May-18 A	25-Jun-18	EG-1690	EG-1680, EG-1830, EG-2750	18
EG-2750	Original Contract	Excavate Trench Soil STA 0+40 to STA 0+180	5	23-Jun-18 A	27-Jun-18	EG-1820	EG-1680, EG-2820, EG-2780	18
EG-2820	Original Contract	Sand Backfill STA 0+40 to STA 0+180	5	23-Jun-18 A	27-Jun-18	EG-2750	EG-2810, EG-1680	18
EG-1680	Original Contract	Install Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 0+180	4	24-Jun-18	27-Jun-18	EG-1690, EG-1820, EG-2750, EG-2820	EG-1710, EG-2800, EG-1700	18
EG-2800	Original Contract	Backfill with Granular Material STA 0+40 to STA 0+180	10	25-Jun-18	04-Jul-18	EG-1680	EG-2030, EG-2790, EG-1500	18
EG-2030	Original Contract	Test Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 0+180	5	05-Jul-18	09-Jul-18	EG-2800	EG-2040	53
EG-.4110.5.2 Supply & Install Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m								
EG-1760	Original Contract	Supply Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	0	17-May-18 A	17-May-18 A	EG-1690	EG-1700, EG-1790, EG-1830	
EG-1830	Original Contract	Assembly of Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	45	17-May-18 A	30-Jun-18	EG-1760, EG-1820	EG-1860	56
EG-2780	Original Contract	Excavate Trench Soil STA 0+180 to STA 0+328	1	30-Jul-18	30-Jul-18	EG-2750, EG-1520	EG-1700, EG-3340, EG-2810	18
EG-2810	Original Contract	Sand Backfill STA 0+180 to STA 0+328	2	30-Jul-18	31-Jul-18	EG-2820, EG-2780	EG-1700	18
EG-1700	Original Contract	Install Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m 0+180 to STA 0+328	6	01-Aug-18	06-Aug-18	EG-1760, EG-2780, EG-2810, EG-1680	EG-2790	18
EG-2790	Original Contract	Backfill with Granular Material STA 0+180 to STA 0+328	4	04-Aug-18	07-Aug-18	EG-2800, EG-1700	EG-2040, EG-3340	18
EG-2040	Original Contract	Test Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	2	08-Aug-18	09-Aug-18	EG-2030, EG-2790	EG-1750	24
EG-.4110.5.3 Supply & Install Underdrain Headers - 150mm SDR11 HDPE								
EG-1790	Original Contract	Supply of Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 1+80 to STA 8+25	0	17-May-18 A	17-May-18 A	EG-1760	EG-1710	
EG-1860	Original Contract	Assembly of Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 1+80 to STA 8+25	45	17-May-18 A	30-Jun-18	EG-1830	EG-2850, EG-3340	56
EG-3340	Original Contract	Excavate Trench Soil STA 0+328 to STA 0+500	1	08-Aug-18	08-Aug-18	EG-1860, EG-2780, EG-2790	EG-3350	18
EG-3350	Original Contract	Sand Backfill STA 0+328 to STA 0+500	1	08-Aug-18	08-Aug-18	EG-3340	EG-3360	18
EG-3360	Original Contract	Install Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 0+328 to STA 0+500	1	09-Aug-18	09-Aug-18	EG-3350	EG-3370	18
EG-3370	Original Contract	Backfill with Granular Material STA 0+328 to STA 0+500	1	10-Aug-18	10-Aug-18	EG-3360	EG-2850, EG-2460	18
EG-2830	Original Contract	Sand Backfill STA 0+500 to STA 1+087	2	09-Sep-18	10-Sep-18	EG-2850	EG-1710	19
EG-2850	Original Contract	Excavate Trench Soil STA 0+500 to STA 1+087	1	09-Sep-18	09-Sep-18	EG-1860, EG-3370, EG-2340	EG-1710, EG-2830	19
EG-1710	Original Contract	Install Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 0+500 to STA 1+087	4	11-Sep-18	14-Sep-18	EG-1790, EG-1680, EG-2850, EG-2830	EG-2840	19
EG-2840	Original Contract	Backfill with Granular Material STA 0+500 to STA 1+087	4	12-Sep-18	15-Sep-18	EG-1710	EG-2860	19
EG-2860	Original Contract	Test Monitoring Vault Inlet Pipes STA 0+500 to STA 1+087	2	16-Sep-18	17-Sep-18	EG-2840	M8, EG-3380	19



Remaining Level of Effort
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Milestone

Date	Revision	Checked	Approved
28-Jun-18	Heap Leach Facility Pending Work Critical Path Schedule	M. Billowits	D. Russell

Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-.4110.5.4	**Supply & Install Lateral Drains - 100MM ADS N-12 PERF**							
EG-3120	Pending	Supply Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill	0	24-Jun-18	24-Jun-18	EG-1800	EG-2460, EG-3380	66
EG-2460	Pending	Install Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill from sump to 0+500	5	11-Aug-18	15-Aug-18	EG-3120, EG-3370	EG-2320, EG-1750	18
EG-3380	Pending	Install Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill from 0+500 to 1+087	30	18-Sep-18	17-Oct-18	EG-3120, EG-2860	EG-2470	19
EG-.4110.6	**Heap Leach Liner System**							
EG-.4110.6.1	**Surface preparation**							
EG-2470	Pending	Surface Preperation to Anchor Trench	20	18-Sep-18	07-Oct-18	EG-3380	EG-2530, EG-3400	19
EG-3400	Pending	Surface Preparation from Anchor Trench to Edge of Phase 1	20	08-Oct-18	27-Oct-18	EG-2470	EG-2490	185
EG-.4110.6.2	**Supply and Install Heap Leach Pad (above in-pond) Liner System**							
EG-.4110.6.2.1	**Install Pad Primary Geomembrane - 2 MM LLDPE**							
EG-3110	Pending	Supply Pad Primary Geomembrane - 2 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2480	113
EG-2480	Pending	Install Pad Primary Geomembrane - 2 MM LLDPE	10	01-May-19	10-May-19	EG-2490, EG-2520, EG-3110	EG-2900, EG-3430	0
EG-.4110.6.2.2	**Install Pad Base Liner - GCL**							
EG-3100	Pending	Supply Pad Base Liner - GCL	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2490	113
EG-2490	Pending	Install Pad Base Liner - GCL	10	01-May-19	10-May-19	EG-2530, EG-3100, EG-3400, EG-2520	EG-2480	0
EG-.4110.6.3	**Supply and Install Heap Leach In-Pond Liner System**							
EG-.4110.6.3.1	**Install In Heap Pond - Primary Geomembrane - 2 MM LLDPE**							
EG-2550	Pending	Supply In Heap Pond - Primary Geomembrane - 2 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2500	189
EG-2500	Pending	Install In Heap Pond - Primary Geomembrane - 2 MM LLDPE	5	20-Jun-19	24-Jun-19	EG-2550, EG-2420	EG-2620	26
EG-.4110.6.3.2	**Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side**							
EG-3060	Pending	Supply In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2510	168
EG-2510	Pending	Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side	5	30-May-19	03-Jun-19	EG-3060, EG-3390	EG-2870	26
EG-3420	Pending	Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side above PLS Sump	5	19-Jul-19	23-Jul-19	EG-2590	EG-2600	26
EG-.4110.6.3.3	**Install In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE**							
EG-3070	Pending	Supply In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2520, EG-3390	108
EG-2520	Pending	Install In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE	5	27-Oct-18	31-Oct-18	EG-2530, EG-3070	EG-2540, EG-2480, EG-2490	0
EG-3390	Pending	Install In Heap Pond - Secondary Geomembrane - Above Closure Sump 1.5 MM LLDPE	2	30-May-19	31-May-19	EG-2910, EG-3070	EG-2510	26
EG-.4110.6.3.4	**Install In Heap Pond - Base Liner - GCL**							
EG-3080	Pending	Supply In Heap Pond - Base Liner - GCL	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2530	108
EG-2530	Pending	Install In Heap Pond - Base Liner - GCL	5	27-Oct-18	31-Oct-18	EG-2470, EG-3080, EG-1730	EG-2520, EG-2490	0
EG-.4110.6.3.5	**Install Closure Sump Liner**							
EG-3090	Pending	Supply 16oz Non-Woven Geotextile	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2900	149
EG-2900	Pending	Place 16oz Non-Woven Geotextile	5	11-May-19	15-May-19	EG-2540, EG-2480, EG-3090	EG-2380	26
EG-2910	Pending	Fold Over 16oz Non-Woven Geotextile	5	25-May-19	29-May-19	EG-2370	EG-3390	26
EG-.4110.6.4	**Perform Heap Leach Pad Liner EEL Testing**							
EG-2540	Pending	Perform Heap Leach Pad Liner EEL Testing	2	01-May-19	02-May-19	EG-2520	EG-2900	34
EG-.4110.7	**Heap Leach Solution Collection System**							
EG-.4110.7.1	**Supply and Install HLP Solution Headers - 450MM SDR11 HDPE**							
EG-2970	Pending	Supply HLP Solution Headers - 450MM SDR11 HDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2560	224
EG-2890	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Phase 1A Liner Anchor Bench (990m)	6	06-Jun-19	11-Jun-19	EG-3010, EG-3430	EG-2940	0
EG-2930	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Phase 1 Interceptor Ditch	20	06-Jul-19	25-Jul-19	EG-2920	EG-2950	0
EG-2560	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Liner Anchor Bench (940m)	3	25-Jul-19	27-Jul-19	EG-2970, EG-2600	EG-2570	26
EG-.4110.7.2	**Supply and Install HLP Collection drains - 250MM ADS N-12 PERF**							
EG-2980	Pending	Supply HLP Collection drains - 250MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2570	227
EG-2940	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Phase 1A Liner Anchor Bench (990m)	4	12-Jun-19	15-Jun-19	EG-2890	EG-2920	0
EG-2950	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Phase 1 Interceptor Ditch	6	26-Jul-19	31-Jul-19	EG-2930	EG-2960	0
EG-2570	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Liner Anchor Bench (940m)	2	28-Jul-19	29-Jul-19	EG-2980, EG-2560	EG-2580	26
EG-.4110.7.3	**Supply and Install HLP Secondary drains - 100MM ADS N-12 PERF**							
EG-2990	Pending	Supply HLP Secondary drains - 100MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2580	229
EG-2920	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Phase 1A Liner Anchor Bench (990m)	20	16-Jun-19	05-Jul-19	EG-2940	EG-2930	0
EG-2580	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Liner Anchor Bench (940m)	6	30-Jul-19	04-Aug-19	EG-2570, EG-2990	M15	26
EG-2960	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Phase 1 Interceptor Ditch	30	01-Aug-19	30-Aug-19	EG-2950	M15	0
EG-.4110.7.4	**Supply and Install Sump Solution Collection loops - 450MM ADS N-12 PERF**							
EG-3000	Pending	Supply Sump Solution Collection loops - 450MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2590	207



Remaining Level of Effort | CO 1 Baseline | Critical Remaining Work
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Date	Revision	Checked	Approved
28-Jun-18	Heap Leach Facility Pending Work Critical Path Schedule	M. Billowits	D. Russell

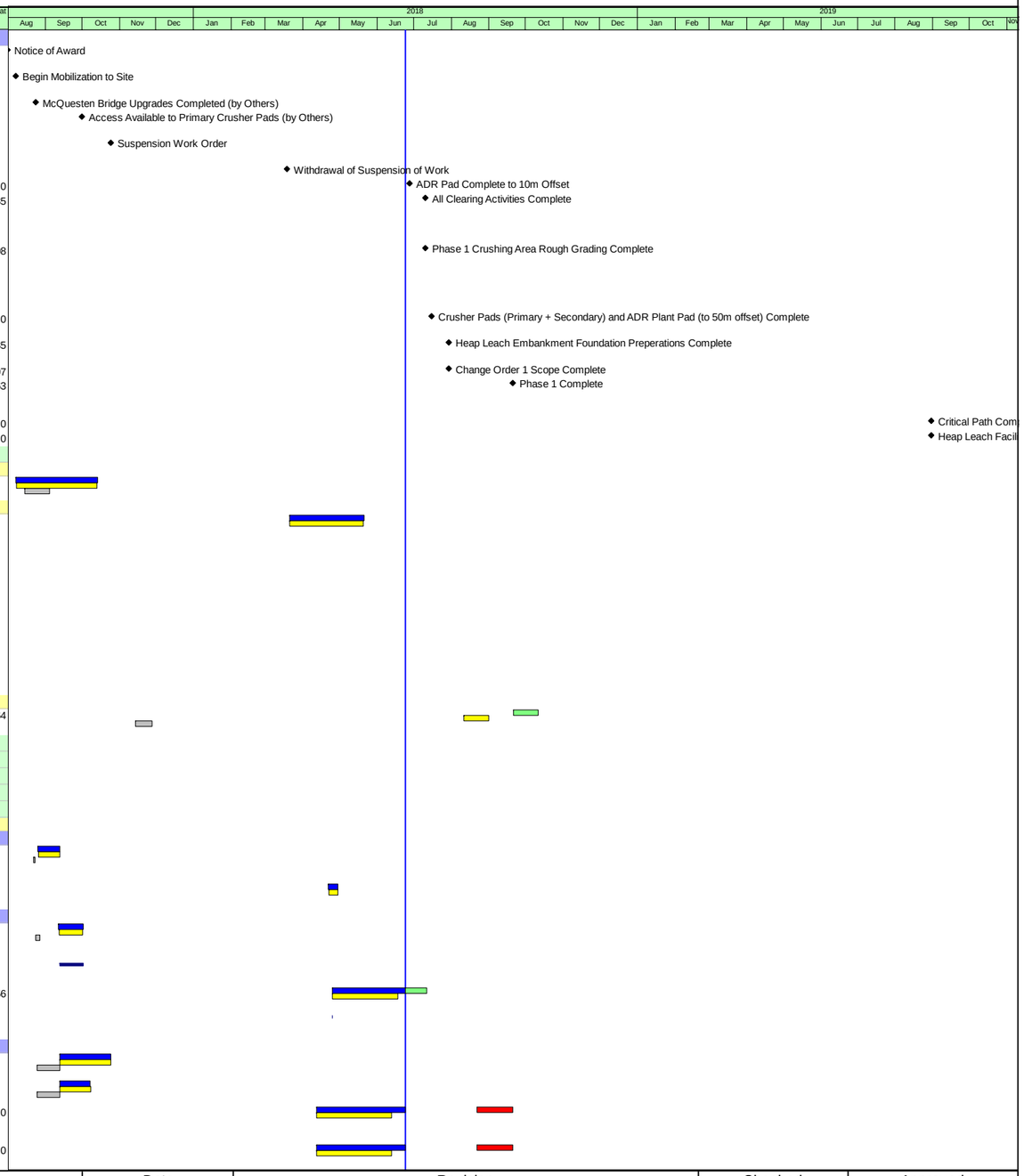
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-2590	Pending	Install Sump Solution Collection loops - 450MM ADS N-12 PERF	11	08-Jul-19	18-Jul-19	EG-3000, EG-2610	EG-3420	26
EG-.4110.7.5	**Load, haul and place over liner material - 38MM**							
EG-3430	Pending	Load, haul and place over liner material - 38MM - Liner Anchor Bench to Interceptor Ditch	26	11-May-19	05-Jun-19	EG-2480	EG-2890	0
EG-2600	Pending	Load, haul and place over liner material - 38MM - In-Pond	4	24-Jul-19	27-Jul-19	EG-3420	EG-2560	26
EG-.4110.7.6	**Supply and Install solution pump casing & headers - 900MM STD steel pipe incl spigots**							
EG-3010	Pending	Supply solution pump casing & headers - 900MM STD steel pipe incl spigots	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2610, EG-2890	149
EG-2610	Pending	Install solution pump casing & headers - 900MM STD steel pipe incl spigots	10	28-Jun-19	07-Jul-19	EG-3010, EG-2640	EG-2590	26
EG-.4110.7.7	**Supply and Install primary casing rub sheet - 16OZ geotextile**							
EG-3020	Pending	Supply primary casing rub sheet - 16OZ geotextile	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2620	194
EG-2620	Pending	Install 16 oz non-woven geotextile above Primary LLDPE	1	25-Jun-19	25-Jun-19	EG-3020, EG-2500	EG-2630, EG-2650	26
EG-3410	Pending	Install primary casing rub sheet - 16OZ geotextile	1	25-Jun-19	25-Jun-19	EG-3030, EG-2630		188
EG-.4110.7.8	**Supply and Install secondary casing rub sheet - 2MM LLDPE**							
EG-3030	Pending	Supply secondary casing rub sheet - 2MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2630, EG-3410	356
EG-2630	Pending	Install secondary casing rub sheet - 2MM LLDPE	1	25-Jun-19	25-Jun-19	EG-3030, EG-2620	EG-3410	188
EG-.4110.7.9	**Supply and Install casing anchor piping - 300MM STD STEEL PIPE**							
EG-3040	Pending	Supply casing anchor piping - 300MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2640	196
EG-2640	Pending	Install casing anchor piping - 300MM STD STEEL PIPE	1	27-Jun-19	27-Jun-19	EG-3040, EG-2650	EG-2610	26
EG-.4110.7.10	**Supply and Install steel protection/guide plates**							
EG-3050	Pending	Supply steel protection/guide plates	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2650	195
EG-2650	Pending	Install steel protection/guide plates	1	26-Jun-19	26-Jun-19	EG-3050, EG-2620	EG-2640	26
EG-.4130	**Heap Leach Event Pond**							
EG-.8000	**PHASE 1 EXTRA WORK (CLOSED)**							
EG-.9000	**PHASE 2 EXTRA WORK**							



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28-Jun-18	Heap Leach Facility Pending Work Critical Path Schedule	M. Billowits	D. Russell

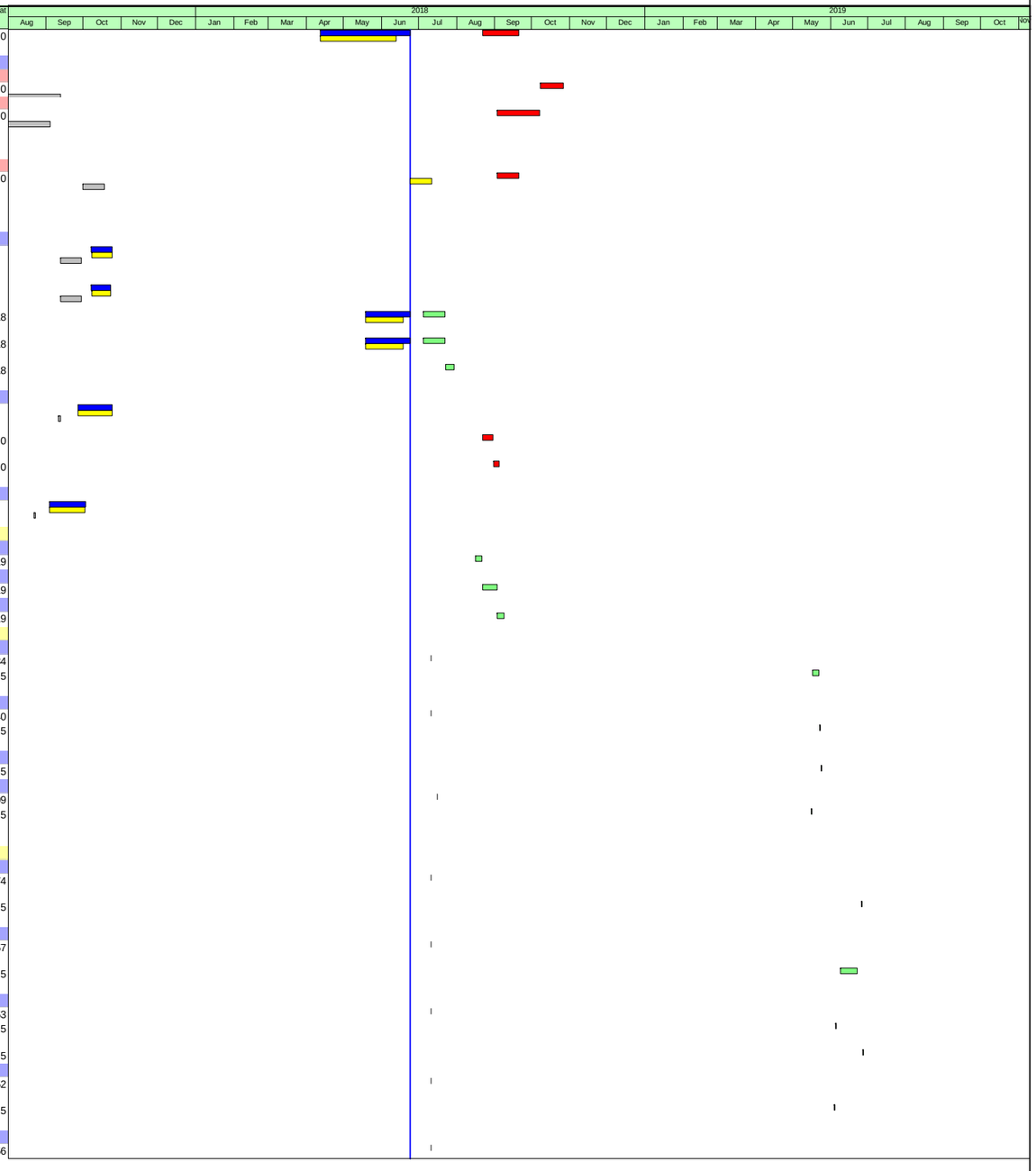
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG- Eagle Gold - Pending Work								
M1	Original Contract	Notice of Award	0	01-Aug-17 A			M2	
M2	Original Contract	Begin Mobilization to Site	0	08-Aug-17 A		M1	EG-1000, M3	
M3	Original Contract	McQuesten Bridge Upgrades Completed (by Others)	0		24-Aug-17 A	M2	EG-1130	
M4	Original Contract	Access Available to Primary Crusher Pads (by Others)	0	01-Oct-17 A				
M10		Suspension Work Order	0	25-Oct-17 A				
M11		Withdrawal of Suspension of Work	0		19-Mar-18 A			
M20		ADR Pad Complete to 10m Offset	0		27-Jun-18*	EG-1160		0
M6	Original Contract	All Clearing Activities Complete	0		10-Jul-18	EG-1010, EG-1070, EG-1840, EG-1420	M8	235
M7	Original Contract	Phase 1 Crushing Area Rough Grading Complete	0		10-Jul-18	EG-1060, EG-2100, EG-2070	M8, EG-3180, EG-3170, EG-3160, EG-3150, EG-3140, EG-3130, EG-2970, EG-2980, EG-2990, EG-3000, EG-3010, EG-3020	108
M21		Crusher Pads (Primary + Secondary) and ADR Plant Pad (to 50m offset) Complete	0		15-Jul-18*	EG-2080, EG-1890, EG-2100	EG-3210	0
M5	Original Contract	Heap Leach Embankment Foundation Preperations Complete	0		29-Jul-18	EG-1470, EG-1490, EG-1510, EG-1520	EG-1750	35
M22	CO 1	Change Order 1 Scope Complete	0		29-Jul-18	EG-2090, EG-1930	M17	397
M8	Original Contract	Phase 1 Complete	0		20-Sep-18	M6, M7, EG-1400, EG-1260, EG-1750, EG-2860, EG-2770	EG-1030, M17	163
M17		Critical Path Completion Date	0		30-Aug-19*	M8, M22, M15		0
M15		Heap Leach Facility Complete	0		30-Aug-19	EG-2960, EG-2580	M17	0
EG-.7200 Mobilization								
EG-.7200.1 Mobilization - Phase 1								
EG-1000	Original Contract	Mobilization Phase 1	67	08-Aug-17 A	14-Oct-17 A	M2	EG-1410	
EG-.7200.2 Mobiilzation - Phase 2								
EG-1800	CO 1	Mobilization Phase 2	61	21-Mar-18 A	21-May-18 A	EG-1870, EG-1880	EG-1080, EG-1040, EG-3200, EG-3190, EG-3220, EG-3230, EG-3240, EG-3250, EG-3260, EG-3270, EG-3280, EG-3120, EG-3110, EG-3100, EG-2550, EG-3060, EG-3070, EG-3080, EG-3090, EG-2970, EG-2980, EG-2990, EG-3000, EG-3010, EG-3020, EG-3030, EG-3040, EG-3050	
EG-.7200.3 Demobilization								
EG-1030	Original Contract	Demobilization	21	21-Sep-18	11-Oct-18	M8		264
EG-.2120 Crusher Area Pads								
EG-.2130 90 Day Storage Pad								
EG-.2150 Process Plant Pad								
EG-.2220 On-Site Roads								
EG-.4110 Heap Leach Facility								
EG-.4110.1 Heap Leach Mass Earthworks								
EG-.4110.1.1 Clearing - HLF Embankment & Pad								
EG-1410	Original Contract	Clearing - HLF Embankment & Pad	18	26-Aug-17 A	12-Sep-17 A	EG-1000	EG-1780, EG-1770, EG-1420	
EG-1420	CO 1	Clearing - HLF Embankment & Pad	8	22-Apr-18 A	30-Apr-18 A	EG-1410	M6	
EG-.4110.1.2 Topsoil - HLF Embankment & Pad (Haul to Stockpile)								
EG-1720	Original Contract	Push and Clear Topsoil Material	20	12-Sep-17 A	02-Oct-17 A	EG-1780, EG-1770	EG-1200, EG-1430, EG-1900	
EG-1770	Original Contract	Hauling of Topsoil at HLF Embankment to Topsoil Stockpile B	19	12-Sep-17 A	02-Oct-17 A	EG-1410	EG-1720	
EG-1900	CO 1	Push and Clear Topsoil Material	78	25-Apr-18 A	11-Jul-18	EG-1720	EG-1910	356
EG-1910	CO 1	Hauling of Topsoil at HLF Embankment to Topsoil Stockpile B	0	25-Apr-18 A	25-Apr-18 A	EG-1900	EG-1750	
EG-.4110.1.3 Excavate Embankment to Rock Foundation*								
EG-1430	Original Contract	Excavate Embankment to Rock Foundation 2017*	42	13-Sep-17 A	24-Oct-17 A	EG-1720	EG-1440, EG-1470, EG-1480	
EG-1440	Original Contract	Stockpile Excavated Embankment to Rock Foundation 2017	25	13-Sep-17 A	08-Oct-17 A	EG-1430	EG-1470, EG-1450	
EG-1450	Original Contract	Excavate Embankment to Rock Foundation 2018	103	12-Apr-18 A	20-Sep-18	EG-1440	EG-1460, EG-1530, EG-1540	0
EG-1460	Original Contract	Stockpile Excavated Embankment to Rock Foundation 2018	103	12-Apr-18 A	20-Sep-18	EG-1450	EG-2110	0



Remaining Level of Effort | CO 1 Baseline | Critical Remaining Work
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Date	Revision	Checked	Approved
29-Jun-18	CO & Pending Work Scope on Heap Leach Facility	M. Billowits	D. Russell

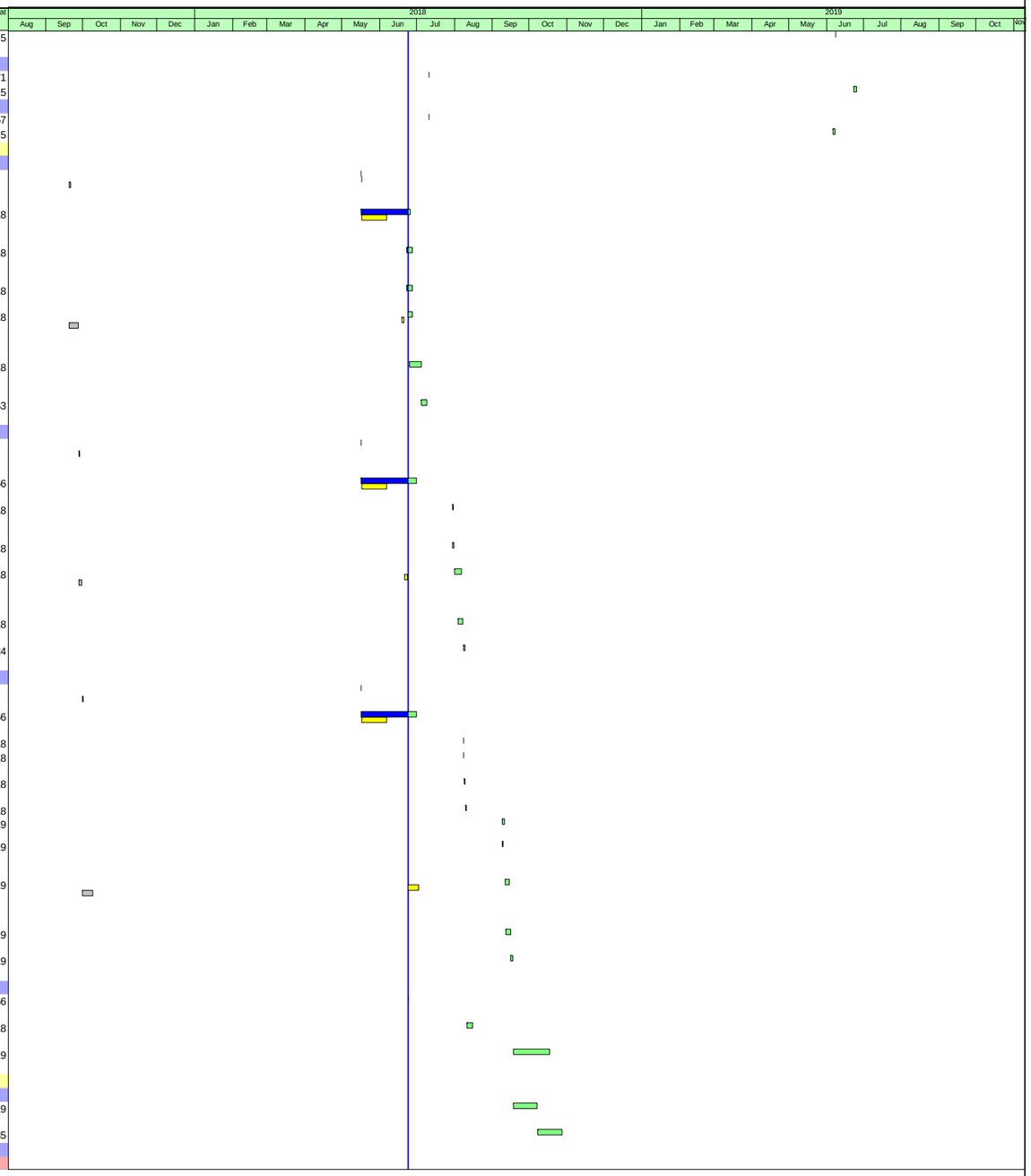
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-2110	Original Contract	Rework on Conditionally Approved Areas	103	12-Apr-18 A	20-Sep-18	EG-1460	EG-1750	0
EG-.4110.1.4 Handle, place, and compact embankment fill, including stockpiling as required								
EG-.4110.1.4.1 Excess cut from event ponds 330, 000 m3								
EG-1730	Pending	Haul and Place from Event Pond	19	08-Oct-18	26-Oct-18	EG-1740	EG-2530	0
EG-.4110.1.4.2 Excess cut from ADR Plant 265, 000 m3								
EG-1740	Pending	Haul and Place Excess Cut from ADR Plant	35	03-Sep-18	07-Oct-18	EG-1280, EG-1750, EG-1530, EG-1090	EG-1730	0
EG-.4110.1.4.3 Reuse, place and compact excavation to Rock foundation 138,000m3								
EG-1750	Original Contract	Place and Compact Excavation to Rock Foundation on Embankment	18	03-Sep-18	20-Sep-18	M5, EG-1910, EG-2040, EG-2460, EG-2110	M8, EG-1740	0
EG-.4110.1.5 Excavation from within Heap Leach to embankment (or other)*								
EG-1470	Original Contract	Excavation from within Heap Leach to embankment (or other)* 2017	17	08-Oct-17 A	25-Oct-17 A	EG-1430, EG-1440, EG-1480	EG-1490, M5, EG-1690	
EG-1490	Original Contract	Stockpile Excavations from within in Heap Leach to embankment 2017	16	08-Oct-17 A	24-Oct-17 A	EG-1470	M5	
EG-1500	Original Contract	Excavation from within Heap Leach to embankment (or other)* 2018 (180,000)	65	19-May-18 A	22-Jul-18	EG-2800	EG-1510	18
EG-1510	Original Contract	Stockpile Excavations from within in Heap Leach to embankment 2018	65	19-May-18 A	22-Jul-18	EG-1500	M5, EG-1520	18
EG-1520	Pending	Excavation from within Heap Leach to embankment (or other)* 2018 (20,000 m3)	7	23-Jul-18	29-Jul-18	EG-1510	M5, EG-2780	18
EG-.4110.1.6 * If unsuitable, premium cost to haul to waste								
EG-1480	Original Contract	* If unsuitable, premium cost to haul to waste 2017	28	27-Sep-17 A	25-Oct-17 A	EG-1430	EG-1470	
EG-1540	Original Contract	* If unsuitable, premium cost to haul to waste 2018	9	22-Aug-18	30-Aug-18	EG-1450	EG-1530	0
EG-1530	Pending	* If unsuitable, premium cost to haul to waste (15,800 m3)	5	31-Aug-18	04-Sep-18	EG-1450, EG-1540	EG-1740	0
EG-.4110.1.7 Construction of Sediment Basin								
EG-1780	Original Contract	Construct Sediment Basin	3	04-Sep-17 A	03-Oct-17 A	EG-1410	EG-1720	
EG-.4110.2 Heap Leach - Interceptor Ditch								
EG-.4110.2.1 Topsoil - HLF Diversion Ditch (Doze Aside)								
EG-2320	Pending	Topsoil - HLF Diversion Ditch (Doze Aside)	6	16-Aug-18	21-Aug-18	EG-2460	EG-2330	19
EG-.4110.2.2 Construct interceptor ditch (stockpile excavation as ditch spoil)								
EG-2330	Pending	Construct interceptor ditch (stockpile excavation as ditch spoil)	12	22-Aug-18	02-Sep-18	EG-2320	EG-2340	19
EG-.4110.2.3 Construct interceptor ditch (install Rip Rap)								
EG-2340	Pending	Construct interceptor ditch (install Rip Rap)	6	03-Sep-18	08-Sep-18	EG-2330	EG-2850	19
EG-.4110.3 Heap Leach - Closure Sump								
EG-.4110.3.1 Supply and Install 300mm SDR9 HDPE (to Monitoring Vault)								
EG-3200	Pending	Supply 300mm SDR9 HDPE (to Monitoring Vault)	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2350	134
EG-2350	Pending	Install 300mm SDR9 HDPE (to Monitoring Vault)	6	17-May-19	22-May-19	EG-3200, EG-2380	EG-2360	5
EG-.4110.3.2 Supply and Install 300mm Perforated N-12 Header, incl all fittings								
EG-3190	Pending	Supply 300mm Perforated N-12 Header, incl all fittings	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2360	140
EG-2360	Pending	Install 300mm Perforated N-12 Header, incl all fittings	1	23-May-19	23-May-19	EG-2350, EG-3190	EG-2370	5
EG-.4110.3.3 Load, Haul, and Place 36mm Backfill								
EG-2370	Pending	Load, Haul, and Place 36mm Backfill	1	24-May-19	24-May-19	EG-2360	EG-2910	5
EG-.4110.3.4 Supply and Install steel protection/guide plates								
EG-3210	Pending	Supply Steel Protection/ Guide Plates	0	16-Jul-18	16-Jul-18	M21	EG-2380	309
EG-2380	Pending	Install Steel Protection/ Guide Plates	1	16-May-19	16-May-19	EG-2520, EG-2900, EG-3210	EG-2350	5
EG-.4110.4 Heap Leach Leak Detection & Recovery System								
EG-.4110.4.1 Supply and Install LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap								
EG-3220	Pending	Supply LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2390	174
EG-2390	Pending	Install LDRS piping loop - 250MM ADS N-12 PERF incl. all fittings & geotextile wrap	1	26-Jun-19	26-Jun-19	EG-2440, EG-3220	EG-2420	5
EG-.4110.4.2 Supply and Install LDRS pump/instrument casing - 600MM STD STEEL PIPE								
EG-3230	Pending	Supply LDRS pump/instrument casing - 600MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2400	157
EG-2400	Pending	Install LDRS pump/instrument casing - 600MM STD STEEL PIPE	14	09-Jun-19	22-Jun-19	EG-3230, EG-2430	EG-2440	5
EG-.4110.4.3 Supply and Install primary casing rub sheet - 16OZ GEOTEXTILE								
EG-3240	Pending	Supply primary casing rubbing sheet - 16OZ GEOTEXTILE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2410	153
EG-2410	Pending	Install primary casing rubbing sheet - 16OZ GEOTEXTILE	1	05-Jun-19	05-Jun-19	EG-3240, EG-2870	EG-2450	5
EG-2420	Pending	Insert 16oz Geotextile over fill as per dwg EGHLF-XD-05-04	1	27-Jun-19	27-Jun-19	EG-2390	EG-2500	5
EG-.4110.4.4 Supply and Install secondary casing rub sheet - 2MM LLDPE								
EG-3250	Pending	Supply Secondary Casing Rub Sheet - 2MM LLDPE on top of 16 oz Geotextile from Closure Sump	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2870	152
EG-2870	Pending	Install Secondary Casing Rub Sheet - 2MM LLDPE	1	04-Jun-19	04-Jun-19	EG-3250, EG-2510	EG-2410	5
EG-.4110.4.5 Supply and Install casing anchor piping - 200MM STD STEEL PIPE								
EG-3260	Pending	Supply casing anchor piping - 200MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2430	156



Remaining Level of Effort | CO 1 Baseline | Critical Remaining Work
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Original Contract Baseline | Remaining Work

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29-Jun-18	CO & Pending Work Scope on Heap Leach Facility	M. Billowits	D. Russell

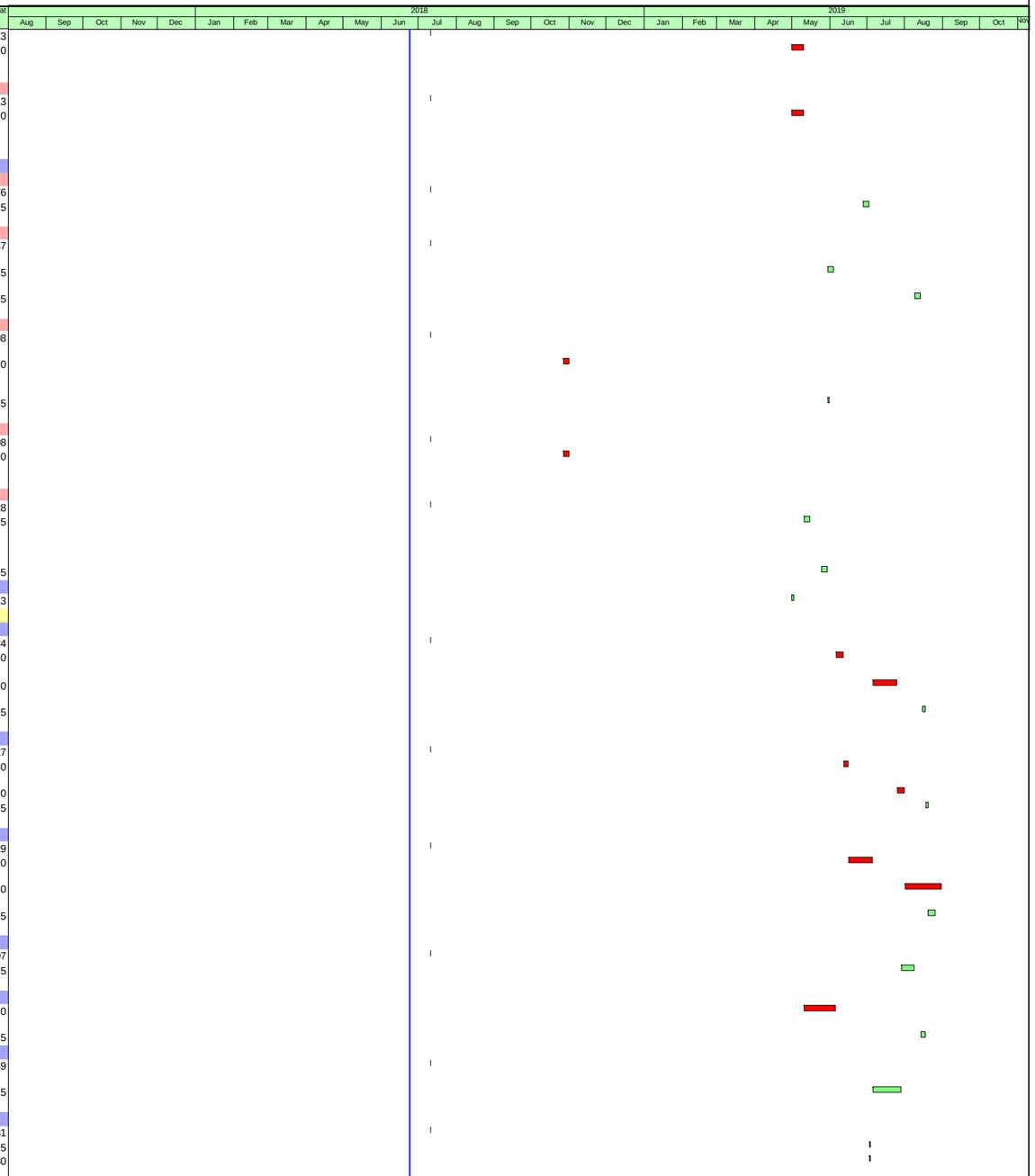
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-2430	Pending	Install casing anchor piping - 200MM STD STEEL PIPE	1	08-Jun-19	08-Jun-19	EG-3260, EG-2450	EG-2400	5
EG-.4110.4.6 Supply and Install LDRS steel manifolds - 600MM SCH 40, incl. spigots								
EG-3270	Pending	Supply LDRS steel manifolds - 600MM SCH 40, incl. spigots	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2440	171
EG-2440	Pending	Install LDRS steel manifolds - 600MM SCH 40, incl. spigots	3	23-Jun-19	25-Jun-19	EG-2400, EG-3270	EG-2390	5
EG-.4110.4.7 Supply and Install steel protection/guide plates								
EG-3280	Pending	Supply steel protection/guide plates	0	11-Jul-18	11-Jul-18	EG-1800, M7		357
EG-2450	Pending	Install steel protection/guide plates	2	06-Jun-19	07-Jun-19	EG-2410	EG-2430	5
EG-.4110.5 Heap Leach Underdrain System								
EG-.4110.5.1 Supply & Install Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE								
EG-1690	Original Contract	Supply Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 1+80	0	17-May-18 A	17-May-18 A	EG-1470	EG-1760, EG-1680, EG-1820	
EG-1820	Original Contract	Assembly of Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 1+80	40	17-May-18 A	25-Jun-18	EG-1690	EG-1680, EG-1830, EG-2750	18
EG-2750	Original Contract	Excavate Trench Soil STA 0+40 to STA 0+180	5	23-Jun-18 A	27-Jun-18	EG-1820	EG-1680, EG-2820, EG-2780	18
EG-2820	Original Contract	Sand Backfill STA 0+40 to STA 0+180	5	23-Jun-18 A	27-Jun-18	EG-2750	EG-2810, EG-1680	18
EG-1680	Original Contract	Install Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 0+180	4	24-Jun-18	27-Jun-18	EG-1690, EG-1820, EG-2750, EG-2820	EG-1710, EG-2800, EG-1700	18
EG-2800	Original Contract	Backfill with Granular Material STA 0+40 to STA 0+180	10	25-Jun-18	04-Jul-18	EG-1680	EG-2030, EG-2790, EG-1500	18
EG-2030	Original Contract	Test Monitoring Vault Inlet Pipes - 150mm SDR17 HDPE STA 0+40 to STA 0+180	5	05-Jul-18	09-Jul-18	EG-2800	EG-2040	53
EG-.4110.5.2 Supply & Install Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m								
EG-1760	Original Contract	Supply Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	0	17-May-18 A	17-May-18 A	EG-1690	EG-1700, EG-1790, EG-1830	
EG-1830	Original Contract	Assembly of Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	45	17-May-18 A	30-Jun-18	EG-1760, EG-1820	EG-1860	56
EG-2780	Original Contract	Excavate Trench Soil STA 0+180 to STA 0+328	1	30-Jul-18	30-Jul-18	EG-2750, EG-1520	EG-1700, EG-3340, EG-2810	18
EG-2810	Original Contract	Sand Backfill STA 0+180 to STA 0+328	2	30-Jul-18	31-Jul-18	EG-2820, EG-2780	EG-1700	18
EG-1700	Original Contract	Install Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m 0+180 to STA 0+328	6	01-Aug-18	06-Aug-18	EG-1760, EG-2780, EG-2810, EG-1680	EG-2790	18
EG-2790	Original Contract	Backfill with Granular Material STA 0+180 to STA 0+328	4	04-Aug-18	07-Aug-18	EG-2800, EG-1700	EG-2040, EG-3340	18
EG-2040	Original Contract	Test Monitoring Vault Inlet Pipes - 150mm SDR11 HDPE - (1) @ 100m STA 0+180 to STA 0+328	2	08-Aug-18	09-Aug-18	EG-2030, EG-2790	EG-1750	24
EG-.4110.5.3 Supply & Install Underdrain Headers - 150mm SDR11 HDPE								
EG-1790	Original Contract	Supply of Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 1+80 to STA 8+25	0	17-May-18 A	17-May-18 A	EG-1760	EG-1710	
EG-1860	Original Contract	Assembly of Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 1+80 to STA 8+25	45	17-May-18 A	30-Jun-18	EG-1830	EG-2850, EG-3340	56
EG-3340	Original Contract	Excavate Trench Soil STA 0+328 to STA 0+500	1	08-Aug-18	08-Aug-18	EG-1860, EG-2780, E	EG-3350	18
EG-3350	Original Contract	Sand Backfill STA 0+328 to STA 0+500	1	08-Aug-18	08-Aug-18	EG-3340	EG-3360	18
EG-3360	Original Contract	Install Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 0+328 to STA 0+500	1	09-Aug-18	09-Aug-18	EG-3350	EG-3370	18
EG-3370	Original Contract	Backfill with Granular Material STA 0+328 to STA 0+500	1	10-Aug-18	10-Aug-18	EG-3360	EG-2850, EG-2460	18
EG-2830	Original Contract	Sand Backfill STA 0+500 to STA 1+087	2	09-Sep-18	10-Sep-18	EG-2850	EG-1710	19
EG-2850	Original Contract	Excavate Trench Soil STA 0+500 to STA 1+087	1	09-Sep-18	09-Sep-18	EG-1860, EG-3370, EG-2340	EG-1710, EG-2830	19
EG-1710	Original Contract	Install Underdrain Headers - 150mm SDR11 HDPE - 4 runs, STA 0+500 to STA 1+087	4	11-Sep-18	14-Sep-18	EG-1790, EG-1680, EG-2850, EG-2830	EG-2840	19
EG-2840	Original Contract	Backfill with Granular Material STA 0+500 to STA 1+087	4	12-Sep-18	15-Sep-18	EG-1710	EG-2860	19
EG-2860	Original Contract	Test Monitoring Vault Inlet Pipes STA 0+500 to STA 1+087	2	16-Sep-18	17-Sep-18	EG-2840	M8, EG-3380	19
EG-.4110.5.4 Supply & Install Lateral Drains - 100MM ADS N-12 PERF								
EG-3120	Pending	Supply Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill	0	24-Jun-18	24-Jun-18	EG-1800	EG-2460, EG-3380	66
EG-2460	Pending	Install Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill from sump to 0+500	5	11-Aug-18	15-Aug-18	EG-3120, EG-3370	EG-2320, EG-1750	18
EG-3380	Pending	Install Lateral Drains - 100MM ADS N-12 PERF incl all trenching, geotextile, bedding, and backfill from 0+500 to 1+087	30	18-Sep-18	17-Oct-18	EG-3120, EG-2860	EG-2470	19
EG-.4110.6 Heap Leach Liner System								
EG-.4110.6.1 Surface preparation								
EG-2470	Pending	Surface Preperation to Anchor Trench	20	18-Sep-18	07-Oct-18	EG-3380	EG-2530, EG-3400	19
EG-3400	Pending	Surface Preparation from Anchor Trench to Edge of Phase 1	20	08-Oct-18	27-Oct-18	EG-2470	EG-2490	185
EG-.4110.6.2 Supply and Install Heap Leach Pad (above in-pond) Liner System								
EG-.4110.6.2.1 Install Pad Primary Geomembrane - 2 MM LLDPE								



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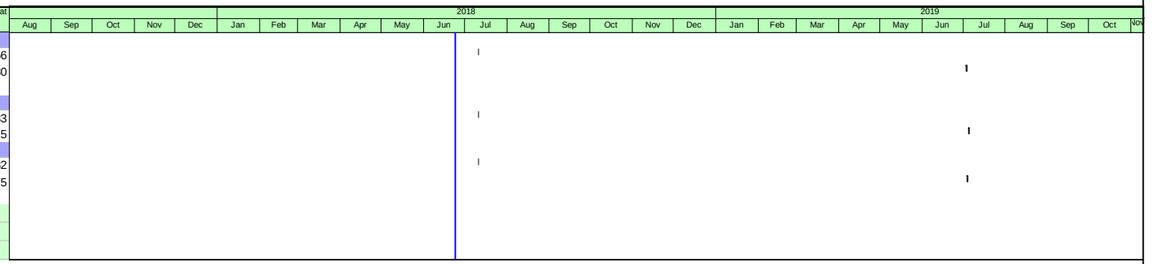
Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-3110	Pending	Supply Pad Primary Geomembrane - 2 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2480	113
EG-2480	Pending	Install Pad Primary Geomembrane - 2 MM LLDPE	10	01-May-19	10-May-19	EG-2490, EG-2520, EG-3110	EG-2900, EG-3430	0
EG-.4110.6.2.2 Install Pad Base Liner - GCL								
EG-3100	Pending	Supply Pad Base Liner - GCL	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2490	113
EG-2490	Pending	Install Pad Base Liner - GCL	10	01-May-19	10-May-19	EG-2530, EG-3100, EG-3400, EG-2520	EG-2480	0
EG-.4110.6.3 Supply and Install Heap Leach In-Pond Liner System								
EG-.4110.6.3.1 Install In Heap Pond - Primary Geomembrane - 2 MM LLDPE								
EG-2550	Pending	Supply In Heap Pond - Primary Geomembrane - 2 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2500	176
EG-2500	Pending	Install In Heap Pond - Primary Geomembrane - 2 MM LLDPE	5	28-Jun-19	02-Jul-19	EG-2550, EG-2420	EG-2620	5
EG-.4110.6.3.2 Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side								
EG-3060	Pending	Supply In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2510	147
EG-2510	Pending	Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side	5	30-May-19	03-Jun-19	EG-3060, EG-3390	EG-2870	5
EG-3420	Pending	Install In Heap Pond - LDS Liner - 8mm goecomp W/ geotextile both side above PLS Sump	5	09-Aug-19	13-Aug-19	EG-2590	EG-2600	5
EG-.4110.6.3.3 Install In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE								
EG-3070	Pending	Supply In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2520, EG-3390	108
EG-2520	Pending	Install In Heap Pond - Secondary Geomembrane - 1.5 MM LLDPE	5	27-Oct-18	31-Oct-18	EG-2530, EG-3070	EG-2540, EG-2480, EG-2490, EG-2380, EG-2900	0
EG-3390	Pending	Install In Heap Pond - Secondary Geomembrane - Above Closure Sump 1.5 MM LLDPE	2	30-May-19	31-May-19	EG-2910, EG-3070	EG-2510	5
EG-.4110.6.3.4 Install In Heap Pond - Base Liner - GCL								
EG-3080	Pending	Supply In Heap Pond - Base Liner - GCL	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2530	108
EG-2530	Pending	Install In Heap Pond - Base Liner - GCL	5	27-Oct-18	31-Oct-18	EG-2470, EG-3080, EG-1730	EG-2520, EG-2490	0
EG-.4110.6.3.5 Install Closure Sump Liner								
EG-3090	Pending	Supply 16oz Non-Woven Geotextile	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2900	128
EG-2900	Pending	Place 16oz Non-Woven Geotextile	5	11-May-19	15-May-19	EG-2540, EG-2480, EG-3090, EG-2520	EG-2380	5
EG-2910	Pending	Fold Over 16oz Non-Woven Geotextile	5	25-May-19	29-May-19	EG-2370	EG-3390	5
EG-.4110.6.4 Perform Heap Leach Pad Liner EEL Testing								
EG-2540	Pending	Perform Heap Leach Pad Liner EEL Testing	2	01-May-19	02-May-19	EG-2520	EG-2900	13
EG-.4110.7 Heap Leach Solution Collection System								
EG-.4110.7.1 Supply and Install HLP Solution Headers - 450MM SDR11 HDPE								
EG-2970	Pending	Supply HLP Solution Headers - 450MM SDR11 HDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2560	224
EG-2890	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Phase 1A Liner Anchor Bench (990m)	6	06-Jun-19	11-Jun-19	EG-3010, EG-3430	EG-2940	0
EG-2930	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Phase 1 Interceptor Ditch	20	06-Jul-19	25-Jul-19	EG-2920	EG-2950	0
EG-2560	Pending	Install HLP Solution Headers - 450MM SDR11 HDPE to Liner Anchor Bench (940m)	3	15-Aug-19	17-Aug-19	EG-2970, EG-2600	EG-2570	5
EG-.4110.7.2 Supply and Install HLP Collection drains - 250MM ADS N-12 PERF								
EG-2980	Pending	Supply HLP Collection drains - 250MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2570	227
EG-2940	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Phase 1A Liner Anchor Bench (990m)	4	12-Jun-19	15-Jun-19	EG-2890	EG-2920	0
EG-2950	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Phase 1 Intercepl	6	26-Jul-19	31-Jul-19	EG-2930	EG-2960	0
EG-2570	Pending	Install HLP Collection drains - 250MM ADS N-12 PERF to Liner Anchor Bench (940m)	2	18-Aug-19	19-Aug-19	EG-2980, EG-2560	EG-2580	5
EG-.4110.7.3 Supply and Install HLP Secondary drains - 100MM ADS N-12 PERF								
EG-2990	Pending	Supply HLP Secondary drains - 100MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2580	229
EG-2920	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Phase 1A Liner Anchor Bench (990m)	20	16-Jun-19	05-Jul-19	EG-2940	EG-2930	0
EG-2960	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Phase 1 Interceptor Ditch	30	01-Aug-19	30-Aug-19	EG-2950	M15	0
EG-2580	Pending	Install HLP Secondary drains - 100MM ADS N-12 PERF to Liner Anchor Bench (940m)	6	20-Aug-19	25-Aug-19	EG-2570, EG-2990	M15	5
EG-.4110.7.4 Supply and Install Sump Solution Collection loops - 450MM ADS N-12 PERF								
EG-3000	Pending	Supply Sump Solution Collection loops - 450MM ADS N-12 PERF	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2590	207
EG-2590	Pending	Install Sump Solution Collection loops - 450MM ADS N-12 PERF	11	29-Jul-19	08-Aug-19	EG-3000, EG-2610	EG-3420	5
EG-.4110.7.5 Load, haul and place over liner material - 38MM								
EG-3430	Pending	Load, haul and place over liner material - 38MM - Liner Anchor Bench to Interceptor Ditch	26	11-May-19	05-Jun-19	EG-2480	EG-2890	0
EG-2600	Pending	Load, haul and place over liner material - 38MM - In-Pond	4	14-Aug-19	17-Aug-19	EG-3420	EG-2560	5
EG-.4110.7.6 Supply and Install solution pump casing & headers - 900MM STD steel pipe incl spigots								
EG-3010	Pending	Supply solution pump casing & headers - 900MM STD steel pipe incl spigots	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2610, EG-2890	149
EG-2610	Pending	Install solution pump casing & headers - 900MM STD steel pipe incl spigots	23	06-Jul-19	28-Jul-19	EG-3010, EG-2640	EG-2590	5
EG-.4110.7.7 Supply and Install primary casing rub sheet - 16OZ geotextile								
EG-3020	Pending	Supply primary casing rub sheet - 16OZ geotextile	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2620	181
EG-2620	Pending	Install 16 oz non-woven geotextile above Primary LLDPE	1	03-Jul-19	03-Jul-19	EG-3020, EG-2500	EG-2630, EG-2650	5
EG-3410	Pending	Install primary casing rub sheet - 16OZ geotextile	1	03-Jul-19	03-Jul-19	EG-3030, EG-2630		180



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Activity ID	Contract Status	Activity Name	At Completion Duration	Start	Finish	Predecessors	Successors	Total Float
EG-.4110.7.8	**Supply and Install secondary casing rub sheet - 2MM LLDPE**							
EG-3030	Pending	Supply secondary casing rub sheet - 2MM LLDPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2630, EG-3410	356
EG-2630	Pending	Install secondary casing rub sheet - 2MM LLDPE	1	03-Jul-19	03-Jul-19	EG-3030, EG-2620	EG-3410	180
EG-.4110.7.9	**Supply and Install casing anchor piping - 300MM STD STEEL PIPE**							
EG-3040	Pending	Supply casing anchor piping - 300MM STD STEEL PIPE	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2640	183
EG-2640	Pending	Install casing anchor piping - 300MM STD STEEL PIPE	1	05-Jul-19	05-Jul-19	EG-3040, EG-2650	EG-2610	5
EG-.4110.7.10	**Supply and Install steel protection/guide plates**							
EG-3050	Pending	Supply steel protection/guide plates	0	11-Jul-18	11-Jul-18	EG-1800, M7	EG-2650	182
EG-2650	Pending	Install steel protection/guide plates	1	04-Jul-19	04-Jul-19	EG-3050, EG-2620	EG-2640	5
EG-.4130	**Heap Leach Event Pond**							
EG-.8000	**PHASE 1 EXTRA WORK (CLOSED)**							
EG-.9000	**PHASE 2 EXTRA WORK**							



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Victoria Gold Heap Leach

LAYFIELD

CT001045

LAYFIELD	INSPECTION AND TEST PLAN		
Document Name & Revision # **Geomembrane ITP Rev. 0**	Contract No: 27233	CWP: Work Area: Event Pond	**H** = Hold Point **W** = Witness Point **R** = Review Point **D** = Documentation
Owner's Representative (ITP)	General Contractor Approval (ITP)	Layfield Approval (ITP)	
Date:	Date:	Date: June 25, 2018	**Material: GLC, 60 mil LLDPE 2 side tex, Geocomposite, 80 mil LLDPE 2 side tex**

Activity No:	Activity Description (Per Scope of Work)	Responsibility	Frequency	Acceptance Criteria	Verification Point c/w Site						Verification Document
					Owner's Representative		General Contractor		Layfield		
					H W R D	Initials & Date	H W R D	Initials & Date	H W R D	Initials & Date	
	Project Startup										
	Project Health, Safety and Environment Plan approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield HSE Documents
	Scope of Work and IFC Drawings	Owner or General Contractor	Prior to mobilization	Ensure latest revision is sent to Layfield prior to starting work	H		H		H		Transmittal to Layfield
	QA/QC Manual approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield QA/QC Documents
	Tensiometer and Gauge Calibrations	Layfield	Annually	Valid calibration with 1% deviation or as per spec	R		R		D		Calibration Certificates

	Review Geomembrane and other materials properties	Layfield	Prior to material deployment	As per drawings and specifications	R		R		R		Mill Certificates
	Inventory and Inspection of Materials Received Onsite	Layfield	Prior to material deployment	Layfield QA Manual	R		R		D & H		Inventory Log
	GCL Base Layer										
	Liner Subgrade Surface Inspection	Layfield / Civil Contractor	Prior to material deployment	Layfield QA Manual	R & H		R & H		D & H		Certificate of Subgrade Surface Inspection
	GCL NWL60 Placement (project spec dependant)	Layfield	As per specification	As per specification	W		R		R		ITP signoff
	Install Bentonite Enhancement Powder at Seams	Layfield	As per specification	As per specification	W		R		R		ITP Signoff
	Visual inspection of GCL before is covered with Liner	Layfield	Throughout install	As per specification	W		W		D		GCL completion sign off
	Secondary Layer 60 mil LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log

	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log & As-built Drawing
	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required and as per specification	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built Drawing
	Destructive Testing	Layfield	As per specifications (1 per 500m seam)	Layfield QA Manual & as per Material Spec sheet or specifications	W		R		D		Geomembrane Destruct Log
	Drainage Layer										
	Geocomposite Placement (project spec dependant)	Layfield	As per specification	As per specification	W		R		R		ITP signoff
	Primary Layer 80 mil LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log
	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log

	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built drawing
	Destructive Testing	Layfield	As per drawings and specifications (ie 1 per 500m seam)	Layfield QA Manual & as per Material Spec sheet or specifications	W		R		D		Geomembrane Destruct Log
	Project Closeout										
	Final Acceptance of Work Performed	Layfield / Owner's Rep / General Contractor	Once at completion Of Work	As per drawings and specifications	D & H		D & H		D & H		Certificate of Final Inspection and Acceptance
	Turnover Documentation to Owner (QA/QC Submittal)	Layfield	Once at completion of Work	As per drawings and specifications	D & H		R		D		Layfield Turnover Documentation

An effective and/or acceptable ITP should provide the client with a high degree of confidence that the Work will be, or has been, completed in accordance with the applicable contract, IFC drawings, Standards, Procedures, etc. Therefore, a sufficient sampling of each (identified) Activity must be inspected by the Owner's Representative and/or General Contractor in order to ensure that conformance is, in fact, being achieved. ITPs help define the auditable documentation that will be produced by Layfield for each Activity. A sufficient number of Activities must be identified in order to accurately reflect the Scope of Work. ITPs that lack sufficient detail will not be Approved.

Victoria Gold Heap Leach

LAYFIELD

CT001045

LAYFIELD	INSPECTION AND TEST PLAN		
Document Name & Revision # **Geomembrane ITP Rev. 0**	Contract No: 27233	CWP: Work Area: Heap Leach Pad	**H** = Hold Point **W** = Witness Point **R** = Review Point **D** = Documentation
Owner's Representative (ITP)	General Contractor Approval (ITP)	Layfield Approval (ITP)	
Date:	Date:	Date: June 25, 2018	**Material: GLC, 80 mil LLDPE 2 side tex**

Activity No:	Activity Description (Per Scope of Work)	Responsibility	Frequency	Acceptance Criteria	Verification Point c/w Site						Verification Document
					Owner's Representative		General Contractor		Layfield		
					H W R D	Initials & Date	H W R D	Initials & Date	H W R D	Initials & Date	
	Project Startup										
	Project Health, Safety and Environment Plan approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield HSE Documents
	Scope of Work and IFC Drawings	Owner or General Contractor	Prior to mobilization	Ensure latest revision is sent to Layfield prior to starting work	H		H		H		Transmittal to Layfield
	QA/QC Manual approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield QA/QC Documents
	Tensiometer and Gauge Calibrations	Layfield	Annually	Valid calibration with 1% deviation or as per spec	R		R		D		Calibration Certificates

	Review Geomembrane and other materials properties	Layfield	Prior to material deployment	As per drawings and specifications	R		R		R		Mill Certificates
	Inventory and Inspection of Materials Received Onsite	Layfield	Prior to material deployment	Layfield QA Manual	R		R		D & H		Inventory Log
	GCL Base Layer										
	Liner Subgrade Surface Inspection	Layfield / Civil Contractor	Prior to material deployment	Layfield QA Manual	R & H		R & H		D & H		Certificate of Subgrade Surface Inspection
	GCL NWL60 Placement (project spec dependant)	Layfield	As per specification	As per specification	W		R		R		ITP signoff
	Install Bentonite Enhancement Powder at Seams	Layfield	As per specification	As per specification	W		R		R		ITP Signoff
	Visual inspection of GCL before is covered with Liner	Layfield	Throughout install	As per specification	W		W		D		GCL completion sign off
	Primary Layer 80 mil LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log
	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log

	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built drawing
	Destructive Testing	Layfield	As per drawings and specifications (ie 1 per 500m seam)	Layfield QA Manual & as per Material Spec sheet or specifications	W		R		D		Geomembrane Destruct Log
	Project Closeout										
	Final Acceptance of Work Performed	Layfield / Owner's Rep / General Contractor	Once at completion Of Work	As per drawings and specifications	D & H		D & H		D & H		Certificate of Final Inspection and Acceptance
	Turnover Documentation to Owner (QA/QC Submittal)	Layfield	Once at completion of Work	As per drawings and specifications	D & H		R		D		Layfield Turnover Documentation

An effective and/or acceptable ITP should provide the client with a high degree of confidence that the Work will be, or has been, completed in accordance with the applicable contract, IFC drawings, Standards, Procedures, etc. Therefore, a sufficient sampling of each (identified) Activity must be inspected by the Owner's Representative and/or General Contractor in order to ensure that conformance is, in fact, being achieved. ITPs help define the auditable documentation that will be produced by Layfield for each Activity. A sufficient number of Activities must be identified in order to accurately reflect the Scope of Work. ITPs that lack sufficient detail will not be Approved.

Victoria Gold Heap Leach

LAYFIELD

CT001045

LAYFIELD	INSPECTION AND TEST PLAN		
Document Name & Revision # **Geomembrane ITP Rev. 0**	Contract No: 27233	CWP: Work Area: In-heap Pond	**H** = Hold Point **W** = Witness Point **R** = Review Point **D** = Documentation
Owner's Representative (ITP)	General Contractor Approval (ITP)	Layfield Approval (ITP)	
Date:	Date:	Date: June 25, 2018	**Material: GLC, 60 mil HDPE 2 side tex, Geocomposite, 80 mil LLDPE 2 side tex conduction**

Activity No:	Activity Description (Per Scope of Work)	Responsibility	Frequency	Acceptance Criteria	Verification Point c/w Site						Verification Document
					Owner's Representative		General Contractor		Layfield		
					H W R D	Initials & Date	H W R D	Initials & Date	H W R D	Initials & Date	
	Project Startup										
	Project Health, Safety and Environment Plan approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield HSE Documents
	Scope of Work and IFC Drawings	Owner or General Contractor	Prior to mobilization	Ensure latest revision is sent to Layfield prior to starting work	H		H		H		Transmittal to Layfield
	QA/QC Manual approved	Layfield	Prior to mobilization	Reviewed and approved by Owner's Rep	H		R		D		Layfield QA/QC Documents
	Tensiometer and Gauge Calibrations	Layfield	Annually	Valid calibration with 1% deviation or as per spec	R		R		D		Calibration Certificates

	Review Geomembrane and other materials properties	Layfield	Prior to material deployment	As per drawings and specifications	R		R		R		Mill Certificates
	Inventory and Inspection of Materials Received Onsite	Layfield	Prior to material deployment	Layfield QA Manual	R		R		D & H		Inventory Log
	GCL Base Layer										
	Liner Subgrade Surface Inspection	Layfield / Civil Contractor	Prior to material deployment	Layfield QA Manual	R & H		R & H		D & H		Certificate of Subgrade Surface Inspection
	GCL NWL60 Placement (project spec dependant)	Layfield	As per specification	As per specification	W		R		R		ITP signoff
	Install Bentonite Enhancement Powder at Seams	Layfield	As per specification	As per specification	W		R		R		ITP Signoff
	Visual inspection of GCL before is covered with Liner	Layfield	Throughout install	As per specification	W		W		D		GCL completion sign off
	Secondary Layer 60 mil LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log

	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log & As-built Drawing
	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required and as per specification	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built Drawing
	Destructive Testing	Layfield	As per specifications (1 per 500m seam)	Layfield QA Manual & as per Material Spec sheet or specifications	W		R		D		Geomembrane Destruct Log
	Drainage Layer										
	Geocomposite Placement (project spec dependant)	Layfield	As per specification	As per specification	W		R		R		ITP signoff
	Primary Layer 80 mil Conductive LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log
	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log

	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built drawing
	Destructive Testing	Layfield	As per drawings and specifications (ie 1 per 500m seam)	Layfield QA Manual & as per Material Spec sheet or specifications	W		R		D		Geomembrane Destruct Log
	Project Specific Details										
	Rubsheets – 80 mil LLDPE										
	Geomembrane Deployment	Layfield	Throughout project	Layfield QA Manual	R		R		D		Geomembrane Deployment Log & As-built Drawing
	Geomembrane Qualification Welds	Layfield	Beginning of every day and every 4 hrs	Layfield QA Manual	R		R		D		Geomembrane Seam & Test Log and/or Detail & Test Log
	Geomembrane Seaming	Layfield	Throughout project	Layfield QA Manual & Material Spec Sheet	R		R		D		Geomembrane Seam & Test Log
	Non-Destructive Seam Testing	Layfield	All Wedge Welds	Layfield QA Manual & Material Spec Sheet	W		R		D		Geomembrane Seam & Test Log
	Geomembrane Penetrations, Details, Defects, Repairs & Non-Destructive Testing	Layfield	As required	Layfield QA Manual	W		R		D		Geomembrane Detail & Test Log & Layfield As-built drawing

	Post Install Leak Testing on 80 mil Primary in In-heap pond										
	Electrical Leak Testing	Layfield	As per test method or specification	Test Method Standards	W		D				Test Documentation
	Project Closeout										
	Final Acceptance of Work Performed	Layfield / Owner's Rep / General Contractor	Once at completion Of Work	As per drawings and specifications	D & H		D & H		D & H		Certificate of Final Inspection and Acceptance
	Turnover Documentation to Owner (QA/QC Submittal)	Layfield	Once at completion of Work	As per drawings and specifications	D & H		R		D		Layfield Turnover Documentation

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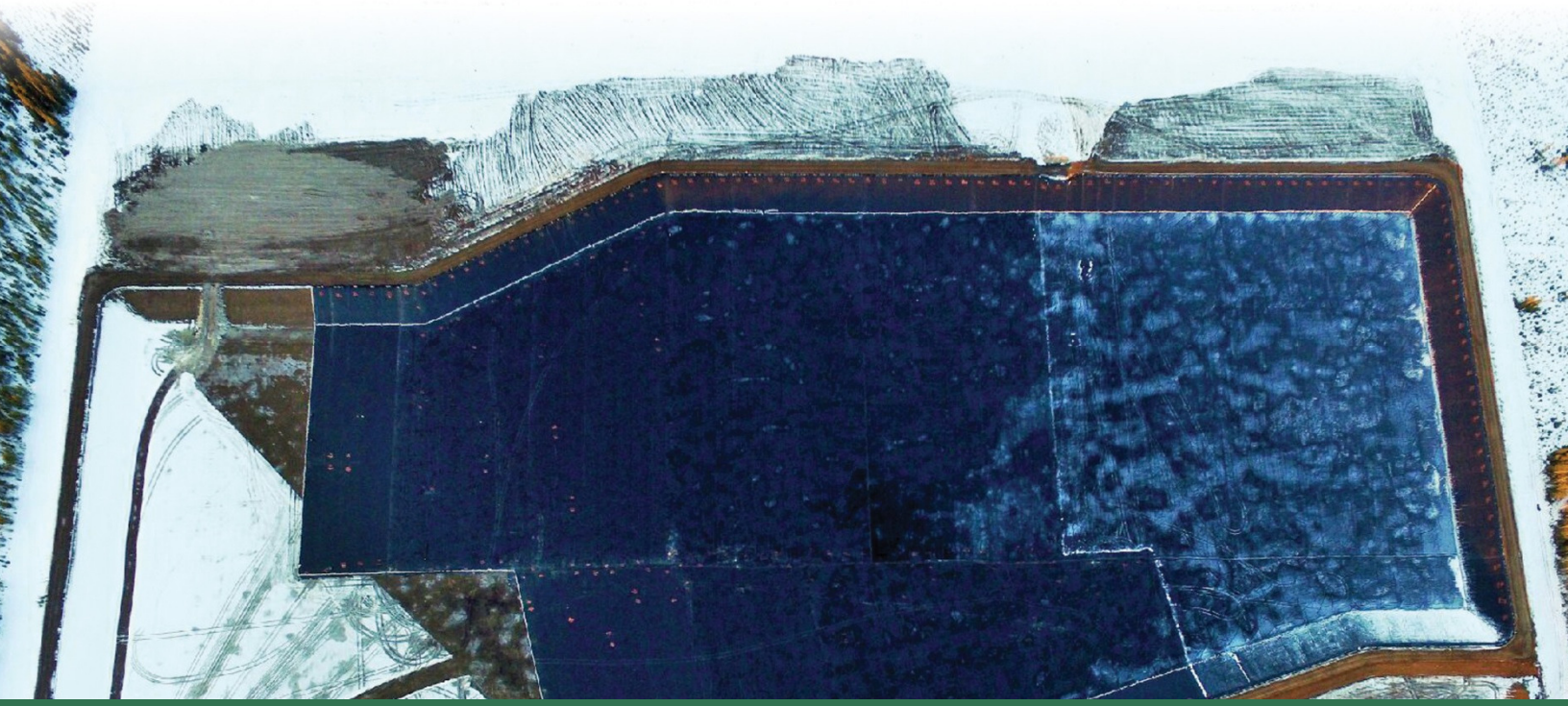
LAYFIELD
ENVIRONMENTAL CONTAINMENT



Layfield Group of Companies

Geomembrane Installation

Quality Assurance Manual



WE PROTECT

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1. Overview

1.1. This manual is a guide to the duties and responsibilities of the Layfield Project Manager, Layfield Project Supervisor, Layfield QA/QC Designate, and Layfield Technician on every project.

1.2. This document is not intended to be prescriptive for every possible application, project or material. Each practice, standard, and/or test method should be guided by (and applied with) good engineering principles and judgement, project specifications and the expertise of qualified Layfield personnel.

1.3. This document does not address any health, safety or environmental concerns related to practices, standards, test methods, regional regulations, or site specific rules.

2. References

ASTM D4437	Standard Practice for Determining the Integrity of Field Seams Used in Joining Flexible Polymeric Sheet Membranes
ASTM D4439	Terminology for Geosynthetics
ASTM D4873	Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D5641	Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber
ASTM D5820	Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes
ASTM D6214	Standard Test Method for Determining the Integrity of Field Seams Used in Joining Geomembranes by Chemical Fusion Methods
ASTM D6365	Standard Practice for the Nondestructive Testing of Geomembrane Seams Using the Spark Test
ASTM D6392	Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
ASTM D6497	Standard Guide for Mechanical Attachment of Geomembrane to Penetrations or Structures
ASTM D7177	Standard Specification for Air Channel Evaluation of Polyvinyl Chloride Dual Track Seamed Geomembranes



ASTM D7272	Standard Test Method for Determining the Integrity of Seams Used in Joining Geomembranes by Pre-manufactured Taped Methods
ASTM D7408	Standard Specification for Non Reinforced PVC (Polyvinyl Chloride) Geomembrane Seams
ASTM D7700	Standard Guide for Selecting Test Methods for Geomembrane Seams
ASTM D7865	Standard Guide for Identification, Packaging, Handling, Storage and Deployment of Fabricated Geomembrane Panels
GRI Standard GM 6	Pressurized Air Channel Test for Dual Seamed Geomembranes
GRI Standard GM13	Test Methods, Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes
GRI Standard GM14	Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using the Method of Attributes
GRI Standard GM17	Test Methods, Properties and Testing Frequency for Linear Low Density Polyethylene (LLDPE) Smooth and Textured Geomembranes
GRI Standard GM18	Test Methods, Properties and Testing Frequency for Flexible Polypropylene (fPP and fPP-R) Nonreinforced and Reinforced Geomembranes
GRI Standard GM19	Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes
GRI Standard GM 25	Test Methods, Test Properties and Testing Frequency for Reinforced Linear Low Density Polyethylene (LLDPE-R) Geomembranes
GRI Standard GM 29	Field Integrity Evaluation of Geomembrane Seams (and Sheet) Using Destructive and/or Nondestructive Testing

3. Material Delivery

3.1. Overview

3.1.1. Layfield is usually responsible for geosynthetic material transport to the worksite. The Layfield Project Manager is responsible for ensuring that Layfield produced and procured materials are packaged and identified in a manner that complies with ASTM D4873 and/or ASTM D7865.



3.1.2. When Layfield is directly responsible for onsite geosynthetic material receiving, storage and handling, the Layfield Project Supervisor or QA/QC Designate will ensure that this done in a manner that complies with ASTM D4873 and/or ASTM D7865. However, Layfield often does not have direct control of these activities onsite and the Project Supervisor or QA/QC Designate is only able to give guidance, which may or may not be followed.



3.2. Procedure

3.2.1. The Project Supervisor or QA/QC Designate shall perform an inventory of all materials onsite for use in the scope of work.

3.2.2. All geomembrane, geotextile, geonet, geocomposite, etc roll or panel numbers shall be entered in the Inventory Log (Appendix B) and will be cross-referenced with bills of lading.

3.2.3. The Inventory Log must be returned to the Layfield office along with the remainder of the project QA/QC documentation at the end of the project for inclusion in the final QA/QC turnover package.

3.2.4. All damages must be noted on the Geomembrane Inventory Log. If damages are substantial, notify the Project Manager immediately so that the appropriate claim process may be started and/or PIR process initiated.

4. Subgrade Surface Inspection

4.1. Overview

4.1.1. All projects must have all Certificate(s) of Subgrade Surface Inspection (Appendix A) signed by the Owner's Representative prior to the deployment of any covering material.

4.1.2. It is important to note that there are cases where a total work area cannot or will not be turned over to Layfield. The Certificate of Subgrade Surface Inspection does make provision for partial areas being turned over to Layfield. The Project Supervisor or QA/QC Designate shall ensure that the extents of the inspected area are clearly expressed on the Certificate of Subgrade Surface Inspection. A separate certificate shall be generated for each partial area.

4.1.3. The Certificate of Subgrade Surface Inspection is generated in duplicate with a white (original) and yellow (copy). The white copy is kept with Layfield's QA/QC documentation and is turned over to the Layfield Project Manager at the Project Closeout Meeting. The yellow copy is turned over to the countersigning party (Contractor's QA, Owner's Representative, etc) immediately upon signature for their records.

4.2.Procedure

4.2.1. The General Contractor is responsible for preparing and maintaining the subgrade. The subgrade must be prepared and maintained per the individual project specifications.

4.2.2. The Project Supervisor or QA/QC Designate will be responsible for visually inspecting the subgrade surface.



4.2.2.1. If the subgrade is deemed unsuitable by the Project Supervisor or QA/QC Designate, they must alert the Owner's Representative and/or General Contractor as soon as possible. The Project Supervisor or QA/QC Designate shall communicate why the subgrade is unsuitable and may give some guidance for subgrade remedy.

4.2.2.2. Alternatively, the Owner's Representative may direct the Project Supervisor to begin deployment despite the unsuitable subgrade. The Project Supervisor will confer with the Project Manager prior to deployment.

4.2.3. When the subgrade has been inspected and deemed acceptable, the Project Supervisor or QA/QC Designate will complete and sign the Certificate of Subgrade Surface Inspection and submit to the Owner's Representative for countersignature.

4.2.3.1. The Certificate(s) of Subgrade Surface Inspection must be completed, signed and countersigned prior to beginning any deployment.

4.2.4. Prior to material installation, the Layfield Supervisor or QA/QC Designate should measure the area to be covered and compare it to the area included in the contract. Any differences must be communicated immediately to the Layfield Project Manager.

5. Deployment

5.1. Overview

5.1.1. Material shall be deployed under the direction of the Project Supervisor or QA/QC Designate.

5.1.2. Material shall be deployed in a logical sequence and in a manner that allows for efficient seaming.

5.1.3. Equipment used to handle geomembrane panels or rolls shall not contact the material directly and shall not cause damage to material.



5.1.4. Adjacent rolls will be overlapped by an amount suitable for the material and the seaming method being used.

5.2. Procedure

5.2.1. Each prefabricated panel or roll stock length shall be assigned a unique Panel Number as detailed below.

5.2.1.1. It is essential that Layfield's identification system and the Owner's Representative are the same. Do not use different systems.

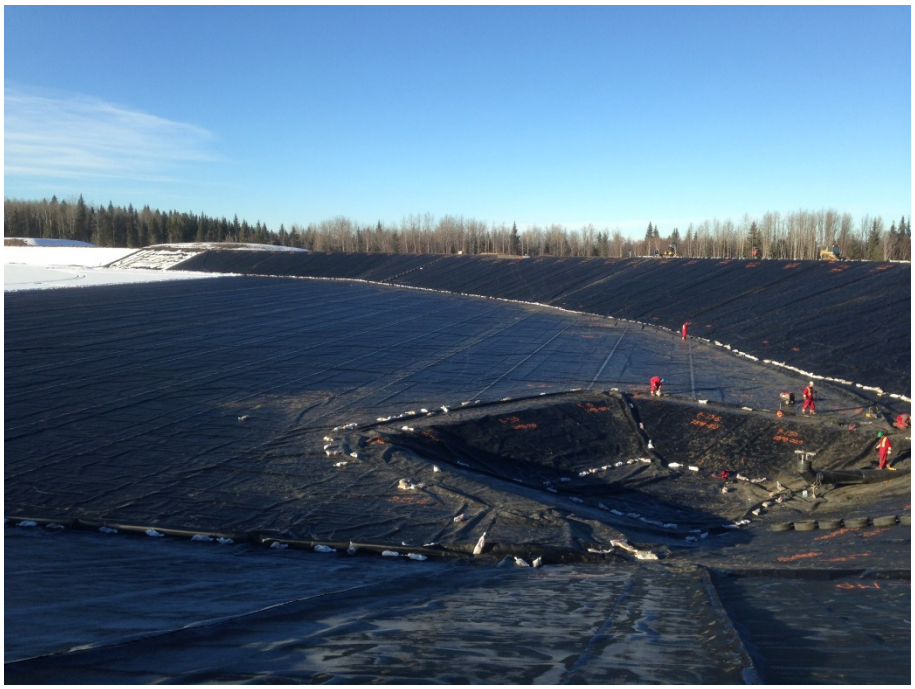
5.2.2. Panel numbers shall be written in large block letters in the center of each deployed panel. The roll number, date of deployment and length (gross) should be noted below the panel number. All noting should be made so that they are easily visible from a distance. On long panels this information should be written at both ends.

5.2.3. Panel Numbers shall be logged on the Geomembrane Deployment Log (Appendix C) along with the deployment date, roll number, length, width, and air temperature.

5.2.4. Deployment of geomembrane panels shall be performed in a manner that will comply with the following guidelines:

5.2.4.1. Unroll geomembrane using methods that will not damage geomembrane and will protect the underlying surface from damage.

5.2.4.2. To prevent wind uplift, place ballast that will not damage the geomembrane (usually sandbags).



5.2.4.3. Personnel walking on geomembrane shall not engage in activities or wear footwear that could damage the material. Smoking is not permitted on the geomembrane.

5.2.4.4. Do not allow heavy equipment or road vehicle traffic directly on geomembrane. Rubber tired/ tracked UTVs are acceptable if ground pressure is less than 8 psi.

5.2.4.5. If required, place a protective cover over the geomembrane in areas of heavy traffic. The type of cover will vary according to material and traffic types.

5.2.4.6. All tires/tracks shall be inspected for sharp edges, embedded rocks or other potentially damaging materials prior to driving on any geosynthetic layer.

5.2.4.7. All UTVs must drive as straight as possible while on any geosynthetic layer. No sharp turns, sudden stops or quick starts.

5.2.4.8. Areas where driving occurs shall be continuously and thoroughly inspected throughout the deployment process by the Layfield Project Supervisor or QA/QC Designate and the Owner's Representative.

6. Qualification Welds

6.1.Overview

6.1.1. Wedge and Extrusion Qualification Welds

6.1.1.1. When performing Wedge and/or Extrusion Qualification Welds, each welding apparatus will be assigned to a Layfield Technician.

6.1.1.2. Each welding apparatus along with its designated Layfield Technician must pass a qualification weld prior to use for production welds. This will occur prior to any production seaming and in 4.0 hour increments as a minimum.

6.1.1.2.1. In addition, qualifications must be performed whenever there is a power interruption, dramatic change in climate conditions, if equipment settings are modified or adjusted, or a technician (operator) change.

6.1.1.3. Wedge and Extrusion Qualification Welds must be destructively tested by a calibrated tensiometer. The tensiometer shall be calibrated by a certified third party calibration agency. The Project Manager shall ensure that the Project Supervisor or QA/QC Designate is in possession of a copy of the calibration certificate prior to mobilization to the worksite.

6.1.1.4. Wedge and Extrusion Qualification Welds shall be tested in accordance with ASTM D6392, ASTM D7177, ASTM D7408, GRI Standard GM6, GRI Standard GM13, GRI Standard GM17, GRI Standard GM19, or GRI Standard GM25; whichever is applicable to the material being welded.

6.1.2. Chemical Fusion Qualification Welds

6.1.2.1. Chemical Fusion is a versatile technique, but is only applicable to materials containing PVC.

6.1.2.2. Chemical Fusion does not provide the same peel strengths as thermo-fusion welding methods. For example, it is possible to create a wide chemical fusion bond that will develop the same shear strength as the material, but peel strengths will be lower than thermo-fusion welded samples.

6.1.2.3. Chemical Fusion welds typically require 8 to 24 hours curing time. As such, it is not usually practical to perform QA Chemical Fusion Qualification Welds in the field.

6.1.2.4. Chemical Fusion welds can be tested as a QC measure as part of Field Destructive Testing, which is covered below in this document.



6.1.3. Prepared Tape Seams

6.1.3.1. Prepared Tape seams are only used on materials such as vapor barrier and RPE type materials where Thermo-Fusion techniques cannot be used due to material properties.

6.1.3.2. Prepared Tape seams do not provide the same peel or shear strength values as thermo-fusion welding methods. The joint must be secured in some other fashion to create strength.

6.1.3.3. If Qualification Welds are required by the project specifications, Prepared Tape seams shall be tested in accordance with ASTM D7272.

6.2.Wedge and Extrusion Qualification Procedure

6.2.1. All welding equipment shall be allowed to warm up a minimum of 15 minutes before performing Qualification Welds.

6.2.2. The Project Supervisor, QA/QC Designate and/or Technician must verify:



6.2.2.1. The equipment used is functioning properly and is the correct style for the welding to be performed.

6.2.2.2. Welding personnel are competent, working in a professional manner and are attentive to their duties.

6.2.2.3. Welding will only be performed when conditions allow for the conclusion of successful welds which will meet the project specifications.

6.2.3. Wedge welds must be performed on samples at least 5’ long. Extrusion welds must be performed on samples at least 3’ long.

6.2.4. All Qualification Welds must be performed in the same conditions that exist on the worksite.

6.2.5. Use a 1” (25 mm) die cutter to cut ten (10) test specimens (or coupons) from the Qualification Weld samples. The Qualification Weld samples should be free of sand and

grit prior to cutting sample. Cut one sample at a time to avoid damaging the coupons and/or the die cutter.

6.2.6. When cutting coupons from the Qualification Weld samples, the inside and outside tracks on the coupon must be identified to assist in troubleshooting if the weld fails.

6.2.6.1. The outside track will be identified as the track which is closest to the edge of the top sheet. The inside track will be identified as the track closest to the edge of the bottom sheet.

6.2.7. Allow coupons to cool prior to testing.

6.2.8. Qualification Weld testing should occur at 21°C (+/- 4°C). Coupon temperatures greater than 21 degrees may result in artificially low strengths while colder temperatures lower may result in artificially high test values. If possible, allow the coupons to temperature stabilize to these conditions prior to testing.

6.2.9. Visually inspect the coupons for squeeze-out, footprint, pressure and general appearance.

6.2.10. Five (5) coupons will be tested in peel, and five (5) more coupons will be sampled in shear on the calibrated field tensiometer at a separation rate dictated by the applicable ASTM or GRI test method.

6.2.11. Criteria for passing Qualification Welds will be as follows:

6.2.11.1. Weld must exhibit film tear bond (FTB). Qualification Welds must have no more than 25% incursion into the weld in all samples.

6.2.11.2. Peel and shear values must meet or exceed the values that are applicable to the geosynthetic material. Peel and Shear values for the following typical materials can be found in:

6.2.11.2.1. HDPE, Smooth and Textured – GRI Standard GM 19

6.2.11.2.2. LLDPE, Smooth and Textured – GRI Standard GM 17

6.2.11.2.3. LLDPE, Reinforced – GRI Standard GM 25

6.2.11.2.4. EnviroLiner Series – GRI Standard GM17

6.2.11.2.5. Nonreinforced PVC – ASTM D7408

6.2.11.2.6. Flexible Polypropylene, Reinforced & Nonreinforced – GRI Standard GM18



6.2.11.3. Both tracks of Dual Track wedge welded samples must pass for the Qualification Weld to be considered acceptable. If any of the ten (10) coupons fail either peel or shear due to seam incursion (no FTB) or low strength values, the Qualification Weld must be re-done. Repeat the Qualification Weld process until passing values are obtained.

6.2.12. The Layfield Project Supervisor or QA/ QC Designate will give approval to proceed with welding after observing and recording all Qualification Weld results.

6.2.13. All qualification weld data shall be recorded on the following logs:

6.2.13.1. Wedge Qualification Weld data will be recorded in the Geomembrane Seam & Test Log (Appendix D).

6.2.13.2. Extrusion Qualification Weld data will be recorded in the Geomembrane Detail & Test Log (Appendix E)

7. Field Production Seaming

7.1. Overview

7.1.1. All seams shall be recorded.

7.1.2. Production wedge welds shall be recorded on the Geomembrane Seam & Test Log (Appendix D).

7.1.3. Extrusion welds are usually performed on details, defects or repairs and as such will be recorded on the Geomembrane Detail & Test Log (Appendix E).



7.1.4. Chemical Fusion welds shall be recorded on the Geomembrane Seam & Test Log if they are production welds. If they are performed as part of a detail or repair, they shall be recorded on the Geomembrane Detail & Test Log.

7.1.5. Prepared Tape welds shall be recorded on the Geomembrane Seam & Test Log if they are production welds. If they are performed as part of a detail or repair, they shall be recorded on the Geomembrane Detail & Test Log.

7.2. Wedge Welding Procedures

7.2.1. All wedge welding equipment must use the same settings that were used during the Qualification Weld process. If changes are made to any settings, the wedge welder must be re-qualified.

7.2.2. The seam shall be identified by the unique Panel Numbers on each side. These Panel Numbers and the seam lengths shall be recorded in the Geomembrane Seam & Test Log.

7.2.3. Welding Technicians will mark their initials, machine number, date and time at the start of every seam.

7.2.4. Welding should not be performed in ambient air temperatures or adverse weather conditions that would jeopardize the integrity of the liner installation.

7.2.4.1. Allowable welding temperatures and/or weather conditions shall be dictated by the project specifications, material specifications and/or the successful geomembrane Qualification Weld.

7.2.4.2. Welding may proceed in adverse conditions if sufficient precautionary measures have been implemented to protect the welding area and/or geomembrane.

7.2.5. The Layfield Technician shall verify the following as part of weld preparation:

7.2.5.1. Ensure that the seam is overlapped properly for Wedge welding.

7.2.5.2. Clean the seam area as required. The seaming area must be kept free of moisture, dust, dirt, sand or debris of any nature.

7.2.5.2.1. A slip sheet or geotextile working surface may be used to maintain a clean work area.

7.2.5.3. Align wrinkles on seams to minimize unmatched wrinkles or “fish mouths”.

7.2.6. Proceed with Wedge weld.

7.3. Extrusion Welding Procedures

7.3.1. All Extrusion welding equipment must use the same settings that were used during the Qualification Weld process.

7.3.2. The seam shall be identified by the unique Panel Numbers on each side. These Panel Numbers and the seam lengths shall be recorded in the Geomembrane Detail & Test Log.

7.3.3. Welding Technicians will mark their initials, machine number, date and time at the start of every seam or weld.



7.3.4. Welding should not be performed in ambient air temperatures or adverse weather conditions that would jeopardize the integrity of the liner installation.

7.3.4.1. Allowable welding temperatures and/or weather conditions shall be dictated by the project specifications, material specifications and/or the successful geomembrane Qualification Weld.



7.3.4.2. Welding may proceed in adverse conditions if sufficient precautionary measures have been implemented to protect the welding area and/or geomembrane.

7.3.5. The Layfield Technician shall verify the following as part of weld preparation:

7.3.5.1. Ensure that the seam or weld area is overlapped properly for Extrusion welding.

7.3.5.1.1. A slip sheet or geotextile working surface may be used to maintain a clean work area.

7.3.5.2. Clean the seam or weld area as required. The seam or weld area must be kept free of moisture, dust, dirt, sand or debris of any nature.

7.3.5.3. Tack the seam or weld in place by using a Hot Air welder.

7.3.5.4. Roughen the welding surface(s) by either grinding or abrasion

7.3.5.5. Purge the machine of heat degraded extrudate prior to use.

7.3.6. Proceed with Extrusion weld.

7.4.Chemical Fusion Welding Procedures

7.4.1. Chemical Fusion Welding requires the use of solvents or bodied solvents.

7.4.2. The seam shall be identified by the unique Panel Numbers on each side. These Panel Numbers and the seam lengths shall be recorded in the Geomembrane Seam & Test Log or Geomembrane Detail & Test Log, as applicable.

7.4.3. Welding Technicians will mark their initials, date and time at the start of every seam or weld.

7.4.4. Welding should not be performed in ambient air temperatures or adverse weather conditions that would jeopardize the integrity of the liner installation.

7.4.4.1. Allowable welding temperatures and/or weather conditions shall be dictated by the project specifications, Chemical Fusion manufacturer specifications, and/or material specifications.

7.4.4.2. Welding may proceed in adverse conditions if sufficient precautionary measures have been implemented to protect the welding area and/or geomembrane.

7.4.5. The Layfield Technician shall verify the following as part of weld preparation:

7.4.5.1. Ensure that the seam or weld area is overlapped properly for Chemical Fusion welding.

7.4.5.1.1. A slip sheet or geotextile working surface may be used to maintain a clean work area.

7.4.5.1.2. If the subgrade is not rigid enough, a rigid slip sheet can be used to help with compression during the seaming process.

7.4.5.2. Clean the seam area or weld area as required. The area must be kept free of moisture, dust, dirt, sand or debris of any nature.

7.4.6. Proceed with Chemical Fusion weld.

7.5.Prepared Tape Seaming Procedures

7.5.1. Prepared Tape Seaming requires the use of mastics, putties, asphalt, or butyl tapes.

7.5.2. The seam shall be identified by the unique Panel Numbers on each side. These Panel Numbers and the seam lengths shall be recorded in the Geomembrane Seam & Test Log or Geomembrane Detail & Test Log, as applicable.

7.5.3. Welding Technicians will mark their initials, date and time at the start of every seam.

7.5.4. Seaming should not be performed in ambient air temperatures or adverse weather conditions that would jeopardize the integrity of the liner installation.

7.5.4.1. Allowable seaming temperatures and/or weather conditions shall be dictated by the project specifications, Prepared Tape manufacturer specifications, and/or material specifications.



7.5.4.2. Seaming may proceed in adverse conditions if sufficient precautionary measures have been implemented to protect the welding area and/or geomembrane.

7.5.5. The Layfield Technician shall verify the following as part of seam preparation:

7.5.5.1. Ensure that the seam is overlapped properly for Prepared Tape seaming.

7.5.5.2. Clean the seam area as required. The seaming area must be kept free of moisture, dust, dirt, sand or debris of any nature.

7.5.6. Proceed with Prepared Tape seam.

8. Field Nondestructive Testing

8.1. Overview

8.1.1. Layfield shall nondestructively test the entire length of all seams and welds using the applicable nondestructive test method for the material as indicated by ASTM D7700. The table below can be used as a quick reference

Material	ASTM Test Method				
	D5641 Vacuum Chamber[1]	D4437 Air Lance	D4437 Point Stress	D5820 Pressurized Air Channel[3]	D6365 Spark Test
HDPE	X	X	X	X[2]	X
LLDPE & fPP	X	X	X	X[2]	X
Non-reinforced PVC	X	X	X		X
Reinforced PVC	X	X	X		X
fPP-R	X	X	X	X	
EnviroLiner series	X	X	X	X[2]	X

[1] Layfield will usually restrict use of ASTM D5641 (Vacuum Chamber) to Extrusion welds and other short weld lengths such as details and repairs.

[2] Layfield will usually perform Dual Track Wedge welds on this material if the thickness is above 40mil. Layfield will usually perform Solid Wedge welds if the material thickness is below 40mil.

[3] GRI Standard GM6 is also applicable to this test method.

8.2.Procedure

8.2.1. Vacuum Chamber

8.2.1.1. This method is used to inspect welds and seams for unbonded areas and/or pinholes. A Vacuum Chamber consists of a rectangular box with an open bottom, a soft rubber type gasket along the perimeter of the open bottom, a clear plastic viewing panel at the top, and a vacuum gauge.

8.2.1.2. Apply a soap solution (or other approved foaming agent) to the area to be tested.

8.2.1.3. Place Vacuum Chamber over the area to be tested.



8.2.1.3.1. This test method is performed in increments of approximately 18” with a 6” overlap of the previous length tested.

8.2.1.4. Apply a vacuum between 4 to 8” (122-244mm) of mercury (Hg) to the Vacuum Chamber.

8.2.1.5. Inspect the testing area through the clear plastic viewing panel for bubbles at unbonded areas or pinholes.

8.2.1.5.1. Bubbles near the edge of the vacuum chamber may be caused by an incomplete seal. If bubbles are detected near the edges of the vacuum chamber, move the vacuum chamber and retest to verify if the bubbles were caused by an actual defect or pinhole.

8.2.1.6. Mark all unbonded areas or pinholes for repair with a white paint marker.

8.2.1.7. Record results on the Geomembrane Seam & Test Log and/or Detail & Test Log, as appropriate.

8.2.2. Air Lance

8.2.2.1. This method is used to test welds and seams for unbonded areas by using an air nozzle directed on the upper edge and surface. Layfield typically uses this test method on Solid Wedge welds.

8.2.2.2. Use a minimum 50 psi (345 kPa) air supply directed through a 3/16" nozzle. Hold the nozzle approximately 2" away from the edge and surface.

8.2.2.3. While performing Air Lance testing, inspect testing areas for loose edges, riffles indicating unbonded areas, and other unacceptable conditions.

8.2.2.4. Mark all unbonded areas for repair with a white paint marker.

8.2.2.5. Record results on the Geomembrane Seam & Test Log and/or Detail & Test Log, as appropriate.

8.2.3. Point Stress

8.2.3.1. This method is used to manually inspect and test seam and weld edges with a rounded screwdriver (or similar device).

8.2.3.2. Layfield requires this to be done on all seams and welds in addition to other applicable testing methods.

8.2.3.3. Using a rounded screwdriver, manually test the edges of seams and welds.

8.2.3.3.1. Ensure that this procedure does not puncture or otherwise damage the sheet material, seams or welds.

8.2.3.4. While performing Point Stress testing, inspect for signs of unbonded areas.

8.2.3.5. Mark all unbonded areas for repair with a white paint marker.

8.2.3.6. Record results on the Geomembrane Seam & Test Log and/or Detail & Test Log, as appropriate.

8.2.4. Pressurized Air Channel

8.2.4.1. This method is used to test Dual Track Wedge welded seams. A Dual Track Wedge weld consists of parallel thermo-fusion welds separated by an unwelded air channel.

8.2.4.2. After a Dual Track Wedge weld has been completed and allowed to cool, perform the following:

8.2.4.2.1. Seal the two ends of the continuous air channel.

8.2.4.2.2. Connect the air pressure gauge assembly directly to the air channel.

8.2.4.2.3. Connect an air pump to the air pressure gauge assembly and pressurize the air channel to the appropriate pressure for the geomembrane material.

8.2.4.2.4. Disconnect the air pump from the air pressure gauge assembly.

8.2.4.2.5. Allow the air channel pressure to stabilize.

8.2.4.2.5.1. If required, increase or decrease the pressure to the specified starting value.

8.2.4.2.6. Record the test start time and pressure, and seam location.

8.2.4.2.7. Wait 5 minutes. During this period perform the following:

8.2.4.2.7.1. Visually inspect the air channel along its full length to ensure that pressure is present throughout the entire length of seam.

8.2.4.2.7.2. Listen for escaping air along the full length of the air channel.

8.2.4.2.8. After the 5 minute testing period, observe and record the test end time and pressure.

8.2.4.2.9. For a seam to pass, it must meet the following criteria:

8.2.4.2.9.1. Compare the recorded test results against the Maximum Pressure Drop testing values table for the material. If the pressure does not drop below the value listed, proceed to the next step.

8.2.4.2.9.2. Open the air channel at the opposite end from the pressure gauge. Pressurized air should escape and the pressure gauge should register an immediate drop in pressure. This indicates that the entire length of seam has been tested and the seam passes. If not, there is likely a blockage in the air channel.

8.2.4.2.9.2.1. If there is a blockage, the channel should be inflated up to the blockage. Cut the air channel on the gauge side of the blockage and



verify pressure loss. Repeat as necessary until the blockage is identified. Retest all sections and repair as required.

8.2.4.2.9.3. If the pressure drops below the allowable pressure value, Layfield personnel must trace and identify the defect by following these steps:

8.2.4.2.9.3.1. Check the seals at the ends of the air channel. Reseal and retest if the seal was defective.

8.2.4.2.9.3.2. Inspect the seam for deficiencies in the weld tracks (spinouts, wrinkles, fish mouths, etc).

8.2.4.2.9.3.3. Remove the overlap and apply a soap solution. Retest the seam in increments to identify the defect location. If the defect is found, effect localized repairs.

8.2.4.2.9.3.4. If the defect in the air channel cannot be identified, reconstruct the seam (or part of seam) by installing a Dual Track wedge welded cap strip and retest.

8.2.4.3. Record all test results on the Geomembrane Seam & Test Log (Appendix D).

8.2.5. Spark Test

8.2.5.1. This method is used to test an Extrusion weld that includes a conductive material inserted into or behind the weld.

8.2.5.2. Set the voltage source to the voltage needed for the expected distance.

8.2.5.3. The spark tester shall be held and operated approximately ½" to 1" away from the weld.

8.2.5.4. Sweep the spark tester over the welded materials along the weld length.

8.2.5.5. Spark arcing indicates a suspect area in the weld.

8.2.5.6. Mark all pinholes or unbonded areas for repair with a white paint marker.

8.2.5.7. Record all test results on the Geomembrane Seam & Test Log and/or Detail & Test Log, as appropriate.



9. Details, Defects & Repairs

9.1. Overview

9.1.1. All seam and non-seam areas of the geomembrane shall be inspected for damages and defects.

9.1.1.1. At minimum, all seams and welds shall be non-destructively tested. Where a seam is tested destructively, it shall be repaired and recorded as part of this process.

9.1.1.2. All non-seam areas shall be inspected throughout the work and as part of Final Inspection and Acceptance.

9.1.2. All details, defects and repairs shall be physically marked on the geomembrane and recorded on the Geomembrane Detail & Test Log (Appendix E) and their location recorded on the As-Built Drawing.

9.2. Identification

9.2.1. Details are identified in the Scope of Work, Construction Drawings, or other contract document. Examples are pipe or pile penetrations, rub sheets, etc.



9.2.2. Damages and defects are identified in one of two ways: an inspection, or as part of a destructive or non-destructive test. Examples are punctures in the sheet, defects in a seam, etc.

9.3. Details

9.3.1. Typical detail types include: grind & weld, boots, and skirts.

9.3.2. All details must be constructed using equipment that has been through the Qualification Weld process, and follow the applicable welding procedures.

9.3.3. Each detail shall be assigned a unique Detail Code.

9.3.4. The detail shall be constructed and tested non-destructively using an appropriate method for the detail type, geomembrane material type and project specifications.

9.3.5. The location, detail type, repair date & time, test date, and test type shall be recorded on the Geomembrane Detail & Test Log.

9.3.6. The location and unique Detail Code shall be recorded on the As-Built Drawing.

9.4.Repairs

9.4.1. Typical repair types include: grind & weld, patching, reconstructed seam, and capping.

9.4.2. All repairs must be performed using equipment that has been through the Qualification Weld process, and follow the applicable welding procedures.

9.4.3. Any damage or defect found in a seam or on sheet (pinholes, tears, punctures, etc) shall be marked on the geomembrane using a white paint marker, and designated for repair.

9.4.4. Each area designated for repair shall be assigned a unique Detail Code.

9.4.5. The repair shall be performed and tested nondestructively using an appropriate method for the damage or defect type, geomembrane material type, and project specifications.

9.4.6. The location, repair type, repair date & time, test date, and test type shall be recorded on the Geomembrane Detail & Test Log.

9.4.7. The location and unique Detail Code shall be recorded on the As-Built Drawing.

10. Field Destructive Testing

10.1. Overview

10.1.1. Destructive seam tests are performed to evaluate and confirm that production welds are conforming to the material and/or project specifications.

10.1.2. The sampling frequency of destructive testing shall be one (1) sample per 150 lineal meters of field welded seam, as guided by GRI Standard GM14 and GRI Standard GM29.

10.1.2.1. Project specifications and field considerations may modify this frequency.

10.2. Procedure

10.2.1. The Project Supervisor or QA/QC Designate shall identify the area from which the sample will be collected with a white paint marker.



10.2.1.1. Alternatively, project specifications may dictate that the Owner's Representative shall be responsible for identifying the area from which the sample will be collected.

10.2.2. Each destructive test sample will be assigned a unique Destruct Sample Number.

10.2.3. The sample size should be approximately 300mm (12") x 900mm (36"). This may vary based on project specification and sample distribution; however the typical distribution is as follows:

10.2.3.1. 300mm x 300mm sample for Layfield QA/QC Designate to be field tested.

10.2.3.2. 300mm x 300mm sample sent to Office for archiving or future testing if required.

10.2.3.3. 300mm x 300 mm sent to third party for independent testing, if required.

10.2.4. All samples shall be labeled with the unique Destruct Sample Number, seam location, machine number, Layfield project number, date welded, Technician, and geomembrane roll numbers.

10.2.5. The sample shall be tested using the same procedure as Qualification Welds for that welding apparatus.

10.2.5.1. Each geomembrane material has its own pass criteria. References are given in Section 6.2.11.2

10.2.5.2. The mechanical values of four out of five specimens must meet or exceed the specified values, and the fifth specimen must meet or exceed 80% of the value. In addition, the average value of each set of five specimens must meet GRI GM 19 specifications.

10.2.6. All destructive test data will be recorded on the Geomembrane Destruct Log (Appendix F).

10.2.7. If a destructive test sample fails, it is necessary to destructively sample and test the seam until a pass is found on both sides of the defect.

10.2.7.1. Cut additional samples 3 meters on each side of the defect and retest. These will be labeled A (after) & B (before). This procedure continues until a passing sample in each direction is achieved. The total length of defective seam between the two passing tests must be capped, or cut out and re-seamed.



10.2.7.2. After reconstructing the defective seam, the entire seam length must be non-destructively tested using the appropriate method for the repair type.

10.2.8. Destructive test samples should be repaired, but this may not be necessary depending on sample location (for example anchor trench or end of tie-in).

11. As-Built Drawing Requirements

11.1. As-built Drawings can be done on Layfield drafting paper, or overlay an Owner supplied construction/survey drawing. Drawings may be done in ink or pencil, but writing must be neat.

11.2. Scale must be indicated and consistent throughout the drawing.

11.3. Each As-Built Drawing must include a Legend, a North Arrow and overall dimensions.

11.4. Deployed geomembrane panels must be accurately located on the As-Built Drawing. The panels must be identified by the unique Panel Number that is physically written on the panel, and it must match the Geomembrane Deployment Log.



11.5. Details and Repairs must be accurately located on the As-Built Drawing. The details and repairs must be identified by the unique Detail Codes that are recorded in the Geomembrane Detail & Test Log.

12. Final Inspection and Acceptance

12.1. Overview

12.1.1. All projects must have all Certificate(s) of Final Inspection and Acceptance signed by, or on behalf of, both parties prior to the installation of any covering material.

12.1.2. It is important to note that there are cases where a total work area cannot or will not be completed and turned over to the Owner's Representative. The Certificate of Final Inspection and Acceptance does make provision for partial areas being completed and turned over to the Owner's Representative. The Layfield Site Supervisor shall ensure that the extents of the inspected area are clearly expressed on the Certificate of Final Inspection and Acceptance. A separate certificate shall be generated for each partial area.

12.1.3. The Certificate of Final Inspection and Acceptance is generated in duplicate with a white (original) and yellow (copy). The white copy is kept with Layfield's QA/QC documentation and is turned over to the Layfield Project Manager at the Project Closeout Meeting. The yellow copy is turned over to the countersigning party (Contractor's QA, Owner's Representative, etc) immediately upon signature for their records.

12.2. Procedure

12.2.1. The Project Supervisor or QA/QC Designate will arrange a final site inspection with Owner's Representative when the contracted Scope of Work has been completed.

12.2.2. The Project Supervisor or QA/QC Designate and Owner's Representative will inspect, measure, and validate all deliverables and components of the Scope of Work together.

12.2.2.1. If any deficiencies are found, they shall be remedied as soon as practical using the applicable procedures detailed above.

12.2.2.2. When the deficient item(s) have been remedied, the Project Supervisor or QA/QC Designate and Owner's Representative can re-inspect. Repeat this step as necessary.

12.2.3. When all deliverables and components have been inspected, measured and validated by the Owner's Representative, the Project Supervisor or QA/QC Designate will complete and sign the Certificate of Final Inspection and Acceptance and submit to the Owner's Representative for countersignature.

12.2.3.1. A Certificate of Final Inspection and Acceptance must be signed prior to Layfield demobilization.



Appendix A – Certificate of Subgrade Surface Inspection

CERTIFICATE OF SUBGRADE SURFACE INSPECTION
PROJECT NAME: _____
PROJECT NUMBER: _____
OWNER/CONTRACTOR: _____
LOCATION: _____

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the subgrade surface described below, and:

- ☐ *found it to be an Acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial ☐ Complete)**:** _____
Dimensions of Subgrade Inspection:_____
Anchor Trench Dimensions:_____ ____
Comments:_____
_____

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:
Date: _____
Signature: _____
Name: _____
Title: _____

OWNERS REPRESENTATIVE:
I, the undersigned, a duly appointed representative of the Owner, hereby understand the subgrade surface inspection described above and authorize Layfield to proceed with deployment of Geosynthetics on the subgrade provided.
Date: _____
Signature: _____
Name: _____
Title: _____
Company: _____



Appendix B – Inventory Log

PROJECT NUMBER _____

PROJECT TITLE _____

DATE OF INVENTORY _____

PRODUCT TYPE _____

MATERIAL MANUFACTURER _____

#	ROLL NUMBER	MATERIAL DIMENSIONS			REMARKS
		THICKNESS	LENGTH (m)	WIDTH (m)	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

QC Tech _____ Sheet Number_____

Submission Date _____

Supervisor Date _____ Total Page Area [ ] m

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____ DEPLOYMENT DATE _____

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION

TOTAL PAGE AREA [ ] m²

QC TECH _____ SUPERVISOR _____

SUBMISSION DATE _____ SHEET NUMBER _____

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____ SEAM DATE _____

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °F	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
/								
PAGE TOTAL								

QC

TEST METH.	TEST DATE Y-M-D

AIR PRESSURE TEST (PSI)

TIME START	TIME END	PRESSURE START	PRESSURE END

VERIFY

PASS	QC TECH

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH _____

SUPERVISOR _____

SUBMISSION DATE _____

SHEET NUMBER _____

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °F	EXTRUSION TEMP °F	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1																			
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

B - BOOT	G&W - GRIND & WELD
C - CAP	RS - RECONSTRUCTED SEAM
P - PATCH	S - SKIRT

REMARKS

QC TECH _____

SUPERVISOR _____

SUBMISSION DATE _____

SHEET NUMBER _____

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____ 3RD PARTY _____

ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☐

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH _____

SUBMITTED BY _____

SUBMISSION DATE _____

SHEET NUMBER _____

Appendix G – Certificate of Final Inspection and Acceptance

PROJECT NAME: _____
PROJECT NUMBER: _____ **DATE:** _____
OWNER: _____
LOCATION: _____

Scope of Installation(s): **THE WORK**
Area/Layer: _____ Area Inspected: ☐ Partial or ☐ Complete
Dimensions: _____
_____
_____
_____

Part 1 – LAYFIELD CANADA LTD.

I, _____, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:

Name: _____
Title: _____
Date: _____ **Signature:** _____

Part 2 – OWNER (or Representative)

I, _____, a duly appointed representative of _____ _____, do hereby accept and receive the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms and conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:

Name: _____
Title: _____
Company: _____
Date: _____ **Signature:** _____

Comments: _____
_____
_____

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LayfieldContainment.com

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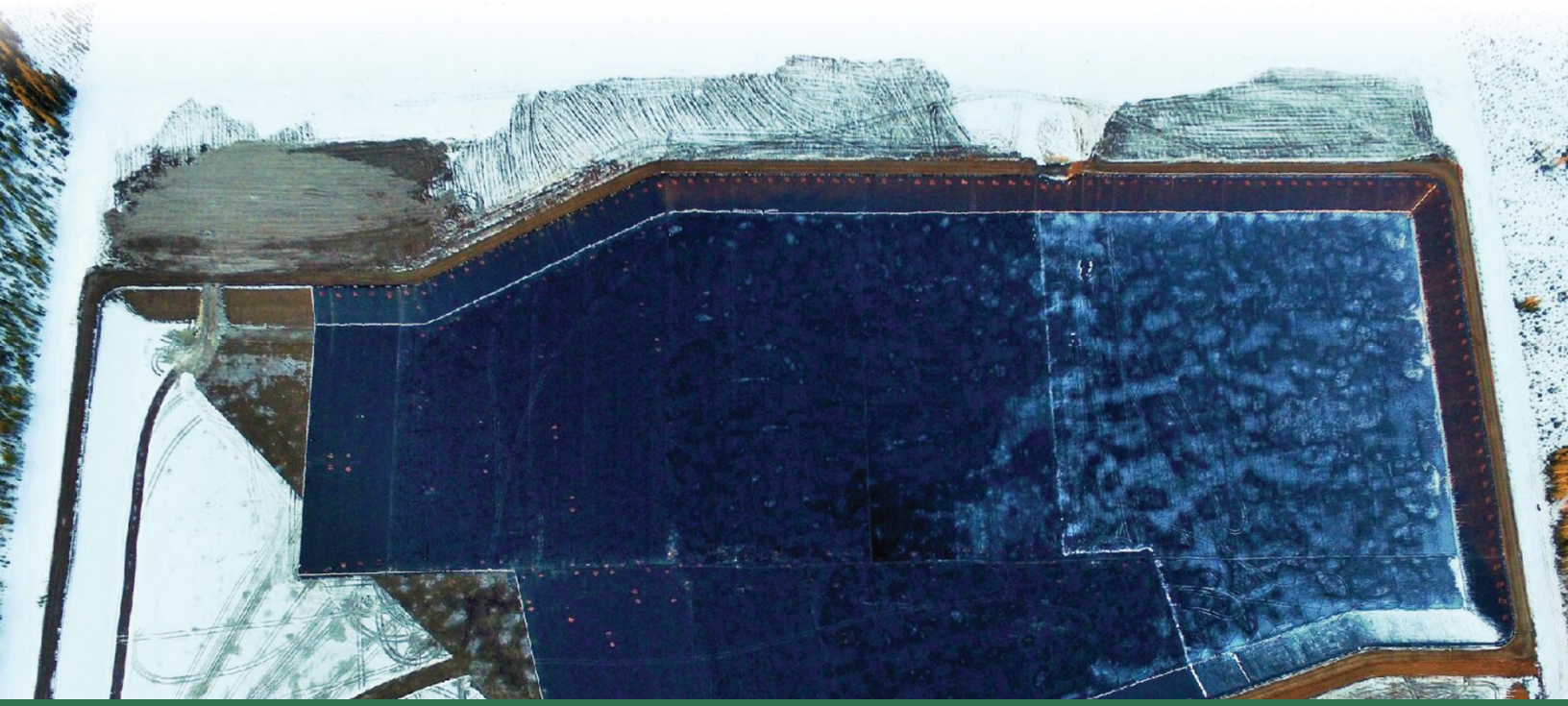


LAYFIELD
ENVIRONMENTAL CONTAINMENT



Layfield Group of Companies

Site Readiness, Material Storage and Subgrade Preparation Requirements



WE PROTECT

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1. Overview

1.1. This manual is a guide to Layfield's site preparation expectations of the General Contractor, their Project Management staff and Site Supervision.

1.2. This document is not intended to be prescriptive for every possible application, project or material. Each practice, standard, and/or test method should be guided by (and applied with) good engineering principles and judgement, project specifications and the expertise of qualified Layfield personnel.

1.3. This document does not address any health, safety or environmental concerns related to practices, standards, test methods, regional regulations, or site specific rules.

2. Site Readiness (Anchor Trench, Ballast Sand, Access, Surface Water, etc)

2.1.Overview

2.1.1. Sandbags are required as ballast to reduce the risk of wind uplift which may result in material damage or personnel injury. Layfield's quote will specify the amount of sand to be supplied by the owner/contractor.

2.1.1.1. The number of sandbags required is typically 1 per 25 m2 of area, and 1 m3 of sand can typically fill 100 sandbags. This supplied sand must be usable in winter conditions (i.e. not frozen), and free of large rocks.

2.1.2. Layfield installation crews require a clean and clear access way approximately 4 to 5 meters wide on at least three sides of the installation area. This access way must be safe for a crew cab truck and trailer to traffic and clear of obstructions, debris or anchor trench spoil.

2.1.2.1. Then anchor trench should be dug prior to Layfield's arrival onsite. For larger projects, the Layfield Supervisor may coordinate the anchor trench excavation with onsite earthworks personnel to ensure that Layfield does not experience any productivity delays. Anchor trench spoil must be removed to allow adequate access for installation activities.

2.1.2.2. The above guideline may be waived if Layfield is made aware of site specific restrictions at time of bid. Onsite changes to as bid conditions may slow production, change deployment process or equipment required. These changes may also result in change orders.

2.1.3. Layfield installation crews are typically ill-equipped to handle water related project issues. Groundwater, surface water and/or snow removal are the responsibility of the General Contractor or Owner. If Layfield is required to perform activities relating to water and/or snow removal, this will be considered extra work and charged at force account rates.



2.1.4. Provision of onsite facilities such as sanitary toilets, lunch trailers and garbage bins are the responsibility of the General Contractor or Owner. Layfield installation crews are required to use and respect these facilities as instructed in the site orientation and by Layfield project management staff.

3. Material Delivery, Storage & Laydown Access

3.1. Overview

3.1.1. Prior to sending materials to a project site, any site specific loading/unloading requirements must be communicated to the Layfield Project Manager.

3.1.2. Prior to sending materials to a project site, mill certification reports are reviewed to ensure that the proposed materials meet project specifications.

3.1.3. Layfield is usually responsible for geosynthetic material transport to the worksite. The Layfield Project Manager is responsible for ensuring that Layfield produced and procured materials are packaged and identified in a manner that complies with ASTM D4873.

3.1.3.1. The Layfield Project Manager must be provided with access maps, site contacts, road restriction information and any other delivery requirements prior to material shipment.

3.1.4. The General Contractor is responsible for ensuring that geosynthetics are received, transported and stored in a manner that prevents damage and exposure to adverse environmental conditions.



3.1.5. The material laydown area should be in close proximity to the work area. If this is not possible, material delivery and spotting at the work area must be coordinated such that Layfield productivity is not impacted.

3.1.6. Typical equipment used for handling and transport are telehandlers with forks and/or front end loaders with forks. Excavators with suitable lifting points can also be used.

3.2.Procedure

3.2.1. Geosynthetic materials should be stored in a location that is close to the planned work area. That location should be flat, dry and self-draining with the materials placed on dunnage to prevent contact with the ground. This area must also be maintained by others to allow Layfield access throughout the project.

3.2.2. Rolls should be stacked no more than 3 rows high.

3.2.3. Geonet and geocomposite materials should arrive with a specific kind of zip tie. Please ensure that these are turned over to the Layfield Supervisor.

3.2.4. Materials that arrive with lifting straps should only be lifted or otherwise moved using the lifting straps. These lifting straps are not to be removed by anyone other than Layfield personnel.

3.2.5. Some materials may arrive packaged with a protective wrapping to prevent product degradation via sunlight (UV) or rain/moisture.

3.2.5.1. If present, the protective wrapping should not be removed until the material is ready to be deployed. If these materials are being stored outdoors for longer than a month, a tarp should be used as a cover to further prevent product degradation.

3.2.5.2. Geosynthetic Clay Liner (GCL) is shipped with a watertight sleeve. The integrity of the sleeve must be maintained to prevent premature bentonite clay activation. Layfield recommends that GCL be covered by a tarp in addition to the sleeve to prevent this from occurring.

3.2.6. Polyurea spray applied raw materials must be stored in a controlled environment. In the winter, raw materials must be kept in a covered and heated (+10^{o}C) environment. In the summer, raw materials must be protected from direct sunlight and temperatures above 20^{o}C.

3.2.6.1. Pre-sprayed rolls of polyurea membrane must remain in their protective wrapping and tarped to protect against moisture infiltration.

4. Subgrade Preparation

4.1.Overview

4.1.1. Geosynthetics can be installed in a wide variety of conditions and applications. The most common subgrades are some kind of prepared soil subgrade. The other most common subgrade is concrete. For other subgrade types, please speak directly to Layfield project personnel.

4.1.2. Prior to mobilization, the subgrade should be prepared for geosynthetic installation crews to begin installation activities.

4.2.Procedure

4.2.1. For soil subgrades:



4.2.1.1. All subgrade surfaces should be (at minimum) compacted to withstand geosynthetic installation activities, including vehicle and foot traffic. This is typically 95% SPMDD, but project specifications may require something different.

4.2.1.2. The surface should be cut to neat lines and smooth drum rolled to create a smooth surface. The surface should be free of standing water, rocks, sticks and vegetation. All angular or sharp rocks should be removed from the surface.

4.2.2. For concrete subgrades:

4.2.2.1. The surface must be swept for rocks, pebbles, sticks, rebar and anything else that might damage the geosynthetic material and all standing water should be removed.

4.2.2.2. Any cracks or holes in the concrete larger than ½" (12mm) should be repaired prior to beginning geosynthetic installation activities.

5. Subgrade Surface Inspection

5.1. Overview

5.1.1. All projects must have all Certificate(s) of Subgrade Surface Inspection (Appendix A) signed by the Owner's Representative prior to the deployment of any covering material.

5.1.2. It is important to note that there are cases where a total work area cannot or will not be turned over to Layfield. The Certificate of Subgrade Surface Inspection does make provision for partial areas being turned over to Layfield. The Project Supervisor or QA/QC Designate shall ensure that the extents of the inspected area are clearly expressed on the Certificate of Subgrade Surface Inspection. A separate certificate shall be generated for each partial area.

5.1.3. No subterranean inspections or tests will be performed by Layfield. Layfield will make no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield will accept no responsibility for conformance of the subgrade to any project specifications.

5.2. Procedure

5.2.1. The Layfield Project Supervisor or QA/QC Designate will be responsible for visually inspecting the subgrade surface.

5.2.1.1. If the subgrade is deemed unsuitable by the Project Supervisor or QA/QC Designate, they must alert the Owner's Representative and/or General Contractor as soon as possible. The Project Supervisor or QA/QC Designate shall communicate why the subgrade is unsuitable and may give some guidance for subgrade remedy.

5.2.1.2. Alternatively, the Owner's Representative may direct the Project Supervisor to begin deployment despite the unsuitable subgrade. The Project Supervisor will confer with the Project Manager and mark the Certificate of Subgrade Surface Inspection an unsuitable surface on which to



install geosynthetics prior to deployment. Proceeding on an unsuitable surface may void material and/or installation warranties.

5.2.1.3. The subgrade must be maintained by others throughout the project. If something occurs to the subgrade (weather, equipment traffic, etc) that causes it to become unsuitable, the Layfield Supervisor will notify the appropriate onsite personnel and repeat the subgrade inspection process.

5.2.2. When the subgrade has been inspected and deemed acceptable, the Project Supervisor or QA/QC Designate will complete and sign the Certificate of Subgrade Surface Inspection and submit to the Owner's Representative for countersignature.

5.2.2.1. The Certificate(s) of Subgrade Surface Inspection must be completed, signed and countersigned prior to beginning any deployment.

5.2.3. Prior to material installation, the Layfield Supervisor or QA/QC Designate should measure the area to be covered and compare it to the area included in the contract. Any differences must be communicated immediately to the Layfield Project Manager.



Acceptable Subgrade



Unacceptable Subgrade

Appendix A – Certificate of Subgrade Surface Inspection

CERTIFICATE OF SUBGRADE SURFACE INSPECTION
PROJECT NAME: _____
PROJECT NUMBER: _____
OWNER/CONTRACTOR: _____
LOCATION: _____

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the subgrade surface described below, and:

- ☐ *found it to be an Acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial ☐ Complete)**:** _____
Dimensions of Subgrade Inspection:_____
Anchor Trench Dimensions:_____ ____
Comments:_____
_____

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:
Date: _____
Signature: _____
Name: _____
Title: _____

OWNERS REPRESENTATIVE:
I, the undersigned, a duly appointed representative of the Owner, hereby understand the subgrade surface inspection described above and authorize Layfield to proceed with deployment of Geosynthetics on the subgrade provided.
Date: _____
Signature: _____
Name: _____
Title: _____
Company: _____



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35+ YEARS OF EXPERIENCE

ITP #	Victoria Gold Corp. - Eagle Gold Project	PROJECT #	CC 2204
DATE SUBMITTED	28-Jun-18	CONTRACTOR	Razar Contracting Services Ltd
WORK LOCATION AREA	Eagle Gold Heap Leach Facility (HLF)	CONTRACTOR REP'S NAME	Cory Nicholson
DESCRIPTION OF ITEMS	HDPE & Steel Pipe	CONTRACTOR REP'S NAME PH No.	204-757-9111

TASK #	TASK DESCRIPTION	RAZAR CONTRACTING CONTROLLING PROCEDURE OR WORK METHODS REFREENCE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	EXAMINATION / INSPECTION REQUIREMENTS												NOTES
					RAZAR	INITIAL	DATE	Pelly Construction	INITIAL	DATE	Pelly Construction	INITIAL	DATE	TBA	INITIAL	DATE	All reference documents and check off sheets to be provided
					* Select one of the following abbreviations in the columns indicated by a star. H - HOLD, R - REVIEW, S - Razar, SUB - SURVEILLANCE, W - WITNESS												
1	2	3	4	5	* 6			* 7			* 8			* 9			10
GENERAL - 1.00 Series																	
1.00.1	ITP Approval	Razar QC Manual	Pelly Construction & BGC	ITP Approval				H									Submitted for Approval
1.00.2	HSE Plan Approval	Razar QC Manual	Pelly Construction & BGC	ITP Approval				H									Submitted for Approval
1.00.3	Scope of Work & IFC Drawings	Razar QC Manual	Pelly Construction & BGC	ITP Approval				H									Submitted for Approval
1.00.4	Appropriate Procurement Receiving Plan	Razar QC Manual	Pelly Construction & BGC	ITP Approval				H									Submitted for Approval
1.00.5	ASME QCP Manual	Razar QC Manual	MB Labour	Razar QC Manual				R									Razar QC Manual
1.00.6	Project Specific QC Manual/Plan	Razar /Procedures	Razar	Razar /Procedures				R									Site Specific Procedures
1.00.7	Material Control	Razar QC Manual	Razar	Razar QC Manual				R									PMI Index
1.00.8	Non-Conformance	Razar QC Manual	Razar Q/C	Razar QC Manual				H									Razar QC Manual

TASK #	TASK DESCRIPTION	RAZAR CONTRACTING CONTROLLING PROCEDURE OR WORK METHODS REFREENCE	ACCEPTANCE CRITERIA OR SPEC SECTION REFERENCES	VERIFYING DOCUMENTS	EXAMINATION / INSPECTION REQUIREMENTS												NOTES All reference documents and check off sheets to be provided
					RAZAR	INITIAL	DATE	Pelly Construction	INITIAL	DATE	BGC INSPECTOR	INITIAL	DATE	TBA	INITIAL	DATE	
					* Select one of the following abbreviations in the columns indicated by a star. H - HOLD, R - REVIEW, S - Razar, SUB - SURVEILLANCE, W - WITNESS												
1	2	3	4	5	* 6			* 7			* 8			* 9			10
WELDING - 2.00 Series																	
2.00.1	Welding Control	Razar QC Manual	TBA	Weld Map- NDE				R									Weld Mapping ,MTR's,Heat #s
2.00.2	Welding Procedure Review	Razar QC Manual	TBA	Cleint approval				H									Welding procedures submitted
2.00.3	Welding Consumables	Razar QC Manual	TBA	MTR's				R									PMI
2.00.4	Welder Qualifications	Razar QC Manual	TBA	Welding Tickets				R									Approved Welding Tickets
2.00.5	Materials & Qualification	Razar QC Manual	TBA	MTR's/Mill Repots				R									MTR's and Piping Spec's
2.01.0	**WELDING DATA (PIPING/EQUIPMENT/TANKS/STR)**																
2.01.1	Weld Procedures	Razar QC Manual	TBA	Cleint approval				H									Welding procedures submitted
2.01.2	Weld Qualification Records	Razar QC Manual	TBA	Welding Tickets				R									Detailed Welding Log
2.01.3	Welder Qualification Log (piping)	Razar QC Manual	TBA	Welding Tickets				R									Detailed Welding Log
2.01.4	Welder Qualification Log (structural)	Razar QC Manual	N/A	Welding Tickets				N/A									Structral By Others
2.02.0	**NDE DATA/REPORTS (PIPE/EQUIPMENT/TANK/STR)**																
2.02.1	Field Weld Drawing Identification Mapping	ISO	TBA	Weld Map- NDE				R									Hard Copies & CD
2.02.2	Radiographic Reports	Razar QC Manual	TBA	As per RT Reports				R									Hard Copies & CD

TASK #	TASK DESCRIPTION	RAZAR CONTRACTING CONTROLLING PROCEDURE OR WORK METHODS REFREENCE	ACCEPTANCE CRITERIA OR SPEC SECTION REFERENCES	VERIFYING DOCUMENTS	EXAMINATION / INSPECTION REQUIREMENTS												NOTES All reference documents and check off sheets to be provided
					RAZAR	INITIAL	DATE	Pelly Construction	INITIAL	DATE	BGC INSPECTOR	INITIAL	DATE	TBA	INITIAL	DATE	
					* Select one of the following abbreviations in the columns indicated by a star. H - HOLD, R - REVIEW, S - Razar, SUB - SURVEILLANCE, W - WITNESS												
1	2	3	4	5	* 6			* 7			* 8			* 9			10
WELDING - 2.00 Series																	
2.02.3	NDT Razar Evaluation Record	Razar QC Manual	TBA	Certification				R									Wescan Inspections
2.02.4	Closure Weld Inspection Record	Razar QC Manual	TBA	Welding Logs				R									Razar QC Manual
2.02.5	NDT Reports	Razar QC Manual	TBA	Hard copies				H									Wescan Inspections
2.03.0	**POST WELD HEAT TREATMENT (PIPING/EQUP./TANKS)**																
2.03.1	PWHT Procedure	Razaz QC Manual	N/A	N/A				R									Pre Heat & Remove chill
2.03.2	PWHT Charts	N/A	N/A	N/A				H									
2.03.3	PWHT Calibration Records	N/A	N/A	N/A				H									

TASK #	TASK DESCRIPTION	RAZAR CONTRACTING CONTROLLING PROCEDURE OR WORK METHODS REFREENCE	ACCEPTANCE CRITERIA OR SPEC SECTION REFERENCES	VERIFYING DOCUMENTS	EXAMINATION / INSPECTION REQUIREMENTS												NOTES All reference documents and check off sheets to be provided
					RAZAR	INITIAL	DATE	Pelly Construction	INITIAL	DATE	BGC INSPECTOR	INITIAL	DATE	TBA	INITIAL	DATE	
					* Select one of the following abbreviations in the columns indicated by a star. H - HOLD, R - REVIEW, S - Razar, SUB - SURVEILLANCE, W - WITNESS												
1	2	3	4	5	* 6			* 7			* 8			* 9			10
Piping - 3.00 Series																	
3.00.1	Coatings & Linings & Testing	Supplier		N/A				N/A									By others
3.00.2	Tie-in Check list	Razar QC Manual	Razar	Site Specific				R									Procdures for each Tie-in
3.00.3	Bolt Torque Charts	Razar QC Manual	Razar	Supplier Specs				R									As per Spec's and Ratings
3.00.4	Piping Cleaning & Inspection	Razar QC Manual	23 .05.17	Spec Documents				R									As per Spec's
3.00.5	Piping Insulation sing-off Record	Razar QC Manual	Pelly Construction & BGC	Site Specific				N/A									Sing Off Sheet
3.00.6	PVC Piping Procedures	Razar QC Manual	Razar	Supplier Specs				R									As Per Manufactures Instructions
3.00.7	PVC Piping Mapping Record	Razar QC Manual	Razar	Site Specific				R									By Plumbers Names
3.00.8	Piping Punch List Procedure Check list	Razar QC Manual	Razar	Site Specific				R									Razar' Punch lists Template
3.01.0	**Hydro Testing**																
3.01.1	Pressure Testing Log recorder	Razar QC Manual	MB Labour	QC Manual				R									Razar QC Manual
3.01.2	Piping Pressure Testing Punch Lists	Razar QC Manual	MB Labour	QC Manual				R									Razar QC Manual
3.01.3	Pressure Testing Euipment	Razar QC Manual	MB Labour	QC Manual				R									Razar QC Manual
3.01.4	Pressure Gage Calibration Record	Razar QC Manual	MB Labour	QC Manual				R									Razar QC Manual
3.01.5	Pneumatic Testing check List	Razar QC Manual	MB Labour	QC Manual				R									Razar QC Manual

TASK #	TASK DESCRIPTION	RAZAR CONTRACTING CONTROLLING PROCEDURE OR WORK METHODS REFREENCE	ACCEPTANCE CRITERIA OR SPEC SECTION REFERENCES	VERIFYING DOCUMENTS	EXAMINATION / INSPECTION REQUIREMENTS												NOTES
					RAZAR	INITIAL	DATE	Pelly Construction	INITIAL	DATE	BGC INSPECTOR	INITIAL	DATE	TBA	INITIAL	DATE	All reference documents and check off sheets to be provided
					* Select one of the following abbreviations in the columns indicated by a star. H - HOLD, R - REVIEW, S - Razar, SUB - SURVEILLANCE, W - WITNESS												
1	2	3	4	5	* 6			* 7			* 8			* 9			10
Turn-Over & Completion 400 Series																	
4.00.1	Submit logs & As builts,Summeries	RAZAR	As Per Spec's	Razar				H									Commissioning Binder
4.00.2	Final Inspection Punch List Completed	RAZAR	As Per Spec's	Razar				H									Commissioning Binder
4.00.3	NCR's Closed Out	RAZAR	As Per Spec's	Razar & Pelly Construction				H									QC Manual Logs
4.00.4	Final Turn Over Packages Submitted	RAZAR	As Per Spec's	Razar				H									O&M Manuals
4.00.5	Approved Completion Records Signed	RAZAR	As Per Spec's	All Parties				H									
4.00.6	Final Completion Granted	RAZAR	As Per Spec's	All Parties				H									
4.00.7	Warrenty Certificate Issued	RAZAR	As Per Spec's	Razar				H									

GAS LIQUIDS ENGINEERING

- GAS PURIFICATION
- REFRIGERATION
- DISTILLATION
- LIQUIDS TREATING
- FACILITIES ENGINEERING

MEMORANDUM

Date June 27, 2018
From: Arnie Toews
Attn: Mike Billowits

RE: Eagle Gold HLF – PLS Pump Casing

After familiarization with the project we have identified gaps in the design information relating to the PLS pump casing system proposed for installation at the Eagle Gold HLF. In order to generate a complete fabrication ITP, and to provide construction support, clarification on the intended design and installation of the pipe casing risers is required as follows:

With respect to piping inspection and testing:

In order to generate an inspection and testing plan for the steel casing pipe, acceptance criteria are required for each step in the fabrication process. Normally these acceptance criteria are dictated by a set of engineering specifications, owner requirements and/or design codes/regulations. Answers to the following questions are required in order for us to generate a complete ITP.

1. What is the scope boundary for the steel piping? Is the piping within the casing (pump discharge piping) included or just the casing alone. Does this include the LRDS piping?
2. The design drawings do not show any lifting appurtenances (i.e. lifting lugs). Are lifting lugs to be installed on the pipe, or is there a proposed installation procedure to allow for installation without lugs
    a. If lifting lugs are required, is a specification available (material, impact testing requirements (temperature), magnetic particle inspection of welds)
3. Is there a proposed design specification for the casing pipe joints (i.e. ASME B31.3 compliance, CSA W59 Structural Welding).
    a. What level of NDE is to be applied to casing pipe joints, if any (radiography, etc.)
4. Does the design include and pipe coatings or other corrosion mitigation features which must be addressed or applied during fabrication or installation?
5. Casing material appears to have previously been specified (on the publicly available detailed design report) as ASTM 139, A606 Type 4 HSLA steel. Is this still valid
    a. For the purposes of assigning responsibility for received material inspection and quality control, is material to be free issued to or procured by the fabricator

With respect to installation of the pipe riser system(s)

The design drawing package details the steel pipe risers and header as a single fabricated unit. In order to avoid welding directly on the liner system in place, this piping must be fabricated outside of the lined

area, and then installed in place. This cannot be accommodated based on the current design of the pipe casing.

Each of the Five (5) 900mm OD pipe risers (specified as 19mm wall thickness) has a weight exceeding 33,000 kg. All 5 of these risers are connected together at the bottom of the sump by a fully welded header. Given that the only suitable location for a crane is the crest of the confining embankment, a 110 ton crane will not have sufficient lifting capacity to position a single fabricated riser into place at the required reach.

Clarification is required regarding the installation of the casing pipe:

1. Does the design include break points to allow for in-situ assembly of pipe, which are not shown on the drawings (i.e. break flanges or other non-welded joints)?
2. Is a secondary crane location proposed to support the installation of the pipe?
3. Is there another proposed installation methodology that was intended when the design was developed?
4. Given that all fittings appear to be welded in the current design, is there a plan or specification which addresses the mitigation of heat-warping the pipe, and associated dimensional issues? This may be prevalent on the connections to the manifold end of the riser.

Yours truly,

Arnie Toews
VP, Facilities
Gas Liquids Engineering Ltd.

#300, 2749 - 39TH AVENUE N.E. CALGARY, ALBERTA T1Y 4TB PHONE: 403 250 2950 FAX: 403 291 9730

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-009

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Dan Granda**	**Date:**	**July 6, 2018**
Copied:	**Troy Meyer/Roy Morlan**	**Record:**	**BGC-RFI-009**

Re: BGC-RFI-009: Embankment Zoning Plan

1.0 INFORMATION REQUEST

BGC requests Pelly provide an Embankment Zoning Plan. This RFI refers to BGC's response to CC204-RFI-022 where configurations of zones and construction considerations were presented.

This plan should take into considerations the BGC response to RFI-022 and volumes of material available to determine survey controls, construction sequencing and zone dimensions for Embankment construction. The plan should also consider how Pelly proposes to tie the two zones (Type 7 and Type 3) together, following RFI-022.

RFI-022 attached for reference.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-009

RFI became obsolete. No response needed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-010

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**September 17, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-010**

Re: BGC-RFI-010: Left (East) Abutment Realignment

1.0 DESIGN REVISION

BGC requests JDS provide acknowledgment of receipt of the following design revision:

- Realignment of the left (east) abutment and road to account for topographic changes made in this area during the course of the HLF Embankment. The changes are included in the attached "Figure 8 - In-Heap Pond Embankment – East Grading Revision" which was distributed as a pdf and AutoCAD file.

Response:

Answered by:

Name Signature Date

N

IN-HEAP SUMP

IN-HEAP POND

CREST OF EMBANKMENT

0+200

0+300

0+400

0+444

2.5H:1V

2.5H:1V

2.5H:1V

TRANSITION ROAD WIDTH AND PROVIDE ACCESSWAYS PER SITE REQUIREMENTS

EXISTING GROUND SURVEYED WEEK OF 9/7/18

EMBANKMENT GRADING UPDATE AREA

GRADE ACCESS ROAD TO CREST OF EMBANKMENT

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Design\100-303-CP - 180910.dwg Layout: Fig 8 Plot Date: Sep 14 18 Time: 6:03 PM

DRAFT

SCALE:	AS BUILT
DATE:	9/14/18
DRAWN:	-
CHECKED:	-
APPROVED:	-

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND EMBANKMENT- EAST GRADING REVISION

PROJECT No.:

FIG No.: 8

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-011

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**September 17, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-011**

Re: BGC-RFI-011: Right (West) Perimeter Road Realignment

1.0 DESIGN REVISION

BGC requests JDS provide acknowledgment of receipt of the following design revision:

- Realignment of the right (west) perimeter road in response to potentially weak layers observed in the ADR cut. Changes are included in the attached "Figure 7 – HLF PAD – West Perimeter Realignment" pdf and AutoCAD files.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-012

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**September 17, 2018**
Copied:	**Troy Meyer**	**Record:**	**BGC-RFI-012**

Re: BGC-RFI-012: Crest Width Adjustment

1.0 DESIGN REVISION

BGC requests JDS provide acknowledgment of receipt of the following design revision:

- At JDS's request BGC evaluated extending the grade break at the crest to allow for additional width in the area where pipe works will be installed. The changes are included in the attached "Figure 9 – In-heap Pond Embankment – Crest Width Widening Revision" pdf and AutoCAD file. The figure shows the grade break beginning at 930.5m. However, the grade break can occur at a higher elevation if needed. Approximately 1m of crest width would be lost for each 1 meters higher the grade break occurs.

Response:

Answered by:

Name Signature Date

N

IN-HEAP SUMP

IN-HEAP POND

CREST OF EMBANKMENT

CREST OF EMBANKMENT WIDENING

SLOPE TRANSITION AT 930.5 m

EMBANKMENT CREST WIDENING REGRADE AREA

EXISTING GROUND
SURVEYED WEEK OF 9/7/18

0+100
0+200
0+300
0+400
0+442

22.0 m
30.0 m
22.0 m
9.0 m
9.0 m
56.0 m
9.0 m
2.5H:1V
1.5H:1V
1.5H:1V
2.5H:1V
2.5H:1V

915 918 920 922 925 928 930 932 935 938
938 935 932 930 928 925 922 920 918 915 912 910 908 905 902 900
935 938 935 932 930 928 925 922 920
915 910 920 925 930 935 940 942 945 948

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

DRAFT

SCALE:	AS BUILT
DATE:	9/14/18
DRAWN:	-
CHECKED:	-
APPROVED:	-

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND EMBANKMENT- CREST WIDENING REVISION

PROJECT No.:

FIG No.: 9

X:\Projects\0792 Victoria Gold\CAD\Design\100-303-CP - 180917.dwg Layout: Fig 9 Plot Date: Sep 17 18 Time: 1:07 PM

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-013

To:	**Jean-Francois Maille** **Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer**	**Date:**	**September 26, 2018**
Copied:	**Roy Morlan, Dan Granda**	**Record:**	**BGC-RFI-013**

Re: BGC-RFI-013: PLS and LDRS Pipe Installation Approach

BGC requests JDS provide acknowledgment of receipt of the following design revision.

In discussions between BGC, JDS and Heavy North regarding the construction approach for PLS pipe risers installations, a preferred approach was jointly developed to better match the proposed equipment while protecting the installed pipes and geosynthetic liner system.

The approach will involve conventional equipment (dozer and excavator) traffic within the pipe corridor, as opposed to using a crane or side-boom. This approach requires a modification to the pipe and liner arrangement to ensure protection of the liner system and placed LDRS pipes.

Design drawings EGHLF XD-05-03, 05-04, and 05-05 should be referenced. Figure 1 presents the revised section through the pipe corridor (looking downstream) on the face of the HLF embankment. This section replaces Detail 28 on Drawing XD-05-03.

The LDRS pipe will be placed in the slot on the embankment face from access roads constructed with Overliner Drain Fill (ODF) between the pipes and buried with ODF gravel. The geocomposite and top liner would then be placed followed by 2 layers of geotextile and 2m thick layer of ODF for liner protection and to provide a traffic surface for PLS pipe installation. The ODF shall be placed starting from the toe of the slope in a single lift toward the top of the embankment. The pipes will then be placed and buried in sequence across the corridor. A layer of ODF must be place beneath any pipes to be field welded in order to protect the geomembrane. Welding protection blankets must also be used for all field welding activities within the pipeline corridor.

The outward shift of the PLS pipes will be accommodated at the bottom by adjusting the dimensions of the PE pipe network in the PLS sump. The concrete anchoring system at the top must be designed to support both the LDRS and PLS pipe terminations.

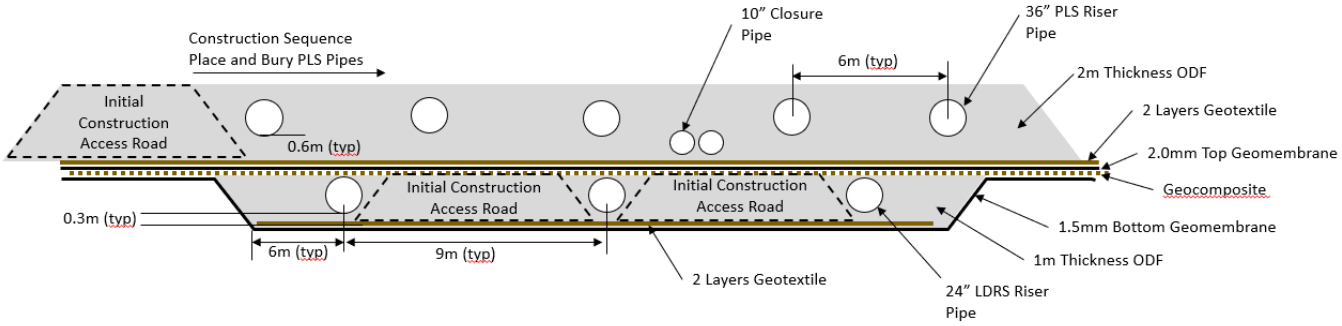


Figure 1: Revised Detail 28, Drawing EGHLF-XD-05-03.

A field test pad has been conducted (BGC Field Memo FM-007) to demonstrate the protection of the liner with ODF thickness from 0.6m to 1.5m and traffic from loaded 40T rock trucks, CAT 3250 trackhoe excavator and D6 dozer. The proposed equipment for pipe placement includes a CAT 349F and Linkbelt 490 excavator (data sheets attached). Based on our estimates of the maximum ground pressure exerted from this equipment, a minimum of 1m thickness ODF underlain by 2 non-woven geotextile layers to cushion the geomembrane liner will be required. Other equipment must be approved by BGC prior to use. Equipment movement must be slow and turning on the access roads built over the liner will not be allowed. BGC may require the contractor to excavate the ODF to demonstrate protection of the liner system during the installation process based on observation of the operation.

Response:

Answered by:

Name Signature Date

490X4

SAE Net Horsepower: 362 HP (270 kW)
Operating Weight: 112,900 lbs. (51 200 kg)
Digging Depth: 24 ft 10 in (7.57 m)



SPECIFICATIONS

Link-Belt EXCAVATORS



Performance, Productivity and Reliabilty Come Standard

Link-Belt X4 Series excavators are built to exceed your expectations. We redesigned the control spools and incorporated spool stroke control (SSC) functions into the hydraulic system to reduce pressure loss and distribute hydraulic oil more smoothly, increasing cycle times by 10%. Expect more power and fuel efficiency, thanks to an innovative Final Tier 4 engine that delivers up to 5% improved fuel consumption, **without a Diesel Particulate Filter (DPF) to maintain or replace!** Settle in to the roomiest, most accommodating cab in its class, with more legroom and a new high-back, heated seat for shift-long comfort. Daily maintenance is a snap, with ground-level access to all service points, easily opened by hand.



Innovation and Attention to Details at Every Level



- Three power modes (Speed Priority, Heavy and Applied Power) let you **choose the best blend of power, precision and fuel savings** for the work you're doing



- EPA Final Tier 4 engine is **fuel efficient without sacrificing power**



- **No DPF** to ever worry about!
- 2 - 3% DEF (Diesel Exhaust Fluid) consumption rate, combined with one of the largest DEF tank capacities lets you work long hours between refills



- Ground level access to routine service points lets you **cut daily maintenance down to just minutes**



- Quiet, pressurized cab offers **excellent visibility and comfortable, best-in-class seating**
- Enough floor space to **accommodate the largest of work boots**, with cup holders and roomy storage compartments for cell phones, snacks and other personal items



- Dual cab working lights are standard, or choose optional LEDs for **added visibility**

- Ergonomic joysticks **fit your hand perfectly**

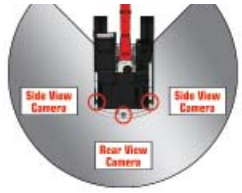




- 7" high-definition LCD monitor **keeps you connected to your machine and work environment**

- RemoteCARE® telematics **keeps a watchful eye** on performance, maintenance intervals and theft deterrence





- Full-time, rear-view camera display is standard; add the WAVES™ option for a **seamless 270° view around the machine**



- Structural improvements to the boom and arm **reduce stress and provide greater durability**



- Robust undercarriage features **larger track rollers and thicker plating for longer life**
- Unique side-frame design **reduces dirt accumulation** and is **easier to clean**

**All improvements and percentage increases are in reference to Link-Belt X3 Series excavators, unless otherwise stated*

Quick and Responsive to Take On Tough Challenges



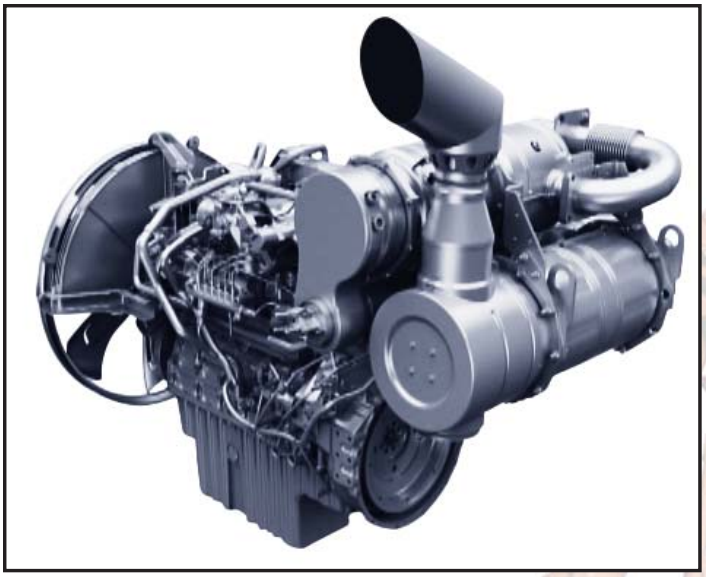
Greater digging power and increased lift capacities are the result of our innovative Spool Stroke Control (SSC) system, which reduces pressure loss and distributes hydraulic oil more smoothly. Pilot pressure sensors detect the type of work being done-such as digging or leveling-and then relays that data to proportional solenoid valves that quickly determine where optimal hydraulic pressures should be directed for that operation.

Two electronically-controlled Kawasaki variable-displacement axial-piston pumps and one Kawasaki gear pump assure that hydraulic power is delivered precisely when and where it's needed. At the same time, hydraulic flows in noncritical areas of the system are reduced.

The result is better breakout force, more lifting strength and faster machine response. You'll dig, swing and dump quicker than ever before... with 10% faster cycle times and improved fuel efficiency!

- Proprietary hydraulic system
- New control valve with larger ports; less restriction means improved hydraulic flow for increased performance
- Electronically-controlled pumps for improved cycle times, quicker response and more efficient machine operation
- Move more dirt per gallon of fuel





The X4 Series features innovative EPA-certified Final Tier 4 engines from Isuzu that strike the ultimate balance between power, productivity and fuel efficiency. You'll experience up to 5% improved fuel efficiency, without having to worry about costly diesel particulate filters (DPF) to maintain or replace. Three engine modes provide reliable power and control for any machine application. Choose Speed Priority (SP mode) to get jobs done quickly, Heavy (H mode) for the best blend of power and fuel savings or Applied Power (A mode), with 13 different RPM settings for precise control of heavy lifting, fine grading or leveling work.

- EPA-certified Tier 4 Final
- No DPF to maintain
- Up to 5% improved fuel economy
- 500-hr. fuel filters service intervals
- 8 diesel tank refills per 1 diesel exhaust fluid (DEF) refill
- 2 - 3% DEF consumption rate
- Two-stage DEF anti-freeze system for protection in harsh operating conditions
- 30 hrs. between SCR regenerations, only takes 5-10 minutes to complete!
- VGT (Variable Geometry Turbocharger)





Power and Efficiency Without Compromise





The X4 Series offers the most advanced and roomiest cab in its class. Comfortable, automotive-grade high-back seat with head rest provides superior lumbar back support. With a longer and wider seating surface, it reclines to a 155° maximum reclining angle to create a relaxed environment during breaks. Mechanical suspension is standard, with air suspension, seat tilting adjustment and seat heaters available as options.

The cab layout also includes ergonomically-designed arm rests that move with console, maintaining a constant distance between joysticks and arm rests no matter how the seat is adjusted.

- Quiet, pressurized cab
- Joysticks with easy-to-hold grip and switches
- Handy 'radio mute' and one touch wiper switch
- Optional proportional joysticks w/auxiliary hydraulics control
- Cup holder and storage areas for cell phones and other small items
- Dual halogen cab lights standard
- Full time rear camera display
- Optional RH & LH side cameras
- ROPS and FOPS Level 1 certified, optional FOPS Level 2 head guard available
- Optional LED lights use less energy and are 3X brighter!
- Optional retractable rear window shade
- Optional front sun visor
- Improved radio with USB port and Bluetooth for hands-free communication.



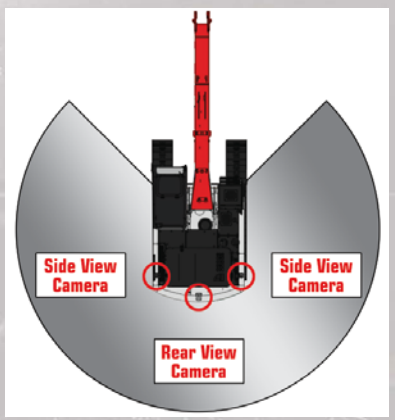
High-Definition LCD monitor has a full-color 7" display that rivals the resolution found in luxury automobiles. Controls are easy to read and easy to use. The rear-view camera activates automatically whenever the machine is started, and sight guidelines have been added for increased safety.

- Anti-glare coating on screen
- Track up to 14 service maintenance reminders
- System/machine warning messages
- Easy-to-use auto idle and auto shutdown feature
- Select and set up attachments: 5 presets for breakers; 5 presets for crushers
- In-cab flow & pressure controls for auxiliary hydraulics
- Anti-theft system
- Auto-adjusts for time and calendar
- 24 languages available
- Ability to view fuel consumption

270° WAVES™

WIDE-ANGLE VISUAL ENHANCEMENT SYSTEM

For the ultimate in visibility, X4 machines can be fitted with the Wide Angle Visual Enhancement System - or WAVES for short. Using three closed-circuit cameras, this optional viewing system provides an unbelievable 270° visual coverage around the machine, eliminating any potential blind spots from the operator's line of sight. WAVES images can be displayed on the standard X4 monitor.





Maintenance is a snap, with ground level access to all routine service points, including batteries, fuel filters, engine oil filter, dual-element air filter and cab fresh air filter.

- Radiator screens are easy to remove and clean from ground level...no tools needed!
- A/C Condenser tilts for easy cleaning and maintenance
- Easy battery compartment access; 2 hand-turn knobs
- Improved battery disconnect switch with no keys needed
- Convenient ground-level sample ports in pump compartment
- Green drain plug and hose
- More data collection points
- Automatic door locking mechanism on side door
- Quick and easy access to grease all attachment pivot points
- Grease cylinder track adjusters make adjusting track tension a breeze
- New undercarriage side frame design enables easier cleaning
- In-cab reminders track 14 different maintenance procedures

Get Working Fast With Easy Access to Service Points



RemoteCARE®

RemoteCARE® lets you remotely monitor and track machine location, operational performance, working status and periodic maintenance requirements. It tracks and records both routine and major service intervals for your machines, giving you more flexibility and control when scheduling maintenance procedures. It also lets you be more proactive if potential failure conditions arise; whenever a diagnostic trouble code (DTC) is detected, a warning message appears on the machine display, and an e mail alert is automatically sent to you. RemoteCARE also assists in theft prevention by offering 24/7 surveillance and geofencing capabilities.

- 24/7 Remote Monitoring and Security
- Machine Location
- Geo-fence & Curfew Range
- Actual Fuel Consumption
- Fuel Levels
- Hour Meter Reading
- Radiator Water Temperature
- Machine Working Time/Idle Time
- Attachment Working Hours
- Working Modes
- Service Maintenance Reminders
- Service Warnings
- 6-yr. complimentary subscription

Built Strong to Handle Anything

X4 machines are more rugged and durable, with robust structural improvements to the boom & arm structures, along with improvements to lower frame and travel components.



Boom & Arm

- Improved boss shapes reduce stress on boom and arm pin
- Cast boom tip for increased reliability



Lowers

- Thicker travel motor case - 28% increase
- 9% more stroke recoil spring
- 28% wider idler hub
- Unique side-frame design reduces dirt accumulation and is easier to clean.



Customer Support is Just a Call Away

A network of Link-Belt Excavator dealers across the U.S. and Canada is waiting to serve you. Expect fast and dependable service, backed by 24/7 access to parts.

Rock-Solid Warranty Coverage

All X4 machines are backed by a 1-year/1,800 hour Full Machine Warranty, 2-year/3,000 hour Engine Warranty (2,000 hrs. electrical parts), 3-year/5,000 hour Powertrain Warranty, 3-year/10,000 hour XtraStructure Warranty, 5-year/3,000 hour EPA Emissions Warranty and participation in the X4 Fluids Analysis Program for the life of the warranty. Extended warranty coverage packages are also available.



SPECIFICATIONS

Engine

Isuzu AQ-6UZ1X Final Tier 4 turbocharged diesel engine with electronic control (ECM) and high pressure common-rail fuel injection, 6-cylinder, water-cooled, Exhaust Gas Recirculation (EGR), Intercooler, Variable-Geometry Turbocharger (VGT), Diesel Oxidation Catalyst (DOC) and Selective Catalytic Reduction (SCR) system with Dosing Control Module and heated DEF lines and tank. Electronic fuel pump and priming, Fuel cooler, Auto-idle start, Auto warm-up, EPF engine protection, dual-stage fuel filtration, remote oil filter, engine oil sample port, green plug oil drain, double element air filter.

SAE net horsepower
- without fan pump ..... 362 hp (270 kW) @ 2,000 rpm
- with fan pump ..... 329 hp (245 kW) @ 2,000 rpm

Displacement ..... 600 cu in (9.8 L)
Maximum Torque ..... 1,005 lbf-ft (1 363 Nm) @ 1,500 rpm
Starter ..... 24V - 5.5kW
Alternator ..... 50 amp
Battery ..... (2) 12-volt 128 amp hours

Cab and Controls

ROPS and FOPS Level 1 certified with automatic climate control A/C and heat with defroster, 7" LCD Hi-Definition color monitor with full time rear view camera display, fuel efficiency gauge, low-effort joysticks are pre-wired for auxiliary hydraulics, dual cab lights, control pattern changer, safety glass windows, sunroof with sunshade, shockless cab suspension with four fluid cab mounts, SCM High-Back reclining suspension seat, sliding 4-position tilting control consoles, Bluetooth technology, AM/FM sound system with USB and MP3 auxiliary input jack, digital clock, dome light, seat belt, coat hook, cup holder, storage compartments, floor mat, footrests, ashtray, 24V cigarette lighter, 12V outlet, travel alarm, handrails, mirrors, side-entry cab filter, spare parts kit.

Three selectable work modes, RemoteCARE Telematics GPS system, anti-theft password protection system, onboard self-diagnostic system with memory and service interval reminders, auto idling system, one-touch decelerator, auto-idle engine shutdown, auto-power boost, neutral safety start, gate-lock safety shutoff.

Hydraulic System

Open-center system, two variable-displacement electronically controlled axial-piston pumps and one gear pump for pilot controls, main control valve with one 4-spool section and one 5-spool section with auxiliary spool: stackable, Auxiliary Control System, oil cooler, Auto-Power boost, boom and arm holding valves, 6 micron return filter, firewall, hydraulic oil sample port.

Hydraulic Pumps

Pump Output ..... 2 x 96.2 gpm (364 L/min)
Pilot Pump Maximum Flow ..... 7.9 gpm (30 L/min)

Relief Valve Settings

Boom Up/Arm/Bucket ..... 4,550 psi (31.4 MPa)
in Power Boost ..... 4,980 psi (34.3 MPa)
Boom Down ..... 3,560 psi (24.5 MPa)
Swing Circuit ..... 4,270 psi (29.4 MPa)
Travel Circuit ..... 4,980 psi (34.3 MPa)

Hydraulic Cylinders

number of cylinders - bore x rod x stroke

Boom ..... 2 - 6.7" x 4.5" x 61.0" (170 mm x 115 mm x 1 550 mm)
Arm ..... 1 - 7.5" x 5.1" x 75.6" (190 mm x 130 mm x 1 920 mm)
Bucket ..... 6.5" x 4.5" x 50.6" (165 mm x 115 mm x 1 285 mm)

Swing

Planetary reduction powered by axial-piston motor, Internal ring gear with grease cavity for swing pinion, Swing bearing is single-row, shear type ball bearing, Mechanical disc swing brake, Auto-power swing.

Swing Speed ..... 9.1 rpm
Tail Swing ..... 12' 3"(3.73 m)
Swing Torque ..... 111,000 lbf-ft (150.0 kNm)

Undercarriage

Fixed or expandable sideframes with 17' 11"(5.45 m) LC long undercarriage, Sealed and strutted track chain with track guide, Sealed rollers and idlers, Two-speed independent hydrostatic travel with compact planetary final drive, Disc type brakes, Adjustable track tension, Carbody belly pan.

Carrier Rollers
- Fixed sideframe undercarriage ..... 2 per Side
- Expandable sideframe undercarriage ..... 3 per Side

Track Rollers ..... 9 per Side
Track Link Pitch ..... 9.00"(229 mm)
Shoes ..... 50 per Side
Shoe Width ..... 35.5"(900 mm)

Ground Pressure
- Fixed sideframe undercarriage ..... 8.27 psi (0.057 MPa)
- Expandable sideframe undercarriage ..... 8.41 psi (0.058 MPa)

Travel System

Two-speed independent hydrostatic travel with compact axial-piston motors, Hydraulic motor powered output shaft coupled to a planetary reduction drive and track sprocket, All hydraulic components mounted within the width of side frame, Automatic downshift for high torque to overcome obstacles, Spring-applied hydraulic release parking brake built into each motor, Travel motors equipped with counterbalance valve to prevent over-speeding down an incline, Single-pedal straight line travel.

Travel Speeds ..... 2.0 - 3.3 mph (3.2 - 5.3 km/h)
Drawbar Pull ..... 76,200 lbf (339 kN)
Gradeability ..... 70% (35°)

Attachment

Boom ..... 22' 11" (6.98 m)

Available Arms	Digging Force
• 11' 1" (3.38 m)	45,200 lbf (201 kN)
with Auto Power Boost	49,500 lbf (220 kN)
• 8' 4" (2.53 m)	55,300 lbf (246 kN)
with Auto Power Boost	60,500 lbf (269 kN)
• 13' 2" (4.00 m)	39,800 lbf (177 kN)
with Auto Power Boost	43,400 lbf (193 kN)
• 15' 11" (4.85 m)	35,500 lbf (158 kN)
with Auto Power Boost	38,900 lbf (173 kN)
• Bucket Digging Force	55,500 lbf (247 kN)
with Auto Power Boost	60,700 lbf (270 kN)

Lubricant & Coolant Capacity

Fuel Tank ..... 172 Gallons (650.0 Liters)
Hydraulic System ..... 122 Gallons (460.0 Liters)
Hydraulic Tank ..... 61 Gallons (230.0 Liters)
Final Drive (per side) ..... 4.0 Gallons (15.0 Liters)
Swing Drive ..... 2.8 Gallons (10.5 Liters)
Engine Oil ..... 10.8 Gallons (41.0 Liters)
DEF Tank ..... 40 Gallons (152.0 Liters)
Coolant System ..... 14.6 Gallons (55.1 Liters)

Operating Weight

Working weight with 35.5" (900 mm) shoes, 22' 11" (6.98 m) boom, 11' 1" (3.38 m) arm, 3,373 lb. (1 530 kg) bucket, 22,000 lb. (10 000 kg) counterweight

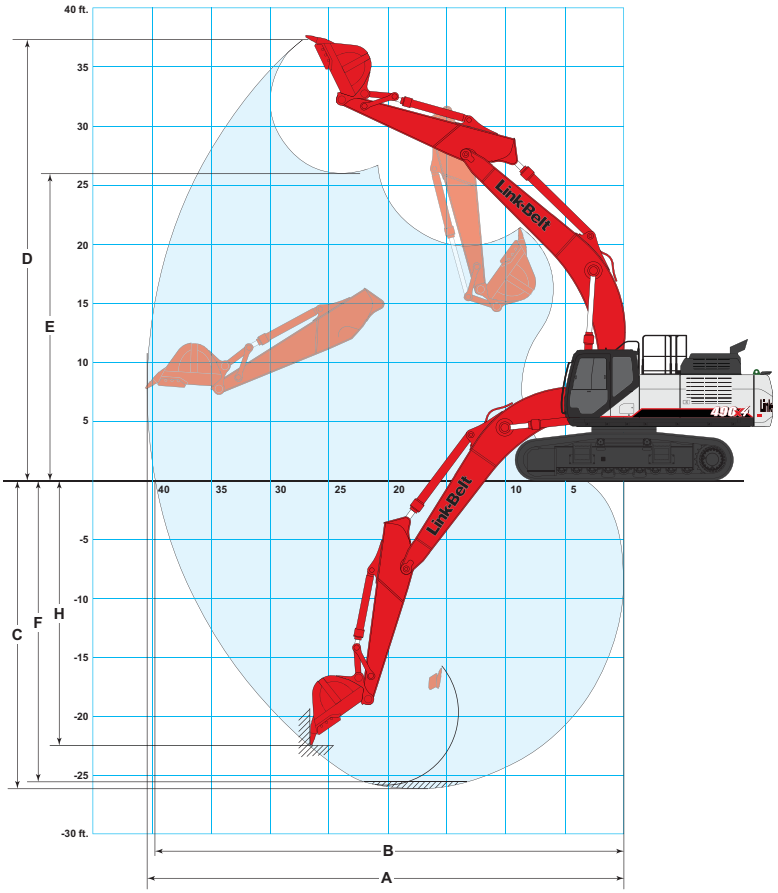
Fixed sideframe undercarriage ..... 109,800 lbs. (49 800 kg)
Expandable sideframe undercarriage ..... 112,900 lbs. (51 200 kg)

Mass Excavator

Working weight with 35.5" (900 mm) shoes, 21' 6" (6.55 m) boom, 8' 4" (2.53 m) arm, 5,300 lb. (2 400 kg) bucket, 22,000 lb. (10 000 kg) counterweight

Fixed sideframe undercarriage ..... 112,200 lbs. (50 900 kg)
Expandable sideframe undercarriage ..... 115,100 lbs. (52 200 kg)

Working Range & Travel Dimensions

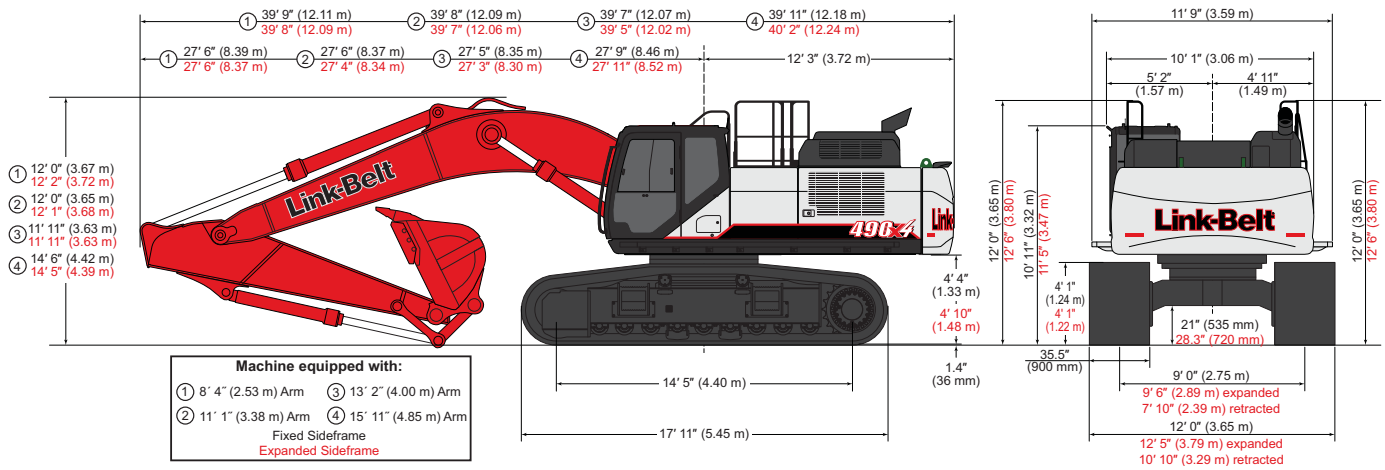


490 X4 with fixed sideframe				
Machine Equipped with 22' 11" (6.98 m) Boom	11' 1" Arm (3.38 m)	8' 4" Arm (2.53 m)	13' 2" Arm (4.00 m)	15' 11" Arm (4.85 m)
A. Maximum reach	39' 3" (11.97 m)	36' 10" (11.22 m)	41' 1" (12.52 m)	43' 6" (13.27 m)
B. Maximum reach @ ground level	38' 7" (11.75 m)	36' 0" (10.98 m)	40' 4" (12.30 m)	42' 10" (13.06 m)
C. Maximum dig depth	25' 4" (7.72 m)	22' 6" (6.87 m)	27' 4" (8.34 m)	30' 2" (9.20 m)
D. Maximum dig height	36' 5" (11.10 m)	35' 7" (10.85 m)	36' 11" (11.26 m)	37' 7" (11.46 m)
E. Maximum dump height	25' 3" (7.69 m)	24' 4" (7.41 m)	25' 10" (7.87 m)	26' 6" (8.07 m)
F. Digging depth 8' (2.44 m) level bottom	24' 10" (7.58 m)	21' 11" (6.69 m)	26' 11" (8.21 m)	29' 9" (9.08 m)
G. Bucket rotation	176°	176°	176°	176°
H. Maximum vertical wall depth	21' 9" (6.64 m)	19' 8" (5.99 m)	23' 4" (7.12 m)	26' 1" (7.96 m)

490 X4 with expandable sideframe				
Machine Equipped with 22' 11" (6.98 m) Boom	11' 1" Arm (3.38 m)	8' 4" Arm (2.53 m)	13' 2" Arm (4.00 m)	15' 11" Arm (4.85 m)
A. Maximum reach	39' 3" (11.97 m)	36' 10" (11.22 m)	41' 1" (12.52 m)	43' 6" (13.27 m)
B. Maximum reach @ ground level	38' 5" (11.72 m)	35' 11" (10.95 m)	40' 3" (12.27 m)	42' 9" (13.03 m)
C. Maximum dig depth	24' 10" (7.57 m)	22' 1" (6.72 m)	26' 10" (8.19 m)	29' 8" (9.05 m)
D. Maximum dig height	36' 11" (11.25 m)	36' 1" (11.00 m)	37' 5" (11.41 m)	38' 1" (11.61 m)
E. Maximum dump height	25' 9" (7.84 m)	24' 10" (7.56 m)	26' 4" (8.02 m)	27' 0" (8.22 m)
F. Digging depth 8' (2.44 m) level bottom	24' 5" (7.43 m)	21' 5" (6.54 m)	26' 5" (8.06 m)	29' 4" (8.93 m)
G. Bucket rotation	176°	176°	176°	176°
H. Maximum vertical wall depth	21' 4" (6.49 m)	19' 2" (5.84 m)	22' 10" (6.97 m)	25' 7" (7.81 m)

490 X4 Mass excavator with fixed sideframe	
Machine Equipped with 21' 6" (6.55 m) Boom	8' 4" Arm (2.53 m)
A. Maximum reach	35' 5" (10.80 m)
B. Maximum reach @ ground level	34' 7" (10.55 m)
C. Maximum dig depth	21' 4" (6.49 m)
D. Maximum dig height	34' 7" (10.55 m)
E. Maximum dump height	23' 6" (7.16 m)
F. Digging depth 8' (2.44 m) level bottom	20' 9" (6.32 m)
G. Bucket rotation	160°
H. Maximum vertical wall depth	17' 4" (5.29 m)

490 X4 Mass excavator with expandable sideframe	
Machine Equipped with 21' 6" (6.55 m) Boom	8' 4" Arm (2.53 m)
A. Maximum reach	35' 5" (10.80 m)
B. Maximum reach @ ground level	34' 6" (10.52 m)
C. Maximum dig depth	20' 10" (6.34 m)
D. Maximum dig height	35' 1" (10.70 m)
E. Maximum dump height	24' 0" (7.31 m)
F. Digging depth 8' (2.44 m) level bottom	20' 3" (6.17 m)
G. Bucket rotation	160°
H. Maximum vertical wall depth	16' 10" (5.14 m)



LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
11′ 1″ (3.38 m) Arm with 22′ 11″ (6.98 m) Boom and 3,200 lb. (1 460 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											14,250*	14,250*			12,950*	12,950*
(9.0 m)	kg											7 400*	7 400*			5 830*	5 830*
+25' 0"	lbs											18,200*	17,600			12,400*	12,400*
(7.5 m)	kg											8 430*	8 180*			5 620*	5 620*
+20' 0"	lbs									21,400*	21,400*	19,900*	17,150	16,050*	12,750	12,300*	12,000
(6.0 m)	kg									9 820*	9 820*	9 090*	7 990	8 090*	5 960	5 590*	5 400
+15' 0"	lbs							28,950*	28,950*	23,850*	22,500	20,750*	16,500	18,350*	12,400	12,550*	10,950
(4.5 m)	kg							13 450*	13 450*	11 030*	10 440	9 540*	7 680	8 440*	5 800	5 690*	4 940
+10' 0"	lbs					45,200*	45,200*	33,850*	30,150	26,550*	21,250	22,250*	15,750	19,200*	12,000	13,000*	10,400
(3.0 m)	kg					20 890*	20 890*	15 690*	13 980	12 290*	9 860	10 260*	7 330	8 840*	5 610	5 920*	4 710
+5' 0"	lbs					50,300*	43,350	37,250*	28,250	28,650*	20,150	23,400*	15,100	19,700*	11,650	13,850*	10,300
(1.5 m)	kg					23 220*	20 130	17 230*	13 100	13 250*	9 350	10 810*	7 020	9 100*	5 430	6 300*	4 670
Ground Line	lbs			21,000*	21,000*	51,750*	41,600	38,400*	26,950	29,600*	19,300	23,800*	14,600	19,600*	11,400	15,150*	10,650
	kg			9 220*	9 220*	22 400*	19 290	17 740*	12 520	13 680*	8 970	11 020*	6 790	9 090*	5 310	6 870*	4 820
-5' 0"	lbs	22,850*	22,850*	33,100*	33,100*	51,650*	41,850	37,950*	26,600	29,350*	19,000	23,400*	14,400			17,200*	11,500
(1.5 m)	kg	10 200*	10 200*	14 750*	14 750*	23 800*	19 400*	17 530*	12 350	13 560*	8 820	10 850*	6 690			7 790*	5 210
-10' 0"	lbs	36,250*	36,250*	45,900*	45,900*	47,900*	42,400	36,000*	26,850	27,850*	19,150	21,450*	14,650			18,150*	13,150
(3.0 m)	kg	16 280*	16 280*	20 370*	20 370*	22 110*	19 740	16 650*	12 460	12 920*	8 890	10 040*	6 800			8 240*	5 940
-15' 0"	lbs			55,550*	55,550*	41,150*	41,150*	31,400*	27,450	23,700*	19,800					17,450*	16,250
(4.5 m)	kg			25 750*	25 750*	19 110*	19 110*	14 620*	12 750*	11 150*	9 180					7 950*	7 290
-20' 0"	lbs					29,850*	29,850*	22,100*	22,100*							15,450*	15,450*
(6.0 m)	kg					14 140*	14 140*	10 630*	10 630*							7 090*	7 090*

Radius of Load - Expandable Undercarriage
11′ 1″ (3.38 m) Arm with 22′ 11″ (6.98 m) Boom and 3,200 lb. (1 460 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											14,200*	14,200*			12,900*	12,900*
(9.0 m)	kg											7 400*	7 400*			5 830*	5 830*
+25' 0"	lbs											18,200*	18,200*			12,400*	12,400*
(7.5 m)	kg											8 430*	8 430*			5 620*	5 620*
+20' 0"	lbs									21,350*	21,350*	19,900*	18,500	16,050*	13,800	12,300*	12,300*
(6.0 m)	kg									9 820*	9 820*	9 090*	8 600	8 090*	6 470	5 590*	5 590*
+15' 0"	lbs							28,950*	28,950*	23,850*	23,800*	20,750*	17,800	18,350*	13,500	12,550*	11,900
(4.5 m)	kg							13 450*	13 450*	11 030*	11 030*	9 540*	8 300	8 440*	6 310	5 690*	5 390
+10' 0"	lbs					45,200*	45,200*	33,800*	32,350	26,550*	22,950	22,200*	17,100	19,150*	13,100	13,000*	11,350
(3.0 m)	kg					20 890*	20 890*	15 690*	15 010	12 290*	10 670	10 260*	7 950	8 840*	6 110	5 920*	5 160
+5' 0"	lbs					50,250*	47,300	37,200*	30,650	28,650*	21,850	23,400*	16,400	19,650*	12,700	13,850*	11,250
(1.5 m)	kg					23 220*	21 960	17 230*	14 230	13 250*	10 150	10 810*	7 640	9 100*	5 930	6 300*	5 120
Ground Line	lbs			21,000*	21,000*	51,750*	45,400	38,350*	29,350	29,600*	21,000	23,800*	15,900	19,600*	12,450	15,150*	11,650
	kg			9 220*	9 220*	22 400*	21 040	17 740*	13 640	13 680*	9 770	11 020*	7 400	9 090*	5 810	6 870*	5 290
-5' 0"	lbs	22,850*	22,850*	33,100*	33,100*	51,600*	45,450*	37,900*	28,950	29,300*	20,650	23,400*	15,700			17,200*	12,600
(1.5 m)	kg	10 200*	10 200*	14 750*	14 750*	23 800*	21 050	17 530*	13 470	13 560*	9 610	10 850*	7 310			7 790*	5 710
-10' 0"	lbs	36,250*	36,250*	45,850*	45,850*	47,850*	45,850	35,950*	29,200	27,850*	20,850	21,450*	16,000			18,150*	14,350
(3.0 m)	kg	16 280*	16 280*	20 370*	20 370*	22 110*	21 330	16 650*	13 570	12 920*	9 680	10 040*	7 410			8 240*	6 490
-15' 0"	lbs			55,500*	55,500*	41,150*	41,150*	31,350*	29,450	23,700*	21,300					17,400*	17,400*
(4.5 m)	kg			25 750*	25 750*	19 110*	19 110*	14 620*	13 700	11 150*	9 890					7 950*	7 930*
-20' 0"	lbs					29,850*	29,850*	22,100*	22,100*							15,400*	15,400*
(6.0 m)	kg					14 140*	14 140*	10 630*	10 630*							7 090*	7 090*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
8′ 4″ (2.53 m) Arm with 22′ 11″ (6.98 m) Boom and 3,350 lb. (1 530 kg) Bucket with Power-Boost Applied

 End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs							18,500*	18,500*					18,100*	18,100*
(9.0 m)	kg							7 100*	7 100*					8 150*	8 150*
+25' 0"	lbs							21,600*	21,600*	20,100*	17,100			17,300*	16,100
(7.5 m)	kg							9 920*	9 920*	9 230*	7 990			7 830*	7 190
+20' 0"	lbs					26,500*	26,500*	23,800*	22,900*	21,100*	16,800			17,100*	13,700
(6.0 m)	kg					12 660*	12 660*	10 920*	10 610*	9 710*	7 820			7 760*	6 160
+15' 0"	lbs			40,800*	40,800*	32,050*	31,000	25,800*	21,950	22,500*	16,200			17,400*	12,400
(4.5 m)	kg			19 010*	19 010*	14 880*	14 380	11 940*	10 190	10 330*	7 540			7 890*	5 590
+10' 0"	lbs			48,550*	44,800	36,300*	29,300	28,150*	20,850	23,350*	15,600	20,000*	11,950	18,000*	11,750
(3.0 m)	kg			22 590*	20 710	16 840*	13 590	13 010*	9 680	10 780*	7 250	9 230*	5 580	8 170*	5 330
+5' 0"	lbs			40,000*	40,000*	38,500*	27,750	29,650*	19,950	24,100*	15,050	19,300*	11,700	19,050*	11,700
(1.5 m)	kg			16 780*	16 780*	17 810*	12 860	13 700*	9 250	11 120*	6 990	9 270*	5 460	8 660*	5 310
Ground	lbs			46,250*	41,150	38,550*	26,850	29,850*	19,300	24,000*	14,700			19,950*	12,200
Line	kg			20 000*	19 060	17 800*	12 470	13 790*	8 970	11 110*	6 830			9 040*	5 530
-5' 0"	lbs	35,900*	35,900*	49,500*	42,150	37,450*	26,900	29,100*	19,250	22,800*	14,750			19,700*	13,400
(1.5 m)	kg	16 100*	16 100*	22 790*	19 490	17 280*	12 500	13 470*	8 940	10 610*	6 850			8 940*	6 060
-10' 0"	lbs	52,900*	52,900*	44,150*	42,550	34,150*	27,400	26,300*	19,700					19,100*	15,700
(3.0 m)	kg	23 450*	23 450*	20 370*	19 760	15 800*	12 720	12 250*	9 120					8 650*	7 080
-15' 0"	lbs	44,200*	44,200*	35,450*	35,450*	27,400*	27,400*							17,350*	17,350*
(4.5 m)	kg	20 510*	20 510*	16 490*	16 490*	12 860*	12 760*							7 900*	7 900*

Radius of Load - Expandable Undercarriage
8′ 4″ (2.53 m) Arm with 22′ 11″ (6.98 m) Boom and 3,350 lb. (1 530 kg) Bucket with Power-Boost Applied

 End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs							18,500*	18,500*					18,100*	18,100*
(9.0 m)	kg							7 100*	7 100*					8 150*	8 150*
+25' 0"	lbs							21,600*	21,600*	20,100*	18,450			17,300*	17,300*
(7.5 m)	kg							9 920*	9 920*	9 230*	8 610			7 830*	7 770
+20' 0"	lbs					26,500*	26,500*	23,800*	23,800*	21,100*	18,150			17,100*	14,850
(6.0 m)	kg					12 660*	12 660*	10 920*	10 920*	9 710*	8 440			7 760*	6 680
+15' 0"	lbs			40,800*	40,800*	32,050*	32,050*	25,800*	23,700	22,500*	17,550			17,400*	13,500
(4.5 m)	kg			19 010*	19 010*	14 880*	14 880*	11 940*	11 000	10 330*	8 160			7 890*	6 090
+10' 0"	lbs			48,550*	48,450	36,300*	31,750	28,150*	22,600	23,350*	16,900	20,000*	13,050	18,000*	12,850
(3.0 m)	kg			22 590*	22 510*	16 840*	14 730	13 010*	10 480	10 780*	7 870	9 230*	6 080	8 170*	5 820
+5' 0"	lbs			40,000*	40,000*	38,500*	30,150	29,650*	21,650	24,100*	16,400	19,300*	12,800	19,050*	12,800
(1.5 m)	kg			16 780*	16 780*	17 810*	13 990	13 700*	10 050	11 120*	7 610	9 270*	5 960	8 660*	5 800
Ground	lbs			46,250*	44,900	38,550*	29,250	29,850*	21,050	24,000*	16,050			19,950*	13,300
Line	kg			20 000*	20 000*	17 800*	13 590	13 790*	9 760	11 110*	7 440			9 040*	6 040
-5' 0"	lbs	35,900*	35,900*	49,500*	45,800	37,450*	29,300	29,100*	20,950	22,800*	16,100			19,700*	14,600
(1.5 m)	kg	16 100*	16 100*	22 790*	21 220	17 280*	13 610	13 470*	9 730	10 610*	7 460			8 940*	6 610
-10' 0"	lbs	52,900*	52,900*	44,150*	44,150*	34,150*	29,750	26,300*	21,400					19,100*	17,100
(3.0 m)	kg	23 450*	23 450*	20 370*	20 370*	15 800*	13 830	12 250*	9 910					8 650*	7 700
-15' 0"	lbs	44,200*	44,200*	35,450*	35,450*	27,400*	27,400*							17,350*	17,350*
(4.5 m)	kg	20 510*	20 510*	16 490*	16 490*	12 860*	12 860*							7 900*	7 900*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
13′ 2″ (4.00 m) Arm with 22′ 11″ (6.98 m) Boom and 3,000 lb. (1 370 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											13,750*	13,750*			10,350*	10,350*
(9.0 m)	kg											6 330*	6 330*			4 660*	4 660*
+25' 0"	lbs											16,950*	16,950*	12,150*	12,150*	9,950*	9,950*
(7.5 m)	kg											7 910*	7 910*	6 240*	6 240*	4 500*	4 500*
+20' 0"	lbs											18,800*	17,700*	16,350*	13,250	9,900*	9,900*
(6.0 m)	kg											8 590*	8 200*	7 700*	6 210	4 490*	4 490*
+15' 0"	lbs							23,450*	23,450*	22,700*	22,700*	19,900*	17,050	17,750*	12,900	10,100*	10,100*
(4.5 m)	kg							11 460*	11 460*	10 480*	10 480*	9 130*	7 940	8 170*	6 020	4 580*	4 580*
+10' 0"	lbs			40,000*	40,000*	44,800*	44,800*	32,200*	30,950*	25,650*	21,950	21,700*	16,300	18,850*	12,450	10,500*	9,850
(3.0 m)	kg			15 690*	15 690*	20 720*	20 720*	14 940*	14 340	11 860*	10 190	10 000*	7 580	8 680*	5 800	4 760*	4 460
+5' 0"	lbs			17,800*	17,800*	49,900*	45,000	36,350*	29,150	28,150*	20,750	23,150*	15,550	19,650*	12,000	11,200*	9,750
(1.5 m)	kg			7 640*	7 640*	22 910*	20 900	16 830*	13 530	13 020*	9 630	10 690*	7 230	9 070*	5 590	5 070*	4 420
Ground	lbs			23,800*	23,800*	52,350*	42,600	38,450*	27,650	29,650*	19,800	24,000*	14,950	19,900*	11,650	12,250*	10,000
Line	kg			10 520*	10 520*	24 120*	19 820	17 780*	12 840	13 700*	9 200	11 080*	6 960	9 210*	5 430	5 550*	4 530
-5' 0"	lbs	22,400*	22,400*	32,000*	32,000*	52,950*	42,050	38,500*	26,900	29,800*	19,250	23,900*	14,600	19,450*	11,500	13,850*	10,700
(1.5 m)	kg	10 040*	10 040*	14 250*	14 250*	24 370*	19 580	17 790*	12 500	13 770*	8 950	11 070*	6 800	9 040*	5 360	6 260*	4 850
-10' 0"	lbs	32,600*	32,600*	42,300*	42,300*	50,400*	42,350	37,350*	26,950	28,950*	19,250	22,850*	14,650			16,400*	12,050
(3.0 m)	kg	14 650*	14 650*	18 800*	18 800*	23 290*	19 720	17 280*	12 510	13 400*	8 940	10 620*	6 810			7 400*	5 430
-15' 0"	lbs	42,550*	42,550*	56,350*	56,350*	45,050*	42,600	33,950*	27,400	26,100*	19,650	19,150*	15,150			17,600*	14,450
(4.5 m)	kg	19 010*	19 010*	25 410*	25 410*	20 880*	19 820	15 770*	12 730	12 180*	9 120	9 140*	7 050			7 970*	6 480
-20' 0"	lbs			48,350*	48,350*	35,800*	35,800*	27,000*	27,000*	19,000*	19,000*					16,600*	16,600*
(6.0 m)	kg			22 690*	22 690*	16 790*	16 790*	12 740*	12 710	9 240*	9 170					7 550*	7 550*

Radius of Load - Expandable Undercarriage
13′ 2″ (4.00 m) Arm with 22′ 11″ (6.98 m) Boom and 3,000 lb. (1 370 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											13,750*	13,750*			10,350*	10,350*
(9.0 m)	kg											6 330*	6 330*			4 660*	4 660*
+25' 0"	lbs											16,950*	16,950*	12,150*	12,150*	9,950*	9,950*
(7.5 m)	kg											7 910*	7 910*	6 240*	6 240*	4 500*	4 500*
+20' 0"	lbs											18,800*	18,550	16,350*	14,350	9,900*	9,900*
(6.0 m)	kg											8 590*	8 590*	7 700*	6 710	4 490*	4 490*
+15' 0"	lbs							23,450*	23,450*	22,700*	22,700*	19,900*	18,400	17,750*	14,000	10,100*	10,100*
(4.5 m)	kg							11 460*	11 460*	10 480*	10 480*	9 130*	8 560	8 170*	6 520	4 580*	4 580*
+10' 0"	lbs			40,000*	40,000*	44,800*	44,800*	32,200*	32,200*	25,650*	23,700	21,700*	17,600	18,850*	13,550	10,500*	10,500*
(3.0 m)	kg			15 690*	15 690*	20 720*	20 720*	14 940*	14 940*	11 860*	11 000	10 000*	8 200	8 680*	6 310	4 760*	4 760*
+5' 0"	lbs			17,800*	17,800*	49,900*	48,950	36,350*	31,600	28,150*	22,450	23,150*	16,900	19,650*	13,100	11,200*	10,650
(1.5 m)	kg			7 640*	7 640*	22 910*	22 730	16 830*	14 660	13 020*	10 440	10 690*	7 850	9 070*	6 100	5 070*	4 840
Ground	lbs			23,800*	23,800*	52,350*	46,600	38,450*	30,050	29,650*	21,500	24,000*	16,300	19,900*	12,750	12,250*	10,950
Line	kg			10 520*	10 520*	24 120*	21 640	17 780*	13 960	13 700*	10 000	11 080*	7 570	9 210*	5 930	5 550*	4 970
-5' 0"	lbs	22,400*	22,400*	32,000*	32,000*	52,950*	46,000	38,500*	29,300	29,800*	20,950	23,900*	15,950	19,450*	12,600	13,850*	11,700
(1.5 m)	kg	10 040*	10 040*	14 250*	14 250*	24 370*	21 290	17 790*	13 610	13 770*	9 740	11 070*	7 410	9 040*	5 860	6 260*	5 310
-10' 0"	lbs	32,600*	32,600*	42,300*	42,300*	50,400*	46,300	37,350*	29,300	28,950*	20,950	22,850*	16,000			16,400*	13,150
(3.0 m)	kg	14 650*	14 650*	18 800*	18 800*	23 290*	21 550	17 280*	13 620	13 400*	9 730	10 620*	7 430			7 400*	5 940
-15' 0"	lbs	42,550*	42,550*	56,350*	56,350*	45,050*	45,050*	33,950*	29,800	26,100*	21,350	19,150*	16,500			17,600*	15,750
(4.5 m)	kg	19 010*	19 010*	25 410*	25 410*	20 880*	20 880*	15 770*	13 840	12 180*	9 910	9 140*	7 650			7 970*	7 060
-20' 0"	lbs			48,350*	48,350*	35,800*	35,800*	27,000*	27,000*	19,000*	19,000*					16,600*	16,600*
(6.0 m)	kg			22 690*	22 690*	16 790*	16 790*	12 740*	12 740*	9 240*	9 240*					7 550*	7 550*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
15′ 11″ (4.85 m) Arm with 22′ 11″ (6.98 m) Boom and 2,800 lb. (1 260 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	40' 0" (12.0 m) End	40' 0" (12.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs													10,600*	10,600*			9,300*	9,300*
	kg													5 380*	5 380*			4 200*	4 200*
+25' 0" (7.5 m)	lbs													13,800*	13,800*			9,000*	9,000*
	kg													6 480*	6 480*			4 090*	4 090*
+20' 0" (6.0 m)	lbs											16,700*	16,700*	15,200*	13,650	10,050*	10,050*	9,000*	9,000*
	kg											7 640*	7 640*	7 030*	6 390	5 250*	4 830	4 080*	4 080*
+15' 0" (4.5 m)	lbs											18,000*	17,500	16,700*	13,200	12,850*	10,050	9,150*	9,150*
	kg											8 270*	8 110*	7 710*	6 160	6 330*	4 720	4 170*	4 170*
+10' 0" (3.0 m)	lbs					38,350*	38,350*	29,000*	29,000*	23,600*	22,450	20,100*	16,600	17,700*	12,650	14,550*	9,750	9,550*	8,800
	kg					17 590*	17 590*	13 440*	13 440*	10 910*	10 420	9 280*	7 730	8 130*	5 890	7 120*	4 560	4 330*	3 980
+5' 0" (1.5 m)	lbs			29,600*	29,600*	47,600*	45,850	33,850*	29,850	26,500*	21,100	21,950*	15,750	18,800*	12,100	15,400*	9,450	10,150*	8,650
	kg			12 670*	12 670*	22 070*	21 270	15 660*	13 860	12 240*	9 810	10 140*	7 320	8 670*	5 630	7 580*	4 410	4 610*	3 930
Ground Line	lbs			25,900*	25,900*	50,950*	43,100	37,000*	27,900	28,550*	19,900	23,250*	15,000	19,500*	11,600	14,450*	9,200	11,050*	8,850
	kg			11 450*	11 450*	23 370*	20 040	17 110*	12 960	13 190*	9 260	10 730*	6 970	9 010*	5 410	7 450*	4 290	5 010*	4 000
-5' 0" (1.5 m)	lbs	20,850*	20,850*	31,000*	31,000*	52,500*	41,400	38,150*	26,650	29,400*	19,100	23,650*	14,450	19,500*	11,300			12,400*	9,350
	kg	9 340*	9 340*	13 800*	13 800*	24 140*	19 270	17 610*	12 390	13 590*	8 880	10 940*	6 720	9 040*	5 270			5 610*	4 230
-10' 0" (3.0 m)	lbs	28,700*	28,700*	39,000*	39,000*	51,550*	41,350	37,600*	26,350	29,050*	18,800	23,250*	14,300	18,650*	11,300			14,450*	10,350
	kg	12 870*	12 870*	17 310*	17 310*	23 810*	19 240	17 390*	12 250	13 440*	8 750	10 770*	6 640	8 710*	5 250			6 520*	4 670
-15' 0" (4.5 m)	lbs	38,500*	38,500*	50,750*	50,750*	48,000*	41,850	35,600*	26,600	27,500*	19,050	21,450*	14,550					16,700*	12,050
	kg	17 130*	17 130*	22 380*	22 380*	22 220*	19 470	16 500*	12 360	12 780*	8 830	10 040*	6 740					7 570*	5 420
-20' 0" (6.0 m)	lbs	48,850*	48,850*	58,200*	58,200*	41,150*	41,150*	30,900*	27,250	23,400*	19,650							16,500*	15,250
	kg	21 770*	21 770*	27 160*	27 160*	19 200*	19 200*	14 440*	12 660	11 020*	9 130							7 480*	6 790
-25' 0" (7.5 m)	lbs			39,900*	39,900*	29,300*	29,300*	21,400*	21,400*									15,150*	15,150*
	kg			19 100*	19 100*	14 040*	14 040*	10 390*	10 390*									6 910*	6 910*

Radius of Load - Expandable Undercarriage
15′ 11″ (4.85 m) Arm with 22′ 11″ (6.98 m) Boom and 2,800 lb. (1 260 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	40' 0" (12.0 m) End	40' 0" (12.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs													10,600*	10,600*			9,300*	9,300*
	kg													5 380*	5 380*			4 200*	4 200*
+25' 0" (7.5 m)	lbs													13,800*	13,800*			9,000*	9,000*
	kg													6 480*	6 480*			4 090*	4 090*
+20' 0" (6.0 m)	lbs											16,700*	16,700*	15,200*	14,750	10,050*	10,050*	9,000*	9,000*
	kg											7 640*	7 640*	7 030*	6 890	5 250*	5 250	4 080*	4 080*
+15' 0" (4.5 m)	lbs											18,000*	18,000*	16,700*	14,300	12,850*	11,000	9,150*	9,150*
	kg											8 270*	8 270*	7 710*	6 670	6 330*	5 140	4 170*	4 170*
+10' 0" (3.0 m)	lbs					38,350*	38,350*	29,000*	29,000*	23,600*	23,600*	20,100*	17,950	17,700*	13,750	14,550*	10,650	9,550*	9,550*
	kg					17 590*	17 590*	13 440*	13 440*	10 910*	10 910*	9 280*	8 360	8 130*	6 400	7 120*	4 990	4 330*	4 330*
+5' 0" (1.5 m)	lbs			29,600*	29,600*	47,600*	47,600*	33,850*	32,150*	26,500*	22,850	21,950*	17,100	18,800*	13,200	15,400*	10,350	10,150*	9,550
	kg			12 670*	12 670*	22 070*	22 070*	15 660*	14 910	12 240*	10 610	10 140*	7 940	8 670*	6 140	7 580*	4 840	4 610*	4 320
Ground Line	lbs			25,900*	25,900*	50,950*	47,100	37,000*	30,350	28,550*	21,650	23,250*	16,300	19,500*	12,700	14,450*	10,100	11,050*	9,700
	kg			11 450*	11 450*	23 370*	21 900	17 110*	14 090	13 190*	10 060	10 730*	7 590	9 010*	5 920	7 450*	4 710	5 010*	4 410
-5' 0" (1.5 m)	lbs	20,850*	20,850*	31,000*	31,000*	52,500*	45,350	38,150*	29,050	29,400*	20,800	23,650*	15,800	19,500*	12,400			12,400*	10,250
	kg	9 340*	9 340*	13 800*	13 800*	24 140*	21 110	17 610*	13 510	13 590*	9 670	10 940*	7 340	9 040*	5 770			5 610*	4 650
-10' 0" (3.0 m)	lbs	28,700*	28,700*	39,000*	39,000*	51,550*	45,250	37,600*	28,750	29,050*	20,550	23,250*	15,600	18,650*	12,400			14,450*	11,350
	kg	12 870*	12 870*	17 310*	17 310*	23 810*	21 060	17 390*	13 350	13 440*	9 540	10 770*	7 250	8 710*	5 750			6 520*	5 120
-15' 0" (4.5 m)	lbs	38,500*	38,500*	50,750*	50,750*	48,000*	45,550*	35,600*	29,000	27,500*	20,750	21,450*	15,900					16,700*	13,200
	kg	17 130*	17 130*	22 380*	22 380*	22 220*	21 180*	16 500*	13 470	12 780*	9 620	10 040*	7 360					7 570*	5 930
-20' 0" (6.0 m)	lbs	48,850*	48,850*	58,200*	58,200*	41,150*	41,150*	30,900*	29,250	23,400*	21,150							16,500*	16,500*
	kg	21 770*	21 770*	27 160*	27 160*	19 200*	19 200*	14 440*	13 590	11 020*	9 820*							7 480*	7 400
-25' 0" (7.5 m)	lbs			39,900*	39,900*	29,300*	29,300*	21,400*	21,400*									15,150*	15,150*
	kg			19 100*	19 100*	14 040*	14 040*	10 390*	10 390*									6 910*	6 910*

Notes: Excavator lifting capacities

1. Lifting capacities shown should not be exceeded. Weight of all lifting accessories must be deducted from the above lifting capacities.
2. Lifting capacities are based on machine standing on firm, uniform supporting surface. User must make allowances for job conditions such as soft or uneven ground.
3. Lifting capacities shown do not exceed 75% of minimum tipping loads or 87% of hydraulic capacities. **Capacities marked with an asterisk (*) are limited by hydraulic capacities.**
4. Least stable position is over the side.
5. Operator should be fully acquainted with the Operator's Manual & Operating Safety Booklet, furnished by LBX before operating the machine.
6. Capacities apply only to the machine as originally manufactured and normally equipped by LBX Company, LLC.
7. Lift capacity ratings are based on ISO 10567, "Earthmoving Machinery - Hydraulic Excavators - Lift Capacity."

LIFT CAPACITIES

Radius of Load - Mass Excavator - Fixed Undercarriage
8′ 4″ (2.53 m) Arm with 21′ 6″ (6.55 m) Boom and 5,300 lb. (2 400 kg) Bucket with Power-Boost Applied

End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs							19,150*	19,150*			15,250*	15,250*
	kg							7 660*	7 660*			6 840*	6 840*
+25' 0" (7.5 m)	lbs							20,200*	20,200*			14,350*	14,350*
	kg							9 260*	9 260*			6 490*	6 490*
+20' 0" (6.0 m)	lbs					21,550*	21,550*	22,200*	21,900	19,800*	15,700	14,150*	13,200
	kg					9 920*	9 920*	10 260*	10 160*	9 090*	7 350	6 410*	5 950
+15' 0" (4.5 m)	lbs			37,850*	37,850*	30,100*	30,100*	24,600*	21,300	21,000*	15,250	14,250*	11,800
	kg			17 560*	17 560*	13 980*	13 980*	11 360*	9 920	9 690*	7 110	6 460*	5 340
+10' 0" (3.0 m)	lbs			45,550*	45,550*	34,500*	29,150	26,850*	20,200	22,200*	14,650	14,750*	11,150
	kg			21 130*	21 130*	16 000*	13 530	12 410*	9 400	10 250*	6 830	6 690*	5 050
+5' 0" (1.5 m)	lbs			50,950*	42,600	37,200*	27,350	28,350*	19,200	22,750*	14,100	15,700*	11,050
	kg			23 500*	19 780	17 210*	12 700	13 120*	8 930	10 520*	6 570	7 140*	5 020
Ground Line	lbs	25,350*	25,350*	51,850*	41,250	37,450*	26,250	28,600*	18,500	22,650*	13,700	17,400*	11,600
	kg	11 400*	11 400*	23 890*	19 170	17 310*	12 210	13 230*	8 610	10 500*	6 380	7 880*	5 260
-5' 0" (1.5 m)	lbs	38,650*	38,650*	49,350*	41,950	36,400*	26,150	27,800*	18,300	21,050*	13,750	18,850*	12,900
	kg	17 160*	17 160*	22 760*	19 560	16 830*	12 160	12 880*	8 510	9 860*	6 380	8 530*	5 830
-10' 0" (3.0 m)	lbs	57,400*	57,400*	43,800*	41,850	32,900*	26,600	24,500*	18,800			18,100*	15,400
	kg	25 350*	25 350*	20 250*	19 470	15 260*	12 360	11 470*	8 720			8 220*	6 940
-15' 0" (4.5 m)	lbs	44,250*	44,250*	34,050*	34,050*	25,150*	25,150*					16,050*	16,050*
	kg	20 640*	20 640*	15 920*	15 920*	11 890*	11 890*					7 320*	7 320*

Radius of Load - Mass Excavator - Expandable Undercarriage
8′ 4″ (2.53 m) Arm with 21′ 6″ (6.55 m) Boom and 5,300 lb. (2 400 kg) Bucket with Power-Boost Applied

End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs							19,150*	19,150*			15,250*	15,250*
	kg							7 660*	7 660*			6 840*	6 840*
+25' 0" (7.5 m)	lbs							20,200*	20,200*			14,350*	14,350*
	kg							9 260*	9 260*			6 490*	6 490*
+20' 0" (6.0 m)	lbs					21,550*	21,550*	22,200*	22,200*	19,800*	17,050	14,150*	14,150*
	kg					9 920*	9 920*	10 260*	10 260*	9 090*	7 970	6 410*	6 410*
+15' 0" (4.5 m)	lbs			37,850*	37,850*	30,100*	30,100*	24,600*	23,050	21,000*	16,600	14,250*	12,950
	kg			17 560*	17 560*	13 980*	13 980*	11 360*	10 730	9 690*	7 740	6 460*	5 860
+10' 0" (3.0 m)	lbs			45,550*	45,550*	34,500*	31,600	26,850*	21,950	22,200*	16,000	14,750*	12,250
	kg			21 130*	21 130*	16 000*	14 680	12 410*	10 210	10 250*	7 450	6 690*	5 550
+5' 0" (1.5 m)	lbs			50,950*	46,600	37,200*	29,800	28,350*	20,950	22,750*	15,400	15,700*	12,200
	kg			23 500*	21 650	17 210*	13 840	13 120*	9 740	10 520*	7 190	7 140*	5 530
Ground Line	lbs	25,350*	25,350*	51,850*	45,150	37,450*	28,700	28,600*	20,250	22,650*	15,050	17,400*	12,750
	kg	11 400*	11 400*	23 890*	20 990	17 310*	13 340	13 230*	9 410	10 500*	7 000	7 880*	5 790
-5' 0" (1.5 m)	lbs	38,650*	38,650*	49,350*	45,750*	36,400*	28,550	27,800*	20,000	21,050*	15,100	18,850*	14,150
	kg	17 160*	17 160*	22 760*	21 300	16 830*	13 280	12 880*	9 310	9 860*	7 000	8 530*	6 400
-10' 0" (3.0 m)	lbs	57,400*	57,400*	43,800*	43,800*	32,900*	28,950	24,500*	20,450			18,100*	16,850
	kg	25 350*	25 350*	20 250*	20 250*	15 260*	13 470	11 470*	9 510			8 220*	7 600
-15' 0" (4.5 m)	lbs	44,250*	44,250*	34,050*	34,050*	25,150*	25,150*					16,050*	16,050*
	kg	20 640*	20 640*	15 920*	15 920*	11 890*	11 890*					7 320*	7 320*

Bucket Sizes for Mass Excavators

490 X4 Mass with Fixed Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8′ 4″ 2.53 m
STDP Standard duty plate	1.76	1.35	36	914	2906	1318	4	H
	2.14	1.64	42	1067	3206	1454	5	H
	2.52	1.93	48	1219	3405	1545	5	H
	2.91	2.22	54	1372	3705	1681	6	H
	3.29	2.52	60	1524	3903	1770	6	H
	4.05	3.10	66	1676	4698	2131	7	M
HDP Heavy duty plate	1.73	1.32	36	914	3507	1591	4	H
	2.10	1.61	42	1067	3848	1745	5	H
	2.48	1.90	48	1219	4108	1863	5	H
	2.85	2.18	54	1372	4448	2018	6	H
	3.24	2.48	60	1524	4707	2135	6	H
XDP Extreme duty plate	1.37	1.05	30	762	3469	1574	3	H
	1.73	1.32	36	914	3838	1741	4	H
	2.1	1.61	42	1067	4144	1880	4	H
	2.48	1.90	48	1219	4485	2034	5	H
Power Buckets	1.64	1.25	36	914	5460	2477	4	H
	1.97	1.51	42	1067	5829	2644	5	H
	2.31	1.77	48	1219	6120	2776	5	H
	2.65	2.03	54	1372	6489	2943	6	H
	2.99	2.29	60	1524	6780	3075	6	H

490 X4 Mass with Expandable Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8′ 4″ 2.53 m
STDP Standard duty plate	1.76	1.35	36	914	2906	1318	4	H
	2.14	1.64	42	1067	3206	1454	5	H
	2.52	1.93	48	1219	3405	1545	5	H
	2.91	2.22	54	1372	3705	1681	6	H
	3.29	2.52	60	1524	3903	1770	6	H
	4.05	3.10	66	1676	4698	2131	7	M
HDP Heavy duty plate	1.73	1.32	36	914	3507	1591	4	H
	2.10	1.61	42	1067	3848	1745	5	H
	2.48	1.90	48	1219	4108	1863	5	H
	2.85	2.18	54	1372	4448	2018	6	H
	3.24	2.48	60	1524	4707	2135	6	H
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	1.73	1.32	36	914	3838	1741	4	H
	2.1	1.61	42	1067	4144	1880	4	H
	2.48	1.90	48	1219	4485	2034	5	H
Power Buckets	1.64	1.25	36	914	5460	2477	4	H
	1.97	1.51	42	1067	5829	2644	5	H
	2.31	1.77	48	1219	6120	2776	5	H
	2.65	2.03	54	1372	6489	2943	6	H
	2.99	2.29	60	1524	6780	3075	6	H

Approval Code For Arm/Bucket Combinations

H.....Heavy material *(up to 3,370 lbs./yd³)*
M..... Medium material *(up to 2,700 lbs./yd³)*
L.....Light material *(up to 2,020 lbs./yd³)*
N/A..... Not applicable

STDP - Standard duty plate
HDP - Heavy duty plate
XDP - Extreme duty plate
POWER - HDP for use with ESCO multi-pin grabber only

Standard & Optional Equipment

CAB

12V Power Outlet	S
270° WAVES™ Camera System	O
AM/FM Sound System	S
Anti-Theft Device	S
Auxiliary Switches on Control Lever	S
Bluetooth	S
Cab Filter - External	S
Cab Handrails	S
Cab Interior Light	S
Cab ISO-Mounts	S
Cab Light (2 LED)	O
Cab Light (2)	S
Cab Sun Screen (rear)	O
Clear Roof Window	S
Climate Control A/C and Heater	S
Cup Holder	S
Defroster	S
Digital Clock	S
Emergency Exit and Hammer	S
Face Vent	S
Floor Mat	S
FOPS Head Guard (Level 2)	O
FOPS Level 1 Certified	S
Front Guard (Mesh)	O
Front Guard (OPG 1,2)	O
Front Window One-Touch Lock	S
Gate Lock Hydraulic Activation	S
Horn	S
Hour Meter (Digital)	S
LCD Color Monitor	S
LED Light Kit for Side Camera (1)	O
LED Lights for Rear Camera (2)	O
Magazine Storage Rack	S
Maintenance Interval Reminders	S
MP3 Auxiliary Input Jack	S
On-Board Diagnostic System	S
One-Piece Right Window	S
Radio Mute Switch	S
Rain Deflector	O
Rear View Camera	S
Rear View Mirrors (2)	S
RemoteCARE Support System (GPS)	S
Roof Sun Shade	S
ROPS Certified Structure	S
Safety Glass Windows	S
SCM Air-Suspension Seat with Tilt & Heater	O
SCM Suspension Seat	S
Seat Recline	S
Selectable Monitor Languages	S
Small Storage	S
Travel Alarm with Cancel Switch	S
Trip Meter (Digital)	S
USB Input	S
Wiper & Washer	S
Wiper Switch on RH Joystick	S

ENGINE

50A Alternator	S
Air Filter (Double Element)	S
Air Filter Restriction Indicator	S
Air Pre-Cleaner (Cyclone type)	S
Auto Warm-Up System	S
Auto-Idle	S
Auto-Idle Engine Shutdown	S
Battery Disconnect Switch	S
Cooling Fan	S
Diesel Oxidation Catalyst (DOC)	S
Drain for Fuel Tank	S
Dual Remote Fuel Filters with Water Separators	S
EGR Coolers	S
Emergency Engine Stop	S
Engine Idle System	S
Engine Oil Sample Port	S
Engine Protection Feature	S
External Fuel Gauge	S
External DEF Gauge	S
Fan Housing	S
Fuel Cooler	S
Fuel Filter Restriction Indicator	S
Fuel Management System	S
Fuel Shut-Off Valve	S
Fuel Usage History	S
Fuel Usage Monitor	S
Glow Plug Pre-Heat	S
Idle-Start	S
Intercooler	S
Neutral Start	S
One-Touch Idle	S
Passive Emissions Regeneration	S
Radiator / Oil Cooler / Intercooler Protective Screen	S
Refuel Pump	O
Remote Engine Oil Drain	S
Remote Oil Filter	S
Reversible Cooling Fan	S
Selective Catalytic Reduction (SCR)	S
Tropical Package	S
DEF Gauge on Monitor	S
VGT Turbocharger	S

HYDRAULICS

Arm Regeneration	S
Arm Speed Assistance (2 Pump Flow)	S
Attachment Cushion Valve	S
Auto Swing Priority	S
Auxiliary Flow Control	S
Auxiliary Tool Settings (Memory)	S
Auxiliary Valve	S
Boom Regeneration	S
Boom Speed Assistance (2 Pump Flow)	S
Bucket Curl Assist	S
Control Levers Pre-Wired for Auxiliary Hyd.	S
Control Pattern Changer (2 way)	S
Electronically Controlled Hydraulic Pumps	S
Fire Wall	S
Free Swing	S
Holding Valve (Arm & Boom)	S
Hose Burst Check Valve	O
Hydraulic Filter Restriction Indicator	S
Hydraulic Oil Sample Port	S
Long Life Hydraulic Oil (5,000 Hour)	S
Neutral Pump De-Stroke	S
Oil Cooler	S
Power Boost	S
Power Save	S
Pressure Reading on Monitor	S
Proportional Hydraulic Controls	O
Pump Stand-By Pressure	S
Single Pedal Travel	S
Straight Travel Circuit	S

AUXILIARY HYDRAULIC OPTIONS

Single-Acting Aux. w/ Proportional Joysticks	O
Multi-Function Aux. w/ in-cab pressure setting control	O
Thumb Aux. w/ Proportional Joysticks	O
Combination Aux. w/ in-cab pressure setting control	O

UNDERCARRIAGE

750 mm (29.5") 3-Bar Steel Grousers	O
900 mm (35.5") 3-Bar Steel Grousers	S
Carbody Belly Pan (Swivel Guarding)	S
Center Track Guide (double)	S
Full Length Track Guide	O
Lashing Points (Tie-Downs)	S
Long Undercarriage	S
Sealed Link Chain	S
Steps	S
Strutted Track Chain	S
X-Pattern Carbody	S

UPPERSTRUCTURE

Belly Pans	S
Catwalks	S
Center Cover (Over Main CV)	S
Counterweight Removal System	O
Fuel Tank Belly Pan	S
Hand Rail (RH access)	S
ISO Guard Rails	S
Lifting Eyes for Counterweight	S
Lockable Fuel Cap and Service Doors	S
Lockable Tool Box	S
Turntable Tub	S
Work Lights (Boom and Tool Box)	S

ATTACHMENT

11' 1" (3.38 m) Arm	S
8' 4" (2.53 m) Arm	O
13' 2" (4.00 m) Arm	O
15' 11" (4.85 m) Arm	O
22' 11" (6.98 m) Main Boom Section	S
21' 6" (6.55 m) Mass Boom Section	O
Auxiliary Pipe Brackets	S
Boom Work Light (2)	S
Bucket Anti-Clatter Device	S
Chrome Pins	S
Easy Maintenance System (EMS)	S
HD Bucket Linkage	S
Quick Couplers	O
Remote Lube Bank	S
Teardrop Pin Retention Keepers	S
Thumbs	O

Equipment Key
Standard - S Optional - O

Bucket Sizes

490 X4 with Fixed Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8´4˝ 2.53 m	Arm 11´1˝ 3.38 m	Arm 13´2˝ 2.94 m	Arm 15´11˝ 4.85 m
STDP Standard duty plate	1.76	1.35	36	914	2,906	1 318	4	H	H	H	H
	2.14	1.64	42	1 067	3,206	1 454	5	H	H	H	H
	2.52	1.93	48	1 219	3,405	1 545	5	H	H	H	M
	2.91	2.22	54	1 372	3,705	1 681	6	H	H	M	L
	3.29	2.52	60	1 524	3,903	1 770	6	H	M	M	L
	4.05	3.10	66	1 676	4,698	2 131	7	M	L	L	N/A
HDP Heavy duty plate	1.73	1.32	36	914	3,507	1 591	4	H	H	H	H
	2.10	1.61	42	1 067	3,848	1 745	5	H	H	H	H
	2.48	1.90	48	1 219	4,108	1 863	5	H	H	H	M
	2.85	2.18	54	1 372	4,448	2 018	6	H	M	M	L
	3.24	2.48	60	1 524	4,707	2 135	6	H	M	L	L
XDP Extreme duty plate	1.37	1.05	30	762	3,469	1 574	3	H	H	H	H
	1.73	1.32	36	914	3,838	1 741	4	H	H	H	H
	2.1	1.61	42	1 067	4,144	1 880	4	H	H	H	H
	2.48	1.90	48	1 219	4,485	2 034	5	H	H	H	M
Power Buckets	1.64	1.25	36	914	5,460	2 477	4	H	H	H	H
	1.97	1.51	42	1 067	5,829	2 644	5	H	H	H	M
	2.31	1.77	48	1 219	6,120	2 776	5	H	H	M	L
	2.65	2.03	54	1 372	6,489	2 943	6	H	M	M	L
	2.99	2.29	60	1 524	6,780	3 075	6	M	L	L	N/A

490 X4 with Expandable Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8´4˝ 2.53 m	Arm 11´1˝ 3.38 m	Arm 13´2˝ 2.94 m	Arm 15´11˝ 4.85 m
STDP Standard duty plate	1.76	1.35	36	914	2,906	1 318	4	H	H	H	H
	2.14	1.64	42	1 067	3,206	1 454	5	H	H	H	H
	2.52	1.93	48	1 219	3,405	1 545	5	H	H	H	H
	2.91	2.22	54	1 372	3,705	1 681	6	H	H	H	M
	3.29	2.52	60	1 524	3,903	1 770	6	H	M	M	L
	4.05	3.10	66	1 676	4,698	2 131	7	M	L	L	N/A
HDP Heavy duty plate	1.73	1.32	36	914	3,507	1 591	4	H	H	H	H
	2.10	1.61	42	1 067	3,848	1 745	5	H	H	H	H
	2.48	1.90	48	1 219	4,108	1 863	5	H	H	H	M
	2.85	2.18	54	1 372	4,448	2 018	6	H	H	H	M
	3.24	2.48	60	1 524	4,707	2 135	6	H	M	M	L
XDP Extreme duty plate	1.37	1.05	30	762	3,469	1 574	3	H	H	H	H
	1.73	1.32	36	914	3,838	1 741	4	H	H	H	H
	2.1	1.61	42	1 067	4,144	1 880	4	H	H	H	H
	2.48	1.90	48	1 219	4,485	2 034	5	H	H	H	M
Power Buckets	1.64	1.25	36	914	5,460	2 477	4	H	H	H	H
	1.97	1.51	42	1 067	5,829	2 644	5	H	H	H	H
	2.31	1.77	48	1 219	6,120	2 776	5	H	H	H	M
	2.65	2.03	54	1 372	6,489	2 943	6	H	H	M	L
	2.99	2.29	60	1 524	6,780	3 075	6	H	M	M	L

Litho in USA 10/17 #LBX2359 supersedes LBX2300

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349F L

Hydraulic Excavator

2017



Engine		
Engine Model	Cat® C13 ACERT™	
Power – SAE J1349	311 kW	417 hp
Power – ISO 14396	317 kW	425 hp

Drive		
Maximum Travel Speed	4.7 km/h	2.9 mph
Maximum Drawbar Pull	335 kN	75,300 lbf
Weights		
Minimum Weight	48 650 kg	107,200 lb
Maximum Weight	51 000 kg	112,400 lb

The 349F L is built to keep your production numbers up and your owning and operating costs down.

Not only does the machine's C13 ACERT engine meet U.S. EPA Tier 4 Final emission standards, but it does so while giving you all the power, fuel efficiency, and reliability you need to succeed.

Where the real power comes in is through the hydraulic system. You can literally move tons of material all day long with a great deal of speed and precision. In fact the hydraulic system and engine work together to keep fuel consumption to an absolute minimum – all without impacting your productivity.

When you add in a quiet operator environment that keeps you comfortable and productive, service points that make your routine maintenance quick and easy, and multiple Cat work tools that help you do a number of jobs very well, you simply won't find a better machine in this size class.

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Reliable and Productive

Power to move your material with speed and precision

Hydraulic Horsepower, a Cat Advantage

When it comes to moving heavy material quickly and efficiently, you need hydraulic horsepower – the type of ground-breaking power the 349F L can deliver. Major hydraulic components like pumps and valves are located close together so shorter tubes and lines can be used. This design leads to less friction loss, reduced pressure drops, and more power to the ground for the work you need to get done.

The heavy lift mode increases machine system pressure to improve lift – a nice benefit in certain situations. Heavy lift mode also reduces engine speed and pump flow in order to improve controllability.



Control Like No Other

Controllability is one of the main attributes of Cat excavators, and one of the key contributors to this is the main control valve. The valve opens slowly when your range of joystick lever movement is small and opens rapidly when movement is high. It puts flow where you need it when you need it, which leads to smoother operation, greater efficiency, and lower fuel consumption.

Auxiliary Hydraulics for Added Versatility

Auxiliary hydraulics give you greater tool versatility so you can take on more work with just one machine, and there are several options from which you can choose. A quick coupler circuit, for example, allows you to switch from one tool to another in a matter of minutes.

Fuel Efficient

Engineered to lower your operating costs





The Cat C13 ACERT engine meets Tier 4 Final emission standards and it does so without interrupting your job process. Simply turn the engine on and go to work. It will look for opportunities in your work cycle to regenerate itself, and it will give you plenty of power for the task at hand – all to help keep your owning and operating costs to an absolute minimum.

A Smart Design for Any Temperature

The 349F L features a side-by-side cooling system that allows you to put the machine to work in extremely hot and cold conditions. The system is completely separated from the engine compartment to reduce noise and heat. Plus it features easy-to-clean cores and a new variable-speed fan that reverses to blow out unwanted debris that may accumulate during your work day.

Biodiesel Not A Problem

The C13 ACERT engine can run on biodiesel fuel up to B20 blended with ULSD. Just fill it up and go.

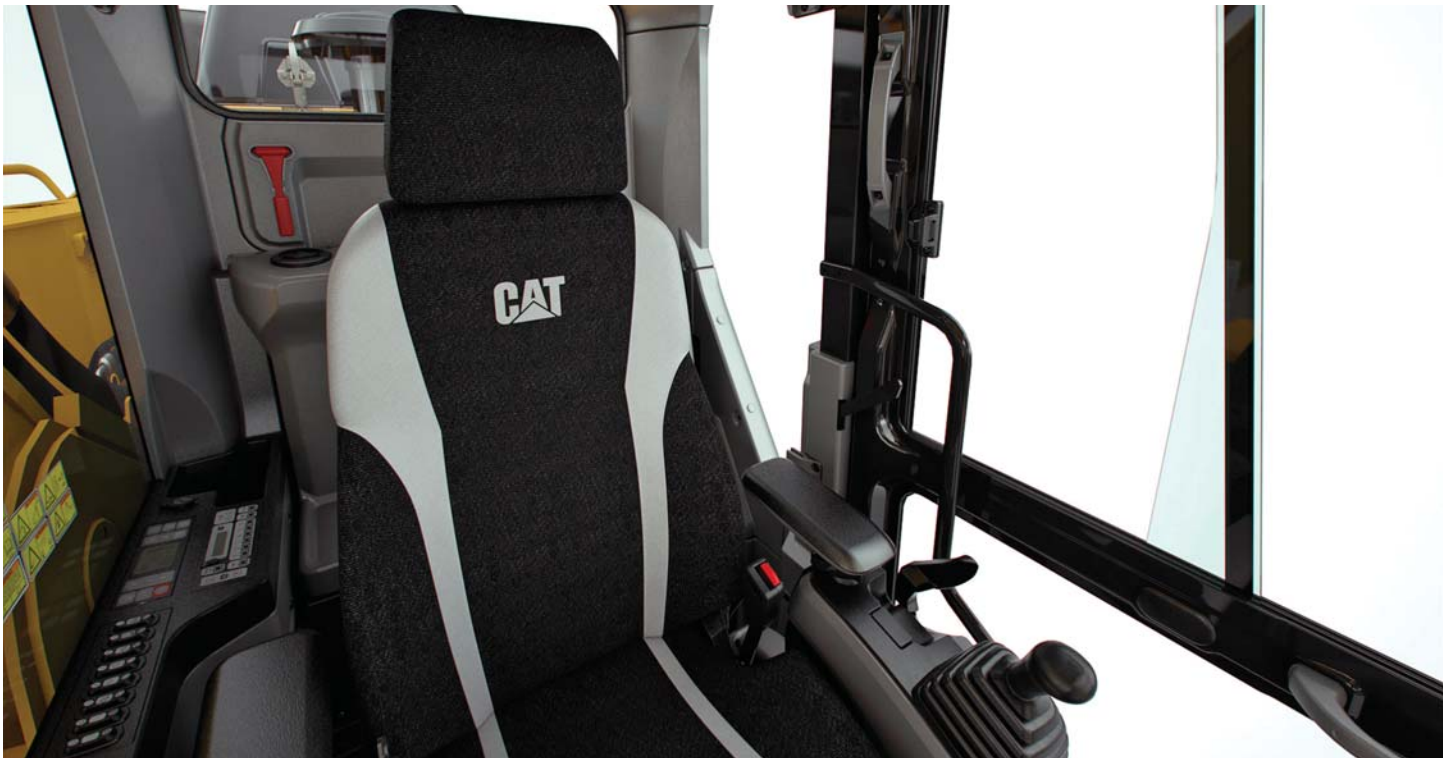
Proven Technology

The right technologies fine-tuned for the right applications result in:

- **Improved Fuel Efficiency** – Up to 5% improvement over Tier 4 Interim products.
- **High Performance** across a variety of applications.
- **Enhanced Reliability** through commonality and simplicity of design.
- **Maximized Uptime and Reduced Cost** with world-class support from the Cat dealer network.
- **Minimized Impact of Emission Systems** – designed to be transparent to the operator without requiring interaction.
- **Durable Designs** with long life to overhaul.
- **Delivering Better Fuel Economy** with minimized maintenance costs while providing the same great power and response.

Easy to Operate

Comfort and convenience to keep you productive all day long





Safe and Quiet Cab

The cab contributes to your comfort thanks to special viscous mounts and special roof lining and sealing, that limit vibration and unnecessary sound.

Operators will enjoy the quietness and comfort of the all-new cab.

Excellent Ergonomics

Wide seats with air suspension and heat/cooling options, include a reclining back, upper and lower slide adjustments, and height and tilt angle adjustments to meet your needs for maximum comfort.

The fully automatic climate control system keeps operators comfortable and productive all day long in either hot or cold weather.

Storage spaces are located in the front, rear, and side consoles of the cab. A drink holder accommodates a large mug, and a shelf behind the seat stores large lunch or toolboxes.

Power supply sockets are available for charging your electronic devices like an MP3 player, a cell phone, or even a tablet.

Controls Just for You

The right and left joystick consoles can be adjusted to improve your comfort and productivity during the course of a day. The right joystick features a button that will reduce engine speed when you are not working to help save fuel. Touch it once and speed reduces; touch it again and speed increases for normal operation.







Easy to Navigate Monitor

The new LCD monitor is easy to see and navigate. Not only can it memorize up to 10 different work tools, it's also programmable in up to 44 languages to meet today's diverse workforce. The monitor clearly displays critical information you need to operate efficiently and effectively. Plus it projects the image from the rearview camera to help you see what's going on around you so you can stay safely focused on the job at hand.



Durable Structures

Made to work in your tough, heavy-duty applications

Stable Undercarriage

The undercarriage contributes significantly to outstanding stability and durability.

Track shoes, links, rollers, idlers, and final drives are all built with high-tensile strength steel for long-term durability.

Cat Grease Lubricated Track 2 (GLT2) track link protects moving parts by keeping water, debris, and dust out and grease sealed in, which delivers longer wear life and reduced noise when traveling.

Optional guide guards help maintain track alignment to improve the machine's overall performance – whether you're traveling on a flat, heavy bed of rock or a steep, wet field of mud.

Robust Frames

The 349F L is a robust, well-built machine designed to give you a very long service life. The upper frame has mountings made specifically to support the heavy-duty cab. It's also reinforced around areas that take on a lot of stress like the boom foot, skirt, and counterweight.

Great Weight

The counterweight is built with thick steel plates and reinforced fabrications to make it less susceptible to damage, designed with curved surfaces that match the machine's sleek, smooth appearance along with integrated housings to help protect the rearview camera.

Durable Linkages

Options to take on your far-reaching or up-close tasks



Booms and Sticks for Any Job

The 349F L is offered with a range of booms and sticks. Each is built with internal baffle plates and is stress relieved for added durability, and each undergoes ultrasound inspection to ensure quality and reliability. Large box-section structures with thick, multi-plate fabrications, castings, and forgings are used in high-stress areas such as the boom nose, boom foot, boom cylinder, and stick foot to improve durability. Also, the boom nose pin retention method is a captured flag design for enhanced durability.

The Reach boom and sticks offer you excellent all-around versatility for general excavations work like multipurpose digging and loading.

Pins

All front linkage pins have thick chrome plating, giving them high wear resistance. Each pin diameter is made to distribute the shear and bending loads associated with the stick and to help ensure long pin, boom and stick life.



Talk to your Cat dealer to pick the best front linkage for your applications.

Versatile

Do more jobs with one machine



Get the Most from One Machine

The Cat combination of machine and tool provides a total solution for just about any application. Work tools can be mounted either directly to the machine or to a quick coupler, making it fast and easy to release one work tool and pick up another.

Change Jobs Quickly

Cat quick coupler brings the ability to quickly change attachments and switch from job to job. The Cat coupler is the secure way to decrease downtime and increase job site flexibility and overall productivity.

Available tool control remembers pressures and flows for up to 10 tools. Simply toggle through the monitor, select the tool, and go to work for maximum efficiency.

Dig, Rip and Load

A wide range of buckets dig everything from basic top soil to extreme, harsh material like ore and high quartzite granite. Rip through rock as an alternative to blasting in quarries. High-capacity buckets load trucks in a minimum number of passes for maximum productivity.

Break, Demolish and Scrap

A hydraulic hammer ably equips your machine for breaking rock in quarries. It will also make taking down bridge pillars and heavily reinforced concrete on road demolition jobs no problem.

Multi-processor and pulverizer attachments make your machine ideal for demolition jobs and processing the resulting debris.

Shears with 360° rotation mount to the machine for processing scrap steel and metal.

Move and Handle

Add a thumb and you have the ability to move and handle brush, rocks, and debris. For constant material handling, a grapple is your solution. Choose from three different styles for picking, sorting, and loading trash, demolition debris, or recyclables.

Set Up Your Machine for Profitability

Your Cat dealer can install hydraulic kits to properly operate all Cat Work Tool attachments, maximizing the machine's uptime and your profit. All Cat Work Tool attachments are supported by the same Cat dealer network as your Cat machine.

GRAB, SORT, LOAD



Pro Series Hydraulic Thumbs



Stiff Link Thumbs



Demolition & Sorting Grapple



Contractors' Grapples



Trash Grapples

SWAP TOOLS



Pin Grabber Coupler

DIG & PACK



General Duty Buckets



Heavy Duty Buckets



Severe Duty Buckets



Extreme Duty Buckets

CUT, CRUSH, BREAK & RIP



Multi-Processors



Scrap & Demolition Shears



Secondary Pulverizers



Hydraulic Hammers



Rippers

Cat Connect Technologies

Monitor, manage, and enhance job site operations





Cat Connect makes smart use of technology and services to improve your job site efficiency. Using the data from technology-equipped machines, you'll get more information and insight into your equipment and operations than ever before.

Cat Connect technologies offer improvements in these key areas:

EQUIPMENT MANAGEMENT

Equipment Management – increase uptime and reduce operating costs.

PRODUCTIVITY

Productivity – monitor production and manage job site efficiency.

SAFETY

Safety – enhance job site awareness to keep your people and equipment safe.

LINK Technologies

LINK technologies, like Product Link™, are deeply integrated into your machine and wirelessly communicates key information, including location, hours, fuel usage, idle time and event codes.

Product Link/VisionLink®

Easy access to Product Link data via the online VisionLink user interface can help you see how your machine or fleet is performing. You can use this information to make timely, fact based decisions that can boost job site efficiency and productivity, and lower costs.





GRADE Technologies

Grade technologies combine digital design data and in-cab guidance to help you reach target grade quickly and accurately, with minimal staking and checking. That means you'll be more productive, complete jobs faster, in fewer passes, using less fuel, at a lower cost.

Cat Grade with Assist

Cat Grade with Assist ensures you can dig a level base with the right slope each and every time; now it works with tilt buckets to give you even greater versatility. With a touch of a button, the simple-to-use system automates boom and bucket movements typically done by the operator. Regardless of your experience or skill, you will be able to reach target grade up to 45% faster than with traditional grading techniques.

Cat Grade 3D

Cat Grade 3D is perfect for complex excavating projects that require precise cuts and contours. The 254 mm (10 in) color monitor shows you exactly where to work and how much to cut or fill without stacking or grade checking, delivering accuracy within 30 mm (1.18 in). Factory integration of most key components reduces field installation time and labor cost, making the system less costly for you compared to other options. Plus reliability is enhanced because built-in components are protected from damage, ensuring longer service life and more accurate results.

Safe Work Environment

Features to help protect you day in and day out

Secure Contact Points

Multiple large steps as well as hand and guard rails will get you into the cab as well as a leg up to the compartments.

Extended hand and guard rails allow you to safely climb to the upper deck. Anti-skid plates on the surface of the upper structure, and the top of the storage box area, reduce your slipping hazards in all types of weather conditions. They can be removed for cleaning.

Great Views

The rearview camera greatly enhances visibility behind the machine to help the operator work more productively. A panoramic rearview is automatically displayed on the new multi-function monitor during reverse travel. As an option, a second display can be added, providing a dedicated full-time rearview of the job site.

Smart Lighting

Halogen lights provide plenty of illumination. Cab and boom lights can be programmed to stay on for up to 90 seconds after the engine has been turned off to help you safely exit the machine. Optional High Intensity Discharge (HID) lights are available for enhanced night-time visibility.

A Safe and Quiet Cab

The ROPS-certified cab provides you with a safe working environment. It also contributes to your comfort because it's attached to a reinforced frame with special viscous mounts that limit vibration and unnecessary sound. Add in special roof lining and sealing and you have a cab that's as quiet inside as any of today's highway trucks.

Optional Falling Object Guards (FOGS) further protect you from debris coming to the cab.







Ground-Level Access

You can reach most routine maintenance items like fuel and oil filters, fluid taps, and grease points from the safety and convenience of ground level. Not only do compartments feature wide service doors designed to help prevent debris entry, but they also securely latch in place to help make your service work simpler.

Serviceable

Designed to make your maintenance quick and easy



A Fresh Idea

When you select ventilation inside the cab, outside air enters through the fresh air filter. The filter is conveniently located on the side of the cab to make it easy to reach and replace, and it is protected by a lockable door that can be opened with the engine key.

Quick and Convenient Fluids Service

S·O·S℠ Oil sample and pressure ports provide easy checking of machine condition and are standard on every machine.

You can ensure fast, easy, and secure changing of engine and hydraulic oil with the QuickEvac™ option.

The fuel tank's drain cock makes it easy and simple for you to remove water and sediment during routine maintenance. Plus an integrated fuel level indicator pops up to help you reduce the possibility of fuel tank overfilling. An optional fast fill port accessible from ground level can make refueling even easier and faster.

A Smart Cooling Design

The high-ambient cooling system features a fuel-saving variable-speed fan and a side-by-side-mounted radiator and oil and air coolers for easy cleaning.



Sustainable

Generations ahead in every way

The 349F L is designed to compliment your business plan, reduce emissions and minimize the consumption of natural resources.

- The C13 ACERT engine meets Tier 4 Final emission standards.
- The machine has the flexibility of running on either ultra-low-sulfur diesel (ULSD) fuel with 15 ppm of sulfur or less or up to biodiesel (B20) fuel blended with ULSD.
- An overfill indicator rises when the tank is full to help the operator avoid spilling.
- Quick fill ports with connectors ensure fast, easy, and secure changing of hydraulic oil.
- Major components are rebuildable, eliminating waste and saving money by giving the machine and/or major components a second life – and even a third life.
- Link technologies enable you to collect and analyze equipment and job site data so you can maximize productivity and reduce costs.
- The 349F L is an efficient, productive machine that's designed to conserve our natural resources for generations ahead.

Complete Customer Care

Unmatched support makes the difference

Worldwide Parts Availability

Cat dealers utilize a worldwide parts network to maximize your machines' uptime. Plus they can help you save money with Cat remanufactured components.

Financial Options Just for You

Consider financing options and day-to-day operating costs. Look at dealer services that can be included in the machine's cost to yield lower owning and operating costs over time.

What's Best for You Today…and Tomorrow

Repair, rebuild, or replace? Your Cat dealer can help you evaluate the cost involved so you can make the best choice for your business.



Engine

Engine Model	Cat C13 ACERT	
Net Power – SAE J1349	304 kW	408 hp
Power – ISO 14396	317 kW	425 hp
Gross Power – SAE J1995	322 kW	432 hp
Bore	130 mm	5.12 in
Stroke	157 mm	6.18 in
Displacement	12.5 L	763 in^3

Hydraulic System

Maximum Flow (total)		
Main System	770 L/min	203 gal/min
Swing System	385 L/min	102 gal/min
Pilot System	27 L/min	7.1 gal/min
Maximum Pressure		
Main System – Normal	35 000 kPa	5,076 psi
Main System – Heavy Lift	38 000 kPa	5,511 psi
Main System – Travel	35 000 kPa	5,076 psi
Main System – Swing	27 500 kPa	3,989 psi
Pilot System	4120 kPa	598 psi
Boom Cylinder		
Bore	170 mm	6.69 in
Stroke	1524 mm	60.00 in
Stick Cylinder		
Bore	190 mm	7.48 in
Stroke	1758 mm	69.21 in
TB Family Bucket Cylinder		
Bore	160 mm	6.30 in
Stroke	1356 mm	53.39 in
UB Family Bucket Cylinder		
Bore	170 mm	6.69 in
Stroke	1396 mm	54.96 in

Drive

Gradeability	30°/70%	
Maximum Travel Speed	4.7 km/h	2.9 mph
Maximum Drawbar Pull	335 kN	75,300 lbf

Swing Mechanism

Swing Speed	8.7 rpm	
Swing Torque	148.5 kN·m	109,500 lbf-ft
Maximum Swing Torque	221 kN·m	163,000 lbf-ft

Service Refill Capacities

Fuel Tank Capacity	720 L	190 gal
Cooling System	50 L	13.2 gal
Engine Oil (with filter)	38 L	10 gal
Swing Drive (each)	10 L	2.6 gal
Final Drive (each)	15 L	4.0 gal
Hydraulic System (including tank)	570 L	150.6 gal
Hydraulic Tank	407 L	107.5 gal
DEF Tank	41 L	11 gal

Track

Number of Shoes (each side)	52
Number of Track Rollers (each side)	9
Number of Carrier Rollers (each side)	2

Sound Performance

Exterior – ISO 6395	106 dB(A)
Operator – SAE J1166/ISO 6396	69 dB(A)

- When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed according to ANSI/SAE J1166 OCT98, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.

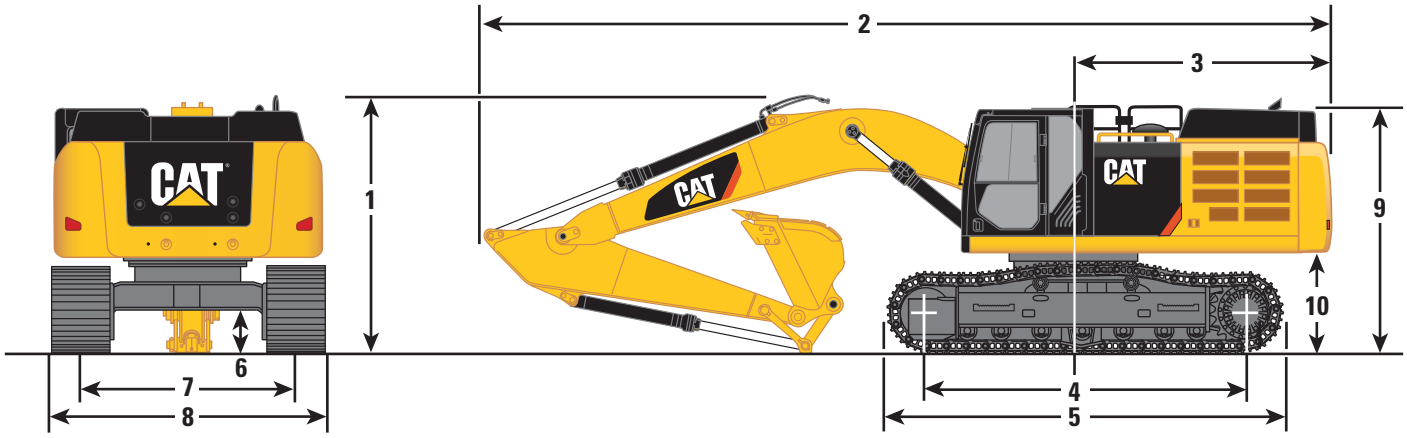
Standards

Brakes	ISO 10265
Cab/FOGS	SAE J1356
Cab/ROPS	ISO 12117-2
DEF	ISO 22241

349F L Hydraulic Excavator Specifications

Dimensions

All dimensions are approximate.



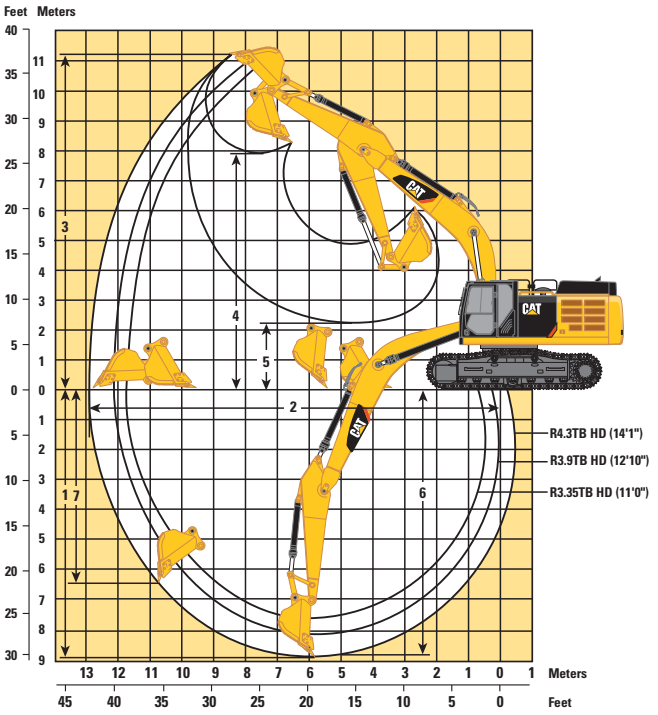
Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	R4.3TB HD (14'1")		R3.9TB HD (12'10")		R3.35TB HD (11'0")		M3.0UB HD (9'10")		M2.5UB HD (8'2")	
	mm	ft/in	mm	ft/in	mm	ft/in	mm	ft/in	mm	ft/in
1 Shipping Height to Boom – STD/Long FIX Undercarriage	3710	12'2"	3670	12'0"	3730	12'3"	4020	13'2"	4000	13'1"
Shipping Height with Handrail – STD/Long FIX Undercarriage	3370	11'1"	3370	11'1"	3370	11'1"	3370	11'1"	3370	11'1"
2 Shipping Length – STD/Long FIX Undercarriage	12 500	41'0"	11 930	39'2"	11 920	39'1"	11 590	38'0"	11 680	38'4"
3 Tail Swing Radius	3730	12'2"	3730	12'2"	3730	12'2"	3730	12'2"	3730	12'2"
4 Length to Center of Rollers – Long FIX Undercarriage	4360	14'4"	4360	14'4"	4360	14'4"	4360	14'4"	4360	14'4"
5 Track Length – Long FIX Undercarriage	5370	17'7"	5370	17'7"	5370	17'7"	5370	17'7"	5370	17'7"
6 Ground Clearance – Long FIX Undercarriage										
Including Shoe Lug Height	480	1'7"	480	1'7"	480	1'7"	480	1'7"	480	1'7"
Not Including Shoe Lug Height	510	1'8"	510	1'8"	510	1'8"	510	1'8"	510	1'8"
7 Track Gauge – Long FIX Undercarriage	2740	9'0"	2740	9'0"	2740	9'0"	2740	9'0"	2740	9'0"
8 Transport Width – STD/Long FIX Undercarriage										
600 mm (24") Shoes	3340	10'11"	3340	10'11"	3340	10'11"	3340	10'11"	3340	10'11"
750 mm (30") Shoes	3490	11'5"	3490	11'5"	3490	11'5"	3490	11'5"	3490	11'5"
900 mm (35") Shoes	3640	11'11"	3640	11'11"	3640	11'11"	3640	11'11"	3640	11'11"
9 Cab Height – STD/Long FIX Undercarriage	3230	10'6"	3230	10'6"	3230	10'6"	3230	10'6"	3230	10'6"
Cab Height with Top Guard – STD/Long FIX Undercarriage	3430	11'3"	3430	11'3"	3430	11'3"	3430	11'3"	3430	11'3"
10 Counterweight Clearance* – STD/Long FIX Undercarriage	1280	4'2"	1280	4'2"	1280	4'2"	1280	4'2"	1280	4'2"
Bucket Type	GD		GD		GD		HD		HD	
Bucket Capacity	3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.2 m^3 (4.2 yd^3)		3.2 m^3 (4.2 yd^3)	
Bucket Tip Radius	1866 mm (6'1")		1866 mm (6'1")		1866 mm (6'1")		2046 mm (6'9")		2046 mm (6'9")	

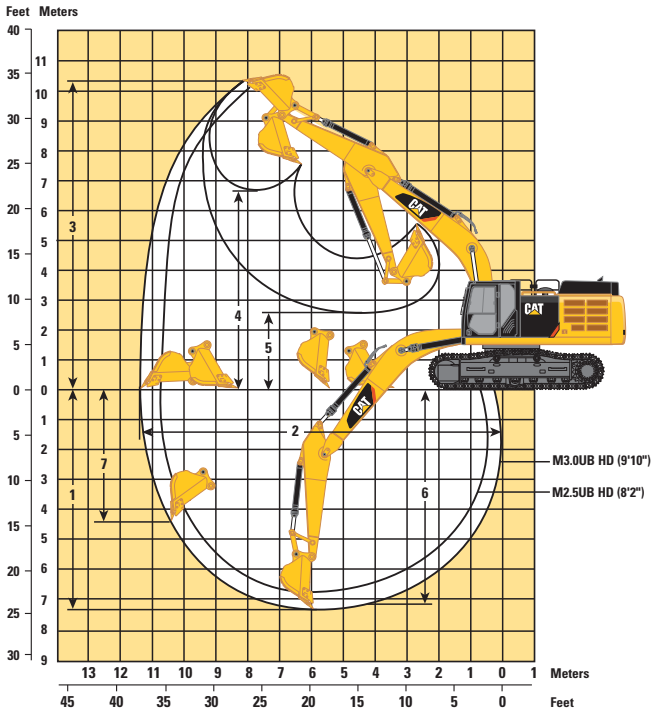
*Without shoe lug height.

Dimensions may vary depending on bucket selection.

Working Ranges

All dimensions are approximate.





Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	**R4.3TB HD (14'1")**		**R3.9TB HD (12'10")**		**R3.35TB HD (11'0")**		**M3.0UB HD (9'10")**		**M2.5UB HD (8'2")**	
Long FIX Undercarriage	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**
1 Maximum Digging Depth	8940	29'4"	8210	26'11"	7660	25'2"	7310	24'0"	6810	22'4"
2 Maximum Reach at Ground Level	12 960	42'6"	12 150	39'10"	11 730	38'6"	11 270	37'0"	10 810	35'6"
3 Maximum Cutting Height	11 170	36'8"	10 730	35'2"	10 820	35'6"	10 290	33'9"	10 090	33'1"
4 Maximum Loading Height	7870	25'10"	7420	24'4"	7430	24'5"	6740	22'1"	6550	21'6"
5 Minimum Loading Height	2220	7'3"	2200	7'3"	2750	9'0"	2570	8'5"	3070	10'1"
6 Maximum Depth Cut for 2440 mm (8'0") Level Bottom	8810	28'11"	8080	26'6"	7520	24'8"	7160	23'6"	6640	21'9"
7 Maximum Vertical Wall Digging Depth	6560	21'6"	5960	19'7"	5830	19'2"	4430	14'6"	4000	13'1"
Bucket Type	GD		GD		GD		SD		SD	
Bucket Capacity	3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.2 m^3 (4.2 yd^3)		3.2 m^3 (4.2 yd^3)	
Bucket Tip Radius	1893 mm (6'3")		1893 mm (6'3")		1893 mm (6'3")		2121 mm (7'0")		2121 mm (7'0")	

Dimensions may vary depending on bucket selection.

349F L Hydraulic Excavator Specifications

Operating Weights and Ground Pressures

	900 mm (35") Triple Grouser Shoes		750 mm (30") Triple Grouser Shoes		600 mm (24") Double Grouser Shoes	
	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)
Long FIX Undercarriage						
Long Reach Boom – 7.4 m (24'3")						
R4.3TB HD (14'1")	50 700 (111,800)	59 (8.6)	49 900 (110,000)	69 (10.0)	49 300 (108,700)	86 (12.5)
Reach Boom – 6.9 m (22'8")						
R3.9TB HD (12'10")	50 200 (110,700)	58 (8.4)	49 500 (109,100)	69 (10.0)	48 800 (107,600)	85 (12.3)
R3.35TB HD (11'0")	50 000 (110,200)	58 (8.4)	49 300 (108,700)	68 (9.9)	48 600 (107,100)	84 (12.2)
HD Mass Boom – 6.55 m (21'6")						
M3.0UB HD (9'10")	51 000 (112,400)	59 (8.6)	50 300 (110,900)	70 (10.2)	49 600 (109,300)	86 (12.5)
M2.5UB HD (8'2")	50 800 (112,000)	59 (8.6)	50 100 (110,500)	70 (10.2)	49 400 (108,900)	86 (12.5)

Major Component Weights

	kg	lb
Base Machine (with boom cylinder, without counterweight, front linkage and track)		
Long FIX Undercarriage	24 800	54,700
Counterweight		
9.0 mt (9.9 t)	9000	19,800
Boom (includes lines, pins and stick cylinder)		
Long Reach Boom – 7.4 m (24'3")	5190	11,400
Reach Boom – 6.9 m (22'8")	4630	10,200
Mass Boom – 6.55 m (21'6")	4860	10,700
Stick (includes lines, pins, bucket linkage and bucket cylinder)		
R4.3TB HD (14'1")	2990	6,600
R3.9TB HD (12'10")	2760	6,100
R3.35TB HD (11'0")	2540	5,600
M3.0UB HD (9'10")	2930	6,500
M2.5UB HD (8'2")	3140	6,900
Track Shoes (per two tracks)		
600 mm (24") double grouser	5240	11,600
750 mm (30") triple grouser	5890	13,000
900 mm (35") triple grouser	6640	14,600
Buckets		
TB1880GD – 3.10 m^3 (4.05 yd^3)	2440	5,400
UB1850HD – 3.2 m^3 (4.2 yd^3)	2840	6,300

All weights are rounded up to nearest 10 kg and lb except for buckets. Kg and lb were rounded up separately so some of the kg and lb do not match.

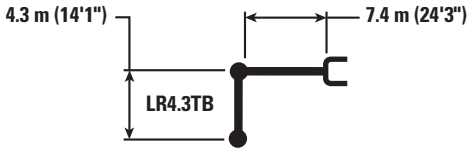
Base machine includes 75 kg (165 lb) operator weight, 90% fuel weight, and undercarriage with center guard.

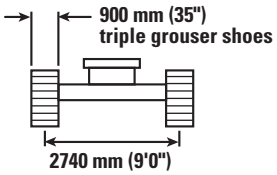
Bucket and Stick Forces

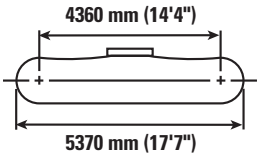
Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	R4.3TB HD (14'1")		R3.9TB HD (12'10")		R3.35TB HD (11'0")		M3.0UB HD (9'10")		M2.5UB HD (8'2")	
	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf
TB Linkage										
General Duty Capacity										
Bucket Digging Force (ISO)	267	60,020	268	60,250	268	60,250				
Stick Digging Force (ISO)	170	38,220	183	41,140	199	44,740				
Bucket Digging Force (SAE)	235	52,830	236	53,050	236	53,050				
Stick Digging Force (SAE)	166	37,320	177	39,790	193	43,390				
Heavy Duty										
Bucket Digging Force (ISO)	266	59,800	268	60,250	268	60,250				
Stick Digging Force (ISO)	172	38,670	184	41,360	201	45,190				
Bucket Digging Force (SAE)	234	52,610	235	52,830	235	52,830				
Stick Digging Force (SAE)	167	37,540	179	40,240	195	43,840				
Severe Duty										
Bucket Digging Force (ISO)	265	59,570	266	59,800	266	59,800				
Stick Digging Force (ISO)	171	38,440	184	41,360	200	44,960				
Bucket Digging Force (SAE)	228	51,260	229	51,480	229	51,480				
Stick Digging Force (SAE)	166	37,320	178	40,020	193	43,390				
Extreme Duty										
Bucket Digging Force (ISO)	265	59,570	266	59,800	266	59,800				
Stick Digging Force (ISO)	171	38,440	184	41,360	200	44,960				
Bucket Digging Force (SAE)	228	51,260	229	51,480	229	51,480				
Stick Digging Force (SAE)	166	37,320	178	40,020	193	43,390				
UB Linkage										
Heavy Duty										
Bucket Digging Force (ISO)							296	66,540	296	66,540
Stick Digging Force (ISO)							212	47,660	241	54,180
Bucket Digging Force (SAE)							258	58,000	258	58,000
Stick Digging Force (SAE)							205	46,090	231	51,930
Severe Duty										
Bucket Digging Force (ISO)							290	65,190	290	65,190
Stick Digging Force (ISO)							211	47,430	239	53,730
Bucket Digging Force (SAE)							252	56,650	252	56,650
Stick Digging Force (SAE)							203	45,640	229	51,480

349F L Hydraulic Excavator Specifications

Long Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		1500 mm/60 in		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in		10 500 mm/420 in				
																		mm in
9000 mm **360 in**	kg **lb**															*7150 ***15,800**	*7150 ***15,800**	8900 **350**
7500 mm **300 in**	kg **lb**											*9700 ***20,800**	8600 **18,350**			*6900 ***15,250**	*6900 ***15,250**	9890 **390**
6000 mm **240 in**	kg **lb**											*10 100 ***22,000**	8400 **18,000**	*7350	6400	*6900 ***15,200**	6300 **14,000**	10 570 **420**
4500 mm **180 in**	kg **lb**							*14 200 ***30,600**	*14 200 ***30,600**	*12 050 ***26,150**	10 800 **23,250**	*10 750 ***23,400**	8100 **17,400**	*9850 ***19,700**	6250 **13,400**	*7100 ***15,550**	5750 **12,700**	11 010 **440**
3000 mm **120 in**	kg **lb**					*23 250 ***49,850**	21 400 **46,250**	*16 700 ***36,000**	14 100 **30,450**	*13 450 ***29,150**	10 200 **22,000**	*11 550 ***25,100**	7750 **16,700**	9850 **21,150**	6050 **13,000**	*7400 ***16,250**	5400 **11,950**	11 220 **450**
1500 mm **60 in**	kg **lb**					*18 950 ***44,950**	*18 950 **42,450**	*18 800 ***40,600**	13 150 **28,400**	*14 750 ***31,900**	9650 **20,800**	12 150 **26,150**	7400 **15,950**	9650 **20,700**	5900 **12,600**	*7950 ***17,450**	5300 **11,600**	11 230 **450**
0 mm **0 in**	kg **lb**					*18 100 ***41,800**	*18 100 **40,750**	*20 050 ***43,400**	12 550 **27,050**	15 550 **33,450**	9250 **19,900**	11 850 **25,500**	7150 **15,400**	9450 **20,350**	5700 **12,300**	*8750 ***19,250**	5300 **11,700**	11 040 **440**
–1500 mm **–60 in**	kg **lb**			*12 200 ***27,500**	*12 200 ***27,500**	*21 750 ***49,700**	18 700 **40,200**	*20 350 ***44,100**	12 250 **26,350**	15 250 **32,800**	9000 **19,350**	11 650 **25,100**	7000 **15,050**	9350	5650	9250 **20,350**	5550 **12,250**	10 620 **420**
–3000 mm **–120 in**	kg **lb**	*14 150 ***31,550**	*14 150 ***31,550**	*17 800 ***40,050**	*17 800 ***40,050**	*26 000 ***56,350**	18 750 **40,300**	*19 750 ***42,750**	12 150 **26,150**	15 150 **32,600**	8900 **19,150**	11 600 **25,000**	6950 **14,950**			10 100 **22,300**	6050 **13,400**	9960 **400**
–4500 mm **–180 in**	kg **lb**			*24 450 ***55,300**	*24 450 ***55,300**	*23 400 ***50,500**	19 050 **40,950**	*18 100 ***39,100**	12 300 **26,450**	*14 350 ***30,850**	8950 **19,350**	*11 200	7050			*11 200 ***24,650**	7050 **15,650**	9010 **360**
–6000 mm **–240 in**	kg **lb**			*24 950	*24 950	*19 150 ***41,000**	*19 150 ***41,000**	*15 050 ***32,000**	12 650 **27,250**	*11 450	9300					*11 100 ***24,400**	9100 **20,450**	7630 **300**

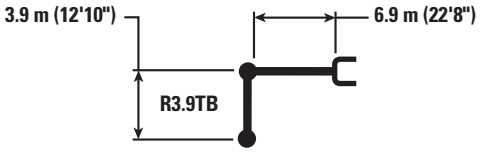
* **ISO 10567**

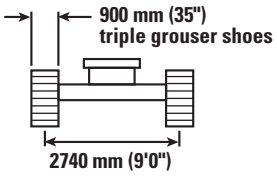
*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

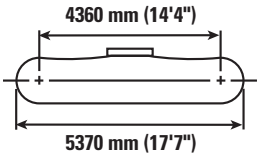
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		1500 mm/60 in		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
																mm in
9000 mm **360 in**	kg **lb**									***18,700**	***18,700**			*7900 ***17,500**	*7900 ***17,500**	7860 **310**
7500 mm **300 in**	kg **lb**													*7550 ***16,600**	*7550 ***16,600**	8970 **350**
6000 mm **240 in**	kg **lb**									*11 650 ***25,350**	11 350 **24,450**	*11 050 ***22,950**	8450 **18,100**	*7450 ***16,400**	7400 **16,350**	9720 **380**
4500 mm **180 in**	kg **lb**							*14 800 ***32,050**	*14 800 ***32,050**	*12 800 ***27,750**	10 950 **23,550**	*11 550 ***25,250**	8200 **17,650**	*7600 ***16,650**	6700 **14,750**	10 190 **400**
3000 mm **120 in**	kg **lb**					*23 750 ***51,000**	22 000 **47,450**	*17 300 ***37,400**	14 450 **31,150**	*14 150 ***30,650**	10 450 **22,500**	*12 300 ***26,750**	7950 **17,100**	*7900 ***17,400**	6300 **13,900**	10 420 **410**
1500 mm **60 in**	kg **lb**					*25 800 ***59,100**	20 450 **44,050**	*19 450 ***42,050**	13 600 **29,350**	*15 400 ***33,350**	9950 **21,450**	12 400 **26,650**	7650 **16,500**	*8500 ***18,700**	6150 **13,550**	10 430 **410**
0 mm **0 in**	kg **lb**					*23 800 ***55,050**	19 700 **42,450**	*20 700 ***44,850**	13 050 **28,150**	15 900 **34,250**	9600 **20,700**	12 150 **26,150**	7450 **16,050**	*9400 ***20,700**	6250 **13,700**	10 220 **410**
–1500 mm **–60 in**	kg **lb**			*15 300 ***34,450**	*15 300 ***34,450**	*28 150 ***61,050**	19 500 **41,950**	*20 950 ***45,350**	12 800 **27,550**	15 700 **33,750**	9400 **20,250**	12 050 **25,900**	7350 **15,800**	10 750 **23,650**	6600 **14,500**	9770 **390**
–3000 mm **–120 in**	kg **lb**	***38,550**	***38,550**	*22 300 ***50,350**	*22 300 ***50,350**	*26 350 ***57,100**	19 600 **42,100**	*20 050 ***43,400**	12 750 **27,450**	15 650 **33,650**	9350 **20,150**	12 050	7350	12 000 **26,500**	7300 **16,200**	9050 **360**
–4500 mm **–180 in**	kg **lb**			*30 900 ***66,650**	*30 900 ***66,650**	*23 050 ***49,700**	19 900 **42,850**	*17 800 ***38,300**	12 950 **27,850**	*13 750 ***29,250**	9500 **20,550**			*12 450 ***27,450**	8800 **19,600**	7980 **320**
–6000 mm **–240 in**	kg **lb**					*17 400 ***36,750**	*17 400 ***36,750**	*13 100 ***27,200**	*13 100 ***27,200**					*11 950 ***26,150**	*11 950 ***26,150**	6380 **250**

* **ISO 10567**

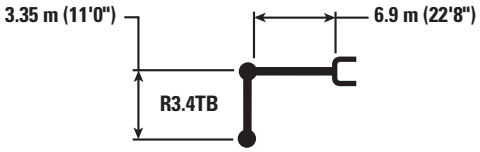
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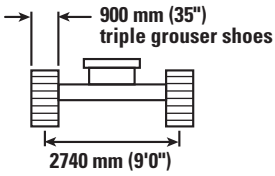
Lift capacity stays with ±5% for all available track shoes.

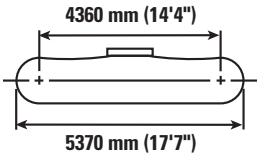
Always refer to the appropriate Operation and Maintenance Manual for specific product information.

349F L Hydraulic Excavator Specifications

Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*9050 ***20,050**	*9050 ***20,050**	7300 **290**
7500 mm **300 in**	kg **lb**							*11 950 ***26,250**	11 500 **24,650**			*8500 ***18,750**	*8500 ***18,750**	8480 **330**
6000 mm **240 in**	kg **lb**							*12 500 ***27,300**	11 250 **24,200**	*10 750 ***20,250**	8350 **17,900**	*8350 ***18,350**	7950 **17,600**	9270 **370**
4500 mm **180 in**	kg **lb**			*20 750 ***44,500**	*20 750 ***44,500**	*16 000 ***34,600**	15 150 **32,700**	*13 600 ***29,550**	10 850 **23,400**	*12 250 ***26,700**	8200 **17,600**	*8450 ***18,550**	7150 **15,800**	9770 **390**
3000 mm **120 in**	kg **lb**			*25 750 ***55,300**	21 500 **46,450**	*18 400 ***39,700**	14 300 **30,850**	*14 850 ***32,250**	10 400 **22,400**	12 700 **27,300**	7950 **17,100**	*8800 ***19,300**	6750 **14,850**	10 010 **400**
1500 mm **60 in**	kg **lb**			*18 600 ***44,500**	*18 600 **43,700**	*20 250 ***43,800**	13 550 **29,250**	*15 950 ***34,600**	10 000 **21,500**	12 450 **26,750**	7700 **16,600**	*9400 ***20,700**	6600 **14,550**	10 020 **400**
0 mm **0 in**	kg **lb**			*20 950 ***48,650**	19 850 **42,700**	*21 150 ***45,800**	13 150 **28,300**	16 000 **34,400**	9700 **20,850**	12 250 **26,350**	7550 **16,250**	*10 400 ***22,900**	6700 **14,800**	9800 **390**
–1500 mm **–60 in**	kg **lb**	*14 900 ***33,650**	*14 900 ***33,650**	*27 700 ***60,150**	19 800 **42,600**	*20 950 ***45,400**	12 950 **27,900**	15 850 **34,050**	9550 **20,550**	12 200 **26,250**	7500 **16,150**	11 600 **25,600**	7150 **15,750**	9330 **370**
–3000 mm **–120 in**	kg **lb**	*23 850 ***53,850**	*23 850 ***53,850**	*25 350 ***55,000**	20 000 **42,950**	*19 650 ***42,450**	13 000 **28,000**	*15 450 ***33,250**	9550 **20,650**			*12 800 ***28,150**	8050 **17,850**	8570 **340**
–4500 mm **–180 in**	kg **lb**	*27 400 ***59,150**	*27 400 ***59,150**	*21 400 ***46,100**	20 400 **43,850**	*16 700 ***35,800**	13 250 **28,600**					*12 600 ***27,650**	9950 **22,250**	7430 **290**

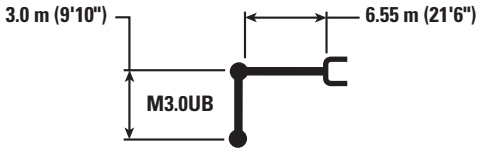
* ISO 10567

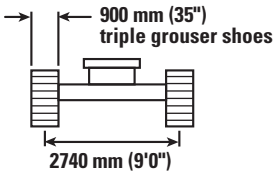
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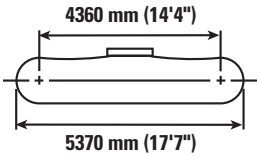
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Mass Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
7500 mm **300 in**	kg **lb**							*11 550	11 050			*10 000 ***22,050**	*10 000 ***22,050**	7670 **300**
6000 mm **240 in**	kg **lb**							*12 900 ***28,200**	10 900 **23,450**			*9700 ***21,400**	8750 **19,450**	8540 **340**
4500 mm **180 in**	kg **lb**			*20 800 ***44,600**	*20 800 ***44,600**	*16 100 ***34,850**	14 850 **32,050**	*13 800 ***29,950**	10 550 **22,650**	*10 750	7850	*9800 ***21,600**	7750 **17,100**	9070 **360**
3000 mm **120 in**	kg **lb**			*25 500 ***54,800**	21 150 **45,700**	*18 350 ***39,600**	13 950 **30,100**	*14 900 ***32,300**	10 100 **21,700**	12 400 **26,600**	7650 **16,400**	*10 250 ***22,500**	7200 **15,850**	9330 **370**
1500 mm **60 in**	kg **lb**			*22 900 ***55,100**	19 900 **42,850**	*20 050 ***43,400**	13 250 **28,500**	*15 850 ***34,350**	9650 **20,800**	12 150 **26,150**	7400 **15,950**	*11 050 ***24,250**	7000 **15,450**	9340 **370**
0 mm **0 in**	kg **lb**			*25 950 ***60,500**	19 450 **41,850**	*20 800 ***45,050**	12 800 **27,550**	15 700 **33,800**	9400 **20,200**	12 000	7300	11 800 **26,000**	7150 **15,800**	9110 **360**
–1500 mm **–60 in**	kg **lb**	*17 850 ***40,400**	*17 850 ***40,400**	*26 950 ***58,450**	19 400 **41,700**	*20 400 ***44,150**	12 650 **27,200**	15 550 **33,500**	9250 **19,950**			12 800 **28,250**	7750 **17,050**	8600 **340**
–3000 mm **–120 in**	kg **lb**	*29 450 ***66,650**	*29 450 ***66,650**	*24 100 ***52,200**	19 650 **42,200**	*18 600 ***40,150**	12 700 **27,400**	*14 200 ***30,250**	9350 **20,250**			*13 400 ***29,450**	8950 **19,900**	7760 **310**
–4500 mm **–180 in**	kg **lb**			*19 150 ***41,000**	*19 150 ***41,000**	*14 500 ***30,500**	13 100 **28,350**					*12 800 ***28,100**	11 850 **26,600**	6480 **260**

* **ISO 10567**

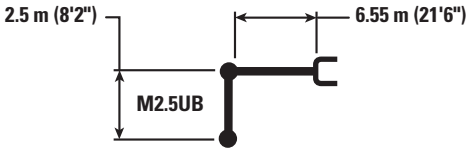
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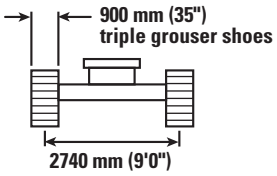
Lift capacity stays with ±5% for all available track shoes.

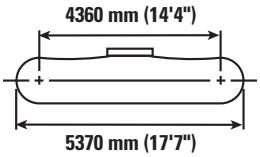
Always refer to the appropriate Operation and Maintenance Manual for specific product information.

349F L Hydraulic Excavator Specifications

Mass Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in				
												mm **in**
7500 mm **300 in**	kg **lb**									*13 050 ***28,900**	11 950 **26,950**	7110 **280**
6000 mm **240 in**	kg **lb**					*15 250 ***33,150**	*15 250 ***33,150**	*13 800 ***30,200**	10 800 **23,250**	*12 700 ***27,950**	9650 **21,400**	8030 **320**
4500 mm **180 in**	kg **lb**			*22 650 ***48,500**	*22 650 ***48,500**	*17 150 ***37,050**	14 700 **31,700**	*14 500 ***31,600**	10 500 **22,600**	*12 850 ***28,250**	8450 **18,650**	8600 **340**
3000 mm **120 in**	kg **lb**			 ***58,350**	 **44,750**	*19 200 ***41,500**	13 850 **29,900**	*15 500 ***33,650**	10 100 **21,700**	12 700 **27,950**	7850 **17,250**	8880 **350**
1500 mm **60 in**	kg **lb**					*20 650 ***44,650**	13 250 **28,500**	16 050 **34,550**	9700 **20,950**	12 450 **27,450**	7650 **16,800**	8890 **350**
0 mm **0 in**	kg **lb**			*23 950 ***56,350**	19 650 **42,200**	*21 000 ***45,500**	12 900 **27,750**	15 800 **34,000**	9500 **20,450**	12 900 **28,350**	7850 **17,250**	8640 **340**
–1500 mm **–60 in**	kg **lb**	*18 000 ***41,100**	*18 000 ***41,100**	*26 050 ***56,650**	19 700 **42,350**	*20 150 ***43,650**	12 800 **27,600**	15 750 **33,900**	9450 **20,350**	14 150 ***31,150**	8550 **18,850**	8100 **320**
–3000 mm **–120 in**	kg **lb**	*27 750 ***60,500**	*27 750 ***60,500**	*22 750 ***49,200**	20 000 **43,000**	*17 800 ***38,300**	13 000 **28,000**			*14 000 ***30,800**	10 150 **22,550**	7210 **290**
–4500 mm **–180 in**	kg **lb**			*16 800 ***35,700**	*16 800 ***35,700**					*12 750 ***27,850**	*12 750 ***27,850**	5800 **230**

* **ISO 10567**

*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Bucket Specifications and Compatibility

									349F L					349F L			
									900 mm (35") Triple Grouser Shoes					600 mm (24") Triple Grouser Shoes			
									Counterweight – 9.0 mt (9.9 t)					Counterweight – 9.0 mt (9.9 t)			
		Width		Capacity		Weight		Fill	ME Boom		HD Reach Boom		HD LR Boom	ME Boom		HD Reach Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")	LR 4.3 (14'1")	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")
Without Pin Grabber Coupler																	
General Duty (GDC)	TB	750	30	0.95	1.24	1311	2,889	100%			●	●	●			●	●
	TB	900	36	1.23	1.60	1441	3,176	100%			●	●	●			●	●
	TB	1050	42	1.51	1.98	1525	3,361	100%			●	●	●			●	●
	TB	1200	48	1.80	2.36	1676	3,694	100%			●	●	◉			●	●
	TB	1350	54	2.10	2.74	1792	3,950	100%			●	●	⊖			●	◉
	TB	1500	60	2.39	3.13	1943	4,282	100%			◉	◉	○			◉	⊖
	TB	1700	68	2.78	3.64	2128	4,690	100%			⊖	⊖	◇			⊖	○
	TB	1850	74	3.08	4.04	2254	4,968	100%			○	○	◇			○	○
General Duty XL (GDXL)	TB	2000	80	3.82	5.00	2457	5,415	100%			◇	◇	X			◇	◇
Heavy Duty (HD)	TB	900	36	1.08	1.41	1594	3,513	100%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1684	3,712	100%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1834	4,043	100%			●	●	●			●	●
	TB	1350	54	1.87	2.44	1962	4,324	100%			●	●	⊖			●	●
	TB	1500	60	2.14	2.80	2125	4,684	100%			●	◉	○			●	◉
	TB	1650	66	2.41	3.15	2286	5,039	100%			◉	⊖	○			◉	⊖
	TB	1800	72	2.69	3.52	2423	5,340	100%			⊖	○	◇			⊖	○
	UB	1850	73	3.19	4.16	2735	6,028	100%	⊖	○				⊖	○		
Severe Duty (SD)	TB	750	30	0.88	1.15	1446	3,187	90%			●	●	●			●	●
	TB	900	36	1.08	1.41	1677	3,696	90%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1779	3,921	90%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1952	4,302	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2180	4,805	90%			●	●	◉			●	●
	TB	1550	61	2.14	2.80	2381	5,248	90%			●	◉	⊖			●	◉
	TB	1700	67	2.41	3.16	2524	5,563	90%			◉	⊖	○			◉	⊖
	TB	1850	74	2.69	3.52	2726	6,008	90%			⊖	○	◇			⊖	○
	UB	1450	58	2.39	3.13	2540	5,598	90%	●	●				●	◉		
	UB	1850	73	3.21	4.20	2987	6,583	90%	⊖	○				⊖	○		
Extreme Duty (XD)	TB	1250	49	1.60	2.09	2224	4,902	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2366	5,215	90%			●	●	⊖			●	●
Maximum load pin-on (payload + bucket)								kg	7876	7133	6868	6342	5282	7643	6914	6663	6147
								lb	17,359	15,721	15,137	13,978	11,642	16,845	15,238	14,685	13,548

The above loads are in compliance with hydraulic excavator standard EN474, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451.

Bucket weight with General Duty tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)
- X Not Recommended

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

349F L Hydraulic Excavator Specifications

Bucket Specifications and Compatibility

									349F L					349F L			
									900 mm (35") Triple Grouser Shoes					600 mm (24") Triple Grouser Shoes			
									Counterweight – 9.0 mt (9.9 t)					Counterweight – 9.0 mt (9.9 t)			
		Width		Capacity		Weight		Fill	ME Boom		HD Reach Boom		HD LR Boom	ME Boom		HD Reach Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")	LR 4.3 (14'1")	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")
With Pin Grabber Coupler																	
General Duty (GDC)	TB	750	30	0.95	1.24	1311	2,889	100%			●	●	●			●	●
	TB	900	36	1.23	1.60	1441	3,176	100%			●	●	●			●	●
	TB	1050	42	1.51	1.98	1525	3,361	100%			●	●	●			●	●
	TB	1200	48	1.80	2.36	1676	3,694	100%			●	●	◉			●	●
	TB	1350	54	2.10	2.74	1792	3,950	100%			●	●	⊖			●	◉
	TB	1500	60	2.39	3.13	1943	4,282	100%			◉	◉	○			◉	⊖
	TB	1700	68	2.78	3.64	2128	4,690	100%			⊖	⊖	◇			⊖	○
	TB	1850	74	3.08	4.04	2254	4,968	100%			○	○	◇			○	○
General Duty XL (GDXL)	TB	2000	80	3.82	5.00	2457	5,415	100%			◇	◇	X			◇	◇
Heavy Duty (HD)	TB	900	36	1.08	1.41	1594	3,513	100%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1684	3,712	100%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1834	4,043	100%			●	●	●			●	●
	TB	1350	54	1.87	2.44	1962	4,324	100%			●	●	⊖			●	●
	TB	1500	60	2.14	2.80	2125	4,684	100%			●	◉	○			●	◉
	TB	1650	66	2.41	3.15	2286	5,039	100%			◉	⊖	○			◉	⊖
	TB	1800	72	2.69	3.52	2423	5,340	100%			⊖	○	◇			⊖	○
Severe Duty (SD)	TB	750	30	0.88	1.15	1446	3,187	90%			●	●	●			●	●
	TB	900	36	1.08	1.41	1677	3,696	90%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1779	3,921	90%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1952	4,302	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2180	4,805	90%			●	●	◉			●	●
	TB	1550	61	2.14	2.80	2381	5,248	90%			●	◉	⊖			●	◉
	TB	1700	67	2.41	3.16	2524	5,563	90%			◉	⊖	○			◉	⊖
	TB	1850	74	2.69	3.52	2726	6,008	90%			⊖	○	◇			⊖	○
Extreme Duty (XD)	TB	1250	49	1.60	2.09	2224	4,902	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2366	5,215	90%			●	●	⊖			●	●
Maximum load pin-on (payload + bucket)								kg	7043	6300	6035	5509	4449	6810	6081	5830	5314
								lb	15,523	13,885	13,301	12,142	9,806	15,009	13,403	12,849	11,712

The above loads are in compliance with hydraulic excavator standard EN474, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451.

Bucket weight with General Duty tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)
- X Not Recommended

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

349F L Work Tool Offering Guide*

Boom Type	Long Reach Boom HD	Reach Boom HD		Mass Boom	
Stick Size	**R4.3 HD (14'1")**	**R3.9 HD (12'10")**	**R3.35 HD (11'0")**	**M3.0 (9'10")**	**M2.5 (8'2")**
Hydraulic Hammer	H160E s H180E s	H160E s H180E s	H160E s H180E s	H160E s H180E s	H160E s H180E s
Multi-Processor	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw MP40 CC Jaw MP40 CR Jaw MP40 PS Jaw
Pulverizer	P235	P235	P235	P235	P235
Demolition and Sorting Grapple	G330	G330	G330	G330	G330
Mobile Scrap and Demolition Shear	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C
Orange Peel Grapple	These work tools are available for the 349F L. Consult your Cat dealer for proper match.				
Rippers					
Center-Lock™ Pin Grabber Coupler					

*Matches are dependent on excavator configurations. Consult your Cat dealer for proper work tool match.

349F L Standard Equipment

Standard Equipment

Standard equipment may vary. Consult your Cat dealer for details.

ENGINE

- Air cleaner
- Cat C13 ACERT diesel engine
- Biodiesel capable
- Meets Tier 4 Final emission standards
- 2300 m (7,500 ft) altitude capability
- Electric priming pump
- Automatic engine speed control
- Standard, economy and high power modes
- Two-speed travel
- Side-by-side cooling system
- Radial seal air filter
- Primary filter with water separator and water separator indicator switch
- Fuel differential indicator switch in fuel line

HYDRAULIC SYSTEM

- Automatic swing parking brake
- Regeneration circuit for boom and stick
- High-performance hydraulic return filter
- Regeneration circuit for boom and stick
- Capability of installing additional auxiliary circuits
- Bio oil capable
- 52° ambient cooling capability
- Heavy lift mode
- Joystick control pattern changer through monitor
- Fine swing*

CAB

- Wiper and washer
- Mirrors
- Pressurized operator station with positive filtration
- Windshield
  - 70-30 split, sliding, removable lower windshield with in cab storage bracket
- Sliding upper door window (left-hand cab door)
- Openable skylight
- Sunscreen
- Interior:
  - Glass-breaking safety hammer
  - Coat hook
  - Beverage holder
  - Literature holder
  - Interior lighting
  - AM/FM radio
  - Two 12V stereo speakers
  - Storage shelf suitable for lunch or toolbox
  - Power supply with 12V, two power outlets (10 amp)
  - Thumb wheel modulation joystick for use with combined auxiliary control
  - Air conditioner, heater and defroster with climate control
- Seat:
  - Adjustable high-back, heated and ventilated seat with air suspension
  - Seat belt, 51 mm (2 in)
  - Adjustable armrest
  - Height adjustable joystick consoles
  - Neutral lever (lock out) for all controls
  - Travel control pedals with removable hand levers
  - Capability of installing two additional pedals
  - Two speed travel
  - Floor mat, washable
  - Third travel pedal
- Monitor:
  - Clock
  - Video ready
  - Color LCD display with warning, filter/fluid change, and working hour information
  - Language display (full graphic and full color display)
  - Machine condition, error code and tool mode setting information
  - Start-up level check for engine oil, engine coolant and hydraulic oil
  - Warning, filter/fluid change and working hour information
  - Fuel consumption meter

UNDERCARRIAGE

- Grease Lubricated Track GLT4
- Towing eye on base frame
- Heavy-duty track rollers
- Track motor guards
- Swivel guard
- Heavy duty bottom guard

ELECTRICAL

- 80 amp alternator
- Circuit breaker
- Capability to electrically connect a beacon
- Travel alarm

LIGHTS

- Boom light
- Cab lights with time delay
- Exterior lights integrated into storage box

SAFETY & SECURITY

- Cat one key security system
- Door locks
- Cap locks on fuel and hydraulic tanks
- Lockable external tool/storage box
- Signaling/warning horn
- Secondary engine shutoff switch
- Mirrors
- Openable skylight for emergency exit
- Rearview camera
- Capability to connect a beacon
- Bolt-on FOGS capability
- Safety hammer for breaking cab glass

INTEGRATED TECHNOLOGIES

- Product Link
- Rear vision camera

*North America

Optional Equipment

Optional equipment may vary. Consult your Cat dealer for details.

ENGINE
- Quick drains, engine and hydraulic oil* **

HYDRAULIC SYSTEM
- Control pattern quick-changer
- Boom and stick lowering control devices
- HP hydraulic lines for boom and stick
- MP hydraulic lines for boom and stick
- QC hydraulic lines for boom and stick
- QC control
- Bio oil
- Heavy lift

UNDERCARRIAGE
- Tracks:
  - 900 mm (35") triple grouser*
  - 750 mm (30") triple grouser**
  - 750 mm (30") single grouser*
  - 600 mm (24") double grouser** ***
  - 600 mm (24") double grouser Heavy Duty* **
- Track guiding guards:
  - Center
  - Segmented
  - Full length
- Idler:
  - Forging
  - Fabricating

COUNTERWEIGHT
- 8.6 mt (9.4 t) with removal device*
- 9.0 mt (9.9 t)

ELECTRICAL
- Cold weather package
- Jump start receptacle

FRONT LINKAGE
- Reach Boom, 7.4 m (24'2")*
- Reach Boom, 6.9 m (22'8")
- Mass Boom, 6.55 m (21'6")
- Reach stick, R4.3 m TB (14'1")*
- Reach stick, R3.9 m TB (12'10")* **
- Reach stick, R3.35 m TB (11')
- Mass stick, M3.0 m UB (9'10")
- Mass stick, M2.5 m UB (8'2")
- TB bucket linkage with lifting eye
- UB bucket linkage with/without lifting eye
- Pin Grabber coupler

LIGHTS
- Working lights, cab mounted with time delay
- Halogen lights, cab mounted with time delay
- Halogen boom lights
- HID boom lights

SECURITY
- Falling Object Guard system (FOGS)

TECHNOLOGY
- Cat Grade Control (2D, 3D)
- Cat Production Measurement

*North America
**ANZ
***South Korea

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

AEHQ7891-01
Replaces AEHQ7891
(AmN, ANZ, South Korea)

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490X4

SAE Net Horsepower: 362 HP (270 kW)
Operating Weight: 112,900 lbs. (51 200 kg)
Digging Depth: 24 ft 10 in (7.57 m)



SPECIFICATIONS

Link-Belt EXCAVATORS



Performance, Productivity and Reliabilty Come Standard

Link-Belt X4 Series excavators are built to exceed your expectations. We redesigned the control spools and incorporated spool stroke control (SSC) functions into the hydraulic system to reduce pressure loss and distribute hydraulic oil more smoothly, increasing cycle times by 10%. Expect more power and fuel efficiency, thanks to an innovative Final Tier 4 engine that delivers up to 5% improved fuel consumption, **without a Diesel Particulate Filter (DPF) to maintain or replace!** Settle in to the roomiest, most accommodating cab in its class, with more legroom and a new high-back, heated seat for shift-long comfort. Daily maintenance is a snap, with ground-level access to all service points, easily opened by hand.



Innovation and Attention to Details at Every Level



- Three power modes (Speed Priority, Heavy and Applied Power) let you **choose the best blend of power, precision and fuel savings** for the work you're doing



- EPA Final Tier 4 engine is **fuel efficient without sacrificing power**



- **No DPF** to ever worry about!
- 2 - 3% DEF (Diesel Exhaust Fluid) consumption rate, combined with one of the largest DEF tank capacities lets you work long hours between refills



- Ground level access to routine service points lets you **cut daily maintenance down to just minutes**



- Quiet, pressurized cab offers **excellent visibility and comfortable, best-in-class seating**
- Enough floor space to **accommodate the largest of work boots**, with cup holders and roomy storage compartments for cell phones, snacks and other personal items



- Dual cab working lights are standard, or choose optional LEDs for **added visibility**

- Ergonomic joysticks **fit your hand perfectly**

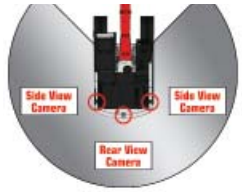




- 7" high-definition LCD monitor **keeps you connected to your machine and work environment**

- RemoteCARE® telematics **keeps a watchful eye** on performance, maintenance intervals and theft deterrence





- Full-time, rear-view camera display is standard; add the WAVES™ option for a **seamless 270° view around the machine**



- Structural improvements to the boom and arm **reduce stress and provide greater durability**



- Robust undercarriage features **larger track rollers and thicker plating for longer life**
- Unique side-frame design **reduces dirt accumulation** and is **easier to clean**

**All improvements and percentage increases are in reference to Link-Belt X3 Series excavators, unless otherwise stated*

Quick and Responsive to Take On Tough Challenges



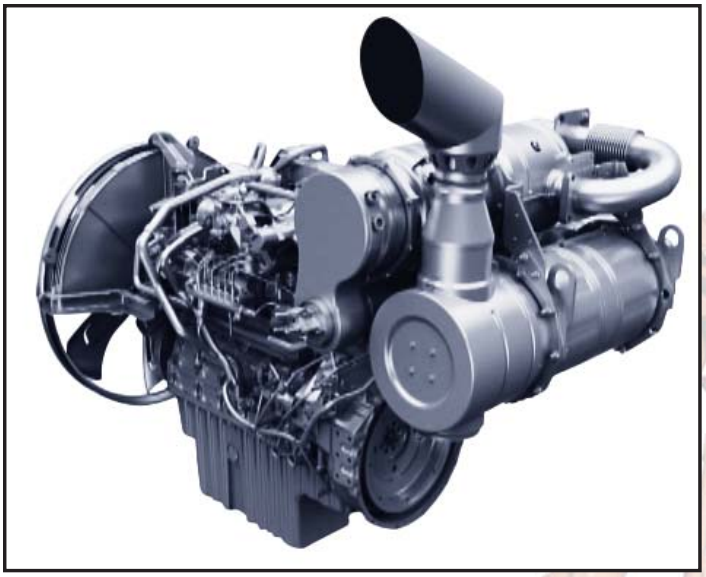
Greater digging power and increased lift capacities are the result of our innovative Spool Stroke Control (SSC) system, which reduces pressure loss and distributes hydraulic oil more smoothly. Pilot pressure sensors detect the type of work being done-such as digging or leveling-and then relays that data to proportional solenoid valves that quickly determine where optimal hydraulic pressures should be directed for that operation.

Two electronically-controlled Kawasaki variable-displacement axial-piston pumps and one Kawasaki gear pump assure that hydraulic power is delivered precisely when and where it's needed. At the same time, hydraulic flows in noncritical areas of the system are reduced.

The result is better breakout force, more lifting strength and faster machine response. You'll dig, swing and dump quicker than ever before... with 10% faster cycle times and improved fuel efficiency!

- Proprietary hydraulic system
- New control valve with larger ports; less restriction means improved hydraulic flow for increased performance
- Electronically-controlled pumps for improved cycle times, quicker response and more efficient machine operation
- Move more dirt per gallon of fuel





The X4 Series features innovative EPA-certified Final Tier 4 engines from Isuzu that strike the ultimate balance between power, productivity and fuel efficiency. You'll experience up to 5% improved fuel efficiency, without having to worry about costly diesel particulate filters (DPF) to maintain or replace. Three engine modes provide reliable power and control for any machine application. Choose Speed Priority (SP mode) to get jobs done quickly, Heavy (H mode) for the best blend of power and fuel savings or Applied Power (A mode), with 13 different RPM settings for precise control of heavy lifting, fine grading or leveling work.

- EPA-certified Tier 4 Final
- No DPF to maintain
- Up to 5% improved fuel economy
- 500-hr. fuel filters service intervals
- 8 diesel tank refills per 1 diesel exhaust fluid (DEF) refill
- 2 - 3% DEF consumption rate
- Two-stage DEF anti-freeze system for protection in harsh operating conditions
- 30 hrs. between SCR regenerations, only takes 5-10 minutes to complete!
- VGT (Variable Geometry Turbocharger)





Power and Efficiency Without Compromise





The X4 Series offers the most advanced and roomiest cab in its class. Comfortable, automotive-grade high-back seat with head rest provides superior lumbar back support. With a longer and wider seating surface, it reclines to a 155° maximum reclining angle to create a relaxed environment during breaks. Mechanical suspension is standard, with air suspension, seat tilting adjustment and seat heaters available as options.

The cab layout also includes ergonomically-designed arm rests that move with console, maintaining a constant distance between joysticks and arm rests no matter how the seat is adjusted.

- Quiet, pressurized cab
- Joysticks with easy-to-hold grip and switches
- Handy 'radio mute' and one touch wiper switch
- Optional proportional joysticks w/auxiliary hydraulics control
- Cup holder and storage areas for cell phones and other small items
- Dual halogen cab lights standard
- Full time rear camera display
- Optional RH & LH side cameras
- ROPS and FOPS Level 1 certified, optional FOPS Level 2 head guard available
- Optional LED lights use less energy and are 3X brighter!
- Optional retractable rear window shade
- Optional front sun visor
- Improved radio with USB port and Bluetooth for hands-free communication.



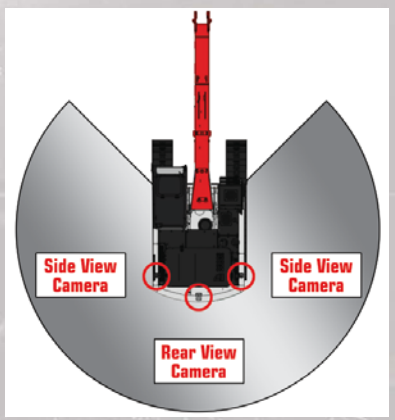
High-Definition LCD monitor has a full-color 7" display that rivals the resolution found in luxury automobiles. Controls are easy to read and easy to use. The rear-view camera activates automatically whenever the machine is started, and sight guidelines have been added for increased safety.

- Anti-glare coating on screen
- Track up to 14 service maintenance reminders
- System/machine warning messages
- Easy-to-use auto idle and auto shutdown feature
- Select and set up attachments: 5 presets for breakers; 5 presets for crushers
- In-cab flow & pressure controls for auxiliary hydraulics
- Anti-theft system
- Auto-adjusts for time and calendar
- 24 languages available
- Ability to view fuel consumption

270° WAVES™

WIDE-ANGLE VISUAL ENHANCEMENT SYSTEM

For the ultimate in visibility, X4 machines can be fitted with the Wide Angle Visual Enhancement System - or WAVES for short. Using three closed-circuit cameras, this optional viewing system provides an unbelievable 270° visual coverage around the machine, eliminating any potential blind spots from the operator's line of sight. WAVES images can be displayed on the standard X4 monitor.





Maintenance is a snap, with ground level access to all routine service points, including batteries, fuel filters, engine oil filter, dual-element air filter and cab fresh air filter.

- Radiator screens are easy to remove and clean from ground level...no tools needed!
- A/C Condenser tilts for easy cleaning and maintenance
- Easy battery compartment access; 2 hand-turn knobs
- Improved battery disconnect switch with no keys needed
- Convenient ground-level sample ports in pump compartment
- Green drain plug and hose
- More data collection points
- Automatic door locking mechanism on side door
- Quick and easy access to grease all attachment pivot points
- Grease cylinder track adjusters make adjusting track tension a breeze
- New undercarriage side frame design enables easier cleaning
- In-cab reminders track 14 different maintenance procedures

Get Working Fast With Easy Access to Service Points



RemoteCARE®

RemoteCARE® lets you remotely monitor and track machine location, operational performance, working status and periodic maintenance requirements. It tracks and records both routine and major service intervals for your machines, giving you more flexibility and control when scheduling maintenance procedures. It also lets you be more proactive if potential failure conditions arise; whenever a diagnostic trouble code (DTC) is detected, a warning message appears on the machine display, and an e mail alert is automatically sent to you. RemoteCARE also assists in theft prevention by offering 24/7 surveillance and geofencing capabilities.

- 24/7 Remote Monitoring and Security
- Machine Location
- Geo-fence & Curfew Range
- Actual Fuel Consumption
- Fuel Levels
- Hour Meter Reading
- Radiator Water Temperature
- Machine Working Time/Idle Time
- Attachment Working Hours
- Working Modes
- Service Maintenance Reminders
- Service Warnings
- 6-yr. complimentary subscription

Built Strong to Handle Anything

X4 machines are more rugged and durable, with robust structural improvements to the boom & arm structures, along with improvements to lower frame and travel components.



Boom & Arm

- Improved boss shapes reduce stress on boom and arm pin
- Cast boom tip for increased reliability



Lowers

- Thicker travel motor case - 28% increase
- 9% more stroke recoil spring
- 28% wider idler hub
- Unique side-frame design reduces dirt accumulation and is easier to clean.



Customer Support is Just a Call Away

A network of Link-Belt Excavator dealers across the U.S. and Canada is waiting to serve you. Expect fast and dependable service, backed by 24/7 access to parts.

Rock-Solid Warranty Coverage

All X4 machines are backed by a 1-year/1,800 hour Full Machine Warranty, 2-year/3,000 hour Engine Warranty (2,000 hrs. electrical parts), 3-year/5,000 hour Powertrain Warranty, 3-year/10,000 hour XtraStructure Warranty, 5-year/3,000 hour EPA Emissions Warranty and participation in the X4 Fluids Analysis Program for the life of the warranty. Extended warranty coverage packages are also available.



SPECIFICATIONS

Engine

Isuzu AQ-6UZ1X Final Tier 4 turbocharged diesel engine with electronic control (ECM) and high pressure common-rail fuel injection, 6-cylinder, water-cooled, Exhaust Gas Recirculation (EGR), Intercooler, Variable-Geometry Turbocharger (VGT), Diesel Oxidation Catalyst (DOC) and Selective Catalytic Reduction (SCR) system with Dosing Control Module and heated DEF lines and tank. Electronic fuel pump and priming, Fuel cooler, Auto-idle start, Auto warm-up, EPF engine protection, dual-stage fuel filtration, remote oil filter, engine oil sample port, green plug oil drain, double element air filter.

SAE net horsepower
- without fan pump ..... 362 hp (270 kW) @ 2,000 rpm
- with fan pump ..... 329 hp (245 kW) @ 2,000 rpm

Displacement ..... 600 cu in (9.8 L)
Maximum Torque ..... 1,005 lbf-ft (1 363 Nm) @ 1,500 rpm
Starter ..... 24V - 5.5kW
Alternator ..... 50 amp
Battery ..... (2) 12-volt 128 amp hours

Cab and Controls

ROPS and FOPS Level 1 certified with automatic climate control A/C and heat with defroster, 7" LCD Hi-Definition color monitor with full time rear view camera display, fuel efficiency gauge, low-effort joysticks are pre-wired for auxiliary hydraulics, dual cab lights, control pattern changer, safety glass windows, sunroof with sunshade, shockless cab suspension with four fluid cab mounts, SCM High-Back reclining suspension seat, sliding 4-position tilting control consoles, Bluetooth technology, AM/FM sound system with USB and MP3 auxiliary input jack, digital clock, dome light, seat belt, coat hook, cup holder, storage compartments, floor mat, footrests, ashtray, 24V cigarette lighter, 12V outlet, travel alarm, handrails, mirrors, side-entry cab filter, spare parts kit.

Three selectable work modes, RemoteCARE Telematics GPS system, anti-theft password protection system, onboard self-diagnostic system with memory and service interval reminders, auto idling system, one-touch decelerator, auto-idle engine shutdown, auto-power boost, neutral safety start, gate-lock safety shutoff.

Hydraulic System

Open-center system, two variable-displacement electronically controlled axial-piston pumps and one gear pump for pilot controls, main control valve with one 4-spool section and one 5-spool section with auxiliary spool: stackable, Auxiliary Control System, oil cooler, Auto-Power boost, boom and arm holding valves, 6 micron return filter, firewall, hydraulic oil sample port.

Hydraulic Pumps

Pump Output ..... 2 x 96.2 gpm (364 L/min)
Pilot Pump Maximum Flow ..... 7.9 gpm (30 L/min)

Relief Valve Settings

Boom Up/Arm/Bucket ..... 4,550 psi (31.4 MPa)
in Power Boost ..... 4,980 psi (34.3 MPa)
Boom Down ..... 3,560 psi (24.5 MPa)
Swing Circuit ..... 4,270 psi (29.4 MPa)
Travel Circuit ..... 4,980 psi (34.3 MPa)

Hydraulic Cylinders

number of cylinders - bore x rod x stroke

Boom ..... 2 - 6.7" x 4.5" x 61.0" (170 mm x 115 mm x 1 550 mm)
Arm ..... 1 - 7.5" x 5.1" x 75.6" (190 mm x 130 mm x 1 920 mm)
Bucket ..... 6.5" x 4.5" x 50.6" (165 mm x 115 mm x 1 285 mm)

Swing

Planetary reduction powered by axial-piston motor, Internal ring gear with grease cavity for swing pinion, Swing bearing is single-row, shear type ball bearing, Mechanical disc swing brake, Auto-power swing.

Swing Speed ..... 9.1 rpm
Tail Swing ..... 12' 3"(3.73 m)
Swing Torque ..... 111,000 lbf-ft (150.0 kNm)

Undercarriage

Fixed or expandable sideframes with 17' 11"(5.45 m) LC long undercarriage, Sealed and strutted track chain with track guide, Sealed rollers and idlers, Two-speed independent hydrostatic travel with compact planetary final drive, Disc type brakes, Adjustable track tension, Carbody belly pan.

Carrier Rollers
- Fixed sideframe undercarriage ..... 2 per Side
- Expandable sideframe undercarriage ..... 3 per Side

Track Rollers ..... 9 per Side
Track Link Pitch ..... 9.00"(229 mm)
Shoes ..... 50 per Side
Shoe Width ..... 35.5"(900 mm)

Ground Pressure
- Fixed sideframe undercarriage ..... 8.27 psi (0.057 MPa)
- Expandable sideframe undercarriage ..... 8.41 psi (0.058 MPa)

Travel System

Two-speed independent hydrostatic travel with compact axial-piston motors, Hydraulic motor powered output shaft coupled to a planetary reduction drive and track sprocket, All hydraulic components mounted within the width of side frame, Automatic downshift for high torque to overcome obstacles, Spring-applied hydraulic release parking brake built into each motor, Travel motors equipped with counterbalance valve to prevent over-speeding down an incline, Single-pedal straight line travel.

Travel Speeds ..... 2.0 - 3.3 mph (3.2 - 5.3 km/h)
Drawbar Pull ..... 76,200 lbf (339 kN)
Gradeability ..... 70% (35°)

Attachment

Boom ..... 22' 11" (6.98 m)

Available Arms	Digging Force
• 11' 1" (3.38 m)	45,200 lbf (201 kN)
with Auto Power Boost	49,500 lbf (220 kN)
• 8' 4" (2.53 m)	55,300 lbf (246 kN)
with Auto Power Boost	60,500 lbf (269 kN)
• 13' 2" (4.00 m)	39,800 lbf (177 kN)
with Auto Power Boost	43,400 lbf (193 kN)
• 15' 11" (4.85 m)	35,500 lbf (158 kN)
with Auto Power Boost	38,900 lbf (173 kN)
• Bucket Digging Force	55,500 lbf (247 kN)
with Auto Power Boost	60,700 lbf (270 kN)

Lubricant & Coolant Capacity

Fuel Tank ..... 172 Gallons (650.0 Liters)
Hydraulic System ..... 122 Gallons (460.0 Liters)
Hydraulic Tank ..... 61 Gallons (230.0 Liters)
Final Drive (per side) ..... 4.0 Gallons (15.0 Liters)
Swing Drive ..... 2.8 Gallons (10.5 Liters)
Engine Oil ..... 10.8 Gallons (41.0 Liters)
DEF Tank ..... 40 Gallons (152.0 Liters)
Coolant System ..... 14.6 Gallons (55.1 Liters)

Operating Weight

Working weight with 35.5" (900 mm) shoes, 22' 11" (6.98 m) boom, 11' 1" (3.38 m) arm, 3,373 lb. (1 530 kg) bucket, 22,000 lb. (10 000 kg) counterweight

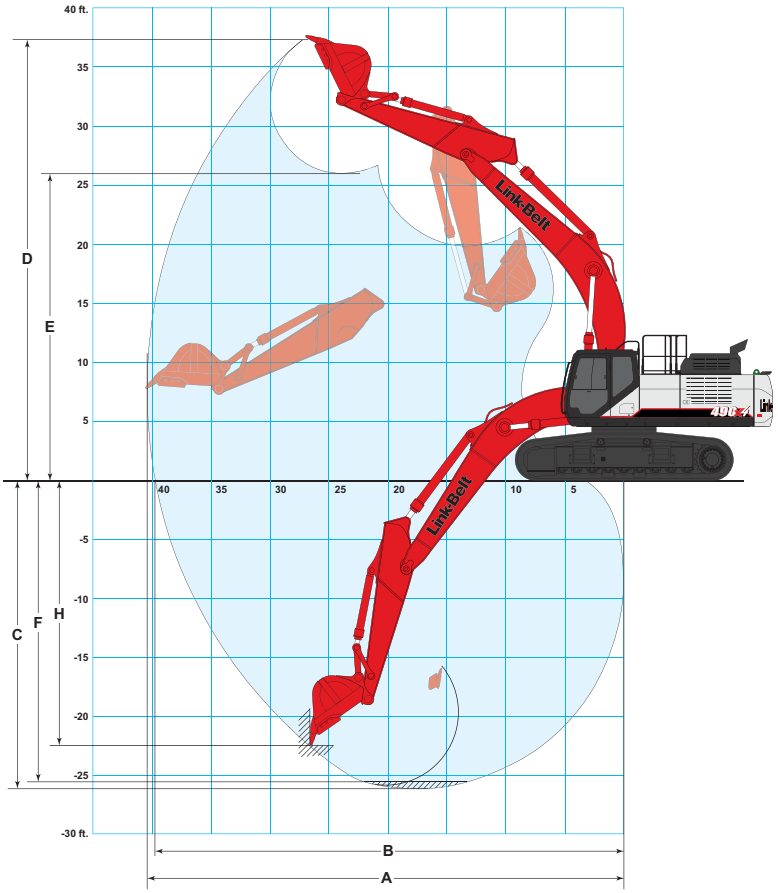
Fixed sideframe undercarriage ..... 109,800 lbs. (49 800 kg)
Expandable sideframe undercarriage ..... 112,900 lbs. (51 200 kg)

Mass Excavator

Working weight with 35.5" (900 mm) shoes, 21' 6" (6.55 m) boom, 8' 4" (2.53 m) arm, 5,300 lb. (2 400 kg) bucket, 22,000 lb. (10 000 kg) counterweight

Fixed sideframe undercarriage ..... 112,200 lbs. (50 900 kg)
Expandable sideframe undercarriage ..... 115,100 lbs. (52 200 kg)

Working Range & Travel Dimensions

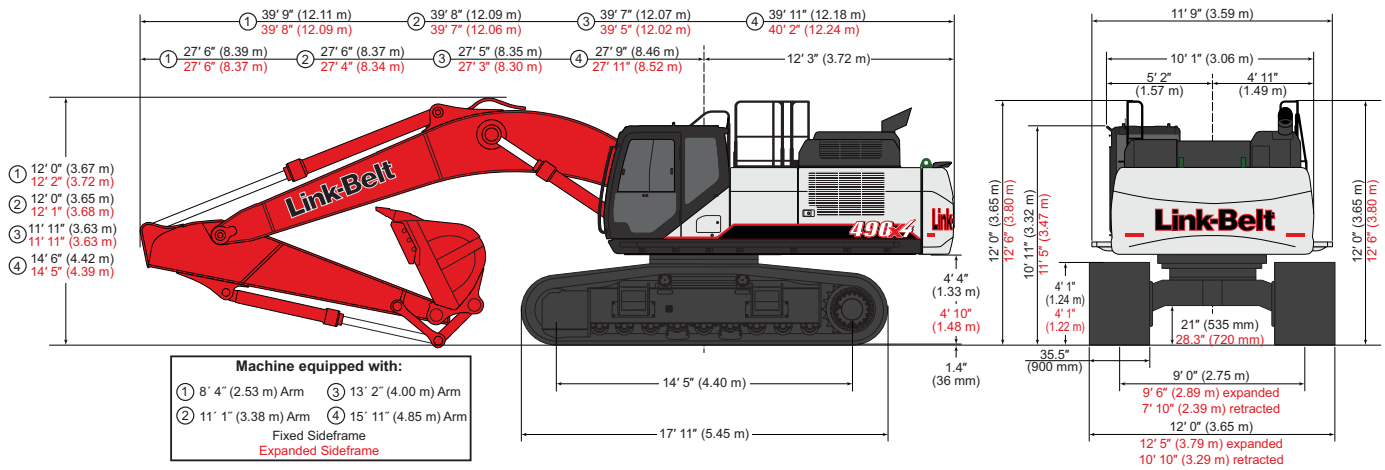


490 X4 with fixed sideframe				
Machine Equipped with 22' 11" (6.98 m) Boom	11' 1" Arm (3.38 m)	8' 4" Arm (2.53 m)	13' 2" Arm (4.00 m)	15' 11" Arm (4.85 m)
A. Maximum reach	39' 3" (11.97 m)	36' 10" (11.22 m)	41' 1" (12.52 m)	43' 6" (13.27 m)
B. Maximum reach @ ground level	38' 7" (11.75 m)	36' 0" (10.98 m)	40' 4" (12.30 m)	42' 10" (13.06 m)
C. Maximum dig depth	25' 4" (7.72 m)	22' 6" (6.87 m)	27' 4" (8.34 m)	30' 2" (9.20 m)
D. Maximum dig height	36' 5" (11.10 m)	35' 7" (10.85 m)	36' 11" (11.26 m)	37' 7" (11.46 m)
E. Maximum dump height	25' 3" (7.69 m)	24' 4" (7.41 m)	25' 10" (7.87 m)	26' 6" (8.07 m)
F. Digging depth 8' (2.44 m) level bottom	24' 10" (7.58 m)	21' 11" (6.69 m)	26' 11" (8.21 m)	29' 9" (9.08 m)
G. Bucket rotation	176°	176°	176°	176°
H. Maximum vertical wall depth	21' 9" (6.64 m)	19' 8" (5.99 m)	23' 4" (7.12 m)	26' 1" (7.96 m)

490 X4 with expandable sideframe				
Machine Equipped with 22' 11" (6.98 m) Boom	11' 1" Arm (3.38 m)	8' 4" Arm (2.53 m)	13' 2" Arm (4.00 m)	15' 11" Arm (4.85 m)
A. Maximum reach	39' 3" (11.97 m)	36' 10" (11.22 m)	41' 1" (12.52 m)	43' 6" (13.27 m)
B. Maximum reach @ ground level	38' 5" (11.72 m)	35' 11" (10.95 m)	40' 3" (12.27 m)	42' 9" (13.03 m)
C. Maximum dig depth	24' 10" (7.57 m)	22' 1" (6.72 m)	26' 10" (8.19 m)	29' 8" (9.05 m)
D. Maximum dig height	36' 11" (11.25 m)	36' 1" (11.00 m)	37' 5" (11.41 m)	38' 1" (11.61 m)
E. Maximum dump height	25' 9" (7.84 m)	24' 10" (7.56 m)	26' 4" (8.02 m)	27' 0" (8.22 m)
F. Digging depth 8' (2.44 m) level bottom	24' 5" (7.43 m)	21' 5" (6.54 m)	26' 5" (8.06 m)	29' 4" (8.93 m)
G. Bucket rotation	176°	176°	176°	176°
H. Maximum vertical wall depth	21' 4" (6.49 m)	19' 2" (5.84 m)	22' 10" (6.97 m)	25' 7" (7.81 m)

490 X4 Mass excavator with fixed sideframe	
Machine Equipped with 21' 6" (6.55 m) Boom	8' 4" Arm (2.53 m)
A. Maximum reach	35' 5" (10.80 m)
B. Maximum reach @ ground level	34' 7" (10.55 m)
C. Maximum dig depth	21' 4" (6.49 m)
D. Maximum dig height	34' 7" (10.55 m)
E. Maximum dump height	23' 6" (7.16 m)
F. Digging depth 8' (2.44 m) level bottom	20' 9" (6.32 m)
G. Bucket rotation	160°
H. Maximum vertical wall depth	17' 4" (5.29 m)

490 X4 Mass excavator with expandable sideframe	
Machine Equipped with 21' 6" (6.55 m) Boom	8' 4" Arm (2.53 m)
A. Maximum reach	35' 5" (10.80 m)
B. Maximum reach @ ground level	34' 6" (10.52 m)
C. Maximum dig depth	20' 10" (6.34 m)
D. Maximum dig height	35' 1" (10.70 m)
E. Maximum dump height	24' 0" (7.31 m)
F. Digging depth 8' (2.44 m) level bottom	20' 3" (6.17 m)
G. Bucket rotation	160°
H. Maximum vertical wall depth	16' 10" (5.14 m)



LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
11′ 1″ (3.38 m) Arm with 22′ 11″ (6.98 m) Boom and 3,200 lb. (1 460 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											14,250*	14,250*			12,950*	12,950*
(9.0 m)	kg											7 400*	7 400*			5 830*	5 830*
+25' 0"	lbs											18,200*	17,600			12,400*	12,400*
(7.5 m)	kg											8 430*	8 180*			5 620*	5 620*
+20' 0"	lbs									21,400*	21,400*	19,900*	17,150	16,050*	12,750	12,300*	12,000
(6.0 m)	kg									9 820*	9 820*	9 090*	7 990	8 090*	5 960	5 590*	5 400
+15' 0"	lbs							28,950*	28,950*	23,850*	22,500	20,750*	16,500	18,350*	12,400	12,550*	10,950
(4.5 m)	kg							13 450*	13 450*	11 030*	10 440	9 540*	7 680	8 440*	5 800	5 690*	4 940
+10' 0"	lbs					45,200*	45,200*	33,850*	30,150	26,550*	21,250	22,250*	15,750	19,200*	12,000	13,000*	10,400
(3.0 m)	kg					20 890*	20 890*	15 690*	13 980	12 290*	9 860	10 260*	7 330	8 840*	5 610	5 920*	4 710
+5' 0"	lbs					50,300*	43,350	37,250*	28,250	28,650*	20,150	23,400*	15,100	19,700*	11,650	13,850*	10,300
(1.5 m)	kg					23 220*	20 130	17 230*	13 100	13 250*	9 350	10 810*	7 020	9 100*	5 430	6 300*	4 670
Ground Line	lbs			21,000*	21,000*	51,750*	41,600	38,400*	26,950	29,600*	19,300	23,800*	14,600	19,600*	11,400	15,150*	10,650
	kg			9 220*	9 220*	22 400*	19 290	17 740*	12 520	13 680*	8 970	11 020*	6 790	9 090*	5 310	6 870*	4 820
-5' 0"	lbs	22,850*	22,850*	33,100*	33,100*	51,650*	41,850	37,950*	26,600	29,350*	19,000	23,400*	14,400			17,200*	11,500
(1.5 m)	kg	10 200*	10 200*	14 750*	14 750*	23 800*	19 400*	17 530*	12 350	13 560*	8 820	10 850*	6 690			7 790*	5 210
-10' 0"	lbs	36,250*	36,250*	45,900*	45,900*	47,900*	42,400	36,000*	26,850	27,850*	19,150	21,450*	14,650			18,150*	13,150
(3.0 m)	kg	16 280*	16 280*	20 370*	20 370*	22 110*	19 740	16 650*	12 460	12 920*	8 890	10 040*	6 800			8 240*	5 940
-15' 0"	lbs			55,550*	55,550*	41,150*	41,150*	31,400*	27,450	23,700*	19,800					17,450*	16,250
(4.5 m)	kg			25 750*	25 750*	19 110*	19 110*	14 620*	12 750*	11 150*	9 180					7 950*	7 290
-20' 0"	lbs					29,850*	29,850*	22,100*	22,100*							15,450*	15,450*
(6.0 m)	kg					14 140*	14 140*	10 630*	10 630*							7 090*	7 090*

Radius of Load - Expandable Undercarriage
11′ 1″ (3.38 m) Arm with 22′ 11″ (6.98 m) Boom and 3,200 lb. (1 460 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											14,200*	14,200*			12,900*	12,900*
(9.0 m)	kg											7 400*	7 400*			5 830*	5 830*
+25' 0"	lbs											18,200*	18,200*			12,400*	12,400*
(7.5 m)	kg											8 430*	8 430*			5 620*	5 620*
+20' 0"	lbs									21,350*	21,350*	19,900*	18,500	16,050*	13,800	12,300*	12,300*
(6.0 m)	kg									9 820*	9 820*	9 090*	8 600	8 090*	6 470	5 590*	5 590*
+15' 0"	lbs							28,950*	28,950*	23,850*	23,800*	20,750*	17,800	18,350*	13,500	12,550*	11,900
(4.5 m)	kg							13 450*	13 450*	11 030*	11 030*	9 540*	8 300	8 440*	6 310	5 690*	5 390
+10' 0"	lbs					45,200*	45,200*	33,800*	32,350	26,550*	22,950	22,200*	17,100	19,150*	13,100	13,000*	11,350
(3.0 m)	kg					20 890*	20 890*	15 690*	15 010	12 290*	10 670	10 260*	7 950	8 840*	6 110	5 920*	5 160
+5' 0"	lbs					50,250*	47,300	37,200*	30,650	28,650*	21,850	23,400*	16,400	19,650*	12,700	13,850*	11,250
(1.5 m)	kg					23 220*	21 960	17 230*	14 230	13 250*	10 150	10 810*	7 640	9 100*	5 930	6 300*	5 120
Ground Line	lbs			21,000*	21,000*	51,750*	45,400	38,350*	29,350	29,600*	21,000	23,800*	15,900	19,600*	12,450	15,150*	11,650
	kg			9 220*	9 220*	22 400*	21 040	17 740*	13 640	13 680*	9 770	11 020*	7 400	9 090*	5 810	6 870*	5 290
-5' 0"	lbs	22,850*	22,850*	33,100*	33,100*	51,600*	45,450*	37,900*	28,950	29,300*	20,650	23,400*	15,700			17,200*	12,600
(1.5 m)	kg	10 200*	10 200*	14 750*	14 750*	23 800*	21 050	17 530*	13 470	13 560*	9 610	10 850*	7 310			7 790*	5 710
-10' 0"	lbs	36,250*	36,250*	45,850*	45,850*	47,850*	45,850	35,950*	29,200	27,850*	20,850	21,450*	16,000			18,150*	14,350
(3.0 m)	kg	16 280*	16 280*	20 370*	20 370*	22 110*	21 330	16 650*	13 570	12 920*	9 680	10 040*	7 410			8 240*	6 490
-15' 0"	lbs			55,500*	55,500*	41,150*	41,150*	31,350*	29,450	23,700*	21,300					17,400*	17,400*
(4.5 m)	kg			25 750*	25 750*	19 110*	19 110*	14 620*	13 700	11 150*	9 890					7 950*	7 930*
-20' 0"	lbs					29,850*	29,850*	22,100*	22,100*							15,400*	15,400*
(6.0 m)	kg					14 140*	14 140*	10 630*	10 630*							7 090*	7 090*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
8′ 4″ (2.53 m) Arm with 22′ 11″ (6.98 m) Boom and 3,350 lb. (1 530 kg) Bucket with Power-Boost Applied

 End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs							18,500*	18,500*					18,100*	18,100*
(9.0 m)	kg							7 100*	7 100*					8 150*	8 150*
+25' 0"	lbs							21,600*	21,600*	20,100*	17,100			17,300*	16,100
(7.5 m)	kg							9 920*	9 920*	9 230*	7 990			7 830*	7 190
+20' 0"	lbs					26,500*	26,500*	23,800*	22,900*	21,100*	16,800			17,100*	13,700
(6.0 m)	kg					12 660*	12 660*	10 920*	10 610*	9 710*	7 820			7 760*	6 160
+15' 0"	lbs			40,800*	40,800*	32,050*	31,000	25,800*	21,950	22,500*	16,200			17,400*	12,400
(4.5 m)	kg			19 010*	19 010*	14 880*	14 380	11 940*	10 190	10 330*	7 540			7 890*	5 590
+10' 0"	lbs			48,550*	44,800	36,300*	29,300	28,150*	20,850	23,350*	15,600	20,000*	11,950	18,000*	11,750
(3.0 m)	kg			22 590*	20 710	16 840*	13 590	13 010*	9 680	10 780*	7 250	9 230*	5 580	8 170*	5 330
+5' 0"	lbs			40,000*	40,000*	38,500*	27,750	29,650*	19,950	24,100*	15,050	19,300*	11,700	19,050*	11,700
(1.5 m)	kg			16 780*	16 780*	17 810*	12 860	13 700*	9 250	11 120*	6 990	9 270*	5 460	8 660*	5 310
Ground	lbs			46,250*	41,150	38,550*	26,850	29,850*	19,300	24,000*	14,700			19,950*	12,200
Line	kg			20 000*	19 060	17 800*	12 470	13 790*	8 970	11 110*	6 830			9 040*	5 530
-5' 0"	lbs	35,900*	35,900*	49,500*	42,150	37,450*	26,900	29,100*	19,250	22,800*	14,750			19,700*	13,400
(1.5 m)	kg	16 100*	16 100*	22 790*	19 490	17 280*	12 500	13 470*	8 940	10 610*	6 850			8 940*	6 060
-10' 0"	lbs	52,900*	52,900*	44,150*	42,550	34,150*	27,400	26,300*	19,700					19,100*	15,700
(3.0 m)	kg	23 450*	23 450*	20 370*	19 760	15 800*	12 720	12 250*	9 120					8 650*	7 080
-15' 0"	lbs	44,200*	44,200*	35,450*	35,450*	27,400*	27,400*							17,350*	17,350*
(4.5 m)	kg	20 510*	20 510*	16 490*	16 490*	12 860*	12 760*							7 900*	7 900*

Radius of Load - Expandable Undercarriage
8′ 4″ (2.53 m) Arm with 22′ 11″ (6.98 m) Boom and 3,350 lb. (1 530 kg) Bucket with Power-Boost Applied

 End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs							18,500*	18,500*					18,100*	18,100*
(9.0 m)	kg							7 100*	7 100*					8 150*	8 150*
+25' 0"	lbs							21,600*	21,600*	20,100*	18,450			17,300*	17,300*
(7.5 m)	kg							9 920*	9 920*	9 230*	8 610			7 830*	7 770
+20' 0"	lbs					26,500*	26,500*	23,800*	23,800*	21,100*	18,150			17,100*	14,850
(6.0 m)	kg					12 660*	12 660*	10 920*	10 920*	9 710*	8 440			7 760*	6 680
+15' 0"	lbs			40,800*	40,800*	32,050*	32,050*	25,800*	23,700	22,500*	17,550			17,400*	13,500
(4.5 m)	kg			19 010*	19 010*	14 880*	14 880*	11 940*	11 000	10 330*	8 160			7 890*	6 090
+10' 0"	lbs			48,550*	48,450	36,300*	31,750	28,150*	22,600	23,350*	16,900	20,000*	13,050	18,000*	12,850
(3.0 m)	kg			22 590*	22 510*	16 840*	14 730	13 010*	10 480	10 780*	7 870	9 230*	6 080	8 170*	5 820
+5' 0"	lbs			40,000*	40,000*	38,500*	30,150	29,650*	21,650	24,100*	16,400	19,300*	12,800	19,050*	12,800
(1.5 m)	kg			16 780*	16 780*	17 810*	13 990	13 700*	10 050	11 120*	7 610	9 270*	5 960	8 660*	5 800
Ground	lbs			46,250*	44,900	38,550*	29,250	29,850*	21,050	24,000*	16,050			19,950*	13,300
Line	kg			20 000*	20 000*	17 800*	13 590	13 790*	9 760	11 110*	7 440			9 040*	6 040
-5' 0"	lbs	35,900*	35,900*	49,500*	45,800	37,450*	29,300	29,100*	20,950	22,800*	16,100			19,700*	14,600
(1.5 m)	kg	16 100*	16 100*	22 790*	21 220	17 280*	13 610	13 470*	9 730	10 610*	7 460			8 940*	6 610
-10' 0"	lbs	52,900*	52,900*	44,150*	44,150*	34,150*	29,750	26,300*	21,400					19,100*	17,100
(3.0 m)	kg	23 450*	23 450*	20 370*	20 370*	15 800*	13 830	12 250*	9 910					8 650*	7 700
-15' 0"	lbs	44,200*	44,200*	35,450*	35,450*	27,400*	27,400*							17,350*	17,350*
(4.5 m)	kg	20 510*	20 510*	16 490*	16 490*	12 860*	12 860*							7 900*	7 900*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
13′ 2″ (4.00 m) Arm with 22′ 11″ (6.98 m) Boom and 3,000 lb. (1 370 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											13,750*	13,750*			10,350*	10,350*
(9.0 m)	kg											6 330*	6 330*			4 660*	4 660*
+25' 0"	lbs											16,950*	16,950*	12,150*	12,150*	9,950*	9,950*
(7.5 m)	kg											7 910*	7 910*	6 240*	6 240*	4 500*	4 500*
+20' 0"	lbs											18,800*	17,700*	16,350*	13,250	9,900*	9,900*
(6.0 m)	kg											8 590*	8 200*	7 700*	6 210	4 490*	4 490*
+15' 0"	lbs							23,450*	23,450*	22,700*	22,700*	19,900*	17,050	17,750*	12,900	10,100*	10,100*
(4.5 m)	kg							11 460*	11 460*	10 480*	10 480*	9 130*	7 940	8 170*	6 020	4 580*	4 580*
+10' 0"	lbs			40,000*	40,000*	44,800*	44,800*	32,200*	30,950*	25,650*	21,950	21,700*	16,300	18,850*	12,450	10,500*	9,850
(3.0 m)	kg			15 690*	15 690*	20 720*	20 720*	14 940*	14 340	11 860*	10 190	10 000*	7 580	8 680*	5 800	4 760*	4 460
+5' 0"	lbs			17,800*	17,800*	49,900*	45,000	36,350*	29,150	28,150*	20,750	23,150*	15,550	19,650*	12,000	11,200*	9,750
(1.5 m)	kg			7 640*	7 640*	22 910*	20 900	16 830*	13 530	13 020*	9 630	10 690*	7 230	9 070*	5 590	5 070*	4 420
Ground	lbs			23,800*	23,800*	52,350*	42,600	38,450*	27,650	29,650*	19,800	24,000*	14,950	19,900*	11,650	12,250*	10,000
Line	kg			10 520*	10 520*	24 120*	19 820	17 780*	12 840	13 700*	9 200	11 080*	6 960	9 210*	5 430	5 550*	4 530
-5' 0"	lbs	22,400*	22,400*	32,000*	32,000*	52,950*	42,050	38,500*	26,900	29,800*	19,250	23,900*	14,600	19,450*	11,500	13,850*	10,700
(1.5 m)	kg	10 040*	10 040*	14 250*	14 250*	24 370*	19 580	17 790*	12 500	13 770*	8 950	11 070*	6 800	9 040*	5 360	6 260*	4 850
-10' 0"	lbs	32,600*	32,600*	42,300*	42,300*	50,400*	42,350	37,350*	26,950	28,950*	19,250	22,850*	14,650			16,400*	12,050
(3.0 m)	kg	14 650*	14 650*	18 800*	18 800*	23 290*	19 720	17 280*	12 510	13 400*	8 940	10 620*	6 810			7 400*	5 430
-15' 0"	lbs	42,550*	42,550*	56,350*	56,350*	45,050*	42,600	33,950*	27,400	26,100*	19,650	19,150*	15,150			17,600*	14,450
(4.5 m)	kg	19 010*	19 010*	25 410*	25 410*	20 880*	19 820	15 770*	12 730	12 180*	9 120	9 140*	7 050			7 970*	6 480
-20' 0"	lbs			48,350*	48,350*	35,800*	35,800*	27,000*	27,000*	19,000*	19,000*					16,600*	16,600*
(6.0 m)	kg			22 690*	22 690*	16 790*	16 790*	12 740*	12 710	9 240*	9 170					7 550*	7 550*

Radius of Load - Expandable Undercarriage
13′ 2″ (4.00 m) Arm with 22′ 11″ (6.98 m) Boom and 3,000 lb. (1 370 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	Max. Reach End	Max. Reach Side
+30' 0"	lbs											13,750*	13,750*			10,350*	10,350*
(9.0 m)	kg											6 330*	6 330*			4 660*	4 660*
+25' 0"	lbs											16,950*	16,950*	12,150*	12,150*	9,950*	9,950*
(7.5 m)	kg											7 910*	7 910*	6 240*	6 240*	4 500*	4 500*
+20' 0"	lbs											18,800*	18,550	16,350*	14,350	9,900*	9,900*
(6.0 m)	kg											8 590*	8 590*	7 700*	6 710	4 490*	4 490*
+15' 0"	lbs							23,450*	23,450*	22,700*	22,700*	19,900*	18,400	17,750*	14,000	10,100*	10,100*
(4.5 m)	kg							11 460*	11 460*	10 480*	10 480*	9 130*	8 560	8 170*	6 520	4 580*	4 580*
+10' 0"	lbs			40,000*	40,000*	44,800*	44,800*	32,200*	32,200*	25,650*	23,700	21,700*	17,600	18,850*	13,550	10,500*	10,500*
(3.0 m)	kg			15 690*	15 690*	20 720*	20 720*	14 940*	14 940*	11 860*	11 000	10 000*	8 200	8 680*	6 310	4 760*	4 760*
+5' 0"	lbs			17,800*	17,800*	49,900*	48,950	36,350*	31,600	28,150*	22,450	23,150*	16,900	19,650*	13,100	11,200*	10,650
(1.5 m)	kg			7 640*	7 640*	22 910*	22 730	16 830*	14 660	13 020*	10 440	10 690*	7 850	9 070*	6 100	5 070*	4 840
Ground	lbs			23,800*	23,800*	52,350*	46,600	38,450*	30,050	29,650*	21,500	24,000*	16,300	19,900*	12,750	12,250*	10,950
Line	kg			10 520*	10 520*	24 120*	21 640	17 780*	13 960	13 700*	10 000	11 080*	7 570	9 210*	5 930	5 550*	4 970
-5' 0"	lbs	22,400*	22,400*	32,000*	32,000*	52,950*	46,000	38,500*	29,300	29,800*	20,950	23,900*	15,950	19,450*	12,600	13,850*	11,700
(1.5 m)	kg	10 040*	10 040*	14 250*	14 250*	24 370*	21 290	17 790*	13 610	13 770*	9 740	11 070*	7 410	9 040*	5 860	6 260*	5 310
-10' 0"	lbs	32,600*	32,600*	42,300*	42,300*	50,400*	46,300	37,350*	29,300	28,950*	20,950	22,850*	16,000			16,400*	13,150
(3.0 m)	kg	14 650*	14 650*	18 800*	18 800*	23 290*	21 550	17 280*	13 620	13 400*	9 730	10 620*	7 430			7 400*	5 940
-15' 0"	lbs	42,550*	42,550*	56,350*	56,350*	45,050*	45,050*	33,950*	29,800	26,100*	21,350	19,150*	16,500			17,600*	15,750
(4.5 m)	kg	19 010*	19 010*	25 410*	25 410*	20 880*	20 880*	15 770*	13 840	12 180*	9 910	9 140*	7 650			7 970*	7 060
-20' 0"	lbs			48,350*	48,350*	35,800*	35,800*	27,000*	27,000*	19,000*	19,000*					16,600*	16,600*
(6.0 m)	kg			22 690*	22 690*	16 790*	16 790*	12 740*	12 740*	9 240*	9 240*					7 550*	7 550*

LIFT CAPACITIES

Radius of Load - Fixed Undercarriage
15′ 11″ (4.85 m) Arm with 22′ 11″ (6.98 m) Boom and 2,800 lb. (1 260 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	40' 0" (12.0 m) End	40' 0" (12.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs													10,600*	10,600*			9,300*	9,300*
	kg													5 380*	5 380*			4 200*	4 200*
+25' 0" (7.5 m)	lbs													13,800*	13,800*			9,000*	9,000*
	kg													6 480*	6 480*			4 090*	4 090*
+20' 0" (6.0 m)	lbs											16,700*	16,700*	15,200*	13,650	10,050*	10,050*	9,000*	9,000*
	kg											7 640*	7 640*	7 030*	6 390	5 250*	4 830	4 080*	4 080*
+15' 0" (4.5 m)	lbs											18,000*	17,500	16,700*	13,200	12,850*	10,050	9,150*	9,150*
	kg											8 270*	8 110*	7 710*	6 160	6 330*	4 720	4 170*	4 170*
+10' 0" (3.0 m)	lbs					38,350*	38,350*	29,000*	29,000*	23,600*	22,450	20,100*	16,600	17,700*	12,650	14,550*	9,750	9,550*	8,800
	kg					17 590*	17 590*	13 440*	13 440*	10 910*	10 420	9 280*	7 730	8 130*	5 890	7 120*	4 560	4 330*	3 980
+5' 0" (1.5 m)	lbs			29,600*	29,600*	47,600*	45,850	33,850*	29,850	26,500*	21,100	21,950*	15,750	18,800*	12,100	15,400*	9,450	10,150*	8,650
	kg			12 670*	12 670*	22 070*	21 270	15 660*	13 860	12 240*	9 810	10 140*	7 320	8 670*	5 630	7 580*	4 410	4 610*	3 930
Ground Line	lbs			25,900*	25,900*	50,950*	43,100	37,000*	27,900	28,550*	19,900	23,250*	15,000	19,500*	11,600	14,450*	9,200	11,050*	8,850
	kg			11 450*	11 450*	23 370*	20 040	17 110*	12 960	13 190*	9 260	10 730*	6 970	9 010*	5 410	7 450*	4 290	5 010*	4 000
-5' 0" (1.5 m)	lbs	20,850*	20,850*	31,000*	31,000*	52,500*	41,400	38,150*	26,650	29,400*	19,100	23,650*	14,450	19,500*	11,300			12,400*	9,350
	kg	9 340*	9 340*	13 800*	13 800*	24 140*	19 270	17 610*	12 390	13 590*	8 880	10 940*	6 720	9 040*	5 270			5 610*	4 230
-10' 0" (3.0 m)	lbs	28,700*	28,700*	39,000*	39,000*	51,550*	41,350	37,600*	26,350	29,050*	18,800	23,250*	14,300	18,650*	11,300			14,450*	10,350
	kg	12 870*	12 870*	17 310*	17 310*	23 810*	19 240	17 390*	12 250	13 440*	8 750	10 770*	6 640	8 710*	5 250			6 520*	4 670
-15' 0" (4.5 m)	lbs	38,500*	38,500*	50,750*	50,750*	48,000*	41,850	35,600*	26,600	27,500*	19,050	21,450*	14,550					16,700*	12,050
	kg	17 130*	17 130*	22 380*	22 380*	22 220*	19 470	16 500*	12 360	12 780*	8 830	10 040*	6 740					7 570*	5 420
-20' 0" (6.0 m)	lbs	48,850*	48,850*	58,200*	58,200*	41,150*	41,150*	30,900*	27,250	23,400*	19,650							16,500*	15,250
	kg	21 770*	21 770*	27 160*	27 160*	19 200*	19 200*	14 440*	12 660	11 020*	9 130							7 480*	6 790
-25' 0" (7.5 m)	lbs			39,900*	39,900*	29,300*	29,300*	21,400*	21,400*									15,150*	15,150*
	kg			19 100*	19 100*	14 040*	14 040*	10 390*	10 390*									6 910*	6 910*

Radius of Load - Expandable Undercarriage
15′ 11″ (4.85 m) Arm with 22′ 11″ (6.98 m) Boom and 2,800 lb. (1 260 kg) Bucket with Power-Boost Applied

End / Side		5' 0" (1.5 m) End	5' 0" (1.5 m) Side	10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	35' 0" (10.5 m) End	35' 0" (10.5 m) Side	40' 0" (12.0 m) End	40' 0" (12.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs													10,600*	10,600*			9,300*	9,300*
	kg													5 380*	5 380*			4 200*	4 200*
+25' 0" (7.5 m)	lbs													13,800*	13,800*			9,000*	9,000*
	kg													6 480*	6 480*			4 090*	4 090*
+20' 0" (6.0 m)	lbs											16,700*	16,700*	15,200*	14,750	10,050*	10,050*	9,000*	9,000*
	kg											7 640*	7 640*	7 030*	6 890	5 250*	5 250	4 080*	4 080*
+15' 0" (4.5 m)	lbs											18,000*	18,000*	16,700*	14,300	12,850*	11,000	9,150*	9,150*
	kg											8 270*	8 270*	7 710*	6 670	6 330*	5 140	4 170*	4 170*
+10' 0" (3.0 m)	lbs					38,350*	38,350*	29,000*	29,000*	23,600*	23,600*	20,100*	17,950	17,700*	13,750	14,550*	10,650	9,550*	9,550*
	kg					17 590*	17 590*	13 440*	13 440*	10 910*	10 910*	9 280*	8 360	8 130*	6 400	7 120*	4 990	4 330*	4 330*
+5' 0" (1.5 m)	lbs			29,600*	29,600*	47,600*	47,600*	33,850*	32,150*	26,500*	22,850	21,950*	17,100	18,800*	13,200	15,400*	10,350	10,150*	9,550
	kg			12 670*	12 670*	22 070*	22 070*	15 660*	14 910	12 240*	10 610	10 140*	7 940	8 670*	6 140	7 580*	4 840	4 610*	4 320
Ground Line	lbs			25,900*	25,900*	50,950*	47,100	37,000*	30,350	28,550*	21,650	23,250*	16,300	19,500*	12,700	14,450*	10,100	11,050*	9,700
	kg			11 450*	11 450*	23 370*	21 900	17 110*	14 090	13 190*	10 060	10 730*	7 590	9 010*	5 920	7 450*	4 710	5 010*	4 410
-5' 0" (1.5 m)	lbs	20,850*	20,850*	31,000*	31,000*	52,500*	45,350	38,150*	29,050	29,400*	20,800	23,650*	15,800	19,500*	12,400			12,400*	10,250
	kg	9 340*	9 340*	13 800*	13 800*	24 140*	21 110	17 610*	13 510	13 590*	9 670	10 940*	7 340	9 040*	5 770			5 610*	4 650
-10' 0" (3.0 m)	lbs	28,700*	28,700*	39,000*	39,000*	51,550*	45,250	37,600*	28,750	29,050*	20,550	23,250*	15,600	18,650*	12,400			14,450*	11,350
	kg	12 870*	12 870*	17 310*	17 310*	23 810*	21 060	17 390*	13 350	13 440*	9 540	10 770*	7 250	8 710*	5 750			6 520*	5 120
-15' 0" (4.5 m)	lbs	38,500*	38,500*	50,750*	50,750*	48,000*	45,550*	35,600*	29,000	27,500*	20,750	21,450*	15,900					16,700*	13,200
	kg	17 130*	17 130*	22 380*	22 380*	22 220*	21 180*	16 500*	13 470	12 780*	9 620	10 040*	7 360					7 570*	5 930
-20' 0" (6.0 m)	lbs	48,850*	48,850*	58,200*	58,200*	41,150*	41,150*	30,900*	29,250	23,400*	21,150							16,500*	16,500*
	kg	21 770*	21 770*	27 160*	27 160*	19 200*	19 200*	14 440*	13 590	11 020*	9 820*							7 480*	7 400
-25' 0" (7.5 m)	lbs			39,900*	39,900*	29,300*	29,300*	21,400*	21,400*									15,150*	15,150*
	kg			19 100*	19 100*	14 040*	14 040*	10 390*	10 390*									6 910*	6 910*

Notes: Excavator lifting capacities

1. Lifting capacities shown should not be exceeded. Weight of all lifting accessories must be deducted from the above lifting capacities.
2. Lifting capacities are based on machine standing on firm, uniform supporting surface. User must make allowances for job conditions such as soft or uneven ground.
3. Lifting capacities shown do not exceed 75% of minimum tipping loads or 87% of hydraulic capacities. **Capacities marked with an asterisk (*) are limited by hydraulic capacities.**
4. Least stable position is over the side.
5. Operator should be fully acquainted with the Operator's Manual & Operating Safety Booklet, furnished by LBX before operating the machine.
6. Capacities apply only to the machine as originally manufactured and normally equipped by LBX Company, LLC.
7. Lift capacity ratings are based on ISO 10567, "Earthmoving Machinery - Hydraulic Excavators - Lift Capacity."

LIFT CAPACITIES

Radius of Load - Mass Excavator - Fixed Undercarriage
8′ 4″ (2.53 m) Arm with 21′ 6″ (6.55 m) Boom and 5,300 lb. (2 400 kg) Bucket with Power-Boost Applied

End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs							19,150*	19,150*			15,250*	15,250*
	kg							7 660*	7 660*			6 840*	6 840*
+25' 0" (7.5 m)	lbs							20,200*	20,200*			14,350*	14,350*
	kg							9 260*	9 260*			6 490*	6 490*
+20' 0" (6.0 m)	lbs					21,550*	21,550*	22,200*	21,900	19,800*	15,700	14,150*	13,200
	kg					9 920*	9 920*	10 260*	10 160*	9 090*	7 350	6 410*	5 950
+15' 0" (4.5 m)	lbs			37,850*	37,850*	30,100*	30,100*	24,600*	21,300	21,000*	15,250	14,250*	11,800
	kg			17 560*	17 560*	13 980*	13 980*	11 360*	9 920	9 690*	7 110	6 460*	5 340
+10' 0" (3.0 m)	lbs			45,550*	45,550*	34,500*	29,150	26,850*	20,200	22,200*	14,650	14,750*	11,150
	kg			21 130*	21 130*	16 000*	13 530	12 410*	9 400	10 250*	6 830	6 690*	5 050
+5' 0" (1.5 m)	lbs			50,950*	42,600	37,200*	27,350	28,350*	19,200	22,750*	14,100	15,700*	11,050
	kg			23 500*	19 780	17 210*	12 700	13 120*	8 930	10 520*	6 570	7 140*	5 020
Ground Line	lbs	25,350*	25,350*	51,850*	41,250	37,450*	26,250	28,600*	18,500	22,650*	13,700	17,400*	11,600
	kg	11 400*	11 400*	23 890*	19 170	17 310*	12 210	13 230*	8 610	10 500*	6 380	7 880*	5 260
-5' 0" (1.5 m)	lbs	38,650*	38,650*	49,350*	41,950	36,400*	26,150	27,800*	18,300	21,050*	13,750	18,850*	12,900
	kg	17 160*	17 160*	22 760*	19 560	16 830*	12 160	12 880*	8 510	9 860*	6 380	8 530*	5 830
-10' 0" (3.0 m)	lbs	57,400*	57,400*	43,800*	41,850	32,900*	26,600	24,500*	18,800			18,100*	15,400
	kg	25 350*	25 350*	20 250*	19 470	15 260*	12 360	11 470*	8 720			8 220*	6 940
-15' 0" (4.5 m)	lbs	44,250*	44,250*	34,050*	34,050*	25,150*	25,150*					16,050*	16,050*
	kg	20 640*	20 640*	15 920*	15 920*	11 890*	11 890*					7 320*	7 320*

Radius of Load - Mass Excavator - Expandable Undercarriage
8′ 4″ (2.53 m) Arm with 21′ 6″ (6.55 m) Boom and 5,300 lb. (2 400 kg) Bucket with Power-Boost Applied

End / Side		10' 0" (3.0 m) End	10' 0" (3.0 m) Side	15' 0" (4.5 m) End	15' 0" (4.5 m) Side	20' 0" (6.0 m) End	20' 0" (6.0 m) Side	25' 0" (7.5 m) End	25' 0" (7.5 m) Side	30' 0" (9.0 m) End	30' 0" (9.0 m) Side	Max. Reach End	Max. Reach Side
+30' 0" (9.0 m)	lbs							19,150*	19,150*			15,250*	15,250*
	kg							7 660*	7 660*			6 840*	6 840*
+25' 0" (7.5 m)	lbs							20,200*	20,200*			14,350*	14,350*
	kg							9 260*	9 260*			6 490*	6 490*
+20' 0" (6.0 m)	lbs					21,550*	21,550*	22,200*	22,200*	19,800*	17,050	14,150*	14,150*
	kg					9 920*	9 920*	10 260*	10 260*	9 090*	7 970	6 410*	6 410*
+15' 0" (4.5 m)	lbs			37,850*	37,850*	30,100*	30,100*	24,600*	23,050	21,000*	16,600	14,250*	12,950
	kg			17 560*	17 560*	13 980*	13 980*	11 360*	10 730	9 690*	7 740	6 460*	5 860
+10' 0" (3.0 m)	lbs			45,550*	45,550*	34,500*	31,600	26,850*	21,950	22,200*	16,000	14,750*	12,250
	kg			21 130*	21 130*	16 000*	14 680	12 410*	10 210	10 250*	7 450	6 690*	5 550
+5' 0" (1.5 m)	lbs			50,950*	46,600	37,200*	29,800	28,350*	20,950	22,750*	15,400	15,700*	12,200
	kg			23 500*	21 650	17 210*	13 840	13 120*	9 740	10 520*	7 190	7 140*	5 530
Ground Line	lbs	25,350*	25,350*	51,850*	45,150	37,450*	28,700	28,600*	20,250	22,650*	15,050	17,400*	12,750
	kg	11 400*	11 400*	23 890*	20 990	17 310*	13 340	13 230*	9 410	10 500*	7 000	7 880*	5 790
-5' 0" (1.5 m)	lbs	38,650*	38,650*	49,350*	45,750*	36,400*	28,550	27,800*	20,000	21,050*	15,100	18,850*	14,150
	kg	17 160*	17 160*	22 760*	21 300	16 830*	13 280	12 880*	9 310	9 860*	7 000	8 530*	6 400
-10' 0" (3.0 m)	lbs	57,400*	57,400*	43,800*	43,800*	32,900*	28,950	24,500*	20,450			18,100*	16,850
	kg	25 350*	25 350*	20 250*	20 250*	15 260*	13 470	11 470*	9 510			8 220*	7 600
-15' 0" (4.5 m)	lbs	44,250*	44,250*	34,050*	34,050*	25,150*	25,150*					16,050*	16,050*
	kg	20 640*	20 640*	15 920*	15 920*	11 890*	11 890*					7 320*	7 320*

Bucket Sizes for Mass Excavators

490 X4 Mass with Fixed Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8′ 4″ 2.53 m
STDP Standard duty plate	1.76	1.35	36	914	2906	1318	4	H
	2.14	1.64	42	1067	3206	1454	5	H
	2.52	1.93	48	1219	3405	1545	5	H
	2.91	2.22	54	1372	3705	1681	6	H
	3.29	2.52	60	1524	3903	1770	6	H
	4.05	3.10	66	1676	4698	2131	7	M
HDP Heavy duty plate	1.73	1.32	36	914	3507	1591	4	H
	2.10	1.61	42	1067	3848	1745	5	H
	2.48	1.90	48	1219	4108	1863	5	H
	2.85	2.18	54	1372	4448	2018	6	H
	3.24	2.48	60	1524	4707	2135	6	H
XDP Extreme duty plate	1.37	1.05	30	762	3469	1574	3	H
	1.73	1.32	36	914	3838	1741	4	H
	2.1	1.61	42	1067	4144	1880	4	H
	2.48	1.90	48	1219	4485	2034	5	H
Power Buckets	1.64	1.25	36	914	5460	2477	4	H
	1.97	1.51	42	1067	5829	2644	5	H
	2.31	1.77	48	1219	6120	2776	5	H
	2.65	2.03	54	1372	6489	2943	6	H
	2.99	2.29	60	1524	6780	3075	6	H

490 X4 Mass with Expandable Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8′ 4″ 2.53 m
STDP Standard duty plate	1.76	1.35	36	914	2906	1318	4	H
	2.14	1.64	42	1067	3206	1454	5	H
	2.52	1.93	48	1219	3405	1545	5	H
	2.91	2.22	54	1372	3705	1681	6	H
	3.29	2.52	60	1524	3903	1770	6	H
	4.05	3.10	66	1676	4698	2131	7	M
HDP Heavy duty plate	1.73	1.32	36	914	3507	1591	4	H
	2.10	1.61	42	1067	3848	1745	5	H
	2.48	1.90	48	1219	4108	1863	5	H
	2.85	2.18	54	1372	4448	2018	6	H
	3.24	2.48	60	1524	4707	2135	6	H
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	1.73	1.32	36	914	3838	1741	4	H
	2.1	1.61	42	1067	4144	1880	4	H
	2.48	1.90	48	1219	4485	2034	5	H
Power Buckets	1.64	1.25	36	914	5460	2477	4	H
	1.97	1.51	42	1067	5829	2644	5	H
	2.31	1.77	48	1219	6120	2776	5	H
	2.65	2.03	54	1372	6489	2943	6	H
	2.99	2.29	60	1524	6780	3075	6	H

Approval Code For Arm/Bucket Combinations

H.....Heavy material *(up to 3,370 lbs./yd³)*
M..... Medium material *(up to 2,700 lbs./yd³)*
L.....Light material *(up to 2,020 lbs./yd³)*
N/A..... Not applicable

STDP - Standard duty plate
HDP - Heavy duty plate
XDP - Extreme duty plate
POWER - HDP for use with ESCO multi-pin grabber only

Standard & Optional Equipment

CAB

12V Power Outlet	S
270° WAVES™ Camera System	O
AM/FM Sound System	S
Anti-Theft Device	S
Auxiliary Switches on Control Lever	S
Bluetooth	S
Cab Filter - External	S
Cab Handrails	S
Cab Interior Light	S
Cab ISO-Mounts	S
Cab Light (2 LED)	O
Cab Light (2)	S
Cab Sun Screen (rear)	O
Clear Roof Window	S
Climate Control A/C and Heater	S
Cup Holder	S
Defroster	S
Digital Clock	S
Emergency Exit and Hammer	S
Face Vent	S
Floor Mat	S
FOPS Head Guard (Level 2)	O
FOPS Level 1 Certified	S
Front Guard (Mesh)	O
Front Guard (OPG 1,2)	O
Front Window One-Touch Lock	S
Gate Lock Hydraulic Activation	S
Horn	S
Hour Meter (Digital)	S
LCD Color Monitor	S
LED Light Kit for Side Camera (1)	O
LED Lights for Rear Camera (2)	O
Magazine Storage Rack	S
Maintenance Interval Reminders	S
MP3 Auxiliary Input Jack	S
On-Board Diagnostic System	S
One-Piece Right Window	S
Radio Mute Switch	S
Rain Deflector	O
Rear View Camera	S
Rear View Mirrors (2)	S
RemoteCARE Support System (GPS)	S
Roof Sun Shade	S
ROPS Certified Structure	S
Safety Glass Windows	S
SCM Air-Suspension Seat with Tilt & Heater	O
SCM Suspension Seat	S
Seat Recline	S
Selectable Monitor Languages	S
Small Storage	S
Travel Alarm with Cancel Switch	S
Trip Meter (Digital)	S
USB Input	S
Wiper & Washer	S
Wiper Switch on RH Joystick	S

ENGINE

50A Alternator	S
Air Filter (Double Element)	S
Air Filter Restriction Indicator	S
Air Pre-Cleaner (Cyclone type)	S
Auto Warm-Up System	S
Auto-Idle	S
Auto-Idle Engine Shutdown	S
Battery Disconnect Switch	S
Cooling Fan	S
Diesel Oxidation Catalyst (DOC)	S
Drain for Fuel Tank	S
Dual Remote Fuel Filters with Water Separators	S
EGR Coolers	S
Emergency Engine Stop	S
Engine Idle System	S
Engine Oil Sample Port	S
Engine Protection Feature	S
External Fuel Gauge	S
External DEF Gauge	S
Fan Housing	S
Fuel Cooler	S
Fuel Filter Restriction Indicator	S
Fuel Management System	S
Fuel Shut-Off Valve	S
Fuel Usage History	S
Fuel Usage Monitor	S
Glow Plug Pre-Heat	S
Idle-Start	S
Intercooler	S
Neutral Start	S
One-Touch Idle	S
Passive Emissions Regeneration	S
Radiator / Oil Cooler / Intercooler Protective Screen	S
Refuel Pump	O
Remote Engine Oil Drain	S
Remote Oil Filter	S
Reversible Cooling Fan	S
Selective Catalytic Reduction (SCR)	S
Tropical Package	S
DEF Gauge on Monitor	S
VGT Turbocharger	S

HYDRAULICS

Arm Regeneration	S
Arm Speed Assistance (2 Pump Flow)	S
Attachment Cushion Valve	S
Auto Swing Priority	S
Auxiliary Flow Control	S
Auxiliary Tool Settings (Memory)	S
Auxiliary Valve	S
Boom Regeneration	S
Boom Speed Assistance (2 Pump Flow)	S
Bucket Curl Assist	S
Control Levers Pre-Wired for Auxiliary Hyd.	S
Control Pattern Changer (2 way)	S
Electronically Controlled Hydraulic Pumps	S
Fire Wall	S
Free Swing	S
Holding Valve (Arm & Boom)	S
Hose Burst Check Valve	O
Hydraulic Filter Restriction Indicator	S
Hydraulic Oil Sample Port	S
Long Life Hydraulic Oil (5,000 Hour)	S
Neutral Pump De-Stroke	S
Oil Cooler	S
Power Boost	S
Power Save	S
Pressure Reading on Monitor	S
Proportional Hydraulic Controls	O
Pump Stand-By Pressure	S
Single Pedal Travel	S
Straight Travel Circuit	S

AUXILIARY HYDRAULIC OPTIONS

Single-Acting Aux. w/ Proportional Joysticks	O
Multi-Function Aux. w/ in-cab pressure setting control	O
Thumb Aux. w/ Proportional Joysticks	O
Combination Aux. w/ in-cab pressure setting control	O

UNDERCARRIAGE

750 mm (29.5") 3-Bar Steel Grousers	O
900 mm (35.5") 3-Bar Steel Grousers	S
Carbody Belly Pan (Swivel Guarding)	S
Center Track Guide (double)	S
Full Length Track Guide	O
Lashing Points (Tie-Downs)	S
Long Undercarriage	S
Sealed Link Chain	S
Steps	S
Strutted Track Chain	S
X-Pattern Carbody	S

UPPERSTRUCTURE

Belly Pans	S
Catwalks	S
Center Cover (Over Main CV)	S
Counterweight Removal System	O
Fuel Tank Belly Pan	S
Hand Rail (RH access)	S
ISO Guard Rails	S
Lifting Eyes for Counterweight	S
Lockable Fuel Cap and Service Doors	S
Lockable Tool Box	S
Turntable Tub	S
Work Lights (Boom and Tool Box)	S

ATTACHMENT

11' 1" (3.38 m) Arm	S
8' 4" (2.53 m) Arm	O
13' 2" (4.00 m) Arm	O
15' 11" (4.85 m) Arm	O
22' 11" (6.98 m) Main Boom Section	S
21' 6" (6.55 m) Mass Boom Section	O
Auxiliary Pipe Brackets	S
Boom Work Light (2)	S
Bucket Anti-Clatter Device	S
Chrome Pins	S
Easy Maintenance System (EMS)	S
HD Bucket Linkage	S
Quick Couplers	O
Remote Lube Bank	S
Teardrop Pin Retention Keepers	S
Thumbs	O

Equipment Key
Standard - S Optional - O

Bucket Sizes

490 X4 with Fixed Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8´4˝ 2.53 m	Arm 11´1˝ 3.38 m	Arm 13´2˝ 2.94 m	Arm 15´11˝ 4.85 m
STDP Standard duty plate	1.76	1.35	36	914	2,906	1 318	4	H	H	H	H
	2.14	1.64	42	1 067	3,206	1 454	5	H	H	H	H
	2.52	1.93	48	1 219	3,405	1 545	5	H	H	H	M
	2.91	2.22	54	1 372	3,705	1 681	6	H	H	M	L
	3.29	2.52	60	1 524	3,903	1 770	6	H	M	M	L
	4.05	3.10	66	1 676	4,698	2 131	7	M	L	L	N/A
HDP Heavy duty plate	1.73	1.32	36	914	3,507	1 591	4	H	H	H	H
	2.10	1.61	42	1 067	3,848	1 745	5	H	H	H	H
	2.48	1.90	48	1 219	4,108	1 863	5	H	H	H	M
	2.85	2.18	54	1 372	4,448	2 018	6	H	M	M	L
	3.24	2.48	60	1 524	4,707	2 135	6	H	M	L	L
XDP Extreme duty plate	1.37	1.05	30	762	3,469	1 574	3	H	H	H	H
	1.73	1.32	36	914	3,838	1 741	4	H	H	H	H
	2.1	1.61	42	1 067	4,144	1 880	4	H	H	H	H
	2.48	1.90	48	1 219	4,485	2 034	5	H	H	H	M
Power Buckets	1.64	1.25	36	914	5,460	2 477	4	H	H	H	H
	1.97	1.51	42	1 067	5,829	2 644	5	H	H	H	M
	2.31	1.77	48	1 219	6,120	2 776	5	H	H	M	L
	2.65	2.03	54	1 372	6,489	2 943	6	H	M	M	L
	2.99	2.29	60	1 524	6,780	3 075	6	M	L	L	N/A

490 X4 with Expandable Sideframe

Bucket Type	Heaped Capacity (yd³)	Heaped Capacity (m³)	Width Outside Lip (in)	Width Outside Lip (mm)	Bucket Weight (lbs)	Bucket Weight (kg)	Number of Teeth	Arm 8´4˝ 2.53 m	Arm 11´1˝ 3.38 m	Arm 13´2˝ 2.94 m	Arm 15´11˝ 4.85 m
STDP Standard duty plate	1.76	1.35	36	914	2,906	1 318	4	H	H	H	H
	2.14	1.64	42	1 067	3,206	1 454	5	H	H	H	H
	2.52	1.93	48	1 219	3,405	1 545	5	H	H	H	H
	2.91	2.22	54	1 372	3,705	1 681	6	H	H	H	M
	3.29	2.52	60	1 524	3,903	1 770	6	H	M	M	L
	4.05	3.10	66	1 676	4,698	2 131	7	M	L	L	N/A
HDP Heavy duty plate	1.73	1.32	36	914	3,507	1 591	4	H	H	H	H
	2.10	1.61	42	1 067	3,848	1 745	5	H	H	H	H
	2.48	1.90	48	1 219	4,108	1 863	5	H	H	H	M
	2.85	2.18	54	1 372	4,448	2 018	6	H	H	H	M
	3.24	2.48	60	1 524	4,707	2 135	6	H	M	M	L
XDP Extreme duty plate	1.37	1.05	30	762	3,469	1 574	3	H	H	H	H
	1.73	1.32	36	914	3,838	1 741	4	H	H	H	H
	2.1	1.61	42	1 067	4,144	1 880	4	H	H	H	H
	2.48	1.90	48	1 219	4,485	2 034	5	H	H	H	M
Power Buckets	1.64	1.25	36	914	5,460	2 477	4	H	H	H	H
	1.97	1.51	42	1 067	5,829	2 644	5	H	H	H	H
	2.31	1.77	48	1 219	6,120	2 776	5	H	H	H	M
	2.65	2.03	54	1 372	6,489	2 943	6	H	H	M	L
	2.99	2.29	60	1 524	6,780	3 075	6	H	M	M	L

Litho in USA 10/17 #LBX2359 supersedes LBX2300

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349F L

Hydraulic Excavator

2017



Engine		
Engine Model	Cat® C13 ACERT™	
Power – SAE J1349	311 kW	417 hp
Power – ISO 14396	317 kW	425 hp

Drive		
Maximum Travel Speed	4.7 km/h	2.9 mph
Maximum Drawbar Pull	335 kN	75,300 lbf
Weights		
Minimum Weight	48 650 kg	107,200 lb
Maximum Weight	51 000 kg	112,400 lb

The 349F L is built to keep your production numbers up and your owning and operating costs down.

Not only does the machine's C13 ACERT engine meet U.S. EPA Tier 4 Final emission standards, but it does so while giving you all the power, fuel efficiency, and reliability you need to succeed.

Where the real power comes in is through the hydraulic system. You can literally move tons of material all day long with a great deal of speed and precision. In fact the hydraulic system and engine work together to keep fuel consumption to an absolute minimum – all without impacting your productivity.

When you add in a quiet operator environment that keeps you comfortable and productive, service points that make your routine maintenance quick and easy, and multiple Cat work tools that help you do a number of jobs very well, you simply won't find a better machine in this size class.

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Reliable and Productive

Power to move your material with speed and precision

Hydraulic Horsepower, a Cat Advantage

When it comes to moving heavy material quickly and efficiently, you need hydraulic horsepower – the type of ground-breaking power the 349F L can deliver. Major hydraulic components like pumps and valves are located close together so shorter tubes and lines can be used. This design leads to less friction loss, reduced pressure drops, and more power to the ground for the work you need to get done.

The heavy lift mode increases machine system pressure to improve lift – a nice benefit in certain situations. Heavy lift mode also reduces engine speed and pump flow in order to improve controllability.



Control Like No Other

Controllability is one of the main attributes of Cat excavators, and one of the key contributors to this is the main control valve. The valve opens slowly when your range of joystick lever movement is small and opens rapidly when movement is high. It puts flow where you need it when you need it, which leads to smoother operation, greater efficiency, and lower fuel consumption.

Auxiliary Hydraulics for Added Versatility

Auxiliary hydraulics give you greater tool versatility so you can take on more work with just one machine, and there are several options from which you can choose. A quick coupler circuit, for example, allows you to switch from one tool to another in a matter of minutes.

Fuel Efficient

Engineered to lower your operating costs





The Cat C13 ACERT engine meets Tier 4 Final emission standards and it does so without interrupting your job process. Simply turn the engine on and go to work. It will look for opportunities in your work cycle to regenerate itself, and it will give you plenty of power for the task at hand – all to help keep your owning and operating costs to an absolute minimum.

A Smart Design for Any Temperature

The 349F L features a side-by-side cooling system that allows you to put the machine to work in extremely hot and cold conditions. The system is completely separated from the engine compartment to reduce noise and heat. Plus it features easy-to-clean cores and a new variable-speed fan that reverses to blow out unwanted debris that may accumulate during your work day.

Biodiesel Not A Problem

The C13 ACERT engine can run on biodiesel fuel up to B20 blended with ULSD. Just fill it up and go.

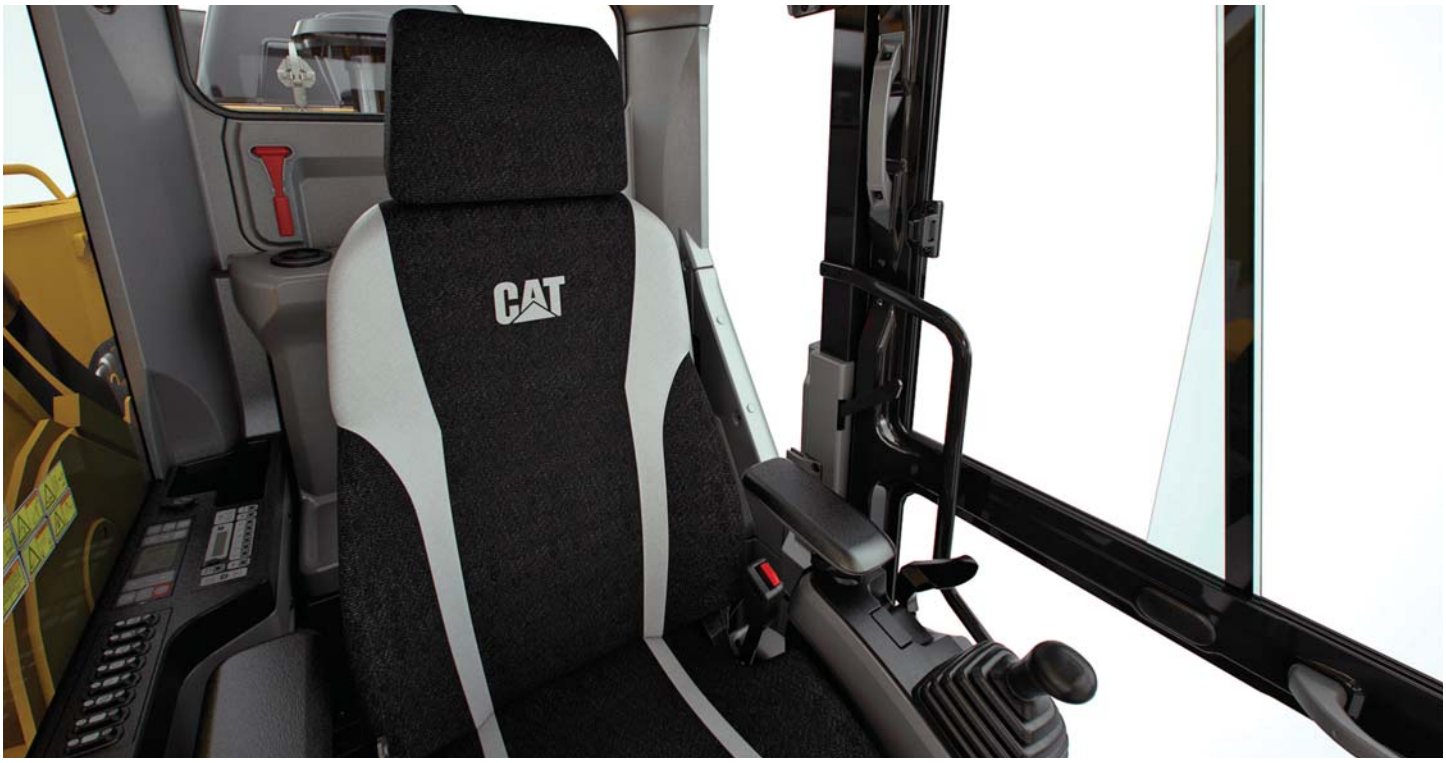
Proven Technology

The right technologies fine-tuned for the right applications result in:

- **Improved Fuel Efficiency** – Up to 5% improvement over Tier 4 Interim products.
- **High Performance** across a variety of applications.
- **Enhanced Reliability** through commonality and simplicity of design.
- **Maximized Uptime and Reduced Cost** with world-class support from the Cat dealer network.
- **Minimized Impact of Emission Systems** – designed to be transparent to the operator without requiring interaction.
- **Durable Designs** with long life to overhaul.
- **Delivering Better Fuel Economy** with minimized maintenance costs while providing the same great power and response.

Easy to Operate

Comfort and convenience to keep you productive all day long





Safe and Quiet Cab

The cab contributes to your comfort thanks to special viscous mounts and special roof lining and sealing, that limit vibration and unnecessary sound.

Operators will enjoy the quietness and comfort of the all-new cab.

Excellent Ergonomics

Wide seats with air suspension and heat/cooling options, include a reclining back, upper and lower slide adjustments, and height and tilt angle adjustments to meet your needs for maximum comfort.

The fully automatic climate control system keeps operators comfortable and productive all day long in either hot or cold weather.

Storage spaces are located in the front, rear, and side consoles of the cab. A drink holder accommodates a large mug, and a shelf behind the seat stores large lunch or toolboxes.

Power supply sockets are available for charging your electronic devices like an MP3 player, a cell phone, or even a tablet.

Controls Just for You

The right and left joystick consoles can be adjusted to improve your comfort and productivity during the course of a day. The right joystick features a button that will reduce engine speed when you are not working to help save fuel. Touch it once and speed reduces; touch it again and speed increases for normal operation.







Easy to Navigate Monitor

The new LCD monitor is easy to see and navigate. Not only can it memorize up to 10 different work tools, it's also programmable in up to 44 languages to meet today's diverse workforce. The monitor clearly displays critical information you need to operate efficiently and effectively. Plus it projects the image from the rearview camera to help you see what's going on around you so you can stay safely focused on the job at hand.



Durable Structures

Made to work in your tough, heavy-duty applications

Stable Undercarriage

The undercarriage contributes significantly to outstanding stability and durability.

Track shoes, links, rollers, idlers, and final drives are all built with high-tensile strength steel for long-term durability.

Cat Grease Lubricated Track 2 (GLT2) track link protects moving parts by keeping water, debris, and dust out and grease sealed in, which delivers longer wear life and reduced noise when traveling.

Optional guide guards help maintain track alignment to improve the machine's overall performance – whether you're traveling on a flat, heavy bed of rock or a steep, wet field of mud.

Robust Frames

The 349F L is a robust, well-built machine designed to give you a very long service life. The upper frame has mountings made specifically to support the heavy-duty cab. It's also reinforced around areas that take on a lot of stress like the boom foot, skirt, and counterweight.

Great Weight

The counterweight is built with thick steel plates and reinforced fabrications to make it less susceptible to damage, designed with curved surfaces that match the machine's sleek, smooth appearance along with integrated housings to help protect the rearview camera.

Durable Linkages

Options to take on your far-reaching or up-close tasks



Booms and Sticks for Any Job

The 349F L is offered with a range of booms and sticks. Each is built with internal baffle plates and is stress relieved for added durability, and each undergoes ultrasound inspection to ensure quality and reliability. Large box-section structures with thick, multi-plate fabrications, castings, and forgings are used in high-stress areas such as the boom nose, boom foot, boom cylinder, and stick foot to improve durability. Also, the boom nose pin retention method is a captured flag design for enhanced durability.

The Reach boom and sticks offer you excellent all-around versatility for general excavations work like multipurpose digging and loading.

Pins

All front linkage pins have thick chrome plating, giving them high wear resistance. Each pin diameter is made to distribute the shear and bending loads associated with the stick and to help ensure long pin, boom and stick life.



Talk to your Cat dealer to pick the best front linkage for your applications.

Versatile

Do more jobs with one machine



Get the Most from One Machine

The Cat combination of machine and tool provides a total solution for just about any application. Work tools can be mounted either directly to the machine or to a quick coupler, making it fast and easy to release one work tool and pick up another.

Change Jobs Quickly

Cat quick coupler brings the ability to quickly change attachments and switch from job to job. The Cat coupler is the secure way to decrease downtime and increase job site flexibility and overall productivity.

Available tool control remembers pressures and flows for up to 10 tools. Simply toggle through the monitor, select the tool, and go to work for maximum efficiency.

Dig, Rip and Load

A wide range of buckets dig everything from basic top soil to extreme, harsh material like ore and high quartzite granite. Rip through rock as an alternative to blasting in quarries. High-capacity buckets load trucks in a minimum number of passes for maximum productivity.

Break, Demolish and Scrap

A hydraulic hammer ably equips your machine for breaking rock in quarries. It will also make taking down bridge pillars and heavily reinforced concrete on road demolition jobs no problem.

Multi-processor and pulverizer attachments make your machine ideal for demolition jobs and processing the resulting debris.

Shears with 360° rotation mount to the machine for processing scrap steel and metal.

Move and Handle

Add a thumb and you have the ability to move and handle brush, rocks, and debris. For constant material handling, a grapple is your solution. Choose from three different styles for picking, sorting, and loading trash, demolition debris, or recyclables.

Set Up Your Machine for Profitability

Your Cat dealer can install hydraulic kits to properly operate all Cat Work Tool attachments, maximizing the machine's uptime and your profit. All Cat Work Tool attachments are supported by the same Cat dealer network as your Cat machine.

GRAB, SORT, LOAD



Pro Series Hydraulic Thumbs



Stiff Link Thumbs



Demolition & Sorting Grapple



Contractors' Grapples



Trash Grapples

SWAP TOOLS



Pin Grabber Coupler

DIG & PACK



General Duty Buckets



Heavy Duty Buckets



Severe Duty Buckets



Extreme Duty Buckets

CUT, CRUSH, BREAK & RIP



Multi-Processors



Scrap & Demolition Shears



Secondary Pulverizers



Hydraulic Hammers



Rippers

Cat Connect Technologies

Monitor, manage, and enhance job site operations





Cat Connect makes smart use of technology and services to improve your job site efficiency. Using the data from technology-equipped machines, you'll get more information and insight into your equipment and operations than ever before.

Cat Connect technologies offer improvements in these key areas:

EQUIPMENT MANAGEMENT

Equipment Management – increase uptime and reduce operating costs.

PRODUCTIVITY

Productivity – monitor production and manage job site efficiency.

SAFETY

Safety – enhance job site awareness to keep your people and equipment safe.

LINK Technologies

LINK technologies, like Product Link™, are deeply integrated into your machine and wirelessly communicates key information, including location, hours, fuel usage, idle time and event codes.

Product Link/VisionLink®

Easy access to Product Link data via the online VisionLink user interface can help you see how your machine or fleet is performing. You can use this information to make timely, fact based decisions that can boost job site efficiency and productivity, and lower costs.





GRADE Technologies

Grade technologies combine digital design data and in-cab guidance to help you reach target grade quickly and accurately, with minimal staking and checking. That means you'll be more productive, complete jobs faster, in fewer passes, using less fuel, at a lower cost.

Cat Grade with Assist

Cat Grade with Assist ensures you can dig a level base with the right slope each and every time; now it works with tilt buckets to give you even greater versatility. With a touch of a button, the simple-to-use system automates boom and bucket movements typically done by the operator. Regardless of your experience or skill, you will be able to reach target grade up to 45% faster than with traditional grading techniques.

Cat Grade 3D

Cat Grade 3D is perfect for complex excavating projects that require precise cuts and contours. The 254 mm (10 in) color monitor shows you exactly where to work and how much to cut or fill without stacking or grade checking, delivering accuracy within 30 mm (1.18 in). Factory integration of most key components reduces field installation time and labor cost, making the system less costly for you compared to other options. Plus reliability is enhanced because built-in components are protected from damage, ensuring longer service life and more accurate results.

Safe Work Environment

Features to help protect you day in and day out

Secure Contact Points

Multiple large steps as well as hand and guard rails will get you into the cab as well as a leg up to the compartments.

Extended hand and guard rails allow you to safely climb to the upper deck. Anti-skid plates on the surface of the upper structure, and the top of the storage box area, reduce your slipping hazards in all types of weather conditions. They can be removed for cleaning.

Great Views

The rearview camera greatly enhances visibility behind the machine to help the operator work more productively. A panoramic rearview is automatically displayed on the new multi-function monitor during reverse travel. As an option, a second display can be added, providing a dedicated full-time rearview of the job site.

Smart Lighting

Halogen lights provide plenty of illumination. Cab and boom lights can be programmed to stay on for up to 90 seconds after the engine has been turned off to help you safely exit the machine. Optional High Intensity Discharge (HID) lights are available for enhanced night-time visibility.

A Safe and Quiet Cab

The ROPS-certified cab provides you with a safe working environment. It also contributes to your comfort because it's attached to a reinforced frame with special viscous mounts that limit vibration and unnecessary sound. Add in special roof lining and sealing and you have a cab that's as quiet inside as any of today's highway trucks.

Optional Falling Object Guards (FOGS) further protect you from debris coming to the cab.







Ground-Level Access

You can reach most routine maintenance items like fuel and oil filters, fluid taps, and grease points from the safety and convenience of ground level. Not only do compartments feature wide service doors designed to help prevent debris entry, but they also securely latch in place to help make your service work simpler.

Serviceable

Designed to make your maintenance quick and easy



A Fresh Idea

When you select ventilation inside the cab, outside air enters through the fresh air filter. The filter is conveniently located on the side of the cab to make it easy to reach and replace, and it is protected by a lockable door that can be opened with the engine key.

Quick and Convenient Fluids Service

S·O·S℠ Oil sample and pressure ports provide easy checking of machine condition and are standard on every machine.

You can ensure fast, easy, and secure changing of engine and hydraulic oil with the QuickEvac™ option.

The fuel tank's drain cock makes it easy and simple for you to remove water and sediment during routine maintenance. Plus an integrated fuel level indicator pops up to help you reduce the possibility of fuel tank overfilling. An optional fast fill port accessible from ground level can make refueling even easier and faster.

A Smart Cooling Design

The high-ambient cooling system features a fuel-saving variable-speed fan and a side-by-side-mounted radiator and oil and air coolers for easy cleaning.



Sustainable

Generations ahead in every way

The 349F L is designed to compliment your business plan, reduce emissions and minimize the consumption of natural resources.

- The C13 ACERT engine meets Tier 4 Final emission standards.
- The machine has the flexibility of running on either ultra-low-sulfur diesel (ULSD) fuel with 15 ppm of sulfur or less or up to biodiesel (B20) fuel blended with ULSD.
- An overfill indicator rises when the tank is full to help the operator avoid spilling.
- Quick fill ports with connectors ensure fast, easy, and secure changing of hydraulic oil.
- Major components are rebuildable, eliminating waste and saving money by giving the machine and/or major components a second life – and even a third life.
- Link technologies enable you to collect and analyze equipment and job site data so you can maximize productivity and reduce costs.
- The 349F L is an efficient, productive machine that's designed to conserve our natural resources for generations ahead.

Complete Customer Care

Unmatched support makes the difference

Worldwide Parts Availability

Cat dealers utilize a worldwide parts network to maximize your machines' uptime. Plus they can help you save money with Cat remanufactured components.

Financial Options Just for You

Consider financing options and day-to-day operating costs. Look at dealer services that can be included in the machine's cost to yield lower owning and operating costs over time.

What's Best for You Today…and Tomorrow

Repair, rebuild, or replace? Your Cat dealer can help you evaluate the cost involved so you can make the best choice for your business.



Engine

Engine Model	Cat C13 ACERT	
Net Power – SAE J1349	304 kW	408 hp
Power – ISO 14396	317 kW	425 hp
Gross Power – SAE J1995	322 kW	432 hp
Bore	130 mm	5.12 in
Stroke	157 mm	6.18 in
Displacement	12.5 L	763 in^3

Hydraulic System

Maximum Flow (total)		
Main System	770 L/min	203 gal/min
Swing System	385 L/min	102 gal/min
Pilot System	27 L/min	7.1 gal/min
Maximum Pressure		
Main System – Normal	35 000 kPa	5,076 psi
Main System – Heavy Lift	38 000 kPa	5,511 psi
Main System – Travel	35 000 kPa	5,076 psi
Main System – Swing	27 500 kPa	3,989 psi
Pilot System	4120 kPa	598 psi
Boom Cylinder		
Bore	170 mm	6.69 in
Stroke	1524 mm	60.00 in
Stick Cylinder		
Bore	190 mm	7.48 in
Stroke	1758 mm	69.21 in
TB Family Bucket Cylinder		
Bore	160 mm	6.30 in
Stroke	1356 mm	53.39 in
UB Family Bucket Cylinder		
Bore	170 mm	6.69 in
Stroke	1396 mm	54.96 in

Drive

Gradeability	30°/70%	
Maximum Travel Speed	4.7 km/h	2.9 mph
Maximum Drawbar Pull	335 kN	75,300 lbf

Swing Mechanism

Swing Speed	8.7 rpm	
Swing Torque	148.5 kN·m	109,500 lbf-ft
Maximum Swing Torque	221 kN·m	163,000 lbf-ft

Service Refill Capacities

Fuel Tank Capacity	720 L	190 gal
Cooling System	50 L	13.2 gal
Engine Oil (with filter)	38 L	10 gal
Swing Drive (each)	10 L	2.6 gal
Final Drive (each)	15 L	4.0 gal
Hydraulic System (including tank)	570 L	150.6 gal
Hydraulic Tank	407 L	107.5 gal
DEF Tank	41 L	11 gal

Track

Number of Shoes (each side)	52
Number of Track Rollers (each side)	9
Number of Carrier Rollers (each side)	2

Sound Performance

Exterior – ISO 6395	106 dB(A)
Operator – SAE J1166/ISO 6396	69 dB(A)

- When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed according to ANSI/SAE J1166 OCT98, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.

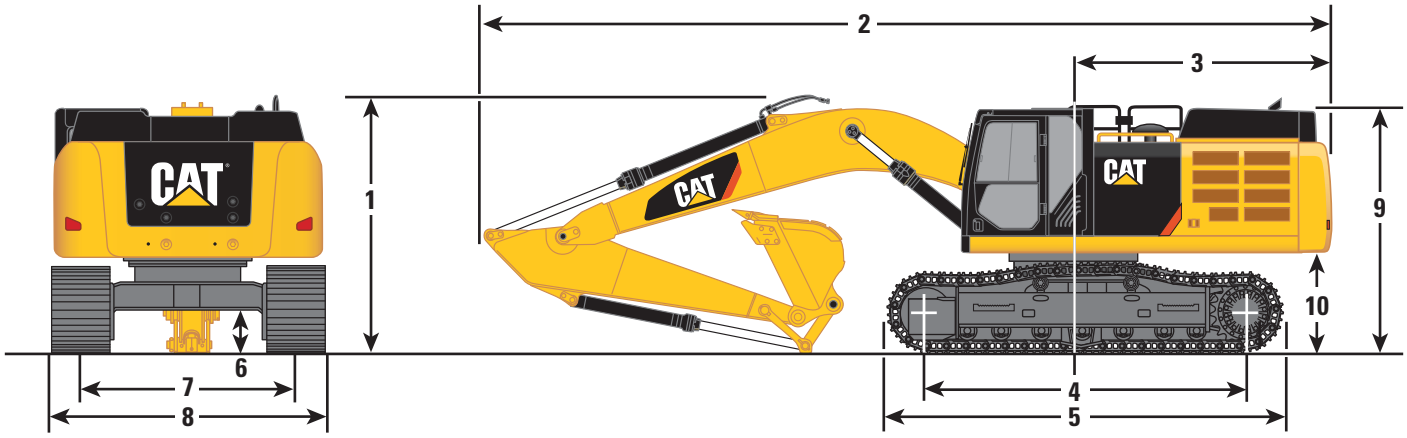
Standards

Brakes	ISO 10265
Cab/FOGS	SAE J1356
Cab/ROPS	ISO 12117-2
DEF	ISO 22241

349F L Hydraulic Excavator Specifications

Dimensions

All dimensions are approximate.



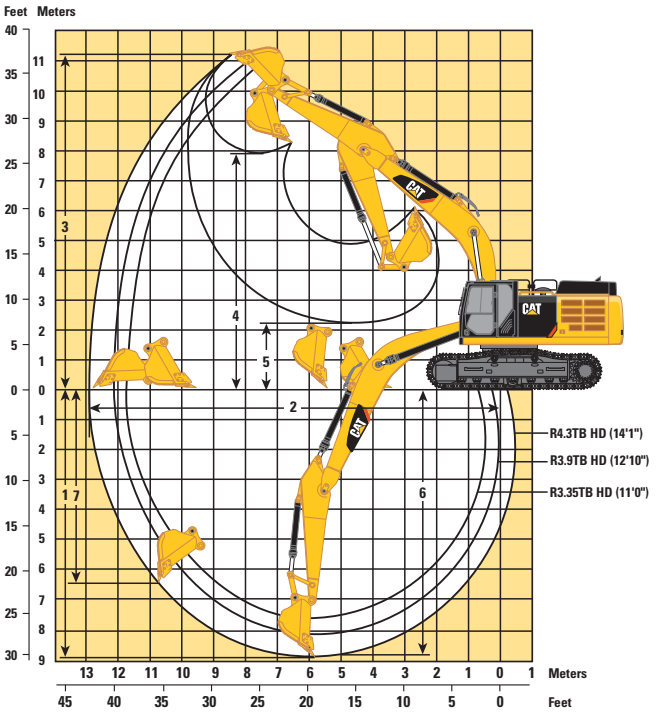
Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	R4.3TB HD (14'1")		R3.9TB HD (12'10")		R3.35TB HD (11'0")		M3.0UB HD (9'10")		M2.5UB HD (8'2")	
	mm	ft/in	mm	ft/in	mm	ft/in	mm	ft/in	mm	ft/in
1 Shipping Height to Boom – STD/Long FIX Undercarriage	3710	12'2"	3670	12'0"	3730	12'3"	4020	13'2"	4000	13'1"
Shipping Height with Handrail – STD/Long FIX Undercarriage	3370	11'1"	3370	11'1"	3370	11'1"	3370	11'1"	3370	11'1"
2 Shipping Length – STD/Long FIX Undercarriage	12 500	41'0"	11 930	39'2"	11 920	39'1"	11 590	38'0"	11 680	38'4"
3 Tail Swing Radius	3730	12'2"	3730	12'2"	3730	12'2"	3730	12'2"	3730	12'2"
4 Length to Center of Rollers – Long FIX Undercarriage	4360	14'4"	4360	14'4"	4360	14'4"	4360	14'4"	4360	14'4"
5 Track Length – Long FIX Undercarriage	5370	17'7"	5370	17'7"	5370	17'7"	5370	17'7"	5370	17'7"
6 Ground Clearance – Long FIX Undercarriage										
Including Shoe Lug Height	480	1'7"	480	1'7"	480	1'7"	480	1'7"	480	1'7"
Not Including Shoe Lug Height	510	1'8"	510	1'8"	510	1'8"	510	1'8"	510	1'8"
7 Track Gauge – Long FIX Undercarriage	2740	9'0"	2740	9'0"	2740	9'0"	2740	9'0"	2740	9'0"
8 Transport Width – STD/Long FIX Undercarriage										
600 mm (24") Shoes	3340	10'11"	3340	10'11"	3340	10'11"	3340	10'11"	3340	10'11"
750 mm (30") Shoes	3490	11'5"	3490	11'5"	3490	11'5"	3490	11'5"	3490	11'5"
900 mm (35") Shoes	3640	11'11"	3640	11'11"	3640	11'11"	3640	11'11"	3640	11'11"
9 Cab Height – STD/Long FIX Undercarriage	3230	10'6"	3230	10'6"	3230	10'6"	3230	10'6"	3230	10'6"
Cab Height with Top Guard – STD/Long FIX Undercarriage	3430	11'3"	3430	11'3"	3430	11'3"	3430	11'3"	3430	11'3"
10 Counterweight Clearance* – STD/Long FIX Undercarriage	1280	4'2"	1280	4'2"	1280	4'2"	1280	4'2"	1280	4'2"
Bucket Type	GD		GD		GD		HD		HD	
Bucket Capacity	3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.2 m^3 (4.2 yd^3)		3.2 m^3 (4.2 yd^3)	
Bucket Tip Radius	1866 mm (6'1")		1866 mm (6'1")		1866 mm (6'1")		2046 mm (6'9")		2046 mm (6'9")	

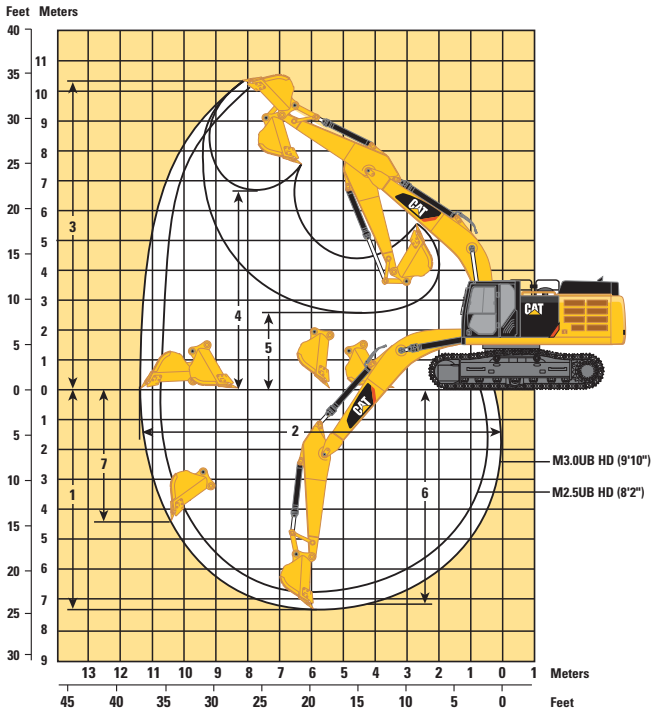
*Without shoe lug height.

Dimensions may vary depending on bucket selection.

Working Ranges

All dimensions are approximate.





Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	**R4.3TB HD (14'1")**		**R3.9TB HD (12'10")**		**R3.35TB HD (11'0")**		**M3.0UB HD (9'10")**		**M2.5UB HD (8'2")**	
Long FIX Undercarriage	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**	**mm**	**ft/in**
1 Maximum Digging Depth	8940	29'4"	8210	26'11"	7660	25'2"	7310	24'0"	6810	22'4"
2 Maximum Reach at Ground Level	12 960	42'6"	12 150	39'10"	11 730	38'6"	11 270	37'0"	10 810	35'6"
3 Maximum Cutting Height	11 170	36'8"	10 730	35'2"	10 820	35'6"	10 290	33'9"	10 090	33'1"
4 Maximum Loading Height	7870	25'10"	7420	24'4"	7430	24'5"	6740	22'1"	6550	21'6"
5 Minimum Loading Height	2220	7'3"	2200	7'3"	2750	9'0"	2570	8'5"	3070	10'1"
6 Maximum Depth Cut for 2440 mm (8'0") Level Bottom	8810	28'11"	8080	26'6"	7520	24'8"	7160	23'6"	6640	21'9"
7 Maximum Vertical Wall Digging Depth	6560	21'6"	5960	19'7"	5830	19'2"	4430	14'6"	4000	13'1"
Bucket Type	GD		GD		GD		SD		SD	
Bucket Capacity	3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.1 m^3 (4.05 yd^3)		3.2 m^3 (4.2 yd^3)		3.2 m^3 (4.2 yd^3)	
Bucket Tip Radius	1893 mm (6'3")		1893 mm (6'3")		1893 mm (6'3")		2121 mm (7'0")		2121 mm (7'0")	

Dimensions may vary depending on bucket selection.

349F L Hydraulic Excavator Specifications

Operating Weights and Ground Pressures

	900 mm (35") Triple Grouser Shoes		750 mm (30") Triple Grouser Shoes		600 mm (24") Double Grouser Shoes	
	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)
Long FIX Undercarriage						
Long Reach Boom – 7.4 m (24'3")						
R4.3TB HD (14'1")	50 700 (111,800)	59 (8.6)	49 900 (110,000)	69 (10.0)	49 300 (108,700)	86 (12.5)
Reach Boom – 6.9 m (22'8")						
R3.9TB HD (12'10")	50 200 (110,700)	58 (8.4)	49 500 (109,100)	69 (10.0)	48 800 (107,600)	85 (12.3)
R3.35TB HD (11'0")	50 000 (110,200)	58 (8.4)	49 300 (108,700)	68 (9.9)	48 600 (107,100)	84 (12.2)
HD Mass Boom – 6.55 m (21'6")						
M3.0UB HD (9'10")	51 000 (112,400)	59 (8.6)	50 300 (110,900)	70 (10.2)	49 600 (109,300)	86 (12.5)
M2.5UB HD (8'2")	50 800 (112,000)	59 (8.6)	50 100 (110,500)	70 (10.2)	49 400 (108,900)	86 (12.5)

Major Component Weights

	kg	lb
Base Machine (with boom cylinder, without counterweight, front linkage and track)		
Long FIX Undercarriage	24 800	54,700
Counterweight		
9.0 mt (9.9 t)	9000	19,800
Boom (includes lines, pins and stick cylinder)		
Long Reach Boom – 7.4 m (24'3")	5190	11,400
Reach Boom – 6.9 m (22'8")	4630	10,200
Mass Boom – 6.55 m (21'6")	4860	10,700
Stick (includes lines, pins, bucket linkage and bucket cylinder)		
R4.3TB HD (14'1")	2990	6,600
R3.9TB HD (12'10")	2760	6,100
R3.35TB HD (11'0")	2540	5,600
M3.0UB HD (9'10")	2930	6,500
M2.5UB HD (8'2")	3140	6,900
Track Shoes (per two tracks)		
600 mm (24") double grouser	5240	11,600
750 mm (30") triple grouser	5890	13,000
900 mm (35") triple grouser	6640	14,600
Buckets		
TB1880GD – 3.10 m^3 (4.05 yd^3)	2440	5,400
UB1850HD – 3.2 m^3 (4.2 yd^3)	2840	6,300

All weights are rounded up to nearest 10 kg and lb except for buckets. Kg and lb were rounded up separately so some of the kg and lb do not match.

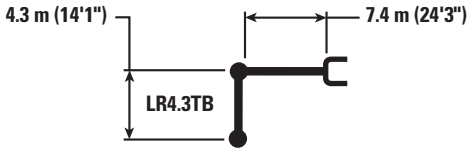
Base machine includes 75 kg (165 lb) operator weight, 90% fuel weight, and undercarriage with center guard.

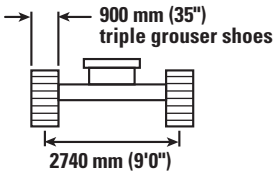
Bucket and Stick Forces

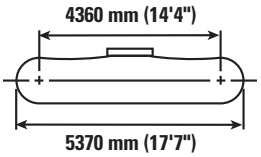
Boom Option	Long Reach Boom 7.4 m (24'3")		Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	R4.3TB HD (14'1")		R3.9TB HD (12'10")		R3.35TB HD (11'0")		M3.0UB HD (9'10")		M2.5UB HD (8'2")	
	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf
TB Linkage										
General Duty Capacity										
Bucket Digging Force (ISO)	267	60,020	268	60,250	268	60,250				
Stick Digging Force (ISO)	170	38,220	183	41,140	199	44,740				
Bucket Digging Force (SAE)	235	52,830	236	53,050	236	53,050				
Stick Digging Force (SAE)	166	37,320	177	39,790	193	43,390				
Heavy Duty										
Bucket Digging Force (ISO)	266	59,800	268	60,250	268	60,250				
Stick Digging Force (ISO)	172	38,670	184	41,360	201	45,190				
Bucket Digging Force (SAE)	234	52,610	235	52,830	235	52,830				
Stick Digging Force (SAE)	167	37,540	179	40,240	195	43,840				
Severe Duty										
Bucket Digging Force (ISO)	265	59,570	266	59,800	266	59,800				
Stick Digging Force (ISO)	171	38,440	184	41,360	200	44,960				
Bucket Digging Force (SAE)	228	51,260	229	51,480	229	51,480				
Stick Digging Force (SAE)	166	37,320	178	40,020	193	43,390				
Extreme Duty										
Bucket Digging Force (ISO)	265	59,570	266	59,800	266	59,800				
Stick Digging Force (ISO)	171	38,440	184	41,360	200	44,960				
Bucket Digging Force (SAE)	228	51,260	229	51,480	229	51,480				
Stick Digging Force (SAE)	166	37,320	178	40,020	193	43,390				
UB Linkage										
Heavy Duty										
Bucket Digging Force (ISO)							296	66,540	296	66,540
Stick Digging Force (ISO)							212	47,660	241	54,180
Bucket Digging Force (SAE)							258	58,000	258	58,000
Stick Digging Force (SAE)							205	46,090	231	51,930
Severe Duty										
Bucket Digging Force (ISO)							290	65,190	290	65,190
Stick Digging Force (ISO)							211	47,430	239	53,730
Bucket Digging Force (SAE)							252	56,650	252	56,650
Stick Digging Force (SAE)							203	45,640	229	51,480

349F L Hydraulic Excavator Specifications

Long Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		1500 mm/60 in		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in		10 500 mm/420 in				
																		mm in
9000 mm **360 in**	kg **lb**															*7150 ***15,800**	*7150 ***15,800**	8900 **350**
7500 mm **300 in**	kg **lb**											*9700 ***20,800**	8600 **18,350**			*6900 ***15,250**	*6900 ***15,250**	9890 **390**
6000 mm **240 in**	kg **lb**											*10 100 ***22,000**	8400 **18,000**	*7350	6400	*6900 ***15,200**	6300 **14,000**	10 570 **420**
4500 mm **180 in**	kg **lb**							*14 200 ***30,600**	*14 200 ***30,600**	*12 050 ***26,150**	10 800 **23,250**	*10 750 ***23,400**	8100 **17,400**	*9850 ***19,700**	6250 **13,400**	*7100 ***15,550**	5750 **12,700**	11 010 **440**
3000 mm **120 in**	kg **lb**					*23 250 ***49,850**	21 400 **46,250**	*16 700 ***36,000**	14 100 **30,450**	*13 450 ***29,150**	10 200 **22,000**	*11 550 ***25,100**	7750 **16,700**	9850 **21,150**	6050 **13,000**	*7400 ***16,250**	5400 **11,950**	11 220 **450**
1500 mm **60 in**	kg **lb**					*18 950 ***44,950**	*18 950 **42,450**	*18 800 ***40,600**	13 150 **28,400**	*14 750 ***31,900**	9650 **20,800**	12 150 **26,150**	7400 **15,950**	9650 **20,700**	5900 **12,600**	*7950 ***17,450**	5300 **11,600**	11 230 **450**
0 mm **0 in**	kg **lb**					*18 100 ***41,800**	*18 100 **40,750**	*20 050 ***43,400**	12 550 **27,050**	15 550 **33,450**	9250 **19,900**	11 850 **25,500**	7150 **15,400**	9450 **20,350**	5700 **12,300**	*8750 ***19,250**	5300 **11,700**	11 040 **440**
–1500 mm **–60 in**	kg **lb**			*12 200 ***27,500**	*12 200 ***27,500**	*21 750 ***49,700**	18 700 **40,200**	*20 350 ***44,100**	12 250 **26,350**	15 250 **32,800**	9000 **19,350**	11 650 **25,100**	7000 **15,050**	9350	5650	9250 **20,350**	5550 **12,250**	10 620 **420**
–3000 mm **–120 in**	kg **lb**	*14 150 ***31,550**	*14 150 ***31,550**	*17 800 ***40,050**	*17 800 ***40,050**	*26 000 ***56,350**	18 750 **40,300**	*19 750 ***42,750**	12 150 **26,150**	15 150 **32,600**	8900 **19,150**	11 600 **25,000**	6950 **14,950**			10 100 **22,300**	6050 **13,400**	9960 **400**
–4500 mm **–180 in**	kg **lb**			*24 450 ***55,300**	*24 450 ***55,300**	*23 400 ***50,500**	19 050 **40,950**	*18 100 ***39,100**	12 300 **26,450**	*14 350 ***30,850**	8950 **19,350**	*11 200	7050			*11 200 ***24,650**	7050 **15,650**	9010 **360**
–6000 mm **–240 in**	kg **lb**			*24 950	*24 950	*19 150 ***41,000**	*19 150 ***41,000**	*15 050 ***32,000**	12 650 **27,250**	*11 450	9300					*11 100 ***24,400**	9100 **20,450**	7630 **300**

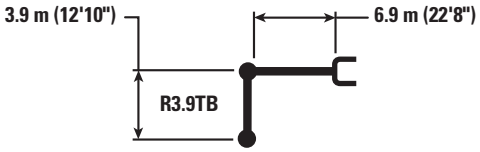
* **ISO 10567**

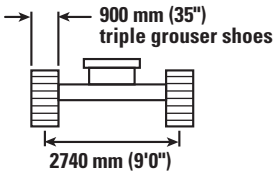
*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

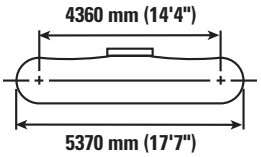
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		1500 mm/60 in		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
																mm in
9000 mm **360 in**	kg **lb**									***18,700**	***18,700**			*7900 ***17,500**	*7900 ***17,500**	7860 **310**
7500 mm **300 in**	kg **lb**													*7550 ***16,600**	*7550 ***16,600**	8970 **350**
6000 mm **240 in**	kg **lb**									*11 650 ***25,350**	11 350 **24,450**	*11 050 ***22,950**	8450 **18,100**	*7450 ***16,400**	7400 **16,350**	9720 **380**
4500 mm **180 in**	kg **lb**							*14 800 ***32,050**	*14 800 ***32,050**	*12 800 ***27,750**	10 950 **23,550**	*11 550 ***25,250**	8200 **17,650**	*7600 ***16,650**	6700 **14,750**	10 190 **400**
3000 mm **120 in**	kg **lb**					*23 750 ***51,000**	22 000 **47,450**	*17 300 ***37,400**	14 450 **31,150**	*14 150 ***30,650**	10 450 **22,500**	*12 300 ***26,750**	7950 **17,100**	*7900 ***17,400**	6300 **13,900**	10 420 **410**
1500 mm **60 in**	kg **lb**					*25 800 ***59,100**	20 450 **44,050**	*19 450 ***42,050**	13 600 **29,350**	*15 400 ***33,350**	9950 **21,450**	12 400 **26,650**	7650 **16,500**	*8500 ***18,700**	6150 **13,550**	10 430 **410**
0 mm **0 in**	kg **lb**					*23 800 ***55,050**	19 700 **42,450**	*20 700 ***44,850**	13 050 **28,150**	15 900 **34,250**	9600 **20,700**	12 150 **26,150**	7450 **16,050**	*9400 ***20,700**	6250 **13,700**	10 220 **410**
–1500 mm **–60 in**	kg **lb**			*15 300 ***34,450**	*15 300 ***34,450**	*28 150 ***61,050**	19 500 **41,950**	*20 950 ***45,350**	12 800 **27,550**	15 700 **33,750**	9400 **20,250**	12 050 **25,900**	7350 **15,800**	10 750 **23,650**	6600 **14,500**	9770 **390**
–3000 mm **–120 in**	kg **lb**	***38,550**	***38,550**	*22 300 ***50,350**	*22 300 ***50,350**	*26 350 ***57,100**	19 600 **42,100**	*20 050 ***43,400**	12 750 **27,450**	15 650 **33,650**	9350 **20,150**	12 050	7350	12 000 **26,500**	7300 **16,200**	9050 **360**
–4500 mm **–180 in**	kg **lb**			*30 900 ***66,650**	*30 900 ***66,650**	*23 050 ***49,700**	19 900 **42,850**	*17 800 ***38,300**	12 950 **27,850**	*13 750 ***29,250**	9500 **20,550**			*12 450 ***27,450**	8800 **19,600**	7980 **320**
–6000 mm **–240 in**	kg **lb**					*17 400 ***36,750**	*17 400 ***36,750**	*13 100 ***27,200**	*13 100 ***27,200**					*11 950 ***26,150**	*11 950 ***26,150**	6380 **250**

* **ISO 10567**

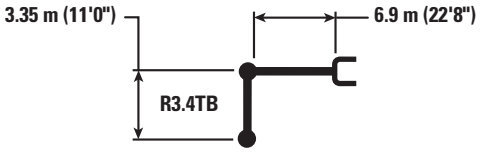
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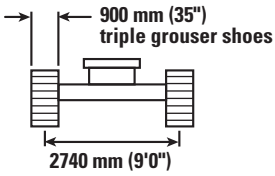
Lift capacity stays with ±5% for all available track shoes.

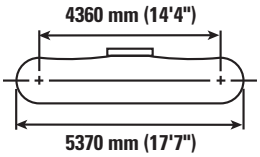
Always refer to the appropriate Operation and Maintenance Manual for specific product information.

349F L Hydraulic Excavator Specifications

Reach Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*9050 ***20,050**	*9050 ***20,050**	7300 **290**
7500 mm **300 in**	kg **lb**							*11 950 ***26,250**	11 500 **24,650**			*8500 ***18,750**	*8500 ***18,750**	8480 **330**
6000 mm **240 in**	kg **lb**							*12 500 ***27,300**	11 250 **24,200**	*10 750 ***20,250**	8350 **17,900**	*8350 ***18,350**	7950 **17,600**	9270 **370**
4500 mm **180 in**	kg **lb**			*20 750 ***44,500**	*20 750 ***44,500**	*16 000 ***34,600**	15 150 **32,700**	*13 600 ***29,550**	10 850 **23,400**	*12 250 ***26,700**	8200 **17,600**	*8450 ***18,550**	7150 **15,800**	9770 **390**
3000 mm **120 in**	kg **lb**			*25 750 ***55,300**	21 500 **46,450**	*18 400 ***39,700**	14 300 **30,850**	*14 850 ***32,250**	10 400 **22,400**	12 700 **27,300**	7950 **17,100**	*8800 ***19,300**	6750 **14,850**	10 010 **400**
1500 mm **60 in**	kg **lb**			*18 600 ***44,500**	*18 600 **43,700**	*20 250 ***43,800**	13 550 **29,250**	*15 950 ***34,600**	10 000 **21,500**	12 450 **26,750**	7700 **16,600**	*9400 ***20,700**	6600 **14,550**	10 020 **400**
0 mm **0 in**	kg **lb**			*20 950 ***48,650**	19 850 **42,700**	*21 150 ***45,800**	13 150 **28,300**	16 000 **34,400**	9700 **20,850**	12 250 **26,350**	7550 **16,250**	*10 400 ***22,900**	6700 **14,800**	9800 **390**
–1500 mm **–60 in**	kg **lb**	*14 900 ***33,650**	*14 900 ***33,650**	*27 700 ***60,150**	19 800 **42,600**	*20 950 ***45,400**	12 950 **27,900**	15 850 **34,050**	9550 **20,550**	12 200 **26,250**	7500 **16,150**	11 600 **25,600**	7150 **15,750**	9330 **370**
–3000 mm **–120 in**	kg **lb**	*23 850 ***53,850**	*23 850 ***53,850**	*25 350 ***55,000**	20 000 **42,950**	*19 650 ***42,450**	13 000 **28,000**	*15 450 ***33,250**	9550 **20,650**			*12 800 ***28,150**	8050 **17,850**	8570 **340**
–4500 mm **–180 in**	kg **lb**	*27 400 ***59,150**	*27 400 ***59,150**	*21 400 ***46,100**	20 400 **43,850**	*16 700 ***35,800**	13 250 **28,600**					*12 600 ***27,650**	9950 **22,250**	7430 **290**

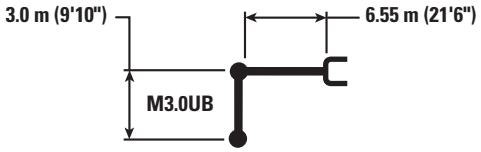
* ISO 10567

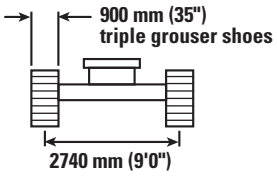
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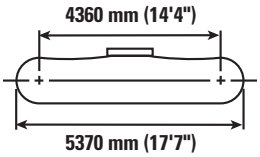
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Mass Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
7500 mm **300 in**	kg **lb**							*11 550	11 050			*10 000 ***22,050**	*10 000 ***22,050**	7670 **300**
6000 mm **240 in**	kg **lb**							*12 900 ***28,200**	10 900 **23,450**			*9700 ***21,400**	8750 **19,450**	8540 **340**
4500 mm **180 in**	kg **lb**			*20 800 ***44,600**	*20 800 ***44,600**	*16 100 ***34,850**	14 850 **32,050**	*13 800 ***29,950**	10 550 **22,650**	*10 750	7850	*9800 ***21,600**	7750 **17,100**	9070 **360**
3000 mm **120 in**	kg **lb**			*25 500 ***54,800**	21 150 **45,700**	*18 350 ***39,600**	13 950 **30,100**	*14 900 ***32,300**	10 100 **21,700**	12 400 **26,600**	7650 **16,400**	*10 250 ***22,500**	7200 **15,850**	9330 **370**
1500 mm **60 in**	kg **lb**			*22 900 ***55,100**	19 900 **42,850**	*20 050 ***43,400**	13 250 **28,500**	*15 850 ***34,350**	9650 **20,800**	12 150 **26,150**	7400 **15,950**	*11 050 ***24,250**	7000 **15,450**	9340 **370**
0 mm **0 in**	kg **lb**			*25 950 ***60,500**	19 450 **41,850**	*20 800 ***45,050**	12 800 **27,550**	15 700 **33,800**	9400 **20,200**	12 000	7300	11 800 **26,000**	7150 **15,800**	9110 **360**
–1500 mm **–60 in**	kg **lb**	*17 850 ***40,400**	*17 850 ***40,400**	*26 950 ***58,450**	19 400 **41,700**	*20 400 ***44,150**	12 650 **27,200**	15 550 **33,500**	9250 **19,950**			12 800 **28,250**	7750 **17,050**	8600 **340**
–3000 mm **–120 in**	kg **lb**	*29 450 ***66,650**	*29 450 ***66,650**	*24 100 ***52,200**	19 650 **42,200**	*18 600 ***40,150**	12 700 **27,400**	*14 200 ***30,250**	9350 **20,250**			*13 400 ***29,450**	8950 **19,900**	7760 **310**
–4500 mm **–180 in**	kg **lb**			*19 150 ***41,000**	*19 150 ***41,000**	*14 500 ***30,500**	13 100 **28,350**					*12 800 ***28,100**	11 850 **26,600**	6480 **260**

* **ISO 10567**

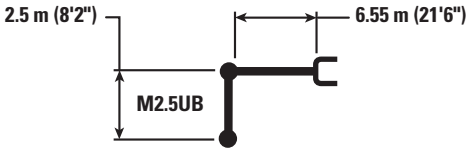
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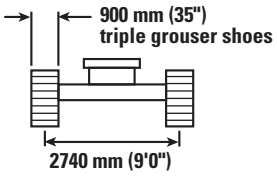
Lift capacity stays with ±5% for all available track shoes.

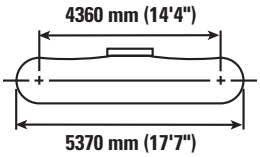
Always refer to the appropriate Operation and Maintenance Manual for specific product information.

349F L Hydraulic Excavator Specifications

Mass Boom Lift Capacities – Counterweight: 9.0 mt (9.9 t) – Heavy Lift: On







		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in				
												mm **in**
7500 mm **300 in**	kg **lb**									*13 050 ***28,900**	11 950 **26,950**	7110 **280**
6000 mm **240 in**	kg **lb**					*15 250 ***33,150**	*15 250 ***33,150**	*13 800 ***30,200**	10 800 **23,250**	*12 700 ***27,950**	9650 **21,400**	8030 **320**
4500 mm **180 in**	kg **lb**			*22 650 ***48,500**	*22 650 ***48,500**	*17 150 ***37,050**	14 700 **31,700**	*14 500 ***31,600**	10 500 **22,600**	*12 850 ***28,250**	8450 **18,650**	8600 **340**
3000 mm **120 in**	kg **lb**			 ***58,350**	 **44,750**	*19 200 ***41,500**	13 850 **29,900**	*15 500 ***33,650**	10 100 **21,700**	12 700 **27,950**	7850 **17,250**	8880 **350**
1500 mm **60 in**	kg **lb**					*20 650 ***44,650**	13 250 **28,500**	16 050 **34,550**	9700 **20,950**	12 450 **27,450**	7650 **16,800**	8890 **350**
0 mm **0 in**	kg **lb**			*23 950 ***56,350**	19 650 **42,200**	*21 000 ***45,500**	12 900 **27,750**	15 800 **34,000**	9500 **20,450**	12 900 **28,350**	7850 **17,250**	8640 **340**
–1500 mm **–60 in**	kg **lb**	*18 000 ***41,100**	*18 000 ***41,100**	*26 050 ***56,650**	19 700 **42,350**	*20 150 ***43,650**	12 800 **27,600**	15 750 **33,900**	9450 **20,350**	14 150 ***31,150**	8550 **18,850**	8100 **320**
–3000 mm **–120 in**	kg **lb**	*27 750 ***60,500**	*27 750 ***60,500**	*22 750 ***49,200**	20 000 **43,000**	*17 800 ***38,300**	13 000 **28,000**			*14 000 ***30,800**	10 150 **22,550**	7210 **290**
–4500 mm **–180 in**	kg **lb**			*16 800 ***35,700**	*16 800 ***35,700**					*12 750 ***27,850**	*12 750 ***27,850**	5800 **230**

* **ISO 10567**

*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Bucket Specifications and Compatibility

									349F L					349F L			
									900 mm (35") Triple Grouser Shoes					600 mm (24") Triple Grouser Shoes			
									Counterweight – 9.0 mt (9.9 t)					Counterweight – 9.0 mt (9.9 t)			
		Width		Capacity		Weight		Fill	ME Boom		HD Reach Boom		HD LR Boom	ME Boom		HD Reach Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")	LR 4.3 (14'1")	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")
Without Pin Grabber Coupler																	
General Duty (GDC)	TB	750	30	0.95	1.24	1311	2,889	100%			●	●	●			●	●
	TB	900	36	1.23	1.60	1441	3,176	100%			●	●	●			●	●
	TB	1050	42	1.51	1.98	1525	3,361	100%			●	●	●			●	●
	TB	1200	48	1.80	2.36	1676	3,694	100%			●	●	◉			●	●
	TB	1350	54	2.10	2.74	1792	3,950	100%			●	●	⊖			●	◉
	TB	1500	60	2.39	3.13	1943	4,282	100%			◉	◉	○			◉	⊖
	TB	1700	68	2.78	3.64	2128	4,690	100%			⊖	⊖	◇			⊖	○
	TB	1850	74	3.08	4.04	2254	4,968	100%			○	○	◇			○	○
General Duty XL (GDXL)	TB	2000	80	3.82	5.00	2457	5,415	100%			◇	◇	X			◇	◇
Heavy Duty (HD)	TB	900	36	1.08	1.41	1594	3,513	100%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1684	3,712	100%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1834	4,043	100%			●	●	●			●	●
	TB	1350	54	1.87	2.44	1962	4,324	100%			●	●	⊖			●	●
	TB	1500	60	2.14	2.80	2125	4,684	100%			●	◉	○			●	◉
	TB	1650	66	2.41	3.15	2286	5,039	100%			◉	⊖	○			◉	⊖
	TB	1800	72	2.69	3.52	2423	5,340	100%			⊖	○	◇			⊖	○
	UB	1850	73	3.19	4.16	2735	6,028	100%	⊖	○				⊖	○		
Severe Duty (SD)	TB	750	30	0.88	1.15	1446	3,187	90%			●	●	●			●	●
	TB	900	36	1.08	1.41	1677	3,696	90%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1779	3,921	90%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1952	4,302	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2180	4,805	90%			●	●	◉			●	●
	TB	1550	61	2.14	2.80	2381	5,248	90%			●	◉	⊖			●	◉
	TB	1700	67	2.41	3.16	2524	5,563	90%			◉	⊖	○			◉	⊖
	TB	1850	74	2.69	3.52	2726	6,008	90%			⊖	○	◇			⊖	○
	UB	1450	58	2.39	3.13	2540	5,598	90%	●	●				●	◉		
	UB	1850	73	3.21	4.20	2987	6,583	90%	⊖	○				⊖	○		
Extreme Duty (XD)	TB	1250	49	1.60	2.09	2224	4,902	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2366	5,215	90%			●	●	⊖			●	●
Maximum load pin-on (payload + bucket)								kg	7876	7133	6868	6342	5282	7643	6914	6663	6147
								lb	17,359	15,721	15,137	13,978	11,642	16,845	15,238	14,685	13,548

The above loads are in compliance with hydraulic excavator standard EN474, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451.

Bucket weight with General Duty tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)
- X Not Recommended

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

349F L Hydraulic Excavator Specifications

Bucket Specifications and Compatibility

									349F L					349F L			
									900 mm (35") Triple Grouser Shoes					600 mm (24") Triple Grouser Shoes			
									Counterweight – 9.0 mt (9.9 t)					Counterweight – 9.0 mt (9.9 t)			
		Width		Capacity		Weight		Fill	ME Boom		HD Reach Boom		HD LR Boom	ME Boom		HD Reach Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")	LR 4.3 (14'1")	M2.5 (8'2")	M3.0 (9'10")	R3.35 HD (11'0")	R3.9 HD (12'10")
With Pin Grabber Coupler																	
General Duty (GDC)	TB	750	30	0.95	1.24	1311	2,889	100%			●	●	●			●	●
	TB	900	36	1.23	1.60	1441	3,176	100%			●	●	●			●	●
	TB	1050	42	1.51	1.98	1525	3,361	100%			●	●	●			●	●
	TB	1200	48	1.80	2.36	1676	3,694	100%			●	●	◉			●	●
	TB	1350	54	2.10	2.74	1792	3,950	100%			●	●	⊖			●	◉
	TB	1500	60	2.39	3.13	1943	4,282	100%			◉	◉	○			◉	⊖
	TB	1700	68	2.78	3.64	2128	4,690	100%			⊖	⊖	◇			⊖	○
	TB	1850	74	3.08	4.04	2254	4,968	100%			○	○	◇			○	○
General Duty XL (GDXL)	TB	2000	80	3.82	5.00	2457	5,415	100%			◇	◇	X			◇	◇
Heavy Duty (HD)	TB	900	36	1.08	1.41	1594	3,513	100%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1684	3,712	100%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1834	4,043	100%			●	●	●			●	●
	TB	1350	54	1.87	2.44	1962	4,324	100%			●	●	⊖			●	●
	TB	1500	60	2.14	2.80	2125	4,684	100%			●	◉	○			●	◉
	TB	1650	66	2.41	3.15	2286	5,039	100%			◉	⊖	○			◉	⊖
	TB	1800	72	2.69	3.52	2423	5,340	100%			⊖	○	◇			⊖	○
Severe Duty (SD)	TB	750	30	0.88	1.15	1446	3,187	90%			●	●	●			●	●
	TB	900	36	1.08	1.41	1677	3,696	90%			●	●	●			●	●
	TB	1050	42	1.34	1.75	1779	3,921	90%			●	●	●			●	●
	TB	1200	48	1.60	2.09	1952	4,302	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2180	4,805	90%			●	●	◉			●	●
	TB	1550	61	2.14	2.80	2381	5,248	90%			●	◉	⊖			●	◉
	TB	1700	67	2.41	3.16	2524	5,563	90%			◉	⊖	○			◉	⊖
	TB	1850	74	2.69	3.52	2726	6,008	90%			⊖	○	◇			⊖	○
Extreme Duty (XD)	TB	1250	49	1.60	2.09	2224	4,902	90%			●	●	●			●	●
	TB	1400	55	1.87	2.44	2366	5,215	90%			●	●	⊖			●	●
Maximum load pin-on (payload + bucket)								kg	7043	6300	6035	5509	4449	6810	6081	5830	5314
								lb	15,523	13,885	13,301	12,142	9,806	15,009	13,403	12,849	11,712

The above loads are in compliance with hydraulic excavator standard EN474, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451.

Bucket weight with General Duty tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)
- X Not Recommended

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

349F L Work Tool Offering Guide*

Boom Type	Long Reach Boom HD	Reach Boom HD		Mass Boom	
Stick Size	**R4.3 HD (14'1")**	**R3.9 HD (12'10")**	**R3.35 HD (11'0")**	**M3.0 (9'10")**	**M2.5 (8'2")**
Hydraulic Hammer	H160E s H180E s	H160E s H180E s	H160E s H180E s	H160E s H180E s	H160E s H180E s
Multi-Processor	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw	MP30 CC Jaw MP30 CR Jaw MP30 PP Jaw MP30 PS Jaw MP30 S Jaw MP30 TS Jaw MP40 CC Jaw MP40 CR Jaw MP40 PS Jaw
Pulverizer	P235	P235	P235	P235	P235
Demolition and Sorting Grapple	G330	G330	G330	G330	G330
Mobile Scrap and Demolition Shear	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C	S340B S365C S385C
Orange Peel Grapple	These work tools are available for the 349F L. Consult your Cat dealer for proper match.				
Rippers					
Center-Lock™ Pin Grabber Coupler					

*Matches are dependent on excavator configurations. Consult your Cat dealer for proper work tool match.

349F L Standard Equipment

Standard Equipment

Standard equipment may vary. Consult your Cat dealer for details.

ENGINE

- Air cleaner
- Cat C13 ACERT diesel engine
- Biodiesel capable
- Meets Tier 4 Final emission standards
- 2300 m (7,500 ft) altitude capability
- Electric priming pump
- Automatic engine speed control
- Standard, economy and high power modes
- Two-speed travel
- Side-by-side cooling system
- Radial seal air filter
- Primary filter with water separator and water separator indicator switch
- Fuel differential indicator switch in fuel line

HYDRAULIC SYSTEM

- Automatic swing parking brake
- Regeneration circuit for boom and stick
- High-performance hydraulic return filter
- Regeneration circuit for boom and stick
- Capability of installing additional auxiliary circuits
- Bio oil capable
- 52° ambient cooling capability
- Heavy lift mode
- Joystick control pattern changer through monitor
- Fine swing*

CAB

- Wiper and washer
- Mirrors
- Pressurized operator station with positive filtration
- Windshield
  - 70-30 split, sliding, removable lower windshield with in cab storage bracket
- Sliding upper door window (left-hand cab door)
- Openable skylight
- Sunscreen
- Interior:
  - Glass-breaking safety hammer
  - Coat hook
  - Beverage holder
  - Literature holder
  - Interior lighting
  - AM/FM radio
  - Two 12V stereo speakers
  - Storage shelf suitable for lunch or toolbox
  - Power supply with 12V, two power outlets (10 amp)
  - Thumb wheel modulation joystick for use with combined auxiliary control
  - Air conditioner, heater and defroster with climate control
- Seat:
  - Adjustable high-back, heated and ventilated seat with air suspension
  - Seat belt, 51 mm (2 in)
  - Adjustable armrest
  - Height adjustable joystick consoles
  - Neutral lever (lock out) for all controls
  - Travel control pedals with removable hand levers
  - Capability of installing two additional pedals
  - Two speed travel
  - Floor mat, washable
  - Third travel pedal
- Monitor:
  - Clock
  - Video ready
  - Color LCD display with warning, filter/fluid change, and working hour information
  - Language display (full graphic and full color display)
  - Machine condition, error code and tool mode setting information
  - Start-up level check for engine oil, engine coolant and hydraulic oil
  - Warning, filter/fluid change and working hour information
  - Fuel consumption meter

UNDERCARRIAGE

- Grease Lubricated Track GLT4
- Towing eye on base frame
- Heavy-duty track rollers
- Track motor guards
- Swivel guard
- Heavy duty bottom guard

ELECTRICAL

- 80 amp alternator
- Circuit breaker
- Capability to electrically connect a beacon
- Travel alarm

LIGHTS

- Boom light
- Cab lights with time delay
- Exterior lights integrated into storage box

SAFETY & SECURITY

- Cat one key security system
- Door locks
- Cap locks on fuel and hydraulic tanks
- Lockable external tool/storage box
- Signaling/warning horn
- Secondary engine shutoff switch
- Mirrors
- Openable skylight for emergency exit
- Rearview camera
- Capability to connect a beacon
- Bolt-on FOGS capability
- Safety hammer for breaking cab glass

INTEGRATED TECHNOLOGIES

- Product Link
- Rear vision camera

*North America

Optional Equipment

Optional equipment may vary. Consult your Cat dealer for details.

ENGINE
- Quick drains, engine and hydraulic oil* **

HYDRAULIC SYSTEM
- Control pattern quick-changer
- Boom and stick lowering control devices
- HP hydraulic lines for boom and stick
- MP hydraulic lines for boom and stick
- QC hydraulic lines for boom and stick
- QC control
- Bio oil
- Heavy lift

UNDERCARRIAGE
- Tracks:
  - 900 mm (35") triple grouser*
  - 750 mm (30") triple grouser**
  - 750 mm (30") single grouser*
  - 600 mm (24") double grouser** ***
  - 600 mm (24") double grouser Heavy Duty* **
- Track guiding guards:
  - Center
  - Segmented
  - Full length
- Idler:
  - Forging
  - Fabricating

COUNTERWEIGHT
- 8.6 mt (9.4 t) with removal device*
- 9.0 mt (9.9 t)

ELECTRICAL
- Cold weather package
- Jump start receptacle

FRONT LINKAGE
- Reach Boom, 7.4 m (24'2")*
- Reach Boom, 6.9 m (22'8")
- Mass Boom, 6.55 m (21'6")
- Reach stick, R4.3 m TB (14'1")*
- Reach stick, R3.9 m TB (12'10")* **
- Reach stick, R3.35 m TB (11')
- Mass stick, M3.0 m UB (9'10")
- Mass stick, M2.5 m UB (8'2")
- TB bucket linkage with lifting eye
- UB bucket linkage with/without lifting eye
- Pin Grabber coupler

LIGHTS
- Working lights, cab mounted with time delay
- Halogen lights, cab mounted with time delay
- Halogen boom lights
- HID boom lights

SECURITY
- Falling Object Guard system (FOGS)

TECHNOLOGY
- Cat Grade Control (2D, 3D)
- Cat Production Measurement

*North America
**ANZ
***South Korea

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

AEHQ7891-01
Replaces AEHQ7891
(AmN, ANZ, South Korea)

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-014

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 26, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)**	**Record:**	**BGC-RFI-014**

Re: BGC-RFI-014: Event Pond Underdrain Clarification

BGC requests JDS provide acknowledgment of receipt of the following design clarification.

Figure 1 presents design Detail 17 from Drawing EGHLF-XD-05-03 for the event pond underdrain discharge pipe. The discharge outlet portion of the underdrain extending beneath the event pond embankment may be alternatively constructed using cut and cover methods (Material 2 backfill without the geotextile and Material 5 select drain fill). Also, the pipe size (150mm) shown on Detail 17 conflicts with the pipe size (200mm) shown on Detail 53. Either pipe size is acceptable.

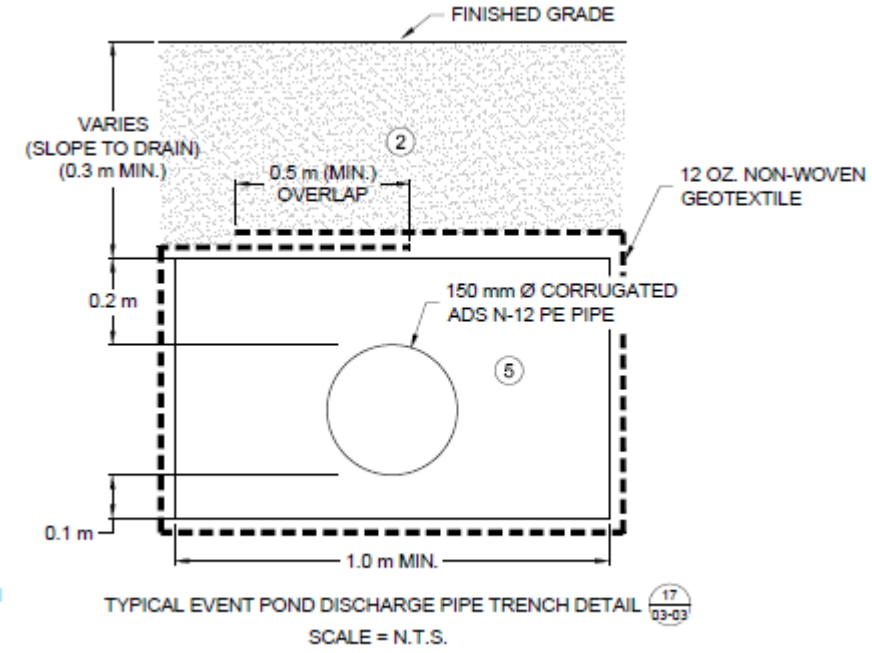


Figure 1 – Detail 17, Drawing EGHLF-XD-05-03

Response:

Answered by:

Name	Signature	Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-015

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 26, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)**	**Record:**	**BGC-RFI-015**

Re: BGC-RFI-015: Closure Sump Piping Design Clarification

BGC requests JDS provide acknowledgment of receipt of the following design clarification.

Figure 1 presents design Detail 37 from Drawing EGHLF-XD-05-05 for the closure sump piping plan. The 150mm solid PE closure drain pipes connecting the sump to the monitoring vault have been reduced from 3 pipes to 1 pipe due to the as-built pipe flow grade. The perforated pipework in the sump must be modified to accommodate a single outlet pipe. A configuration with elbows connectors and a single tee connector will be acceptable as shown on Figure 2.

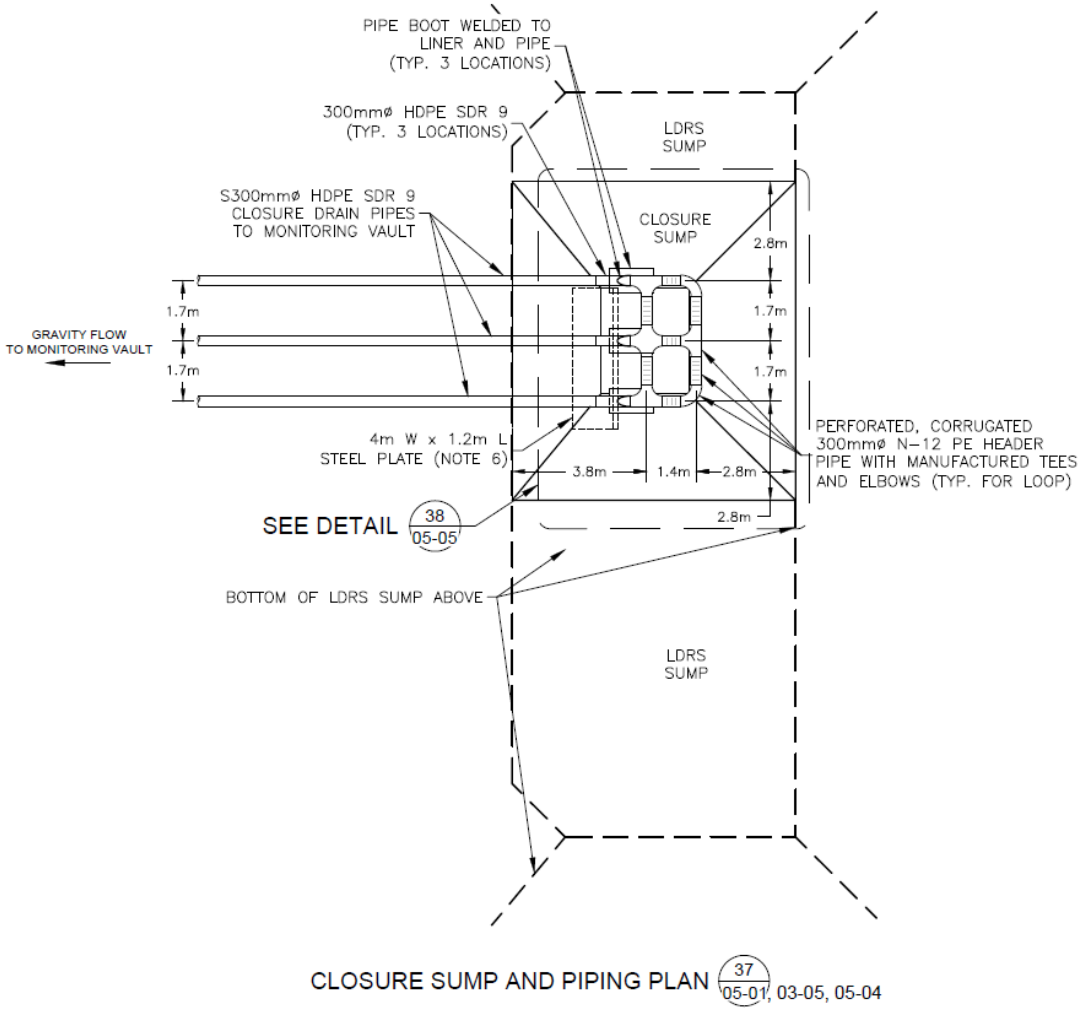


Figure 1 – Detail 37, Drawing EGHLF-XD-05-05

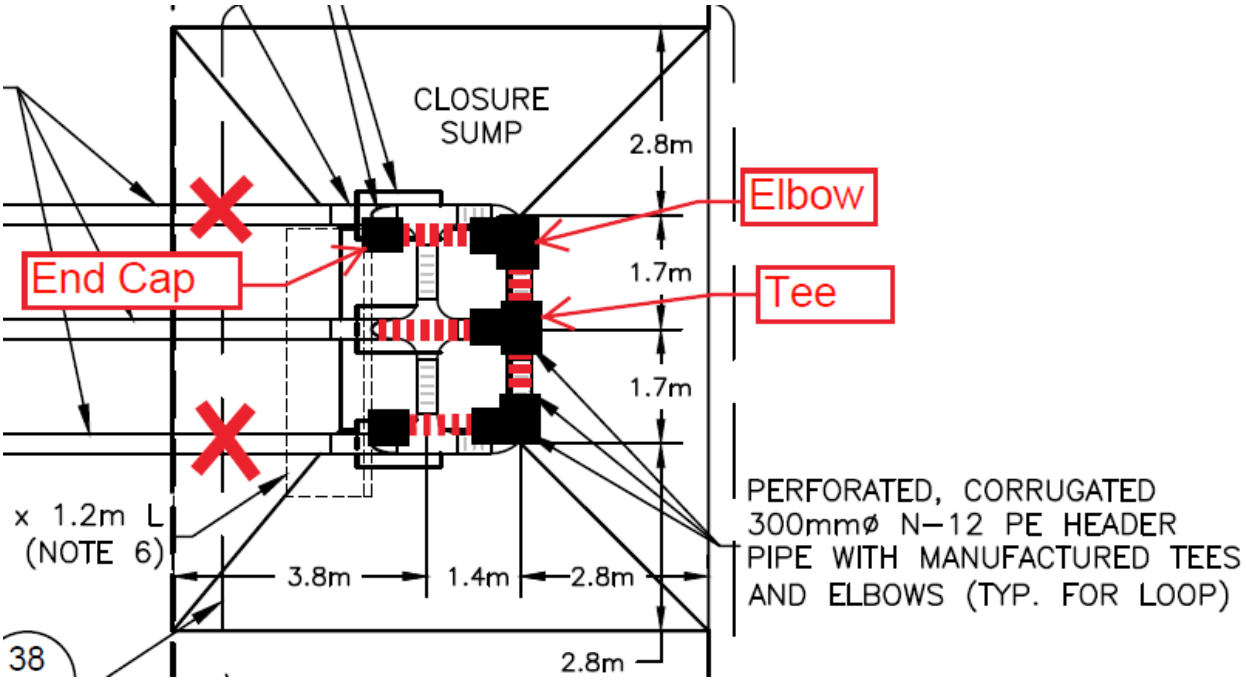


Figure 2 – Modified Detail 37, Drawing EGHLF-XD-05-05

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-016

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 27, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)** **Scott Dimitroff, Kate Rogers (Tetra Tech), Chad Messervey (Layfield)**	**Record:**	**BGC-RFI-016**

Re: BGC-RFI-016: Geomembrane and ODF Placement in Freezing Conditions

BGC requests JDS provide acknowledgment of receipt of the following technical specification clarification.

Section 4.1.7.2 of the project technical specifications addresses placement of liner in cold weather:

> *No seaming shall be conducted if the temperature measured at 15 cm above the geomembrane is lower than 5°C or above 38°C, without written acceptance by the Engineer. When the temperature is below 10°C, the Installer shall preheat the weld zone by a hot air device.*

The following guidance is provided and shall replace the above specification:

Cold weather installations should follow guidelines as outlined in GRI GM9: *Standard Practice for Cold Weather Seaming of Geomembranes.* No geomembrane material shall be seamed when liner (sheet) temperatures are less than 0 degrees C (32 degrees F) unless the following conditions are complied with:

1. Seaming of the geomembrane at material temperatures below 0 degrees C (32 degrees F) is allowed if the Geomembrane Installer (Layfield) can demonstrate to the Owner's Representatives (Tetra Tech and BGC), using pre-qualification test seams, that field seams comply with the project specifications, the safety of the crew is ensured, and geomembrane material can be fabricated (i.e. pipeboots, penetrations, repairs, etc.) at sub-freezing temperatures.
2. The Geomembrane Installer shall submit to the Owner's Representative for approval, detailed procedures for seaming at low temperatures, including the following:
    a. Preheating of the geomembrane, if necessary.
    b. The provision of a tent or other device if necessary to prevent heat losses during seaming and rapid heat losses subsequent to seaming.

c. Number of test welds to determine appropriate seaming parameters

Trial welds shall always be done in the environment (temperature) and geometry in which production welding is to be done.

Freezing temperatures can cause geomembrane sheets to crack when unrolled, folded, impacted or loaded. Geomembranes when unrolled or folded in cold weather should not crack, craze, or distort in texture. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that a geomembrane shall be unrolled unless it is shown otherwise to the satisfaction of the Owner's Representative.

Section 3.8.1.2 of the project technical specifications addresses placement of Overliner Drain Fill (ODF) on the installed liner. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that ODF shall be placed on the geomembrane unless it is shown otherwise to the satisfaction of the Owner's Representative.

Response:

Answered by:

Name	Signature	Date

From: Jason Wheeler
To: Troy Meyer; Jean-Francois Maille; Calvin Goldschmidt
Cc: Roy Morlan; Roman Bilobrowka; Daniel Granda; Dimitroff, Scott; Kate.Rogers@tetratech.com; Chad Messervey; Elliot Matthews
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions
Date: Friday, September 28, 2018 12:14:45 PM
Attachments: image001.png

Hello Troy,

I will submit our cold weather installation procedure too you shortly for review.

We are confident that we are able to weld in temperatures below 0 degrees by adjusting our temperatures and speeds accordingly. Please note that preheating the geomembrane or using tents does not work but we will have no issue showing tetra tech and BGC on site with trial welds and seam testing that installation is still possible in cold temperatures

Below is just a quick chart for you information on handling different types materials in relation to the Cold weather deployment

Table1. Cold Temperature Handling Guide

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Regular PVC 20 mil	-26°C, -15°F (D1790)	-5°C, +23°F
Regular PVC 30 mil and up	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 100 30mil (U)	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 250 38mil (S)	-40°C, -40°F (D2136)	-15°C, +5°F
HAZGARD 1000 (S)	-40°C, -40°F (D2136)	-20°C, -4°F
HAZGARD 5000 HT (S)	-30°C, -22°F (D2136))	-10°C, +14°F
HDPE 60mil	-70°C, -94°F (D746)	-25°C, -13°F (Welding Limited)
EPDM 45mil	-45°C, -49°F (D746)	+5°C, +41°F (Issues with sealant tape)

Regards,

Jason Wheeler | Project Manager | Geosynthetics
17720 - 129 Avenue NW | Edmonton, AB T5V 0C4
phone: 780-733-6337 | mobile: 403-470-9123 | www.layfieldgroup.com



From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Thursday, September 27, 2018 4:46 PM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Please see attached.
Thanks.

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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LAYFIELD
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LAYFIELD CANADA LTD.
17720 – 129 Avenue NW, Edmonton, AB T5V 0C4 Canada
■ Phone: 780 453-6731
■ Fax: 780 452-9495
■ Web: www.layfieldgroup.com
■ E-Mail: edm@layfieldgroup.com

Cold Weather Seaming Protocols

Welding can be completed in colder temperatures provided some additional procedures are followed and the trial welds (prequalification welds) are performed in the same environment as the main production seams. The trial welds are very important, as they will verify that the welding equipment has been properly set to meet the site and ambient temperature conditions. Below are some of additional guidelines to follow for the various temperature ranges. The onsite superintendent shall also have the experience to determine whether satisfactory seams can be achieved given the weather and site conditions.

Temperatures between 0˚C and -10˚C: The welding procedure on this temperature range is the same as warm weather welding procedures; however you may require slight adjustments to the welding units' temperature and/or speed settings. When the weather is clear and sunny and the wind is minimal, only very slight adjustments may be required, but when it is overcast, windy and cooler considerable adjustments may be required.

Temperatures between -10˚C and -20˚C+: Additional care must be taken to ensure that the welding units are operating properly in the cold and that the welding temperatures and speeds are adjusted to accommodate the colder temperatures. During the seaming operation, the technician will monitor the welding unit to ensure that the set welding speeds and temperatures are maintained throughout the length of the seam. No welding can take place when it is raining, sleeting, snowing and the moisture caused from these conditions cannot be removed to ensure that the seam areas are 100% dry during the seaming procedure. Extra care must be taken when working when wet, snowy or icy conditions prevail as the liner becomes very slippery under these conditions and is a safety concern. Removal of snow and ice can be completed using various types of low impact snow blowers, brushes, or plastic shovels that will have minimal impact on liner itself

Preparation of the Geomembrane Surfaces to be Seamed

• Extra precautions must be made if it is snowing, sleeting or hailing on the geomembrane in the area to be seamed.

• In the area to be seamed, all frost must be removed from the opposing surfaces of the geomembrane sheets in the regions where the actual seaming is to be performed. The residual moisture left after removing frost must be wiped dry. This can prove more difficult to on textured geomembranes where the texturing extends to the roll edges or roll ends.

• The application of heat to remove moisture using a hand held hot air device may be used; however care must be exercised to prevent excessive heat being applied to the liner. It is recommended an assessment is made by performing a trial seam using the same equipment in the exact site and temperature conditions.

• The specific area to be seamed must be free of soil particles and other foreign matter.

• Take measures for thermal fusion welding that the underside of the lower sheet should also be free of frost and moisture so that the lower drive wheels of the device can move freely and do not slip. It may be necessary to use a rub sheet beneath the area being seamed to separate the geomembrane from frozen soil subgrade. Various materials have been used for rub sheets including smooth membranes, smooth films and even certain types of geotextiles.

• For fillet extrusion welding the thermal tacking of the sheets together should proceed as with similar welding at temperatures above freezing.

Thermal Fusion Seaming (e.g., using a hot wedge welding device)

• In general, the rate of seaming, i.e., the speed of the hot wedge device, is usually slower than when seaming at temperatures above 0°C (32°F). Furthermore, the rate should decrease with decreasing sheet temperature.

• Additional trial seams may be required in colder temperatures. These will be performed at the discretion of the supervisor on site.

• Cold temperature seaming may also require more destructive tests on production seams than when welding above freezing. For example, in addition to the CQA plan written around above freezing temperatures, additional destructive seam samples may be taken at the end(s) of each continuous production seams. *Note 3: The actual schedule for destructive test samples is at the discretion of the CQA Engineer.*

Extrusion Fillet Seaming

• The necessary grinding of the geomembrane surfaces in preparation of placing extradite should be no further ahead of the extrusion gun than 20 minutes.

• In general, the rate of seaming, i.e., the speed of travel, is slower than when seaming at temperatures above 0° (32°F). Furthermore, the rate should decrease with decreasing sheet temperatures.

• Additional trial seams may be required in colder temperatures. These will be performed at the discretion of the supervisor on site.

• Cold temperature seaming may also require more destructive tests on production seams than when welding above freezing. For example, in addition to the CQA plan written around above freezing temperatures, additional destructive seam samples may be taken at the end(s) of each continuous production seam. *Note 4: The actual schedule for destructive test samples is at the discretion of the CQA Engineer.*

Seam Testing

• In general, destructive testing of seams (both shear and peel) made in cold temperatures should follow the same protocol and test methods as for temperatures above freezing.

• Seam tests from trial seams should be taken to a field trailer or other heated enclosure to allow the seam to acclimatize to the designated test temperature (20 degrees Celsius) and tested accordingly. However, seam tests from trial seams which are tested with a tensiometer on-site at temperatures less than freezing is sometimes unavoidable. Weather conditions can change often throughout the day, the supervisor and on site engineer can decide to increase trial seems and destructs as deemed necessary.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-017

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 28, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)** **Dean Serelo (Pelly)**	**Record:**	**BGC-RFI-017**

Re: BGC-RFI-017: Event Pond Underdrain Outlet Pipe Clarification

BGC requests JDS provide acknowledgment of receipt of the following design drawing clarification.

Drawing EGHLF XD-03-03 shows the alignment of the Event Pond outlet pipe. A profile for this pipe is not provided. Drawing EGHLF XD-07-01 shows the Event Pond survey control. Control Point #9 should be used as the top of trench control for the underdrain outlet pipe. The discharge point at the end of the outlet pipe may be field located but must be south of the event pond and accessible and protected for future monitoring.

Drawing EGHLF XD-03-03, Detail 17 shows the outlet pipe detail. BGC-RFI-14 provides clarification regarding this detail with approval for a cut and cover trench in place of the geotextile wrap and drain gravel arrangement.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-018

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 29, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)** **Dean Serelo (Pelly)**	**Record:**	**BGC-RFI-018**

Re: BGC-RFI-018: Event Pond Excavation Specification

BGC requests JDS provide acknowledgment of receipt of the following technical specification clarification.

The distribution of permafrost and associated ground ice is likely heterogeneous in both the horizontal and the vertical directions within the Event Pond area. The project technical specifications address excavation and removal of ice-rich materials in Section 3.1:

> *Identify and Remove Ice-Rich Soils - Ice-rich soils in permafrost, when thawed and generating excess pore pressures, can result in soil instabilities and therefore, it is critical to identify and remove any ice-rich soils in the foundation of the HLF prior to liner construction and stacking. On the other hand, if the frozen ground does not contain excess ice (no ice-rich soils) and is thaw stable, there is negligible impact on the stability of the ground upon thaw.*

For excavations at the Event Pond, BGC will require removal of thaw-unstable material. The identification of thaw-unstable soil will be based on the following guidance in the Foundation Improvement Plan (FIP):

> *A volumetric ice content of 15% is considered to reflect a local threshold for thaw sensitivity, where the soil can become unstable upon thaw because of excess pore pressures that cannot dissipate.*

Even if the frozen soil has no visible ice, it may still have considerable ice volume as is illustrated on the collapse and flow of the frozen soil structure when thawed **(Photo 1 and Figure 1**). The procedure for identification is outlined in the FIP as summarized in **Figure 2**. Materials identified as Types III, IV and V may be classified as thaw unstable depending the extent of the ice. If excess ice in the material exceeds 15%, by estimation of the BGC Field Engineer, or if a sample of frozen material exhibits collapse and flow, the material must be removed.



Photo 1 – Thaw unstable soils at HLF west abutment area.



c) Lump of frozen gravelly silty sand till

d) Gravelly silty sand till when thawed illustrating high water content

Figure 1. Photos Illustrating Visual Ice Content in cores and physical changes of a frozen gravelly silty sand till upon thawing.

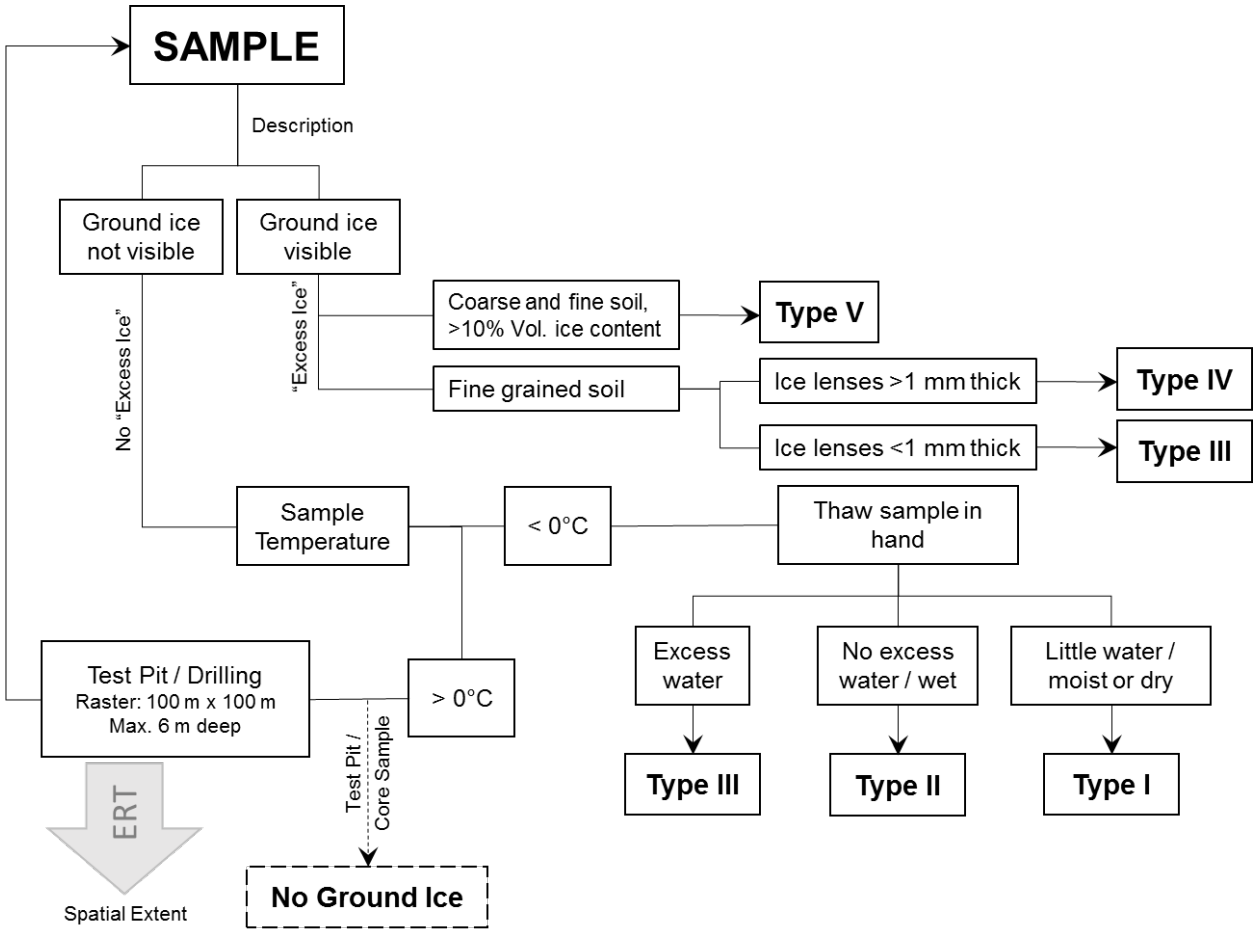


Figure 2. Ground ice identification procedure.

Response:

Answered by:

Name Signature Date

Roy Morlan

From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Thursday, October 18, 2018 2:34 PM
To: Roy Morlan; Mike Blusson
Subject: RE: Closing RFIs

Roy,

BGC-RFI-022 : Consider this email as an confirmation of receipt

BGC-RFI-019 : Consider this email as an confirmation of receipt

BGC-RFI-018 : Consider this email as an confirmation of receipt

Regards

JF

From: Roy Morlan [mailto:RMorlan@bgcengineering.ca]
Sent: October 18, 2018 8:53 AM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Mike Blusson <mikeb@jdsmining.ca>
Subject: Closing RFIs

Hi guys. Below are a list of RFIs we sent that just require an acknowledgement of receipt to close them out. They were all small design tweaks, clarifications, and field fit changes that we just wanted to officially track somehow for the construction completion report and we thought this would be an easy way. If you respond to this email acknowledging that you received these changes I can close all of them out. Thanks.

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-022	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.

BGC ENGINEERING INC.
per:

Roy Morlan, P.G., P.M.P.
Senior Engineering Geologist

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
701 12th Street, Suite 211
Golden, CO, USA, 80401
Telephone: 720.598.5982 ext. 52104
Cellular: 303.253.5268
www.bgcengineering.ca

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-019

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 30, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)**	**Record:**	**BGC-RFI-019**

Re: BGC-RFI-019: Closure Sump Steel Plate Detail

BGC requests JDS provide acknowledgment of receipt of the following design detail clarification.

The pipework contractor (Heavy North) asked for clarification regarding the size, location and orientation of the steel protection plate to be installed in the closure sump as show in Detail 33 on Drawing EGHLF XD-05-04and Detail 37 on Drawing EGHLF XD-05-05. The configuration of the Closure Pipe Casings was modified per BGC-RFI-013. As a result the Closure Pipe Casings have been shifted up and away from the HLF Embankment face as show in **Figure 1**. This requies modification of the position of the steel plate. **Figure 2** shows the revised configuration. The steel plate will be positioned at the north edge of the sump at a 20 degree angle from horizontal, as shown. The dimensions of the steel plate are 3m long by 1.2m wide with a 25 cm 90 degree angle. This revised orientation requires a modification to the closure sump pipe drainage loop (see **Figure 3**). This RFI supercedes RFI-015.

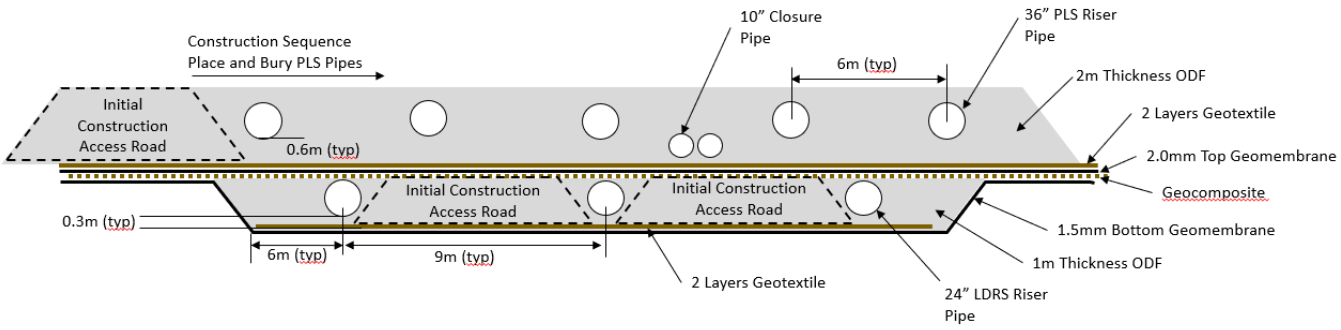


Figure 1: Revised Detail 28, Drawing EGHLF-XD-05-03.

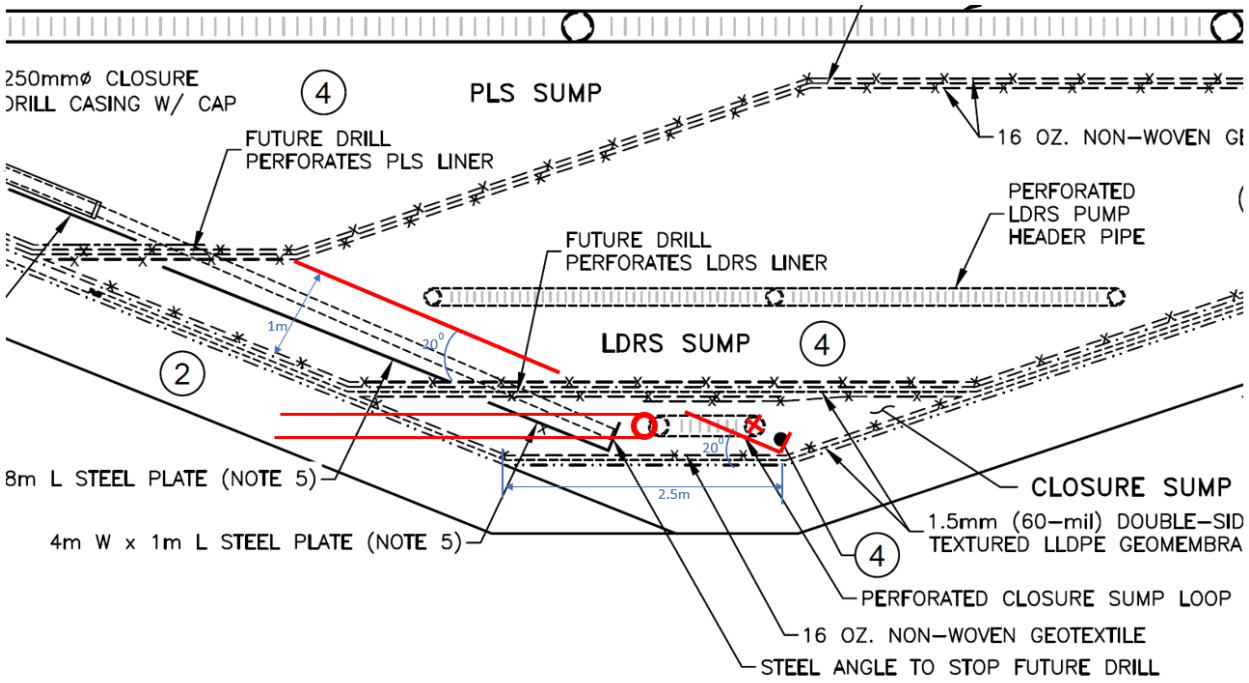


Figure 2. Revised Detail 33.

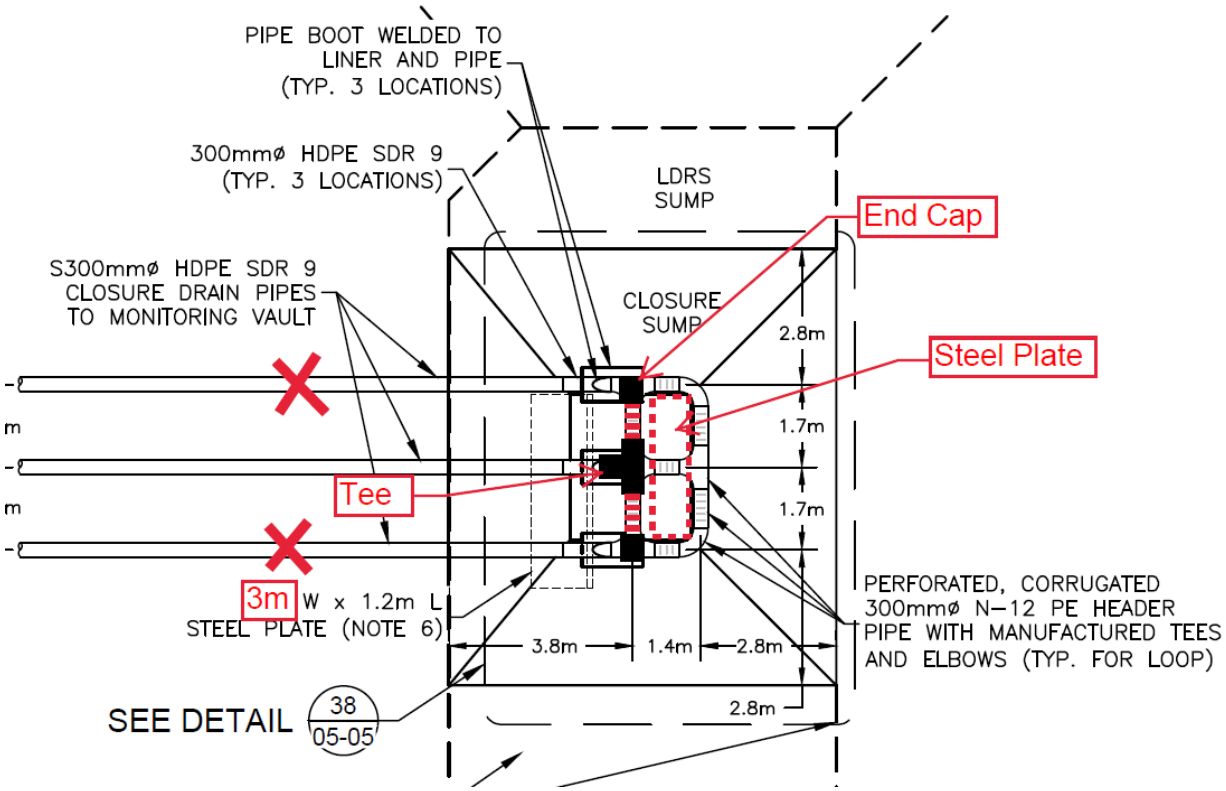


Figure 3. Revised Detail.

Response:

Answered by:

Name	Signature	Date

Roy Morlan

From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Thursday, October 18, 2018 2:34 PM
To: Roy Morlan; Mike Blusson
Subject: RE: Closing RFIs

Roy,

BGC-RFI-022 : Consider this email as an confirmation of receipt

BGC-RFI-019 : Consider this email as an confirmation of receipt

BGC-RFI-018 : Consider this email as an confirmation of receipt

Regards

JF

From: Roy Morlan [mailto:RMorlan@bgcengineering.ca]
Sent: October 18, 2018 8:53 AM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Mike Blusson <mikeb@jdsmining.ca>
Subject: Closing RFIs

Hi guys. Below are a list of RFIs we sent that just require an acknowledgement of receipt to close them out. They were all small design tweaks, clarifications, and field fit changes that we just wanted to officially track somehow for the construction completion report and we thought this would be an easy way. If you respond to this email acknowledging that you received these changes I can close all of them out. Thanks.

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-022	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.

BGC ENGINEERING INC.
per:

Roy Morlan, P.G., P.M.P.
Senior Engineering Geologist

BGC ENGINEERING INC.
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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-020

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda (BGC)**	**Date:**	**Oct 9, 2018**
Copied:	**Roy Morlan, Troy Meyer (BGC)**	**Record:**	**BGC-RFI-020**

Re: BGC-RFI-020: Steel plate installation and closure drain pipe

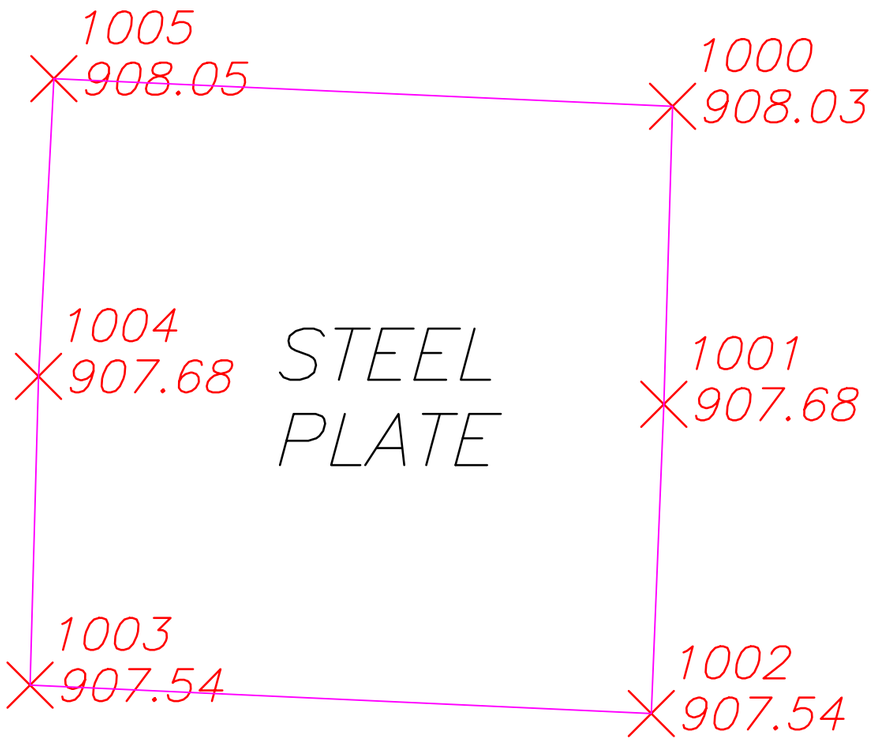
BGC requests JDS/Heavy North provide as-built survey information of steel plate installation and closure drain pipe that took place on Oct 6, 2018.

This RFI refers to the clarification BGC-RFI-019: Closure Sump Design Detail sent by Troy Meyer (BGC), September 30th, 2018. The survey as build is needed for record keeping and due to the nature of the usage of these steel plates when closing of the HLF occurs. The T installed on the date should have also been surveyed and as built information should be provided. Survey as-builts was brought up during the installation by BGC representative Daniel Granda during the placement of the steel plates.

Response:

Answered by:

Name Signature Date



HEAP LEACH STEEL PLATE CLOSURE SUMP AS BUILT 2018-10-06 FOR HEAVY NORTH

AS BUILT AND PREPARED BY JOSHUA SMITH UNDERHILL GEOMATICS

PT#	NORTHING	EASTING	ELEVATION
PT1	7101577.354	459519.013	908.027
PT2	7101576.19	459518.979	907.676
PT3	7101574.982	459518.93	907.535
PT4	7101575.093	459516.503	907.537
PT5	7101576.299	459516.536	907.682
PT6	7101577.462	459516.596	908.052

ELEVATION 20MM CRUSH ADDED BACK FILL TO FG 908.500 2018-10-06

PT#	NORTHING	EASTING	ELEVATION
PT1	7101577.318	459519.021	908.403
PT2	7101576.186	459518.983	908.364
PT3	7101574.979	459518.935	908.378
PT4	7101575.092	459516.509	908.321
PT5	7101576.31	459516.541	908.326
PT6	7101577.469	459516.59	908.358

ELEVATION 20MM CRUSH ADDED BACK FILL TO FG 908.500 2018-10-07

PT#	NORTHING	EASTING	ELEVATION
PT1	7101577.359	459519.021	908.504
PT2	7101576.207	459518.989	908.539
PT3	7101574.973	459518.908	908.476
PT4	7101575.086	459516.493	908.481
PT5	7101576.261	459516.542	908.498
PT6	7101577.443	459516.577	908.497

UNDERHILL GEOMATICS LTD.
PROFESSIONAL LAND SURVEYORS
WHITEHORSE, YUKON
JOB: W17135 FILE: 2018-10-17 STEEL PLATE ASB AT HLF.DWG
DATE: 2018-10-17 PREPARED BY: RM

Roy Morlan

From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Wednesday, October 17, 2018 12:32 PM
To: Roy Morlan; Troy Meyer
Cc: Mike Blusson; Matt Coverdale
Subject: RE: Re: As-Built of Steelplate at HLF

We have pictures of the closure pipe but no as-built

JF

From: Roy Morlan [mailto:RMorlan@bgcengineering.ca]
Sent: October 17, 2018 12:22 PM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Mike Blusson <mikeb@jdsmining.ca>; Matt Coverdale <MattC@jdsmining.ca>
Subject: RE: Re: As-Built of Steelplate at HLF

Thanks. Just to confirm and to close off BGC-RFI-020; the closure drain pipe was not surveyed. Is that correct?

Thanks.

From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Wednesday, October 17, 2018 9:42 AM
To: Roy Morlan <RMorlan@bgcengineering.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Mike Blusson <mikeb@jdsmining.ca>; Matt Coverdale <MattC@jdsmining.ca>
Subject: FW: Re: As-Built of Steelplate at HLF

As discussed

JF

From: Richard [mailto:rmorin@underhill.yk.ca]
Sent: October 17, 2018 9:38 AM
To: Mike Blusson <mikeb@jdsmining.ca>; Clint Abel <clinta@jdsmining.ca>; Matt Coverdale <MattC@jdsmining.ca>; Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Aaron Wagner <aaron.wagner@heavynorth.com>
Subject: Fwd: Re: As-Built of Steelplate at HLF

Hello All,

Please see attached Excel file of the As Build Data. As well as a PDF CAD drawing for the steel plate.

Please let me know if you need more information.

Regards,

--
Richard Morin
Survey Party Chief, CET
1-867-334-4161
rmorin@underhill.yk.ca

-------- Forwarded Message --------
Subject: Re: As-Built of Steelplate at HLF
Date: Wed, 10 Oct 2018 10:01:57 -0700
From: Dan <dboyle@underhill.yk.ca>
To: Tawnya Thornton <TawnyaT@jdsmining.ca>
CC: Richard Morin <rmorin@underhill.yk.ca>

Hi Tawnya,

Attached is the csv file of the Closure Sump asbuilt at the Heap.

Point file is P,N,E,Z,D

Dan Boyle, LSIT
Underhill Geomatics Ltd.

Phone: 867-668-2048 x7
E-Mail: dboyle@underhill.yk.ca
Website: http://www.underhill.ca

On 09/10/2018 2:09 PM, Tawnya Thornton wrote:

> Hey Dan,
>
> I believe Heavy North had someone as-built the steel plate and closure drain pipe that went in at the closure sump? Should have been done around Oct 6th – would you be able the provide the info?
>
> Thanks!

TAWNYA THORNTON EIT
Mine Engineer
JDS ENERGY & MINING INC.
Suite 900, 999 West Hastings St.
Vancouver, BC, V6C 2W2
email tawnyat@jdsmining.ca
office 604.558.6300
cell 604.789.1331

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-021

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda (BGC)**	**Date:**	**Oct 9, 2018**
Copied:	**Roy Morlan, Troy Meyer (BGC)**	**Record:**	**BGC-RFI-021**

Re: BGC-RFI-021: Event Pond Water Management Plan

BGC requests JDS/Pelly provide a water management plan to protect the current construction efforts and winter snow/ice melts during Spring (Freshet) that may oversaturate, flood or damage current approved foundations and accepted compacted lifts.

Water management has been an on-going topic throughout the HLF embankment construction, foundation approvals from 2017 to 2018 and BGC is concern that water will be an issue with the event pond work zone. Figure 1 and 2 show the current grades and undrained susceptible materials that may be affected by poor water management during the construction and shut down of the work area during Winter until Spring.



Figure 1: Looking at an ice rich excavation and slopes grading towards current work zone

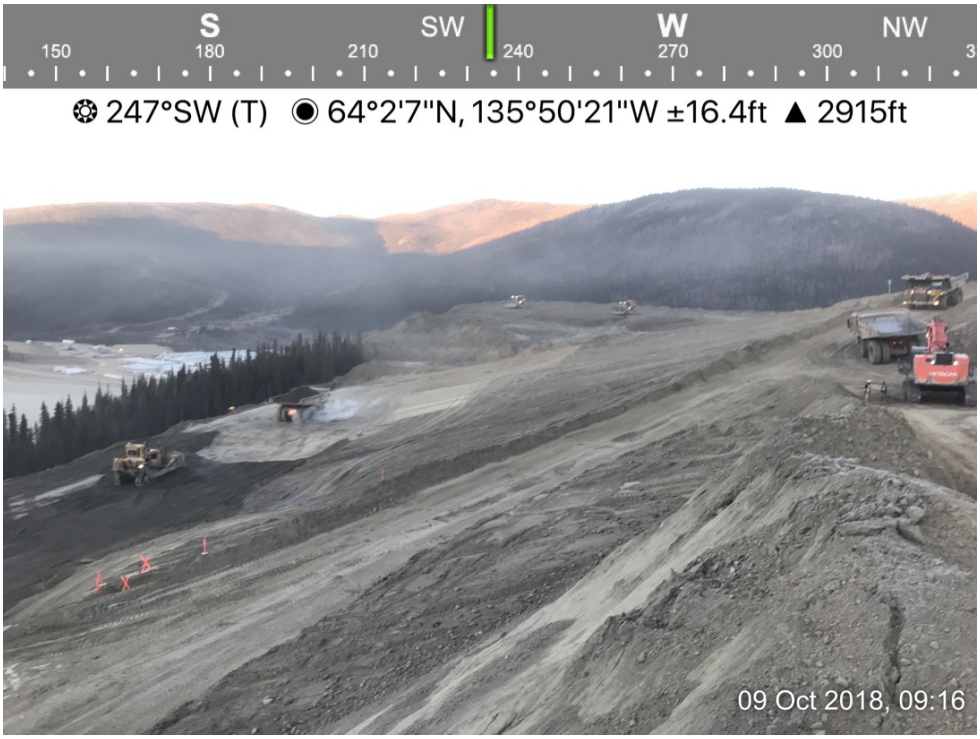


Figure 2: Looking at current lifts placed and roads/slopes grading towards area

Response:

Answered by:

Name	Signature	Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-022

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda (BGC)**	**Date:**	**Oct 9, 2018**
Copied:	**Roy Morlan, Troy Meyer (BGC)**	**Record:**	**BGC-RFI-022**

Re: BGC-RFI-022: Event Pond Water Management Plan

BGC requests JDS/Pelly provide a water management plan to protect the current construction efforts and winter snow/ice melts during Spring (Freshet) that may oversaturate, flood or damage current approved foundations and accepted compacted lifts.

Water management has been an on-going topic throughout the HLF embankment construction, foundation approvals from 2017 to 2018 and BGC is concern that water will be an issue with the event pond work zone. Figure 1 and 2 show the current grades and undrained susceptible materials that may be affected by poor water management during the construction and shut down of the work area during Winter until Spring.



Figure 1: Looking at an ice rich excavation and slopes grading towards current work zone

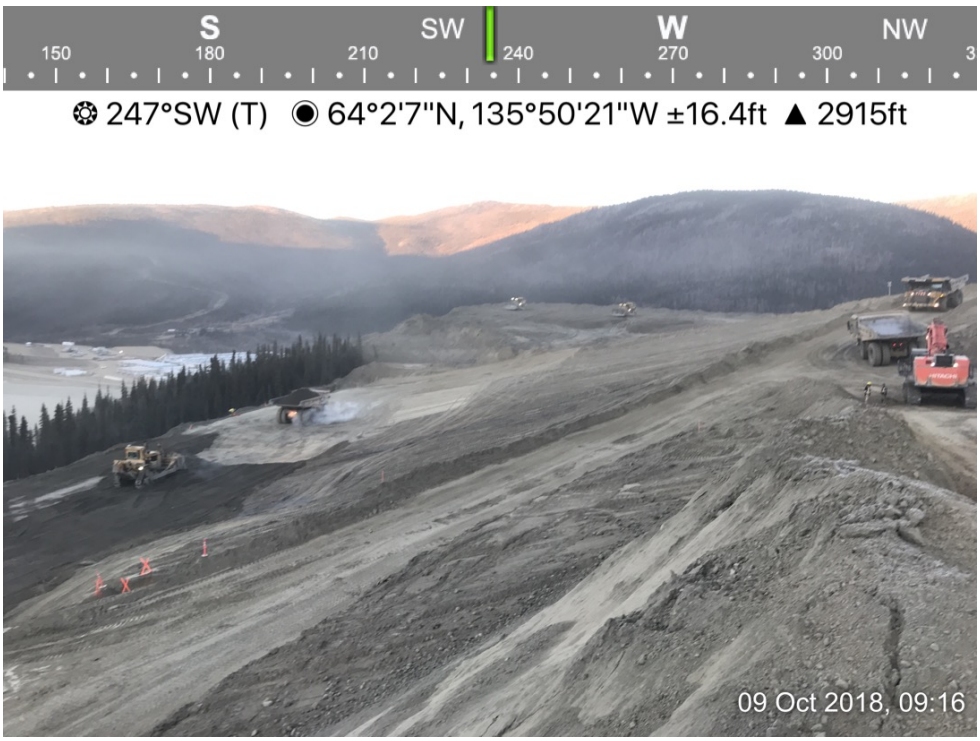


Figure 2: Looking at current lifts placed and roads/slopes grading towards area

Response:

Answered by:

Name	Signature	Date

Roy Morlan

From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Thursday, October 18, 2018 2:34 PM
To: Roy Morlan; Mike Blusson
Subject: RE: Closing RFIs

Roy,

BGC-RFI-022 : Consider this email as an confirmation of receipt

BGC-RFI-019 : Consider this email as an confirmation of receipt

BGC-RFI-018 : Consider this email as an confirmation of receipt

Regards

JF

From: Roy Morlan [mailto:RMorlan@bgcengineering.ca]
Sent: October 18, 2018 8:53 AM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Mike Blusson <mikeb@jdsmining.ca>
Subject: Closing RFIs

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BGC ENGINEERING INC.
per:

Roy Morlan, P.G., P.M.P.
Senior Engineering Geologist

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
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Cellular: 303.253.5268
www.bgcengineering.ca

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-023

To:	**Calvin Goldschmidt (JDS)** **Jean-Francois Maille (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**October 10, 2018**
Copied:	**Troy Meyer (BGC), Dan Granda (BGC)**	**Record:**	**BGC-RFI-023**

Re: BGC-RFI-023: Event Pond Material Source Plan

1.0 REQUEST FOR INFORMATION

BGC would like for JDS to confirm the source of material Event Pond fill. Per the design and specifications the event pond fill should be composed of Material 1. However, Material 3 (Structural Fill) can also be used in conjunction with a bedding of Material 1 to protect the Event Pond liner. Once the source has been confirmed, if different from the existing borrows being used, BGC would like to inspect and possibly sample and test the material to confirm its suitability. Characteristics to be inspected are:

1. Moisture content
2. The presence of ice in the material.
3. Material gradation.
4. The presence of weak material such as phyllite.
5. The presence of organics.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-024

To:	**Calvin Goldschmidt (JDS)** **Jean-Francois Maille (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda (BGC)**	**Date:**	**October 12, 2018**
Copied:	**Troy Meyer (BGC), Roy Morlan (BGC)**	**Record:**	**BGC-RFI-024**

Re: BGC-RFI-024: Event Pond Material Management

1.0 REQUEST FOR INFORMATION

BGC is requesting JDS to label all material source stockpiles for QA/QC and Pelly to effectively haul and compact material on the event pond. On Oct 11, 2018, BGC rejected a lift on the west side of th event pond due to oversaturation. From here on forward, as discussed verbally, BGC and Tetra Tech would need at least 24 hour notice of a new source, with a label, to test (proctor, gradations, etc). BGC may temporary allow the placement of material before testing is complete, but the lift may be rejected if moisture and density on proctor results are not reflected on the lift compaction. Moisture management (part of the RFI 22 water management plan for the event pond) remains to be resolved. If rejected, BGC will not accept lift and this lift will need to be scraped off and recompacted.

Labels for material stockpiles should:

1. Be clear for excavator and Pelly operations, and
2. Be surveyed and marked.
3. Maintained for visibility.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-025

To:	**Calvin Goldschmidt (JDS)** **Jean-Francois Maille (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda (BGC)**	**Date:**	**October 12, 2018**
Copied:	**Troy Meyer (BGC), Roy Morlan (BGC)**	**Record:**	**BGC-RFI-025**

Re: BGC-RFI-025: Event Pond Winterization Plan Criteria

1.0 REQUEST FOR INFORMATION

BGC is requesting JDS to develop a winterization procedure for the event pond as winter conditions begin to affect construction quality, scheduling and material properties.

The winterization plan for the event pond should consider at a minimum the following:

1. At least a 2% grade on last lift to help runoff from melt, rainfall, snowmelt, ice melt to leave event pond embankment.

2. A protective layer on areas that may be affected by winter related erosion (slopes need organics, groins, areas where water could concentrate flow and erode surface).

3. Protect the installed drain pipe from debris, frost, ice by following criteria similar to the Heap Leach Pad underdrains downstream.

Once finalized, JDS should submit plan to BGC for review and approval.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-027

To:	**Jean-Francois Maille (JDS)** **Mike Blusson (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**November 1, 2018**
Copied:	**Troy Meyer (BGC)**	**Record:**	**BGC-RFI-027**

Re: BGC-RFI-027: ODF Durability Testing

BGC requests JDS provide acknowledgment of receipt of the following clarification for the construction record.

Durability testing was performed on samples collected from the ROM Road and Electrical Substation. The following tests were performed on each sample:

- Los Angeles Abrasion – ASTM C131/AASTHO T-96.
- Relative Density and Absorption – ASTM C127/ASTM C128.
- Slake Durability – ASTM D4644

Results from this testing were received and showed that each sample had similar durability with the material from the ROM Road source having slightly better durability. Both sources would be suitable for production of ODF – Material 4. Test results are attached to this RFI.

Response:

Answered by:

Name Signature Date

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03235-05	**Sample No.:**	2749.1
Project:	Eagle Gold Project - 2018 QA Testing	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Sampled By:**	Client
		Date Tested:	October 16, 2018
Attention:	Troy Meyer **Fax:**	**Tested By:**	MA
Email:	Tmeyer@bgcengineering.ca	**Office:**	Edmonton

Description:	50 mm Crushed Gravel
Source:	Native
Sample Location:	ODF1 - Substation
Supplier	

		Mass of Indicated Sizes , g				
Test Grading		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 2749.1**
Sieve Size (mm)						
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1253.0
25	19	1250 ± 25	--	--	--	1249.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1250.0
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1249.0
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,001.0

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,001.0	3,994.5	1,006.5	**20**

Remarks:

Reviewed By: JDR P. Eng.

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TETRA TECH

Relative Density and Absorption of Aggregate

ASTM C127 / ASTM C128

Project:	Eagle Gold Project - 2018 QA Testing	**Sample No.:**	2749.1
Project No:	ENG.WARC03235-05	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Date Tested:**	October 15, 2018
		Tested By:	MA
		Lab Location :	Edmonton

Location: ODF1 - Substation

Description: 50 mm Crushed Gravel

Fine Aggregate

ASTM C128

Description	AVG.
Bulk Relative Density (OD)	
Bulk Relative Density (SSD)	
Apparent Relative Density	
Absorption (%)	

Coarse Aggregate

ASTM C127

Description	AVG.
Bulk Relative Density (OD)	2.60
Bulk Relative Density (SSD)	2.66
Apparent Relative Density	2.77
Absorption (%)	2.4

Remarks:

Reviewed By: JDR P.Eng.

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TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03235-05	**Sample No.:**	2749.2
Project:	Eagle Gold Project - 2018 QA Testing	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Sampled By:**	Client
		Date Tested:	October 16, 2018
Attention:	Troy Meyer **Fax:**	**Tested By:**	MA
Email:	Tmeyer@bgcengineering.ca	**Office:**	Edmonton

Description:	50 mm Crushed Gravel
Source:	Native
Sample Location:	ODF2 - ROM Area
Supplier	

		Mass of Indicated Sizes , g				
Test Grading						
Sieve Size (mm)		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 2749.2**
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1249.2
25	19	1250 ± 25	--	--	--	1252.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1248.6
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1250.2
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,000.0

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,000.0	4,164.4	835.6	**17**

Remarks:

Reviewed By: JDR P. Eng.

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TETRA TECH

Relative Density and Absorption of Aggregate

ASTM C127 / ASTM C128

Project:	Eagle Gold Project - 2018 QA Testing	**Sample No.:**	2749.2
Project No:	ENG.WARC03235-05	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Date Tested:**	October 15, 2018
		Tested By:	MA
		Lab Location :	Edmonton

Location: ODF2 - ROM Area

Description: 50 mm Crushed Gravel

Fine Aggregate

ASTM C128

Description	AVG.
Bulk Relative Density (OD)	
Bulk Relative Density (SSD)	
Apparent Relative Density	
Absorption (%)	

Coarse Aggregate

ASTM C127

Description	AVG.
Bulk Relative Density (OD)	2.67
Bulk Relative Density (SSD)	2.71
Apparent Relative Density	2.77
Absorption (%)	1.4

Remarks:

Reviewed By: JDR P.Eng.

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TETRA TECH

23 October 2018

File: TB182051

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT
Y1A 0H7

Attention: Ms. Alison Trimble, B.A.

Re: SLAKE DURABILITY TESTING

This report summarizes laboratory testing conducted by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited (Wood), on aggregate samples received in Wood's Burlington, Ontario rock mechanics laboratory. The test results reported here include slake durability.

A total of two (2) test specimens were prepared and tested from two (2) aggregate samples received in the Wood laboratory. Testing was conducted in accordance with ASTM D4644, "Standard Test Method for Slake Durability of Shales and Other Similar Weak Rocks". ASTM D4644 requires a minimum test fragment mass of 40 grams, which corresponds to an average fragment dimension of approximately 25mm. To separate the fragments meeting the minimum mass requirement from the remainder of the sample, both samples were sieved to retain fragments greater than 1". Specimen pieces were chosen from the retained material to represent the sample lithology. Summary tables of the test results are attached as are the pre-test and post-test photographs.

We trust that this information meets your current requirements. If you would like to discuss any portion of the above, please contact this office at your convenience.

Respectfully Submitted,

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS,
A DIVISION OF WOOD CANADA LIMITED

Julia Pickering, M.Sc.
Project Scientist

Reviewed by,

Kellen Shenton, P.Geo.
Project Geoscientist

Wood Environment & Infrastructure Solutions
3450 Harvester Road, Suite 100
Burlington, Ontario
L7N 3W5
Tel: 905-335-2353
www.woodplc.com

Wood Environment Infrastructure Solutions
Rock Mechanics Laboratory
Slake Durability Index Summary

Specimen #	Sample ID	Slake Durability Index (first cycle)	Slake Durability Index (second cycle)	Average Water Temperature (ºC)	Minimum Temperature (ºC)	Maximum Temperature (ºC)	Natural Water Content (%)	Sample Type *
R12296	ODF1 - Substation	99.3	98.8	22.3	22.0	23.0	1.12	Type I
R12297	ODF2 - ROM Area	99.7	99.5	21.9	21.5	22.0	0.56	Type I
* Sample Types								
Type I - Retained Specimen remains virtually unchanged.								
Type II - Retained specimen consists of large and small fragments.								
Type III - Retained Specimen is exclusively small fragments.								

Client: Tetra Tech Canada Inc.	**Project No.:** TB182051
Sample ID: ODF1 – Substation	**Laboratory ID:** R12296





Client: Tetra Tech Canada Inc.	**Project No.:** TB182051
Sample ID: ODF2 – ROM Area	**Laboratory ID:** R12297





Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03235-05	**Sample No.:**	2749.1
Project:	Eagle Gold Project - 2018 QA Testing	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Sampled By:**	Client
		Date Tested:	October 16, 2018
Attention:	Troy Meyer **Fax:**	**Tested By:**	MA
Email:	Tmeyer@bgcengineering.ca	**Office:**	Edmonton

Description:	50 mm Crushed Gravel
Source:	Native
Sample Location:	ODF1 - Substation
Supplier	

		Mass of Indicated Sizes , g				
Test Grading		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 2749.1**
Sieve Size (mm)						
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1253.0
25	19	1250 ± 25	--	--	--	1249.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1250.0
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1249.0
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,001.0

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,001.0	3,994.5	1,006.5	**20**

Remarks:

Reviewed By: JDR P. Eng.

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TETRA TECH

Relative Density and Absorption of Aggregate

ASTM C127 / ASTM C128

Project:	Eagle Gold Project - 2018 QA Testing	**Sample No.:**	2749.1
Project No:	ENG.WARC03235-05	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Date Tested:**	October 15, 2018
		Tested By:	MA
		Lab Location :	Edmonton

Location: ODF1 - Substation

Description: 50 mm Crushed Gravel

Fine Aggregate

ASTM C128

Description	AVG.
Bulk Relative Density (OD)	
Bulk Relative Density (SSD)	
Apparent Relative Density	
Absorption (%)	

Coarse Aggregate

ASTM C127

Description	AVG.
Bulk Relative Density (OD)	2.60
Bulk Relative Density (SSD)	2.66
Apparent Relative Density	2.77
Absorption (%)	2.4

Remarks:

Reviewed By: JDR P.Eng.

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TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03235-05	**Sample No.:**	2749.2
Project:	Eagle Gold Project - 2018 QA Testing	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Sampled By:**	Client
		Date Tested:	October 16, 2018
Attention:	Troy Meyer **Fax:**	**Tested By:**	MA
Email:	Tmeyer@bgcengineering.ca	**Office:**	Edmonton

Description:	50 mm Crushed Gravel
Source:	Native
Sample Location:	ODF2 - ROM Area
Supplier	

		Mass of Indicated Sizes , g				
Test Grading						
Sieve Size (mm)		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 2749.2**
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1249.2
25	19	1250 ± 25	--	--	--	1252.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1248.6
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9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
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Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
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Remarks:

Reviewed By: JDR P. Eng.

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TETRA TECH

Relative Density and Absorption of Aggregate

ASTM C127 / ASTM C128

Project:	Eagle Gold Project - 2018 QA Testing	**Sample No.:**	2749.2
Project No:	ENG.WARC03235-05	**Date Received:**	October 9, 2018
Client:	BGC Engineering Inc.	**Date Tested:**	October 15, 2018
		Tested By:	MA
		Lab Location :	Edmonton

Location: ODF2 - ROM Area

Description: 50 mm Crushed Gravel

Fine Aggregate

ASTM C128

Description	AVG.
Bulk Relative Density (OD)	
Bulk Relative Density (SSD)	
Apparent Relative Density	
Absorption (%)	

Coarse Aggregate

ASTM C127

Description	AVG.
Bulk Relative Density (OD)	2.67
Bulk Relative Density (SSD)	2.71
Apparent Relative Density	2.77
Absorption (%)	1.4

Remarks:

Reviewed By: JDR P.Eng.

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TETRA TECH

23 October 2018

File: TB182051

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT
Y1A 0H7

Attention: Ms. Alison Trimble, B.A.

Re: SLAKE DURABILITY TESTING

This report summarizes laboratory testing conducted by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited (Wood), on aggregate samples received in Wood's Burlington, Ontario rock mechanics laboratory. The test results reported here include slake durability.

A total of two (2) test specimens were prepared and tested from two (2) aggregate samples received in the Wood laboratory. Testing was conducted in accordance with ASTM D4644, "Standard Test Method for Slake Durability of Shales and Other Similar Weak Rocks". ASTM D4644 requires a minimum test fragment mass of 40 grams, which corresponds to an average fragment dimension of approximately 25mm. To separate the fragments meeting the minimum mass requirement from the remainder of the sample, both samples were sieved to retain fragments greater than 1". Specimen pieces were chosen from the retained material to represent the sample lithology. Summary tables of the test results are attached as are the pre-test and post-test photographs.

We trust that this information meets your current requirements. If you would like to discuss any portion of the above, please contact this office at your convenience.

Respectfully Submitted,

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS,
A DIVISION OF WOOD CANADA LIMITED

Julia Pickering, M.Sc.
Project Scientist

Reviewed by,

Kellen Shenton, P.Geo.
Project Geoscientist

Wood Environment & Infrastructure Solutions
3450 Harvester Road, Suite 100
Burlington, Ontario
L7N 3W5
Tel: 905-335-2353
www.woodplc.com

Wood Environment Infrastructure Solutions
Rock Mechanics Laboratory
Slake Durability Index Summary

Specimen #	Sample ID	Slake Durability Index (first cycle)	Slake Durability Index (second cycle)	Average Water Temperature (ºC)	Minimum Temperature (ºC)	Maximum Temperature (ºC)	Natural Water Content (%)	Sample Type *
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R12297	ODF2 - ROM Area	99.7	99.5	21.9	21.5	22.0	0.56	Type I
* Sample Types								
Type I - Retained Specimen remains virtually unchanged.								
Type II - Retained specimen consists of large and small fragments.								
Type III - Retained Specimen is exclusively small fragments.								

Client: Tetra Tech Canada Inc.	**Project No.:** TB182051
Sample ID: ODF1 – Substation	**Laboratory ID:** R12296





Client: Tetra Tech Canada Inc.	**Project No.:** TB182051
Sample ID: ODF2 – ROM Area	**Laboratory ID:** R12297





BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-028

To:	**Jean-Francois Maille (JDS)** **Mike Blusson (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**Nov 7, 2018**
Copied:	**Roy Morlan (BGC)**	**Record:**	**BGC-RFI-028**

Re: BGC-RFI-028: PLS Sump and Piping Configuration

BGC requests JDS provide acknowledgment of receipt of the following design clarification. This RFI supersedes BGC-RFI-013.

In discussions between BGC, JDS and Heavy North regarding the construction approach for PLS pipe risers installations, a preferred approach was jointly developed to better match the proposed equipment while protecting the installed pipes and geosynthetic liner system.

The approach will involve conventional equipment (dozer and excavator) traffic within the pipe corridor, as opposed to using a crane or side-boom. This approach requires a modification to the pipe and liner arrangement to ensure protection of the liner system and placed LDRS pipes. Design drawings EGHLF XD-05-01 through 05-04. **Figure 1** presents the revised section through the pipe corridor (looking downstream) on the face of the HLF embankment. This section replaces Detail 28 on Drawing XD-05-03. The PLS pipes will be placed on the embankment face from access points on placed ODF from bottom to top.

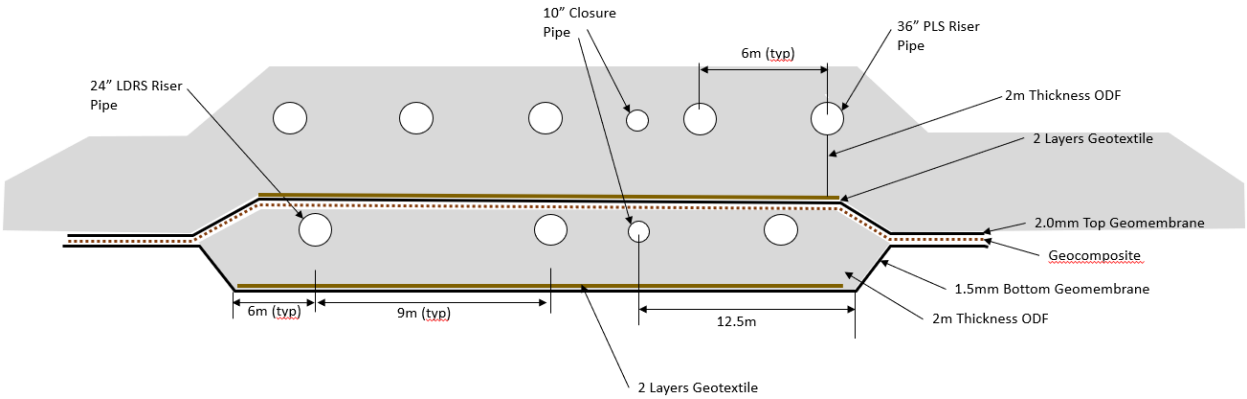


Figure 1: Revised Detail 28, Drawing EGHLF-XD-05-03.

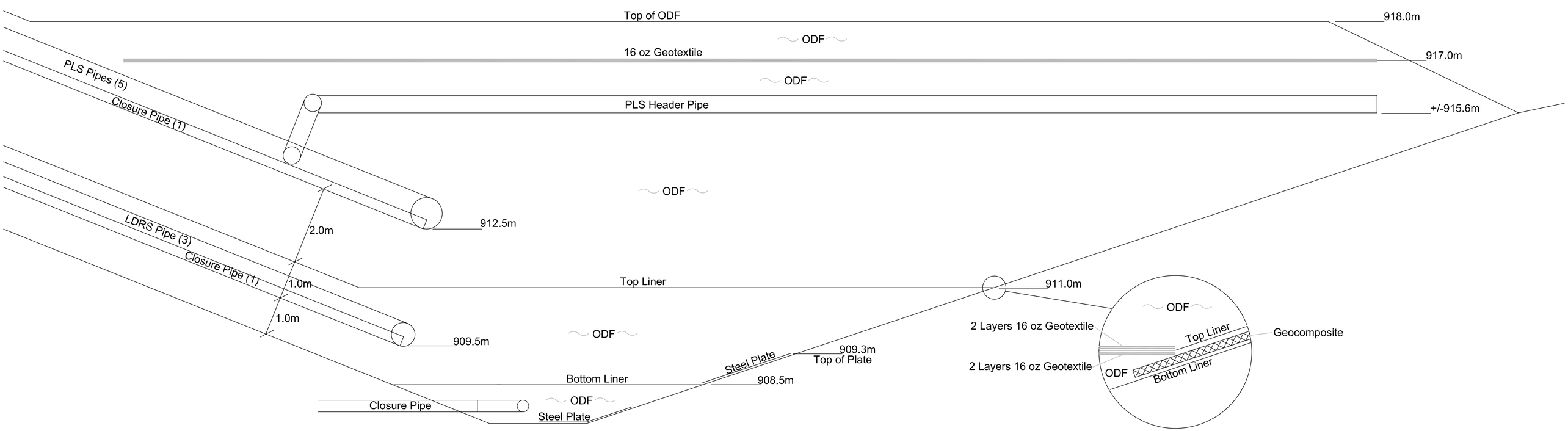
A 2m thick layer of ODF will be placed beneath the riser pipes. The outward shift of the PLS pipes will be accommodated at the bottom by adjusting the dimensions of the PE pipe network in the PLS sump as shown on **Figure 2**. This figure replaces Detail 33 of EGHLF-XD-05-04. A layer of 16 oz. geotextile must be placed at Elevation 917.0m within the ODF over the PLS pipework. This layer is for operational filtering purposes. The top ODF elevation is now 918.0m.

A field test pad has been conducted (BGC Field Memo FM-007) to demonstrate the protection of the liner with ODF thickness from 0.6m to 1.5m and traffic from loaded 40T rock trucks, CAT 3250 trackhoe excavator and D6 dozer. The proposed equipment for pipe placement includes a CAT 349F and Linkbelt 490 excavator (data sheets attached). Based on our estimates of the maximum ground pressure exerted from this equipment with the PLS hammerhead pipes, a minimum of 2m thickness ODF underlain by 2 non-woven geotextile layers to cushion the geomembrane liner will be required. Other equipment must be approved by BGC prior to use. Equipment movement must be slow and turning on the access roads built over the liner will not be allowed.

Response:

Answered by:

Name	Signature	Date



@EA Cleglccpgle*Gla,

Figure 2. PLS Sump Cross Section

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-029

To:	**Jean-Francois Maille (JDS)** **Mike Blusson (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**January 17, 2019**
Copied:	**Troy Myer (BGC)**	**Record:**	**BGC-RFI-029**

Re: BGC-RFI-029: Spillway Invert

BGC requests confirmation of the spillway invert elevation. The current invert design elevation is 938.00m. If a different invert elevation is needed due to updated storage volume requirements or constructability concerns BGC requests that we be provided with the revised spillway invert elevation in order to finalize the culvert sizing and spillway design.

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-030

To:	**Jean-Francois Maille (JDS)** **Mike Blusson (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**January 29, 2019**
Copied:	**Troy Myer (BGC)**	**Record:**	**BGC-RFI-30**

Re: BGC-RFI-030: ODF produced from the ADR Quarry.

JDS requested review of the ADR quarry as a source for ODF material production. Two samples were collected from the quarry in December 2018 and analyzed for durability and gradation. BGC has reviewed the laboratory results. Below are observations and recommendations based on this review. BGC developed this RFI to track the request and recommendations for the construction record. BGC requests a response to this RFI in order to close it.

Observations

Sample ADR-ODF-01 was collected from a weaker phyllite rich rock source within the ADR Quarry.

Sample ADR-ODF-02 was collected from a harder quartzite rich rock source within the ADR Quarry.

LA abrasion and slake test results for ADR-ODF-01 and ADR-ODF-02 were similar. LA Abrasion results were 33% and 31% respectively. This indicates weaker rock than the original ODF source, which reported LA abrasion results less than 20%, but is still within an acceptable range.

Gradation for ADR ODF 01 shows much more sand and fine gravel than ODF produced from the original source or sample ADR-ODF-02. (***Figure 1***)

Field permeability testing was performed on-site on ADR-ODF-01 by Tetra Tech on January 27. Permeability was determined to be 2.3×10^{-2} m/sec.

ODF material from the ADR source is currently being blasted from the near surface. As the quarry gets deeper durability should improve and gradation should become courser.

Recommendation

This material is approved for use but with the requirements below:

ODF permeability requirements per the technical specifications is $>2 \times 10^{-4}$ m/sec. QC observations made during production will be used to determine if additional testing or if segregation of material that does not meet this requirement is needed.

Due to variability in the quarry QC gradation testing should be performed daily or at a minimum of 1 sampler per 5,000 m^3 produced, whichever produced volume is less. If there is significant visual variability in the gradation of a material produced on any given day then gradation samples should be collected for the 'dirties' (ie the material producing the smallest particle size). Additional tests may be called for if the material appears weaker (richer in phyllite or visually producing a finer gradation and more waste). The Engineer may also request field or lab hardness and strength testing if material strength appears to change significantly. Field strength and hardness testing should follow the USBR Rock Manual guidance or a similar method.

If material strength or gradation tests indicate a significant change the Engineer may require daily observations of the source being excavated to identify areas that may need segregated from use.

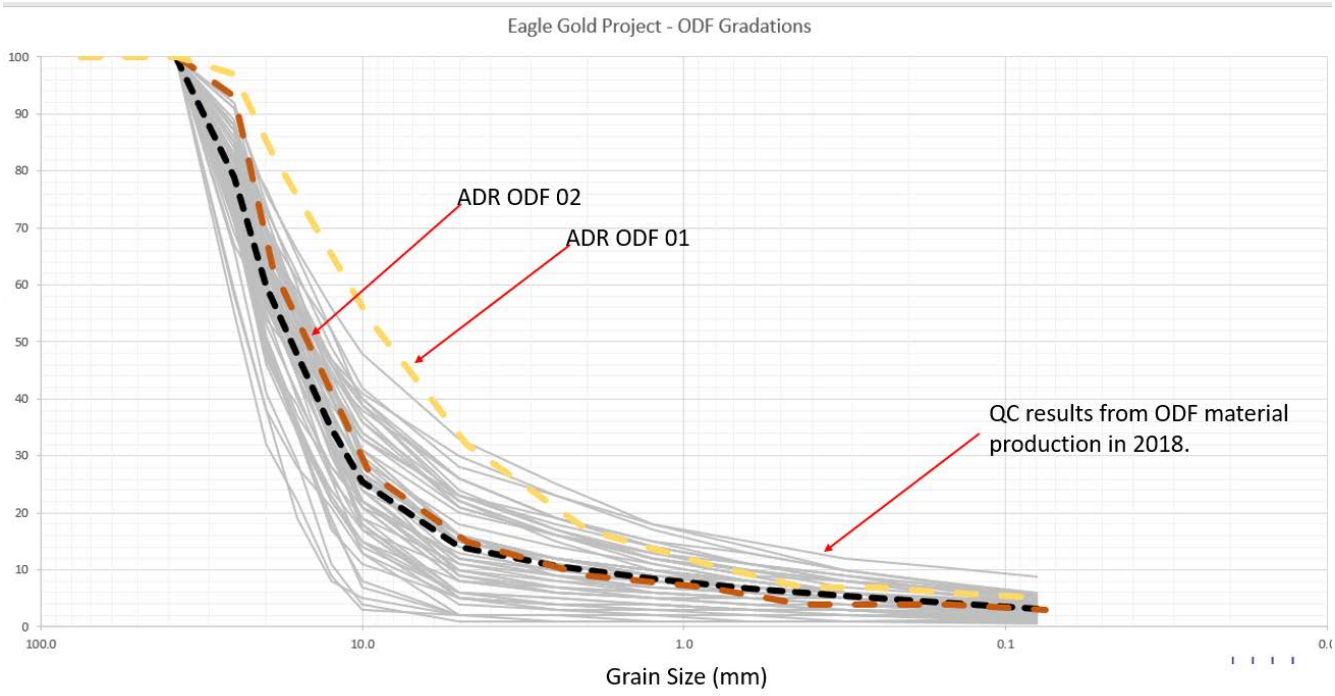


Figure 1: Eagle Gold ODF Gradations to date.

Response:

Answered by:

Name	Signature	Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-031

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**February 4, 2019**
Copied:	**Troy Meyers (BGC)**	**Record:**	**BGC-RFI-031**

Re: BGC-RFI-031: Primary Collector Pipe Spacing Revision and Crushed Ore as ODF

At the request of JDS BGC has performed analysis to determine the collector pipe spacing if crushed rock ODF is replaced with crushed ore ODF. An RFI was not produced by JDS for this analysis. Therefore, BGC is providing the analysis as an RFI to allow tracking in the construction record. BGC requests that JDS provide an acknowledgment of receipt of this information in order to close this RFI.

The criteria given to BGC to perform this analysis is below.

- An application rate of 10L/hr/m^3.
- 16mm crushed ore used as ODF (gradation and permeability provided in the report included as ***Attachment 1***).
- An ODF thickness of 1m.

The use of 16mm ore as ODF is approved. Pipe spacing should be 16m when placed on slopes less than 2.5:1 and 22m when placed on slopes greater than 2.5:1. This spacing is dependent on 1 meter of ODF thickness. Spacing calculations are included in ***Attachment 2***. A figure that includes this spacing applied JDS's subgrade below 990m and the 2018 revisions to the heap pad boundaries is included as ***Figure 13***.

Response:

Answered by:

Name	Signature	Date

ATTACHMENT 1

Project Memo

109001
September 8, 2017

To: Tony George (VGC) From: Barry Carlson

cc: Mark Ayranto

Victoria Gold Corp
Eagle Gold Project

Hydraulic Conductivity Testing Review

1. Introduction

Victoria Gold Corporation (VGC) commissioned Forte Dynamics, Inc. (Forte) to review and summarize the data resulting from the recent laboratory testing program for ore hydraulic conductivity at the Eagle Gold site, with particular emphasis on the first year of active mining. The recent laboratory testing was performed on samples collected in the upper 20m of the ore body, and from below 20m in depth of the ore body, representing early stages of mining. This report summarizes this recent testing, but also reviews previous testing from ore samples obtained throughout the deposit at various depths.

The following table list was obtained from VGC on the drill hole identifiers and respective locations. Attachment A presents a plan view and sections for these drill holes, obtained from VGC. Interval T20 stands for the top 20m of the drill hole sample, B20 stands for below 20m of drill hole sample.

TABLE 1-1 – Drill Hole Identifiers

Hole_ID	UTM_E	UTM_N	Elevation	UTM Zone	Depth (m)	Year	drillsize	Interval	Weight (kg)
DG17-PQ-1	459823	7099424	1128	NAD83 UTM8	70	2017	PTW	T20, B20	148, 602
DG17-PQ-2	459823	7099424	1128	NAD83 UTM8	19.82	2017	PTW	T20	150.5
DG17-PQ-3	459880	7099589	1153	NAD83 UTM8	70.1	2017	PTW	T20, B20	246.5, 678.5
DG17-PQ-4	459978	7099412	1159	NAD83 UTM8	68.58	2017		T20, B20	223,686.5

DG17-PQ-5	459978	7099412	1159	NAD83 UTM8	22.86	2017		T20	223
DG17-PQ-6	459985	7099623		NAD83 UTM8	28.96	2017		T20	403
DG17-PQ-7	459985	7099623		NAD83 UTM8	33.53	2017	HTW	T20	403
DG17-PQ-8	460087	7099485	1249	NAD83 UTM8	16.76	2017	PTW	T20	224.5

Testing consisted of performing hydraulic conductivity measurements utilizing USBR 5605 method, since the material is representative of crushed rock/ore. Standard laboratory procedures for compositing and quartering of samples were performed for both the T20 and B20 samples. The following testing was then performed on both the T20 and B20 composites, noting the different particle size distributions (PSD's) (laboratory crushed or Bruno simulated) and P80's. Hydraulic conductivity testing was performed on each sample representing 0m, 20m, 40m, and 70m of compacted ore height loading (at an assumed bulk density of 1.8 tonnes/m3 for initial loading calculations).

Performed in 8-inch diameter column:

- Three (3) test samples, ~35kg: P80 = 6.5mm, laboratory crushed
- Three (3) test samples: P80 = 6.5mm, laboratory crushed screened of fines (<5% passing #200 sieve)
- Three (3) test samples: P80 = 6.5mm, fabricated PSD (based on Bruno or other)
- Three (3) test samples: P80 = 6.5mm, fabricated PSD (based on Bruno or other), screened of fines (<5% passing #200 sieve)

Performed in 12-inch diameter column:

- One (1) test sample, ~119kg: P80 = 9mm, fabricated PSD (based on Bruno or other)
- One (1) test sample: P80 = 9 mm, fabricated PSD (based on Bruno or other), screened of fines (<5% passing #200 sieve)
- One (1) test sample: P80 = 12mm, fabricated PSD (based on Bruno or other)
- One (1) test sample: P80 = 12mm, fabricated PSD (based on Bruno or other), screened of fines (<5% passing #200 sieve)
- One (1) test sample: P80 = 16mm, fabricated PSD (based on Bruno or other)
- One (1) test sample: P80 = 16mm, fabricated PSD (based on Bruno or other), screened of fines (<5% passing #200 sieve)

The following Figures 1-1 and 1-2 illustrate the laboratory crushed and fabricated Bruno PSD's, along with the target PSD shown in red.

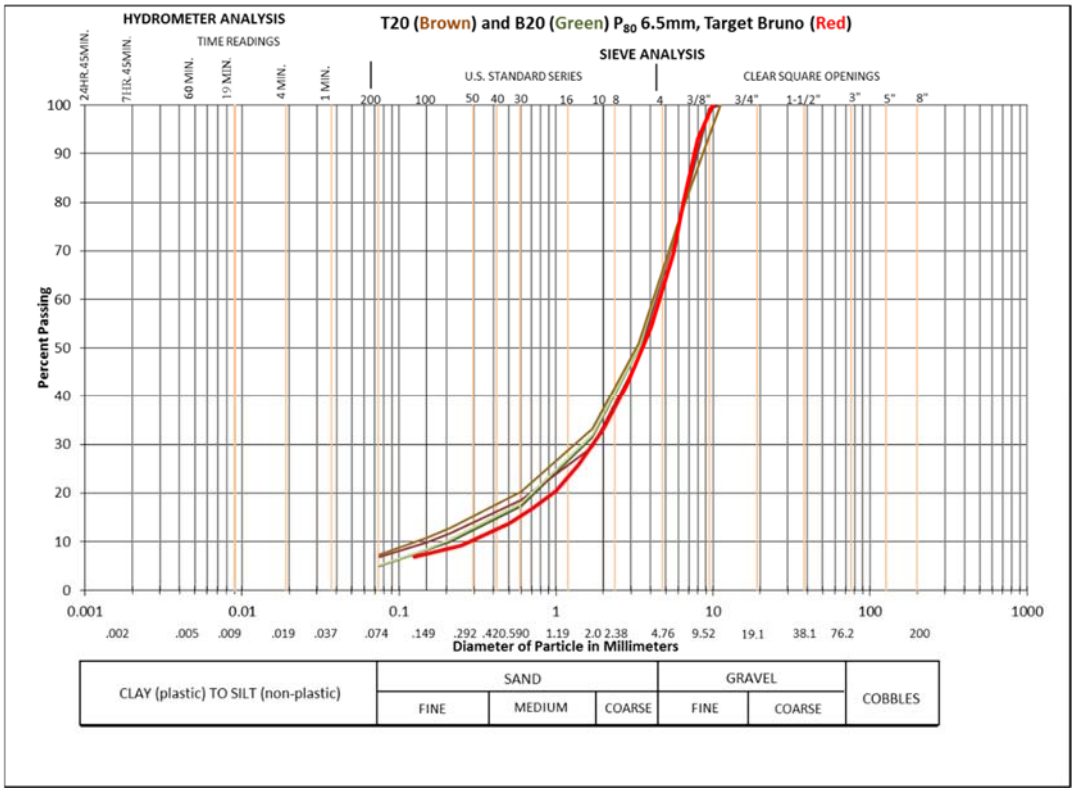


Figure 1-1: Particle Size Distribution 6.5mm P_{80}

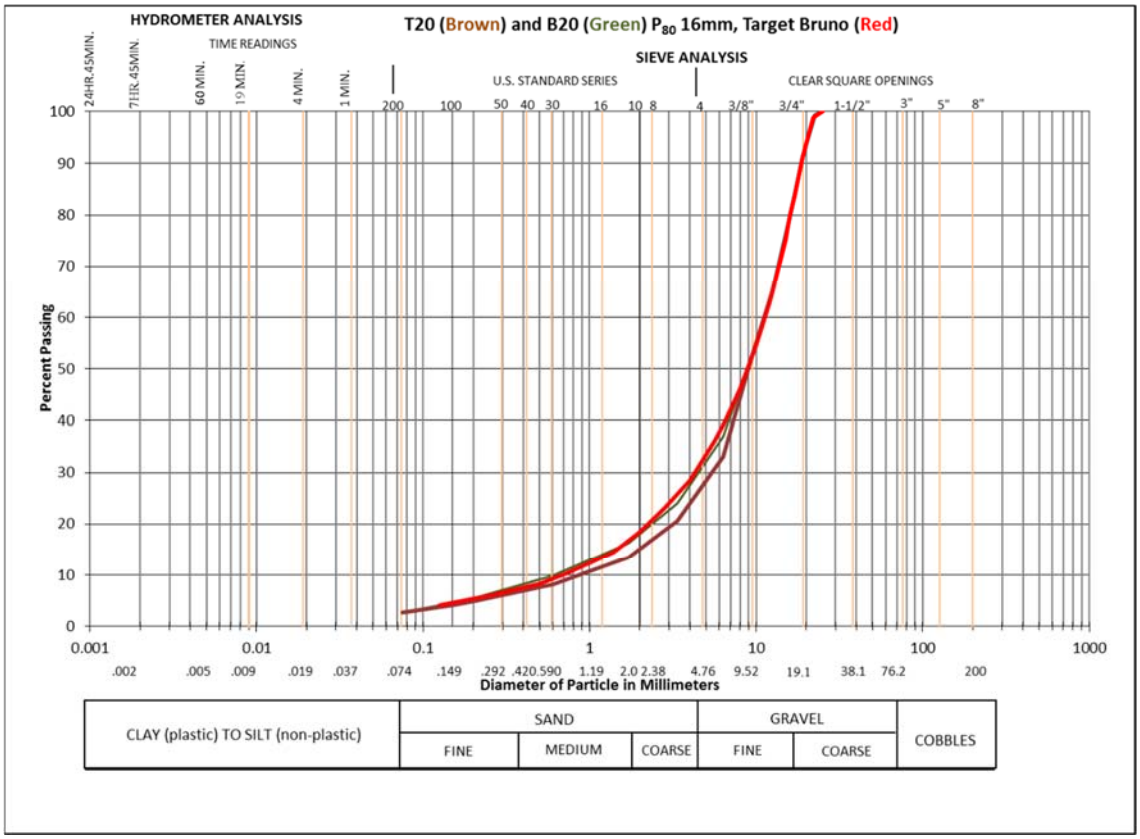


Figure 1-2: Particle Size Distribution 16mm P_{80}

2. Hydraulic Conductivity Testing Results

Test results on the hydraulic conductivity are presented in the following figures. All T20 (top 20m sample depth) samples of the P_{80} 6.5mm tests are grouped together based on either the Bruno simulation for anticipated PSD, or for the No-Bruno or laboratory crushed samples. The same grouping applies to the B20 samples for 6.5mm P_{80}. Results for the T20 16mm and 12mm P_{80} are shown on one graph, and also for the B20 16mm and 12mm P80 samples.

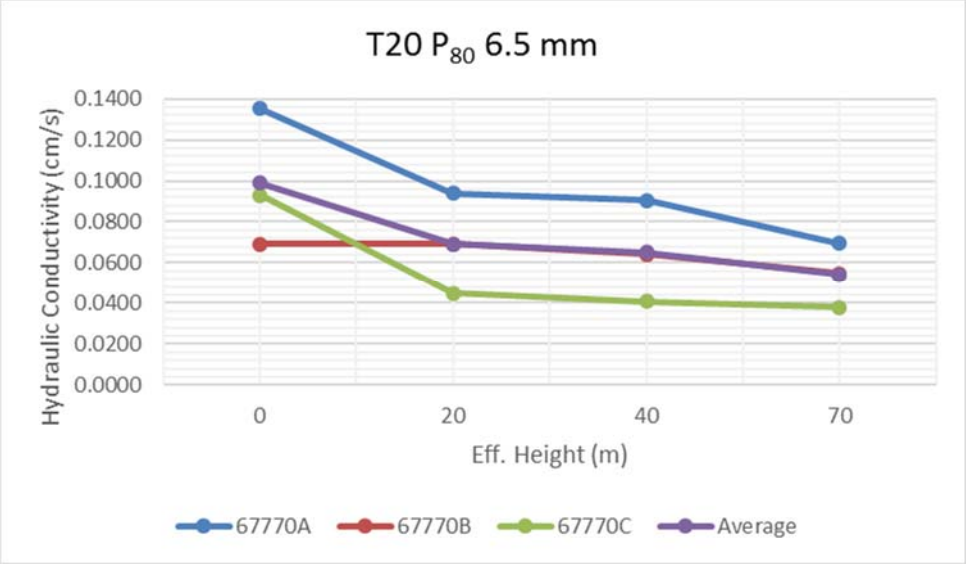


Figure 2-1: Hydraulic Conductivity T20 6.5mm P_{80}

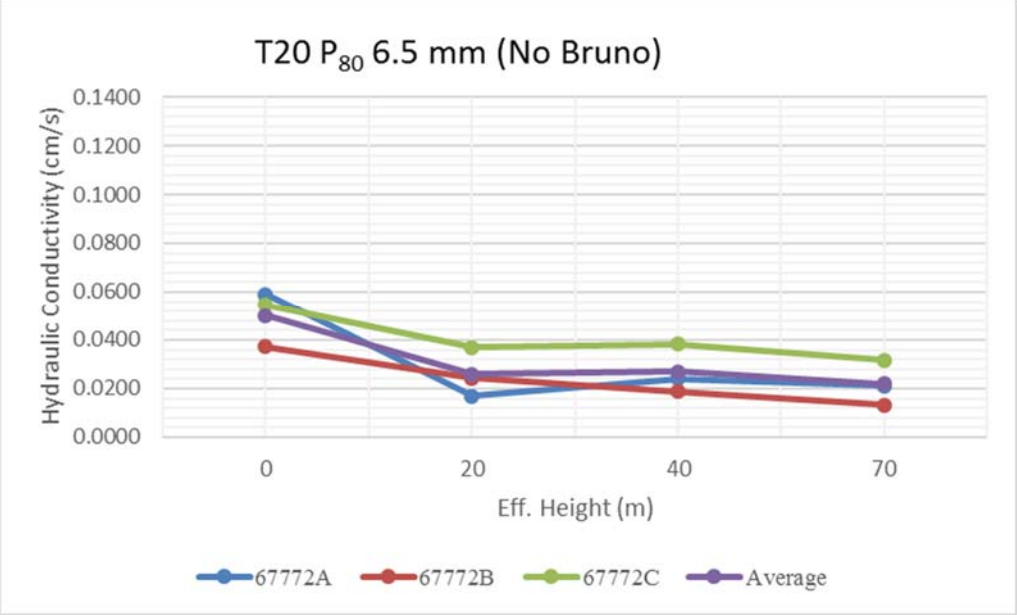


Figure 2-2: Hydraulic Conductivity T20 6.5mm P_{80} (No Bruno)

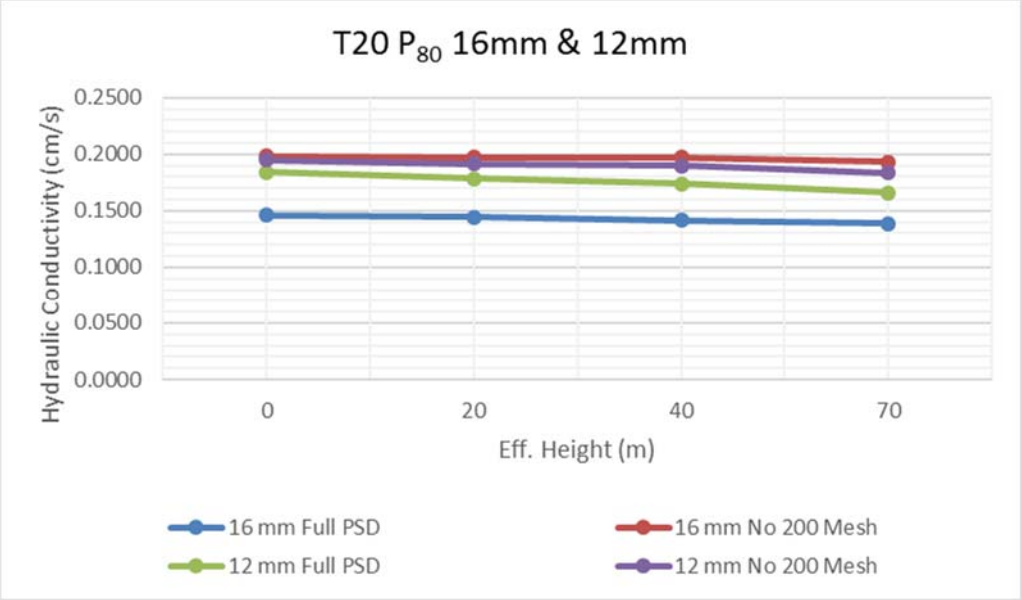


Figure 2-3: Hydraulic Conductivity T20 16mm & 12mm P_{80}

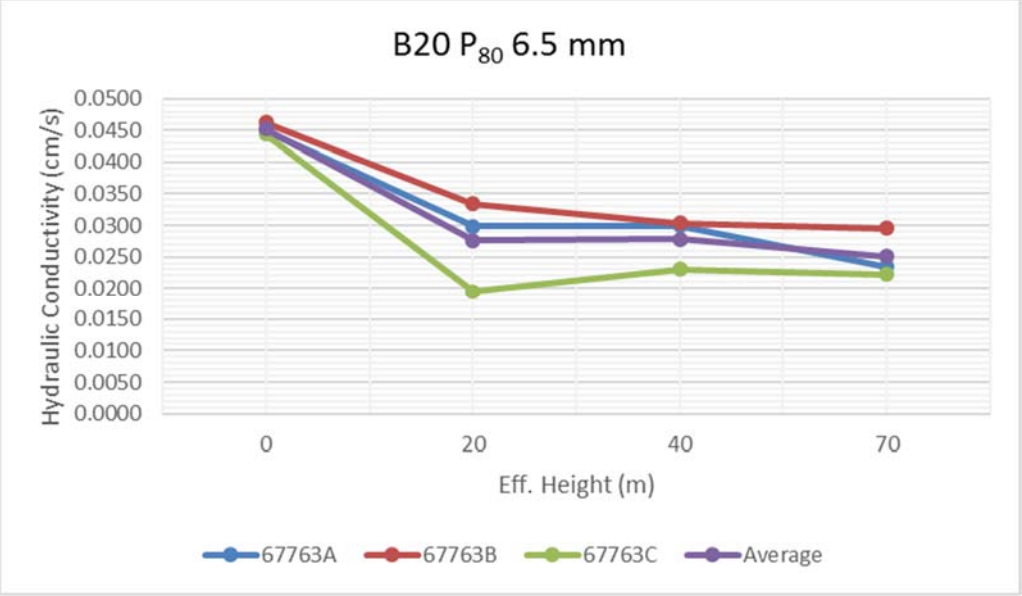


Figure 2-4: Hydraulic Conductivity B20 6.5mm P_{80}

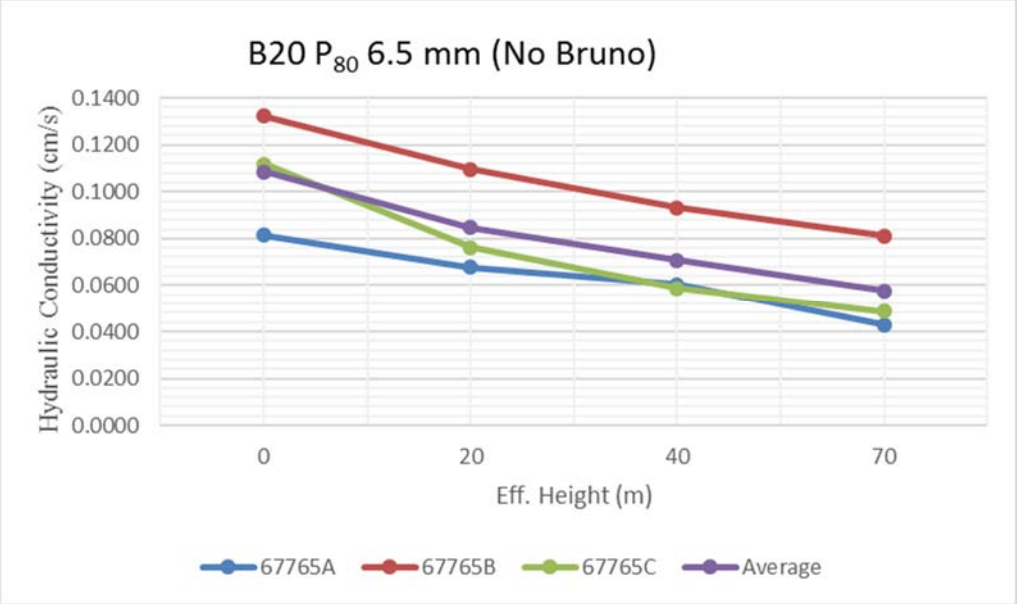


Figure 2-5: Hydraulic Conductivity B20 6.5mm P_{80} (No Bruno)

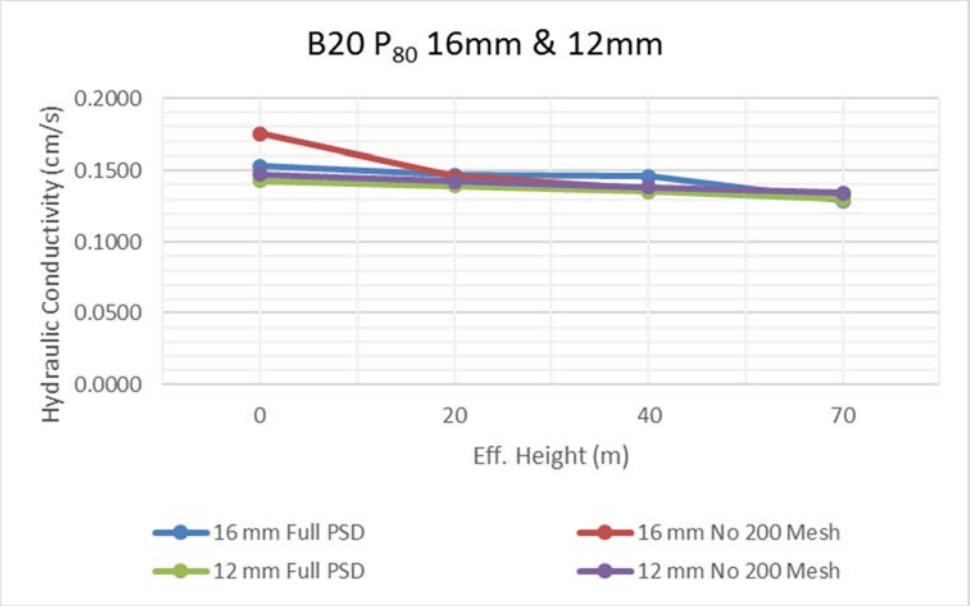


Figure 2-6: Hydraulic Conductivity B20 16mm & 12mm P_{80}

Test results show some interesting results for the 6.5mm P_{80} samples. For the T20 samples, a higher hydraulic conductivity is shown for the Bruno simulations versus the No-Bruno, however the opposite is shown for the B20 samples. Hydraulic conductivity is most sensitive to the degree of percentage fines, and this variability could likely be a result of the varied rock hardness impacting the performance of laboratory (or No-Bruno) crushing simulations. The target Bruno PSD (shown on Figure 1-1) was close on the minus 200 sieve, however there were slight differences above the minus 200 sieve and up to the 10 mesh, or 2mm. Average hydraulic conductivity for the 6.5mm P_{80} samples of T20 and B20 at 70m of ore height loading is 0.0380 cm/s, while the average of just T20 samples is 0.0396 cm/s.

For the 16mm P80 testing, results indicate an average hydraulic conductivity of 0.1660 cm/s for T20, and 0.1309 cm/s for B20, for a combined average of 0.1484 cm/s. These values are representative of 70m of ore height loading.

Forte also reviewed some previous metallurgical testing including hydraulic conductivity testing that was performed in 2011, also from KCA. Compacted hydraulic conductivity testing (representing 70m of ore height loading) was performed on P_{80} 7mm samples. Hydraulic conductivity results of this testing ranged from 0.0099 to 0.2607 cm/s, with an average of 0.1036 cm/s. Average bulk density from these samples was 1.82 tonne/m3.

2.1 Bulk Density from Hydraulic Conductivity Testing

Bulk density analysis was performed on the samples collected and following laboratory crushing. Again, these samples were obtained from the upper zones of the ore body, and while representative of early stages of mining, may not represent densities encountered as mining progresses and ore depth increases.

Bulk density determined from the laboratory testing while performing the hydraulic conductivity testing are as follows:

TABLE 2-1 – Bulk Densities from Lab Testing

Bulk Density (Tonne/m3)*			
Ore Size Tested	**Top 20**	**Bottom 20**	**Average (T20&B20)**
P_{80} 16 mm	1.67	1.68	1.68
P_{80} 16 mm (No 200 mesh)	1.64	1.63	1.63
P_{80} 12 mm	1.71	1.71	1.71
P_{80} 12 mm (No 200 mesh)	1.65	1.67	1.66
P_{80} 6.5 mm	1.68	1.74	

	1.71	1.74	
	1.71	1.75	
Average	1.70	1.74	**1.72**
P_{80} 6.5 mm (No Bruno)	1.73	1.69	
	1.76	1.67	
	1.73	1.67	
Average	1.74	1.67	**1.71**

* Bulk density at final compacted height

Results show an average bulk density for the 16mm P_{80} samples (No 200 mesh) of 1.63 tonne/m3 (101.8 lbm/ft3). Average bulk density results for the 6.5mm P_{80} samples is 1.72 tonne/m3 (107.4 lbm/ft3). Average bulk densities from the June 2011 testing campaign indicated an average of 1.82 tonne/m3. These tests were performed from samples collected at various depths throughout the deposit, while the testing presented herein are from samples collected in the upper 70m of the deposit, and mostly in the upper 40m. However, a sample from the October 2011 testing indicated a bulk density of 1.51 tonne/m3, indicating there is likely variability in ore density throughout the deposit. Testing performed in December 2013, showing average bulk densities of 1.45 tonne/m3, were performed on agglomerated samples and therefore were excluded from comparison here.

3. Preliminary Leaching Application Rate Analysis

Utilizing the testing results from this recent laboratory testing on non-agglomerated ore, Forte performed a preliminary analysis on leaching application rate (flux rate) for the Eagle Gold project. For the 6.5mm P_{80} samples, the following testing results data is used:

- Specific Gravity = 2.65
- Saturated Hydraulic Conductivity = 0.038 cm/s (Laboratory), 0.0038 cm/s (Field)
- Bulk Density = 1.72 tonne/m3

Utilizing an analytical unsaturated flow conditions (Brooks-Corey), varying application rates were applied in order to estimate degree of saturation to reside within 55% to 65%, normally a desired target for Au heap leaching applications. No air permeability testing was performed on the ore, which may modify the desired degree of saturation values for this ore. Analysis indicates a leach application rate of 6 to 8 L/m2/hr (0.00245 to 0.00327 gpm/ft2) would be applicable for this operation. Actual field operational performance may modify this application rate for optimal conditions, i.e., maximum rate without surface ponding.

4. Summary and Recommendations

Laboratory testing for hydraulic conductivity was performed with samples obtained from the upper 70m of the ore deposit, and performed at ore height loadings simulating 0, 20m, 40m, and 70m. Average hydraulic conductivity results, at 70m loading, are as follows:

- T20 6.5mm P_{80} laboratory crushed PSD = 0.0219 cm/s
- T20 6.5mm P_{80} Bruno Fabricated PSD = 0.0541 cm/s
- B20 6.5mm P_{80} laboratory crushed PSD = 0.0575 cm/s
- B20 6.5mm P_{80} Bruno Fabricated PSD = 0.0251 cm/s
- Average all 6.5mm P_{80} = 0.0380 cm/s
- Average Bruno 6.5mm P_{80} = 0.0396 cm/s

- T20 12mm P_{80} = 0.1748 cm/s
- B20 12mm P_{80} = 0.1320 cm/s

- T20 16mm P_{80} = 0.1660 cm/s
- B20 16mm P_{80} = 0.1309 cm/s

There exists some variability in the hydraulic conductivity values between P_{80} sizes, likely due to ore material and hardness variability. It is recommended that for early stages of mining, which represents the samples utilized for this testing, that an average laboratory hydraulic conductivity for 6.5mm of 0.038 cm/s be used, and applying a 10 to 50 reduction for in-field hydraulic conductivity. For the 16mm samples, an average of 0.1484 cm/s laboratory hydraulic conductivity be used, and also applying a 10 to 50 reduction for in-field hydraulic conductivity. Average bulk densities observed during laboratory testing are 1.72 tonne/m3 for the 6.5mm P_{80}, and 1.63 tonne/m3 for the 16mm P_{80}.

The data and results of the samples utilized in this laboratory testing support the hydraulic conductivity of leaching operations without the need for agglomerating the ore, with recommended application rates of 6 to 8 L/m2/hr (0.00245 to 0.00327 gpm/ft2), to be used until further field application and testing is performed to optimize. The ore samples analyzed in the testing herein had little to no clay particles, and less than 10% passing 200 sieve, further indicating agglomeration would not be required.

Barry Carlson

bc:dc
Attachment(s)/Enclosure

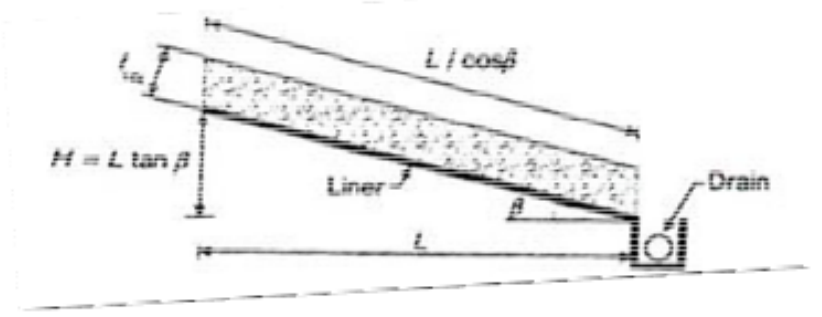
ATTACHMENT 2

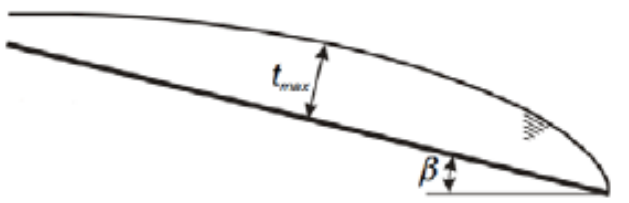
Client:	StrataGold	Job No.:	792021
Subject:	Eagle Gold Heap Leach Facility	By:	TLM
Details:	PLS Pipe Spacing Calculations - 16 mm Crushed Ore	Date:	January 29, 2019

Primary Pipe Spacing [1]		
Units:	Metric	
Application Rate:	0.24	$m^3/day/m^2$
Maximum Desired Head on the Liner:	1.0	m
Hydraulic Conductivity:	12.8	m/day
Pipe Spacing:	16.1	m
Slope Between Pipes:	14.0	degrees
Pipe Spacing:	22.1	m
Slope Between Pipes:	22.0	degrees

Application Rate		
Application Rate:	0.0041	gpm/ft^2
	10.0	$l/hr/m^2$
	0.01	$m^3/hr/m^2$
	0.24	$m^3/day/m^2$
Hydraulic Conductivity [2]		
Hydraulic Conductivity:	0.015	cm/s
	42.1	ft/day
	12.8	m/day

Giroud's equation is shown graphically and mathematically (metric units) as follows:





$$t_{max} = j\frac{\sqrt{\tan^2\beta + 4q_h/k} - \tan\beta}{2\cos\beta}L$$

Where:
- ß = the basin slope between the pipes (degrees)
- q_h = the design rate of liquid supply over a horizontal surface in terms of an equivalent velocity (m/s)
- L = the drainage length of the lateral drain (m)
- K = the permeability of the lateral drain (m/s)
- t_{max} = the maximum head on the liner (m)
- j = the numerical modifying factor which depends on the basin slope (set equal to 1 for conservative solution)

Notes:

1) The slope of the basin generally varies from 14 to 22 degrees.

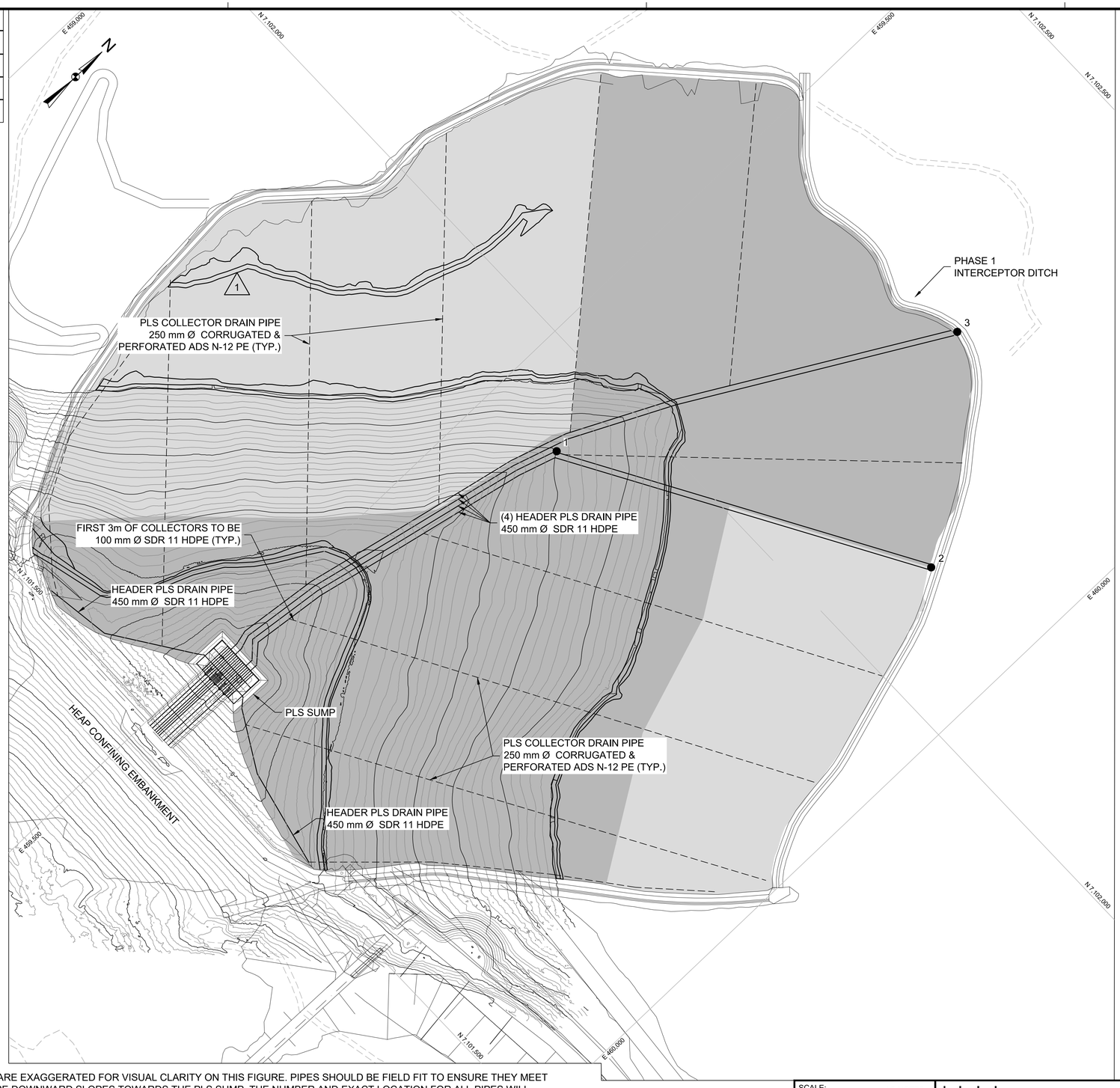
2) Permeability in the Overliner Drain Fill of 1.5 x 10^{-2} cm/s (field valued) from lab testing (Forte Dynamics 2017)

Reference:

Giroud, J.P., Zornberg, J.G., & Zhao, A., (2000). Hydraulic design of geosynthetic and granular liquid collection layers. Geosynthetics International, Special Issue on Liquid Collection Systems, Vol. 7, Nos. 4-6, (pp. 285-380).

FIGURE

PLS PIPE CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,580.1	7,101,926.9	972.7	PLS
2	459,886.8	7,102,098.5	1043.9	PLS
3	459,749.9	7,102,260.8	1041.6	PLS



SCALE 1:2,000

50 0 50 100 150

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

LEGEND

- 16m O.C. SPACING FOR PRIMARY COLLECTOR DRAIN PIPES
- 22m O.C. SPACING FOR PRIMARY COLLECTOR DRAIN PIPES

NOTES:

1. PIPE LAYOUT IS REPRESENTATIONAL AND SOME PIPE LOCATIONS ARE EXAGGERATED FOR VISUAL CLARITY ON THIS FIGURE. PIPES SHOULD BE FIELD FIT TO ENSURE THEY MEET THE REQUIRED CRITERIA IN THESE NOTES AND TO ALWAYS ENSURE DOWNWARD SLOPES TOWARDS THE PLS SUMP. THE NUMBER AND EXACT LOCATION FOR ALL PIPES WILL DEPEND ON FINAL FIELD BUILT GRADES AND FIELD CONDITIONS ENCOUNTERED.
2. THE PRIMARY COLLECTION DRAIN PIPES (100mm DIAMETER CORRUGATED AND PERFORATED ADS N-12 PE) PLACED ON PAD SLOPES STEEPER THAN 2.5H:1V SHALL REQUIRE A PRIMARY DRAIN PIPE OF SPACING 22m (MAXIMUM) AND SLOPES FLATTER THAN 2.5H:1V SHALL REQUIRE A PRIMARY DRAIN PIPE SPACING OF 16m (MAXIMUM).
3. PAD GRADING BELOW ELEVATION 990m PROVIDED BY JDS. SLOPE SHADING AND PRIMARY PIPE SPACING BELOW 990m BASED ON THIS GRADING PLAN.
4. PAD GRADING ABOVE ELEVATION 990m TO BE DEVELOPED BY JDS. CURRENT SLOPE SHADING ABOVE ELEVATION 990m BASED ON CONCEPTUAL GRADES DEVELOPED BY BGC FOR THE DETAILED DESIGN. FINAL PRIMARY PIPE SPACING ABOVE 990m TO BE VERIFIED ONCE A GRADING PLAN FOR THIS AREA HAS BEEN COMPLETED.
5. PRIMARY PIPES SHOULD BE ORIENTED TO DRAIN INTO THE PLS COLLECTOR DRAIN PIPES. SEE DRAWING EGHLF-XD-06-02 REV 1 FOR DETAILS RELATED TO THESE CONNECTIONS.

SCALE:	AS NOTED
DATE:	01/31/19
DRAWN:	DAG
CHECKED:	TLM
APPROVED:	TLM

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PRIMARY COLLECTOR DRAIN PIPE SPACING UPDATE AND CLARIFICATION FOR USE WITH 16mm CRUSHED ORE AS ODF

SCALE: 1:2000

DWG No.: FIGURE 13

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\Construction Figures\FIG 13- EGHLF-XD-06-01.dwg Layout: EGHLF-XD-06-01 Plot Date Feb 1 19 Time: 4:47 PM

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-032

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan (BGC)**	**Date:**	**January 31, 2019**
Copied:	**Troy Meyers (BGC)**	**Record:**	**BGC-RFI-032**

Re: BGC-RFI-032: Coletenche Liner Assessment

At the request of JDS BGC has assessed the use of Coletanche Bituminous Liner for use in the HLF spillway and Event Pond emergency spillway. A RFI was not produced by JDS for this analysis. Therefore, BGC is providing this response as an RFI to allow tracking in the construction record. BGC requests that JDS provide an acknowledgment of receipt of this information in order to close this RFI.

As part of this assessment BGC was provided with several documents form the vendor and manufacturer of this product. These items included:

- A Coletanche ES 3 product data sheet. (***Attachment 1***)
- A letter format calculations memorandum completed by SLR showing empirical analysis supporting the use of Coletanche ES 3 Liner for use in the HLF spillway. (***Attachment 2***)
- Various lab testing results used to produce the values in the product data sheet.
- Various non-technical marketing brochures that show the product in use in various channel and pond projects.

BGC cannot approve the use of this product as liner for the HLF spillway or the Event Pond emergency spillway. The two approved lining methods remain the Fabriform and Nuna Cloth solutions.

Two major issues that influenced this decision are:

- The SLR analysis does not address potential erosion of the geomembrane from the flow, particularly if the flow contains sediment.
- There are no long term case studies for use of this product in high flow environments. Additionally, there are no large scale lab testing or field testing.

Response:

Answered by:

Name	Signature	Date

ATTACHMENT 1

8, Avenue Félix d'Hérelle
75016 PARIS - FRANCE
www.coletanche.com

Prepared: 15/01/2018
Cancels and replac 23/10/2017
Code : 1877901
Manufacture sourc Courchelettes (59-France)
Technical ref: FT AXTER ES3 ASTM

PRODUCT DATA SHEET

COLETANCHE ES 3

DESCRIPTION

COLETANCHE ES 3 is an SBS elastomeric modified bituminous geomembrane.

USE

Extreme level of mechanical resistance, for use as environmental protection and groundworks waterproofing, in particular :
- Railways, directly under ballast,
- Dams,

Product use must be validated by Axter.

APPLICATION METHOD

By torch welding or other similar technique.

STORAGE

Rolls must not be stored directly on the ground. Provide suitable supports (blocks, slides, wooden planks) with a minimum height of 35 cm to be placed under the ends of the mandrel.

COMPOSITION

(indicative)

Reinforcement (g/m²) :	Glass mat	50
Reinforcement (g/m²) :	Non-woven geotextile	300
Binder (g/m²) :	Elastomeric SBS	4800
Surface finish (g/m²) :	Sand	250
Under surface finish (g/m²) :	Polyester antiroot film	15

CHARACTERISTICS

		STANDARD	UNITS	AVERAGE	Min
Dimensions	Length	-	*m*	65	64
	Width		*m*	5.10	5.01
Thickness (on finished product)		*ASTM D 5199*	mm	4.80	*4.20*
Surface mass		*ASTM D 3776*	kg/m²	5.80	*5.00*
Resistance to tearing	Longitudinal	*ASTM D 4073*	N	950	*713*
	Cross direction			850	*638*
Tensile properties : maximum tensile strength	Longitudinal	*ASTM D 7275*	kN/m	33	*24.8*
	Cross direction			29	*21.8*
Tensile properties : elongation	Longitudinal		%	50	*35*
	Cross direction			50	*35*
Static Puncture		*ASTM D 4833*	N	570	*513*
Flexibility at low temperature	Longitudinal	*ASTM D 5147*	°C	-20	-15
	Cross direction			-20	-15
Water permeability (liquid tightness)		*ASTM E 96*	*m/s*	6.10^{-14}	
Gas permeability (gas tightness)		*ASTM D 1434-82*	*m³/m²/j/atm*	$< 3.10^{-14}$	

NOTE: AXTER COLETANCHE INC. may modify the composition and/or utilisation of its products without prior notice. Consequently orders will be filled according to the latest specification.

ATTACHMENT 2

December 18, 2018

Mr. Troy Meyer
BGC Engineering Inc
447 East Main St.
Montrose, CO
USA 81401

Re: Bituminous Geomembrane Lining on Spillway Channels
Eagle Gold Mine

Dear Mr. Meyer,

1 GENERAL

The letter was prepared in support of using the bituminous geomembrane Grade ES3 manufactured by AXTER Coletanche to line two spillways at the Eagle Gold Mine Heap Leach Facility (the facility).

This letter was prepared by Tarik Hadj-Hamou, Ph.D., P.E. of SLR International Corporation (SLR) at the request of Mr. Ted Aguirre of AXTER Coletanche.

2 SUMMARY

The calculations presented in the balance of this letter support the use of Coletanche ES3 to line two spillway channels at the Eagle Gold Mine Heap Leach Facility.

To resist the tractive force due to the flow of water in the channels, the geomembrane need to be anchored at specific intervals along the channel.

The spacing between anchors is a function of the inclination of the slope and is indicated in Table 1 below for booth spillways and slope inclination along the spillways courses. The geomembrane will also be anchored at top and bottom and along the edges.

In addition to the subsurface of the spillway channel shall be prepared, compacted to provide firm support, smooth rolled, and monitored to remove profusions in excess of 1.0 cm.

Emergency Event Pond Spillway

Slope Segment Inclination	50%	28.4%	40.6%	9.5%
Spacing between anchors points	6 meters	10 meters	7 meters	30 meters
In Heap Spillway				
Slope Segment Inclination	2%	5.75%	14%	
Spacing	100 meters	35 Meters	15 meters	

Table 1: Spacing of anchorage points in spillway channels

3 INTRODUCTION

The facility includes two spillways and associated spillway channels as shown and highlighted on Figure 1 (Drawing EGHLF-XD-07-01):

- The in-heap pond spillway channel to the north of the facility that connects the heap pond to an event pond.
- The emergency spillway channel to the south of the facility that serves the event pond.

The in-heap pond spillway channel is approximately 500 meters long and connects the heap pond to the event pond. The in-heap spillway channel begins at elevation 937.2 at the heap pond and terminates at elevation 894.5 at the event pond. The in-heap spillway channel is characterized by variable slopes ranging from 2 percent near the heap leach pond to 11 per cent near the event pond.

The emergency spillway channel is approximately 110 meters long and runs from elevation 894.5 meter at the crest of the spillway to elevation 852 meters where it terminates above Dublin Gulch. The slope of the emergency spillway ranges from 9.5 per cent to 50 per cent.

A cross section for the main span of the in-heap pond spillway channel is shown as detail AB on drawing EGHLF-XD-08-01 showing the proposed lining system for the channel. It is namely a double-sided textured HDPE geomembrane overlain with a 0.2 m thick fabriform such as Hydrotex R manufactured by Synthetex. Detail AC refers to the first meter of the channel and is addressed differently.

It is our understanding that Coletanche is proposed to replace the proposed two layer protection system by on single layer of Coletanche Grade ES3.

Using the dimensions provided in detail AB the cross-section of the in-heap spillway channel considered in the analyses presented herein is as follows:

- Trapezoidal shape
- Bottom width = 3.6 m
- Slope at inclination of 2:1 (horizontal to vertical)
- Total depth = 1.0 m. The total depth is reduced by 0.2 m since the fabriform is removed.
- Maximum water depth, assumed full depth

A cross section for the emergency event pond spillway channel is shown as detail Y on drawing EGHLF-XD-07-05m showing the proposed lining system for the channel. It is namely a double-sided textured HDPE geomembrane overlain with a 0.2 m thick fabriform such as Hydrotex R manufactured by Synthetex.

Using the dimensions provided in detail Y the cross-section of the in-heap spillway channel considered in the analyses presented herein is as follows:

- Trapezoidal shape
- Bottom width = 3.1 m
- Slope at inclination of 2:1 (horizontal to vertical)
- Total depth = 0.6 m. The total depth is reduced by 0.2 m since the fabriform is removed.
- Maximum water depth, assumed full depth

4 ASSUMPTIONS AND EQUATIONS

4.1 Terminology

Figure 2 show a typical trapezoidal cross sections of an earth channel. The following elements are defined and will be used in the remainder of the Technical Memorandum.

- Area A: the cross sectional area of the stream
- Wetted perimeter P: the length of the wetted surface of the channel, the line abcde on Figure 2
- Hydraulic radius R = A/P
- Depth D: maximum depth of water in the cross section
- Top Width T: width of the cross section at the water surface
- Mean depth Dm = A/T
- Energy grade, slope So: slope of the channel (Figure 3)

4.2 Flow Equation

The discharge equation used to design channel is the Manning's equations:

$$Q = \frac{k}{n} AR^{2/3} S_0^{1/2} \quad (1)$$

Where K is a constant:

- K = 1.49 for Imperial system of units
- K = 1.0 for SI system of units

And n is a resistance factor known as Manning coefficient. The value of n is a function of a number of variables the primary are being the roughness of the channel. The Manning coefficient n ranges from 0.010 for a smooth concrete lined channel to 0.15 for a weed filled earth channel.

Values of n for Coletanche are discussed in Section 4.4

4.3 Hydrodynamic forces

The hydrodynamic force of water flowing in a channel is known as the tractive force.

The tractive force is equal to the effective component of the drag force acting on the body of water parallel to the channel bottom. The mean boundary shear stress applied to the wetted perimeter is equal to (Chow, 1959):

$$\tau_0 = \gamma R S_0 \quad (2)$$

Where τ_o is the mean boundary shear stress and γ the unit weight of the fluid flowing in the channel. To simplify the design process, the maximum bottom shear stress is usually taken as:

$$\tau_0 = \gamma D S_0 \quad (3)$$

and this value should be less than the allowable value for the lining system selected.

4.4 Manning values for Coletanche

The value of n reported for Coletanche is 0.012. However this value was estimated assuming a perfectly flat geomembrane with no wrinkles, defects, and seams between panels. Such defects are likely to exist in most installations which will affect the quality and velocity of the flow. This impact is reflected through roughness, that is in the value of the Manning coefficient n and the admissible shear stress the Coletanche may be able to withstand.

- Some of the factors that will affect the nature of the flow in the channel include:
- The quality of the subbase under the Coletanche
- Seams between panels of Coletanche

- The quality of the contact between the subbase and the Coletanche
- Slack in the Coletanche which may lead to wrinkles, bumps, or folds.
- Inclination of the channel (S_o), and
- Quality of the water in the channel (amounts of particles carried)

Therefore the value of n selected for design should account for those factors. In addition the design should also account for the allowable stress on the lining. This allowable stress is a material property of the Coletanche grade selected and is dependent upon the level of strain in the Coletanche.

A valued of 0.017 is used herein.

4.5 Coletanche Mechanical Properties

The basic properties of Coletanche Grade ES3 are included in the cut-sheet included as Attachment A. Of interest for the use as liner in a channel are the mechanical resistance parameters. For instance for Coletanche ES3, under ASTM D 7275 the maximum tensile strength in the longitudinal direction is 33 kN/m at 60% elongation and is 29kN/m in the cross-direction.

The tension-strain curve of the Coletanche bituminous geomembranes can be approximately represented by a bilinear curve (Figure 4). In other words, a good approximation of the curve, which can be used in design calculations, is composed of two straight lines, as follows:

- From the origin to a strain of about 4%, the tension-strain curve is a straight line. The modulus of this first part of the curve is referred to as J1.
- After a 4% strain, the tension-strain curve is less steep and can be represented by a straight line with a modulus referred to as J2.

The intersection of the two straight lines is called the “elbow”.

The following tensile characteristics are defined (Figure 4):

- Tension and strain at the elbow of the tension-strain curve: T_{elb} and ε_{elb}.
- Tensile modulus J_1 of the first part of the curve and J_2 of the second part.

A review (Giroud, 2011) of tension-strain curves in the machine direction and in the cross machine direction for the Coletanche bituminous geomembranes ES 3 led to the following approximate values for the tensile characteristics.

- $\varepsilon_{elb} \approx 4\%$ for all Coletanche bituminous geomembranes in both directions, the machine direction and the cross-machine direction.
- $T_{elb} \approx 14$ kN/m for ES 3 in the machine direction.
- $T_{elb} \approx 11$ kN/m for ES 3 in the cross-machine direction.

- $J_2 \approx 25$ kN/m for ES 3 in the machine direction.
- $J_2 \approx 17$ kN/m for ES 3 in the cross-machine direction.

The modulus of the first part of the tension-strain curves can be derived from the above values as follows:

$$J_1 = \frac{T_{elb}}{\varepsilon_{elb}} \quad (4)$$

The following values are thus obtained for J_1:

- In the machine direction: 350 kN/m for ES 3.
- In the cross-machine direction: 275 kN/m for ES 3.

It is assumed herein based on the dimension of the channels that Coletanche will be laid in the channel such that the flow is in the longitudinal direction.

Note the tensile stress in Coletanche like any other geomembrane is provided for each type of product on a per unit width basis and de facto include the thickness of the geomembrane. The same applies for the moduli J_1 and J_2 which are grade specific and account for the thickness (e.g. 4.8 mm for ES3) as illustrated by the units used for the moduli force per unit of length (kN/m) rather than force per unit of area (kN/m^2)

4.6 Allowable Strain

Because of the variability in the inclination of the spillway channel, the velocity in the channels will vary as well as the tractive force applied to the Coletanche. For the in-heap spillway, which is more likely to be used frequently, a maximum allowable strain of 4% is used in the design. For the event pond spillway which is likely to be used only for critical event (design flood) a larger strain may be used. A maximum allowable strain of 15% is used herein.

5 DESIGN OF GEOMEMBRANE

The design of the geomembrane is based on ensuring that the tractive force imposed on the Coletanche does not exceed the tensile resistance of the geomembrane

5.1 Geomembrane Tensile Strengh

The tensile strength of the geomembrane is calculated using the following equations derived from equation (4) and the discussion in Section 4.5 as a function of strain:

$$\sigma = J_1 \varepsilon_{all} \quad if \ \ \varepsilon < 4\% \quad (5)$$

$$\sigma = J_1 \varepsilon_{all} + J_2 \ (\varepsilon_{all} - 4\%) \ \ if \ \ \varepsilon > 4\% \quad (6)$$

For the design allowable strain values of 6% and 10% of the in-heap and event pond spillways the tensile strengths are

For the in-heap spillway channel: $\sigma = (350) * (.04) \varepsilon_{all} = \ 14\ kN/m$ (7)

For the event pond spillway

$\sigma = J_1 \varepsilon_{all} + J_2\ (\varepsilon_{all} - 4\%)\ = (350) * (.04) + 22 * (.15 - .04) = 16.42\ kN/m$ (8)

5.2 Equilibrium of forces

The tensile for in the Coletanche is calculated as for a unit of width B=1:

$F = \ \sigma\ B = 14 * 1 = 14kN$ for the in-heap spillway (9)

$F = \ \sigma\ B = 16.42 * 1 = 16.42\ kN$ for the event pond spillway (10)

The tractive force applied on a panel of width B=1 and length L is calculated from equation 3 as:

$F_t = \gamma D S_0 B L$ (11)

Combining equations 9, 10 and 11 by setting F= F_t the length of panels between anchoring points

The results are reported in Table 1 at the beginning of this letter.

6 CONCLUSIONS

The analyses presented in this letter indicate that Coletanche grade ES 3 and be used to line the channels of the two spillways the Eagle Gold Mine. The tractive force applied to the geomembrane under the flow conditions generate a tensile stress that is within the resistance of the Coletanche ES3 if the geomembrane is anchored as indicated in Table 1.

The factor of safety in using Coletanche is built in in the choice of allowable design strain. For the in-heap spillway channel, we used a design strain of 4% and for the event pond spillway channel we used a design strain of 15%. Considering that the maximum strain at rupture is reported at 50% (Attachment A), the factors of safety against excessive deformation of Coletanche ES3 and rupture are 12.5 for the in-heap spillway channel liner and 3.33 for the event pond spillway channel liner.

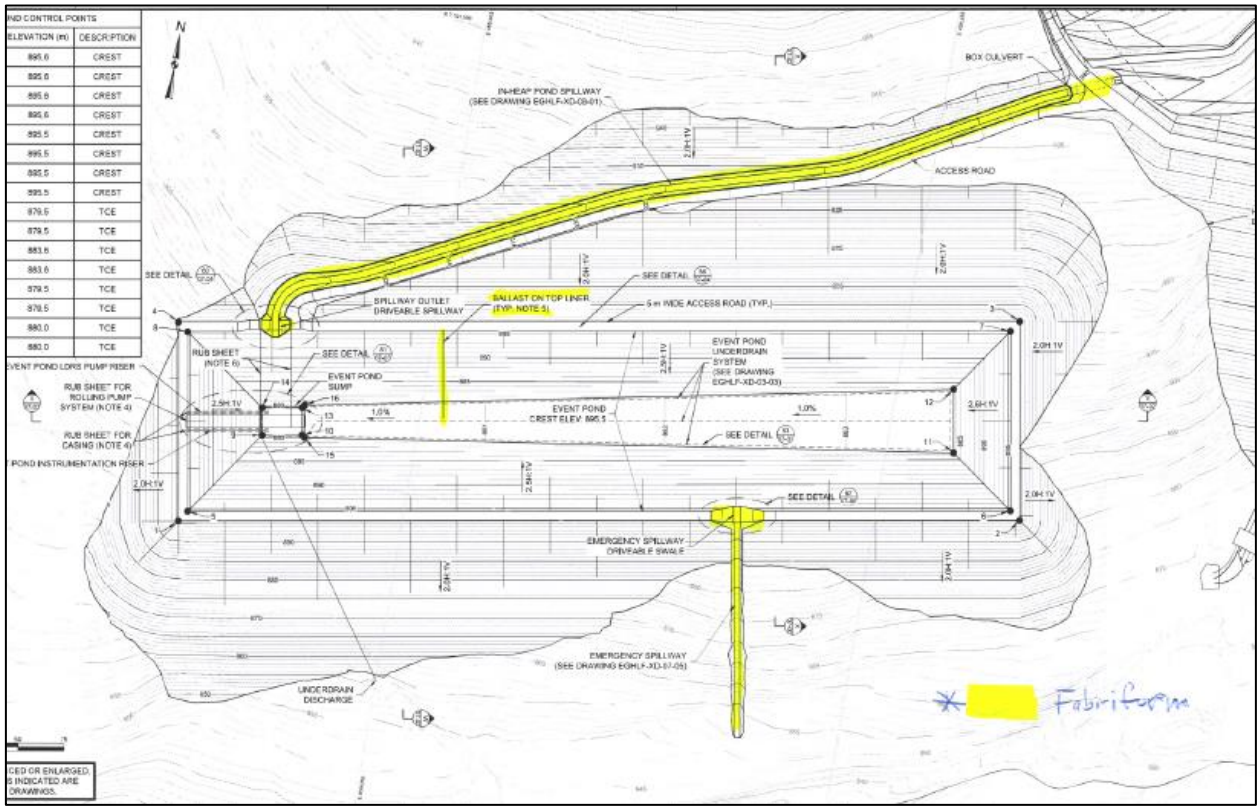


Figure 1 : Spillways At Eagle Gold Facility slated for lining

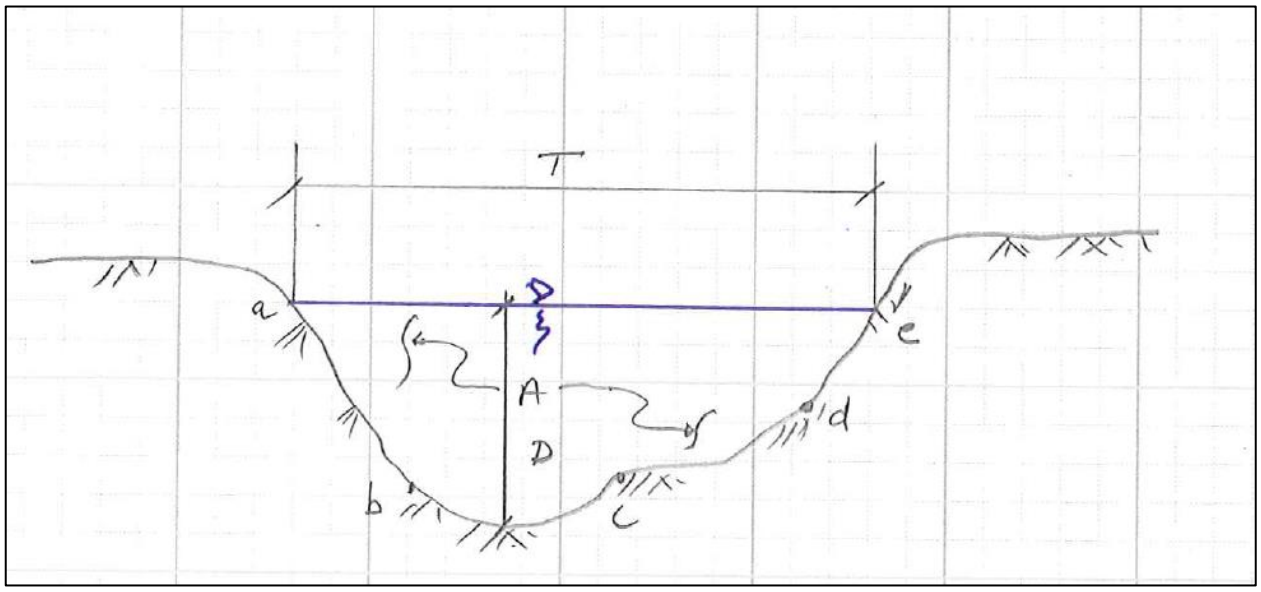
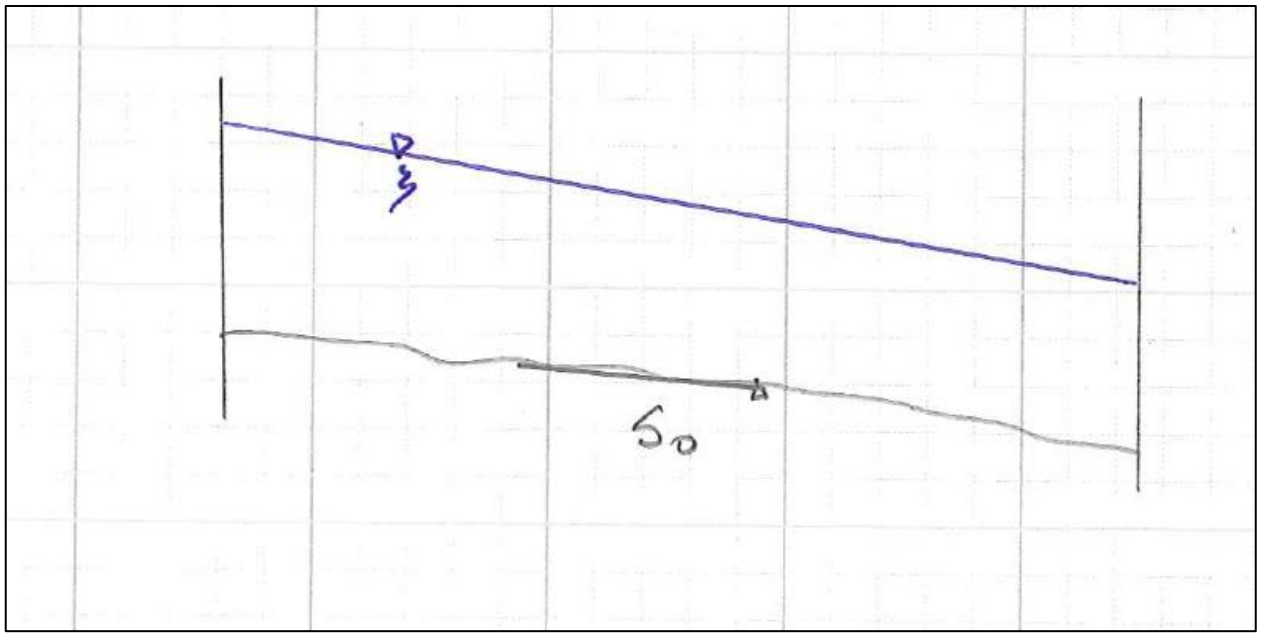


Figure 2: Typical Earth channel cross section



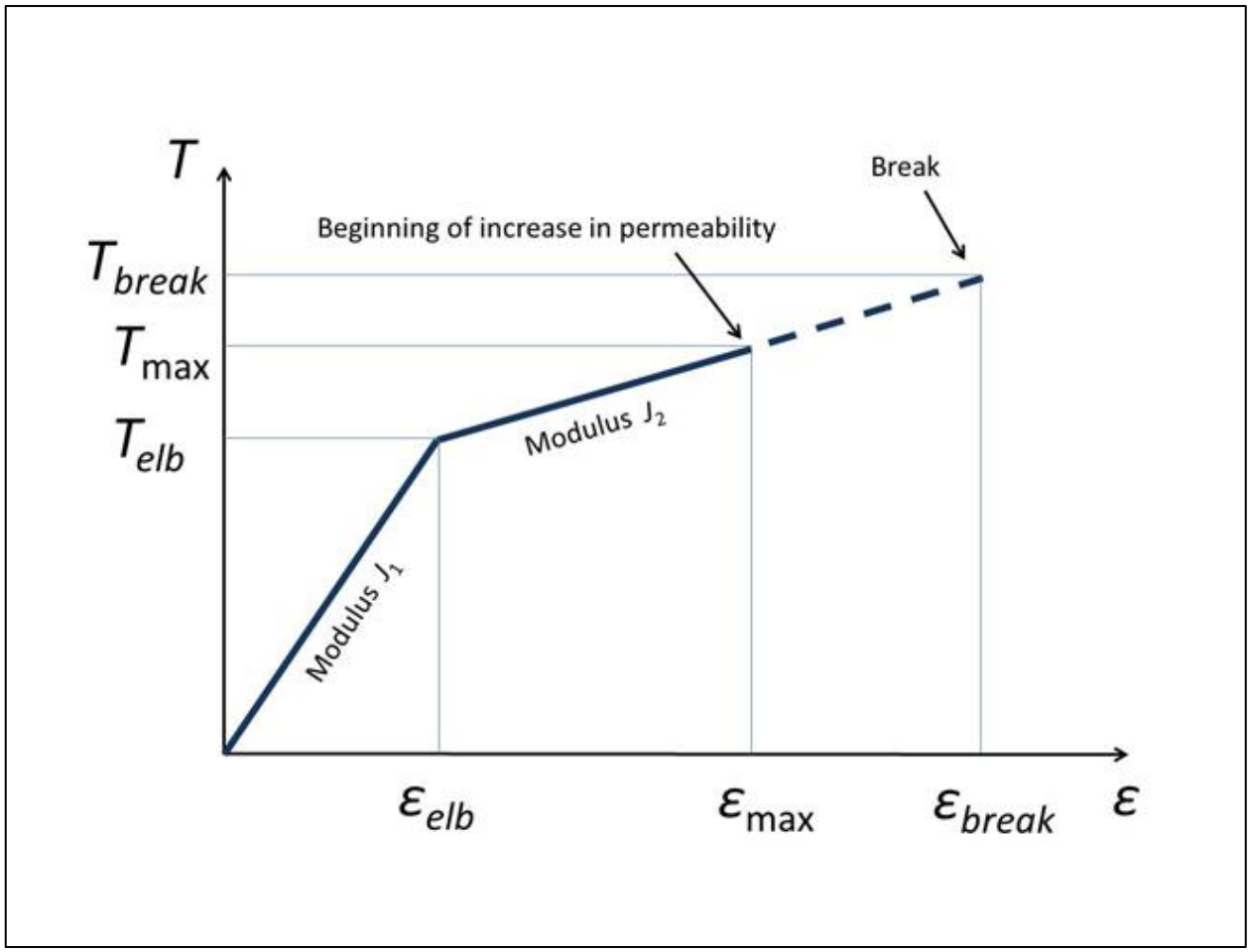


Figure 4: Typical stress-strain curve for Coletanche

Attachment A

Coletanche ES3 Cut Sheet

December 18, 2018

Mr. Troy Meyer
BGC Engineering Inc
447 East Main St.
Montrose, CO
USA 81401

Re: Bituminous Geomembrane Lining on Spillway Channels
Eagle Gold Mine

Dear Mr. Meyer,

1 GENERAL

The letter was prepared in support of using the bituminous geomembrane Grade ES3 manufactured by AXTER Coletanche to line two spillways at the Eagle Gold Mine Heap Leach Facility (the facility).

This letter was prepared by Tarik Hadj-Hamou, Ph.D., P.E. of SLR International Corporation (SLR) at the request of Mr. Ted Aguirre of AXTER Coletanche.

2 SUMMARY

The calculations presented in the balance of this letter support the use of Coletanche ES3 to line two spillway channels at the Eagle Gold Mine Heap Leach Facility.

To resist the tractive force due to the flow of water in the channels, the geomembrane need to be anchored at specific intervals along the channel.

The spacing between anchors is a function of the inclination of the slope and is indicated in Table 1 below for booth spillways and slope inclination along the spillways courses. The geomembrane will also be anchored at top and bottom and along the edges.

In addition to the subsurface of the spillway channel shall be prepared, compacted to provide firm support, smooth rolled, and monitored to remove profusions in excess of 1.0 cm.

Emergency Event Pond Spillway

Slope Segment Inclination	50%	28.4%	40.6%	9.5%
Spacing between anchors points	6 meters	10 meters	7 meters	30 meters
In Heap Spillway				
Slope Segment Inclination	2%	5.75%	14%	
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Table 1: Spacing of anchorage points in spillway channels

3 INTRODUCTION

The facility includes two spillways and associated spillway channels as shown and highlighted on Figure 1 (Drawing EGHLF-XD-07-01):

- The in-heap pond spillway channel to the north of the facility that connects the heap pond to an event pond.
- The emergency spillway channel to the south of the facility that serves the event pond.

The in-heap pond spillway channel is approximately 500 meters long and connects the heap pond to the event pond. The in-heap spillway channel begins at elevation 937.2 at the heap pond and terminates at elevation 894.5 at the event pond. The in-heap spillway channel is characterized by variable slopes ranging from 2 percent near the heap leach pond to 11 per cent near the event pond.

The emergency spillway channel is approximately 110 meters long and runs from elevation 894.5 meter at the crest of the spillway to elevation 852 meters where it terminates above Dublin Gulch. The slope of the emergency spillway ranges from 9.5 per cent to 50 per cent.

A cross section for the main span of the in-heap pond spillway channel is shown as detail AB on drawing EGHLF-XD-08-01 showing the proposed lining system for the channel. It is namely a double-sided textured HDPE geomembrane overlain with a 0.2 m thick fabriform such as Hydrotex R manufactured by Synthetex. Detail AC refers to the first meter of the channel and is addressed differently.

It is our understanding that Coletanche is proposed to replace the proposed two layer protection system by on single layer of Coletanche Grade ES3.

Using the dimensions provided in detail AB the cross-section of the in-heap spillway channel considered in the analyses presented herein is as follows:

- Trapezoidal shape
- Bottom width = 3.6 m
- Slope at inclination of 2:1 (horizontal to vertical)
- Total depth = 1.0 m. The total depth is reduced by 0.2 m since the fabriform is removed.
- Maximum water depth, assumed full depth

A cross section for the emergency event pond spillway channel is shown as detail Y on drawing EGHLF-XD-07-05m showing the proposed lining system for the channel. It is namely a double-sided textured HDPE geomembrane overlain with a 0.2 m thick fabriform such as Hydrotex R manufactured by Synthetex.

Using the dimensions provided in detail Y the cross-section of the in-heap spillway channel considered in the analyses presented herein is as follows:

- Trapezoidal shape
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- Slope at inclination of 2:1 (horizontal to vertical)
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4 ASSUMPTIONS AND EQUATIONS

4.1 Terminology

Figure 2 show a typical trapezoidal cross sections of an earth channel. The following elements are defined and will be used in the remainder of the Technical Memorandum.

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The discharge equation used to design channel is the Manning's equations:

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Where K is a constant:

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- The quality of the subbase under the Coletanche
- Seams between panels of Coletanche

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- Slack in the Coletanche which may lead to wrinkles, bumps, or folds.
- Inclination of the channel (S_o), and
- Quality of the water in the channel (amounts of particles carried)

Therefore the value of n selected for design should account for those factors. In addition the design should also account for the allowable stress on the lining. This allowable stress is a material property of the Coletanche grade selected and is dependent upon the level of strain in the Coletanche.

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The basic properties of Coletanche Grade ES3 are included in the cut-sheet included as Attachment A. Of interest for the use as liner in a channel are the mechanical resistance parameters. For instance for Coletanche ES3, under ASTM D 7275 the maximum tensile strength in the longitudinal direction is 33 kN/m at 60% elongation and is 29kN/m in the cross-direction.

The tension-strain curve of the Coletanche bituminous geomembranes can be approximately represented by a bilinear curve (Figure 4). In other words, a good approximation of the curve, which can be used in design calculations, is composed of two straight lines, as follows:

- From the origin to a strain of about 4%, the tension-strain curve is a straight line. The modulus of this first part of the curve is referred to as J1.
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The intersection of the two straight lines is called the “elbow”.

The following tensile characteristics are defined (Figure 4):

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- $T_{elb} \approx 11$ kN/m for ES 3 in the cross-machine direction.

- $J_2 \approx 25$ kN/m for ES 3 in the machine direction.
- $J_2 \approx 17$ kN/m for ES 3 in the cross-machine direction.

The modulus of the first part of the tension-strain curves can be derived from the above values as follows:

$$J_1 = \frac{T_{elb}}{\varepsilon_{elb}} \quad (4)$$

The following values are thus obtained for J_1:

- In the machine direction: 350 kN/m for ES 3.
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Note the tensile stress in Coletanche like any other geomembrane is provided for each type of product on a per unit width basis and de facto include the thickness of the geomembrane. The same applies for the moduli J_1 and J_2 which are grade specific and account for the thickness (e.g. 4.8 mm for ES3) as illustrated by the units used for the moduli force per unit of length (kN/m) rather than force per unit of area (kN/m^2)

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Because of the variability in the inclination of the spillway channel, the velocity in the channels will vary as well as the tractive force applied to the Coletanche. For the in-heap spillway, which is more likely to be used frequently, a maximum allowable strain of 4% is used in the design. For the event pond spillway which is likely to be used only for critical event (design flood) a larger strain may be used. A maximum allowable strain of 15% is used herein.

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The tensile strength of the geomembrane is calculated using the following equations derived from equation (4) and the discussion in Section 4.5 as a function of strain:

$$\sigma = J_1 \varepsilon_{all} \quad if \ \ \varepsilon < 4\% \quad (5)$$

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For the in-heap spillway channel: $\sigma = (350) * (.04) \varepsilon_{all} = \ 14\ kN/m$ (7)

For the event pond spillway

$\sigma = J_1 \varepsilon_{all} + J_2\ (\varepsilon_{all} - 4\%)\ = (350) * (.04) + 22 * (.15 - .04) = 16.42\ kN/m$ (8)

5.2 Equilibrium of forces

The tensile for in the Coletanche is calculated as for a unit of width B=1:

$F = \ \sigma\ B = 14 * 1 = 14kN$ for the in-heap spillway (9)

$F = \ \sigma\ B = 16.42 * 1 = 16.42\ kN$ for the event pond spillway (10)

The tractive force applied on a panel of width B=1 and length L is calculated from equation 3 as:

$F_t = \gamma D S_0 B L$ (11)

Combining equations 9, 10 and 11 by setting F= F_t the length of panels between anchoring points

The results are reported in Table 1 at the beginning of this letter.

6 CONCLUSIONS

The analyses presented in this letter indicate that Coletanche grade ES 3 and be used to line the channels of the two spillways the Eagle Gold Mine. The tractive force applied to the geomembrane under the flow conditions generate a tensile stress that is within the resistance of the Coletanche ES3 if the geomembrane is anchored as indicated in Table 1.

The factor of safety in using Coletanche is built in in the choice of allowable design strain. For the in-heap spillway channel, we used a design strain of 4% and for the event pond spillway channel we used a design strain of 15%. Considering that the maximum strain at rupture is reported at 50% (Attachment A), the factors of safety against excessive deformation of Coletanche ES3 and rupture are 12.5 for the in-heap spillway channel liner and 3.33 for the event pond spillway channel liner.

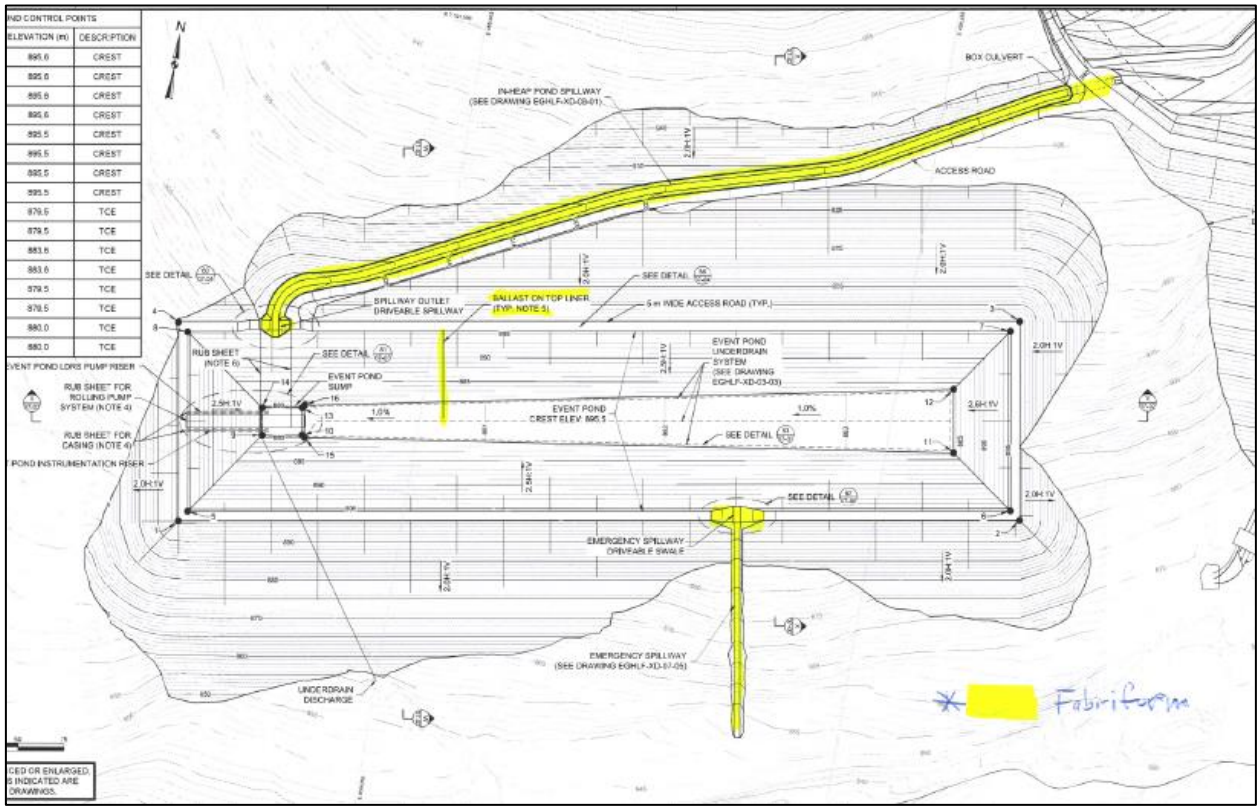


Figure 1 : Spillways At Eagle Gold Facility slated for lining

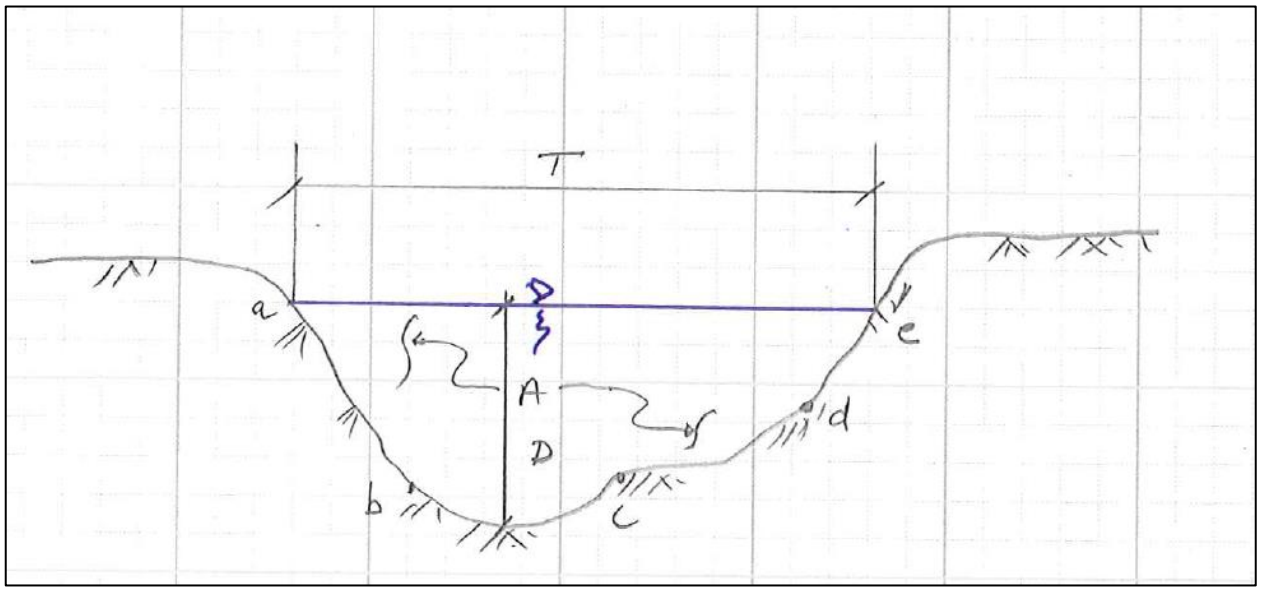
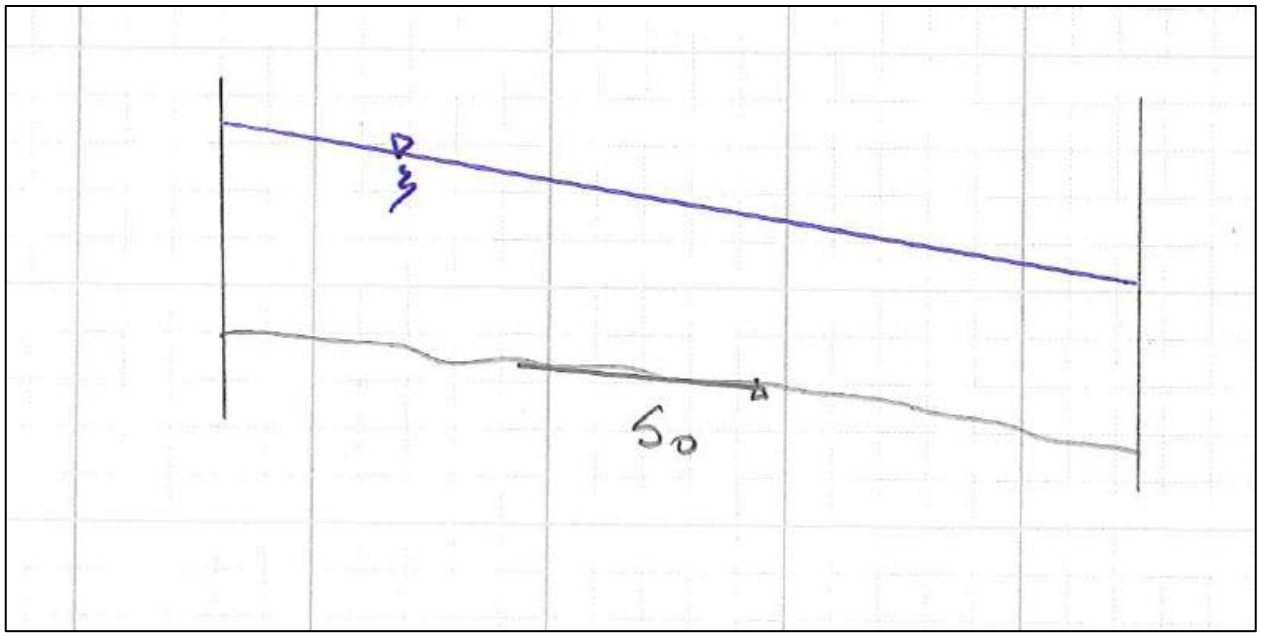


Figure 2: Typical Earth channel cross section



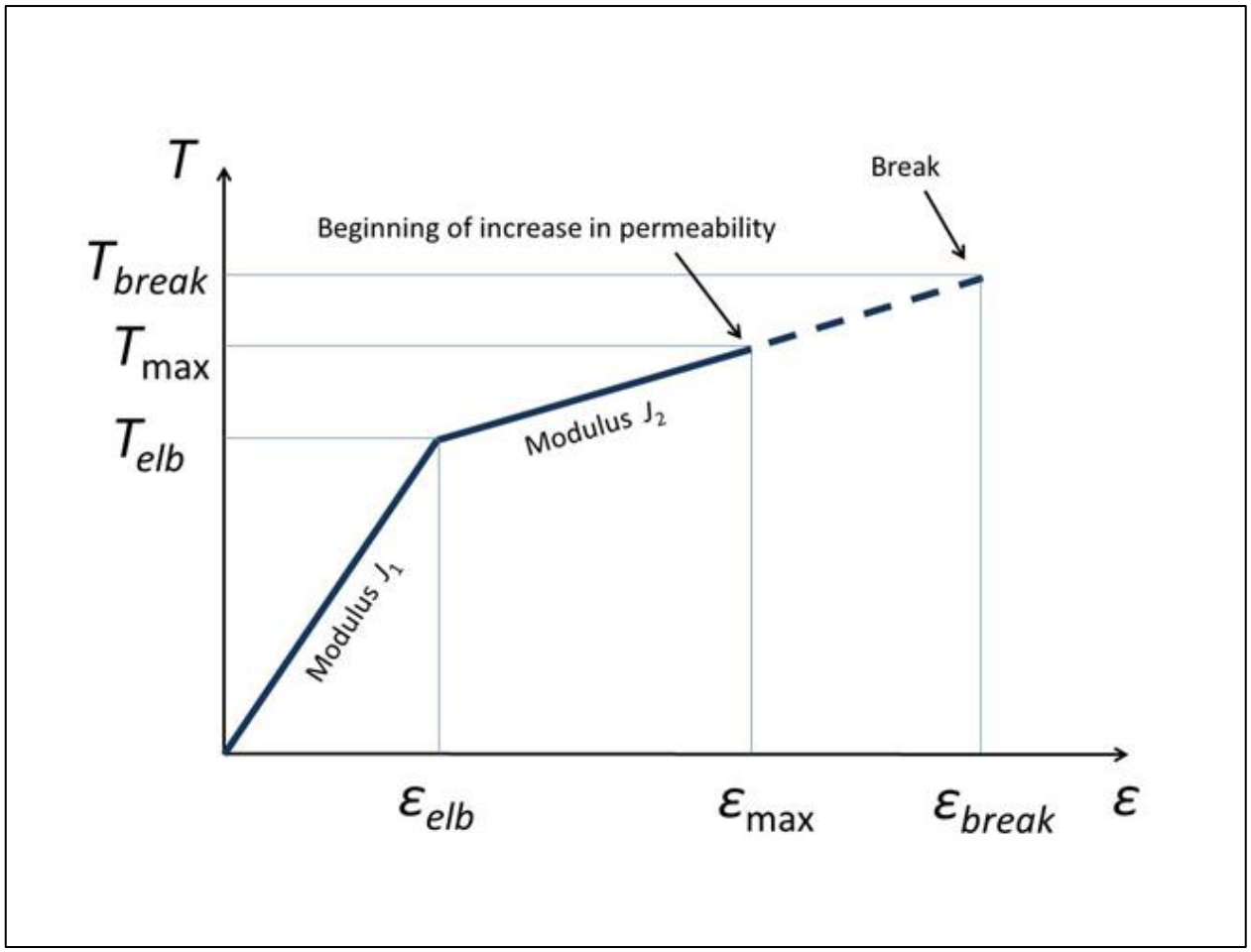


Figure 4: Typical stress-strain curve for Coletanche

Attachment A

Coletanche ES3 Cut Sheet

8, Avenue Félix d'Hérelle
75016 PARIS - FRANCE
www.coletanche.com

Prepared: 15/01/2018
Cancels and replac 23/10/2017
Code : 1877901
Manufacture sourc Courchelettes (59-France)
Technical ref: FT AXTER ES3 ASTM

PRODUCT DATA SHEET

COLETANCHE ES 3

DESCRIPTION

COLETANCHE ES 3 is an SBS elastomeric modified bituminous geomembrane.

USE

Extreme level of mechanical resistance, for use as environmental protection and groundworks waterproofing, in particular :
- Railways, directly under ballast,
- Dams,

Product use must be validated by Axter.

APPLICATION METHOD

By torch welding or other similar technique.

STORAGE

Rolls must not be stored directly on the ground. Provide suitable supports (blocks, slides, wooden planks) with a minimum height of 35 cm to be placed under the ends of the mandrel.

COMPOSITION

(indicative)

Reinforcement (g/m²) :	Glass mat	50
Reinforcement (g/m²) :	Non-woven geotextile	300
Binder (g/m²) :	Elastomeric SBS	4800
Surface finish (g/m²) :	Sand	250
Under surface finish (g/m²) :	Polyester antiroot film	15

CHARACTERISTICS

		STANDARD	UNITS	AVERAGE	Min
Dimensions	Length	-	*m*	65	64
	Width		*m*	5.10	5.01
Thickness (on finished product)		*ASTM D 5199*	mm	4.80	*4.20*
Surface mass		*ASTM D 3776*	kg/m²	5.80	*5.00*
Resistance to tearing	Longitudinal	*ASTM D 4073*	N	950	*713*
	Cross direction			850	*638*
Tensile properties : maximum tensile strength	Longitudinal	*ASTM D 7275*	kN/m	33	*24.8*
	Cross direction			29	*21.8*
Tensile properties : elongation	Longitudinal		%	50	*35*
	Cross direction			50	*35*
Static Puncture		*ASTM D 4833*	N	570	*513*
Flexibility at low temperature	Longitudinal	*ASTM D 5147*	°C	-20	-15
	Cross direction			-20	-15
Water permeability (liquid tightness)		*ASTM E 96*	*m/s*	6.10^{-14}	
Gas permeability (gas tightness)		*ASTM D 1434-82*	*m³/m²/j/atm*	$< 3.10^{-14}$	

NOTE: AXTER COLETANCHE INC. may modify the composition and/or utilisation of its products without prior notice. Consequently orders will be filled according to the latest specification.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-033

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792023**
From:	**Roy Morlan (BGC)**	**Date:**	**April 7, 2019**
Copied:	**Troy Meyers (BGC)**	**Record:**	**BGC-RFI-033**

Re: BGC-RFI-033: Event Pond Underdrain Discharge Winterization

BGC is providing this RFI as a response to questions asked by Pelly and JDS. Over the 2018-2019 winter Pelly reported that the Event Pond underdrain outlet pipe froze. A 3m plug was removed from the outlet pipe. Water was reported to have backed up in the outlet pipe to the underdrains. The western portion of the underdrain where water backed up and filled the drains also froze. BGC was asked to provide winterization recommendations.

BGC recommends the following:

Event Pond Underdrain Outlet Pipe: BGC recommends increasing cover over the outlet pipe underdrain. The general configuration of this cover is included in ***Figures 1 and 2***.

Event Pond Underdrains: It appears that the Event Pond underdrains froze after the outlet was plugged, water flow stopped, and water backed up in the drains. JDS and Pelly were concerned that the underdrains needed additional protection. As an additional protection BGC provided the measures ***Figures 3 and 4***.

Response:

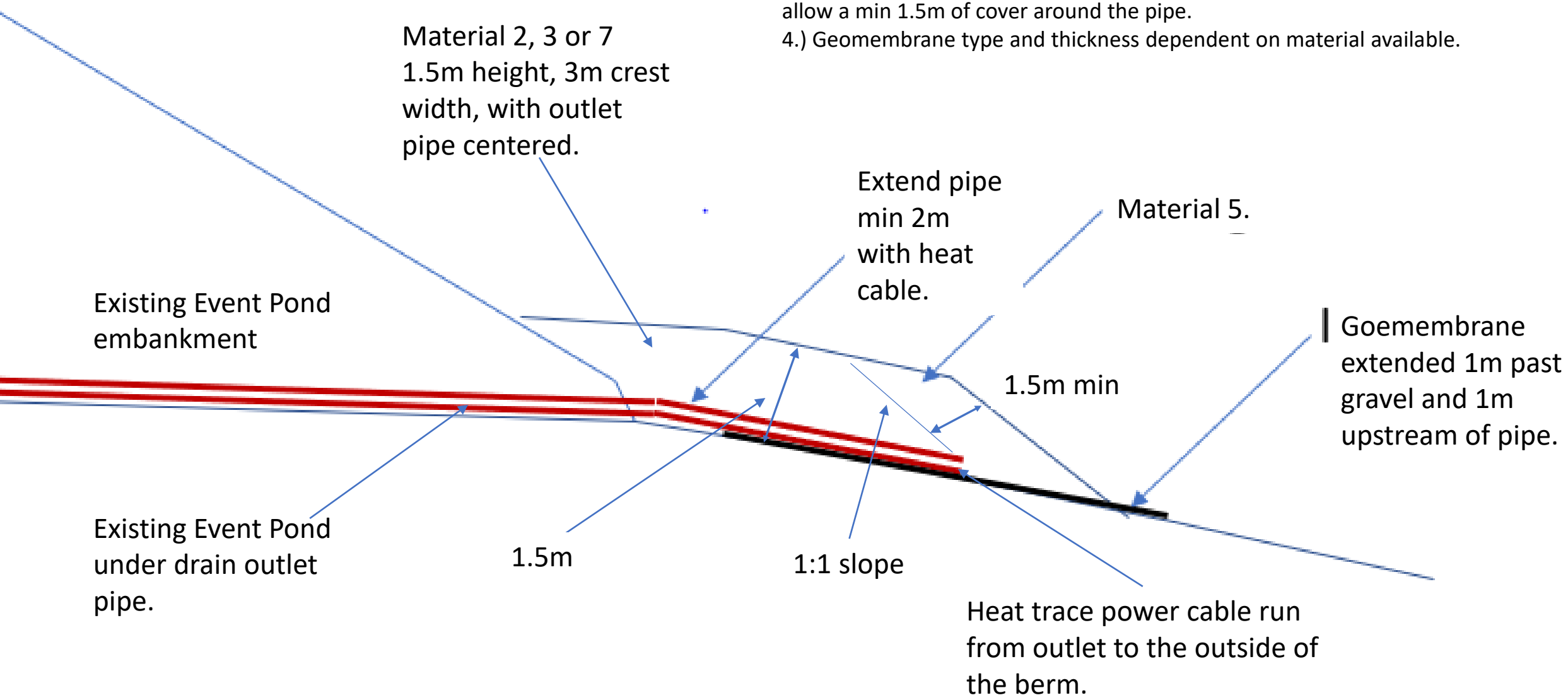
Answered by:

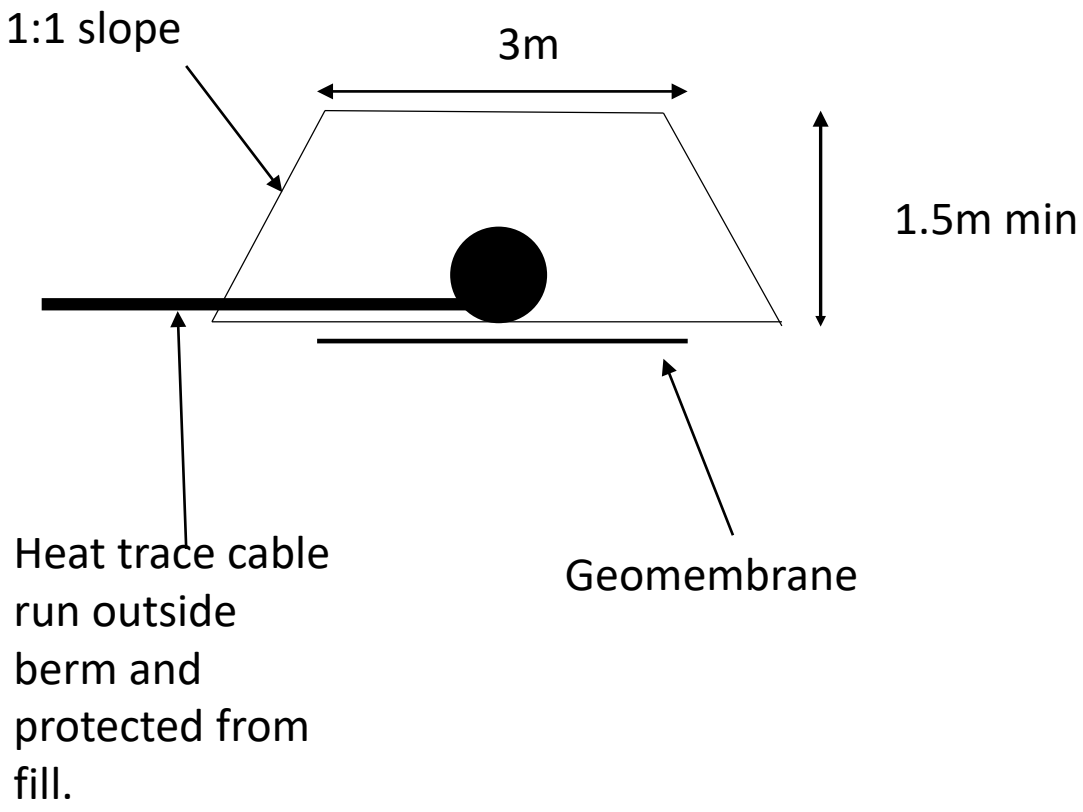
Name Signature Date

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 1
EVENT POND DISCHARGE WINTER COVER

Notes:
1.) Heat trace cable should be protected from fill.
2.) Material 2, 3 or 7 lift sizes depending on material used.
3.) Final slopes can be field fit for constructability.
3.) Final dimensions for cover can be field fit for constructability but should allow a min 1.5m of cover around the pipe.
4.) Geomembrane type and thickness dependent on material available.

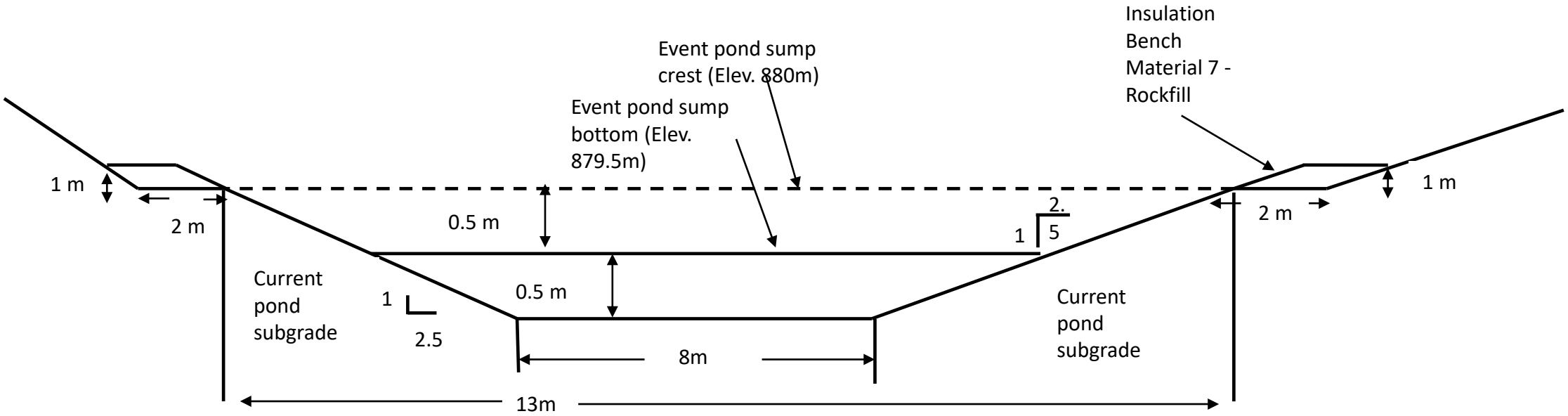




Notes:
1.) Heat trace cable should be protected from fill.
2.) Material 2, 3 or 7 lift sizes depending on material used.
3.) Final slopes can be field fit for constructability.
3.) Final dimensions for cover can be field fit for constructability but should allow a min 1.5m of cover around the pipe.

EAGLE GOLD – HEAP LEACH FACILITY

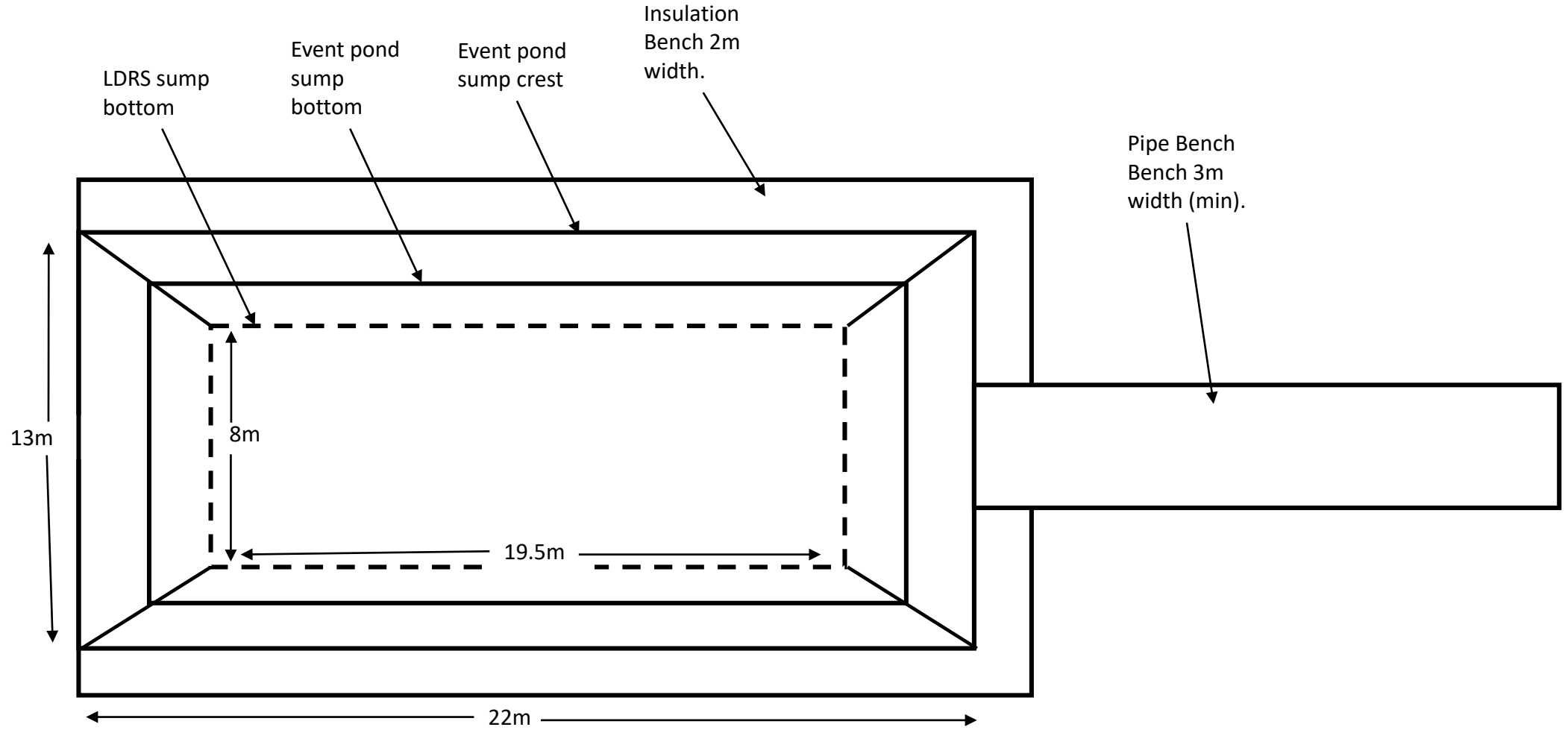
FIGURE 2
EVENT POND DISCHARGE WINTER COVER



Notes:
1.) LDRS and sump casing and liner design per IFC drawings.
2.) Insulation bench width to be field fit in some locations based on underdrain as-built. Not to exceed 2.5m.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 3
EVENT POND DISCHARGE WINTER COVER



Notes:
1.) LDRS and sump casing and liner design per IFC drawings.
2.) Pump casings would be moved onto the pipe bench.
3.) Final sump dimensions may change based on insulation bench width.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 4
EVENT POND DISCHARGE WINTER COVER

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-034

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792023**
From:	**Troy Meyer (BGC)**	**Date:**	**April 17, 2019**
Copied:	**Roy Morlan (BGC)**	**Record:**	**BGC-RFI-034**

Re: BGC-RFI-034: Finger Drain on 990 Bench

BGC is providing this RFI as a response to questions asked by Pelly and JDS. Snowmelt runoff is collecting on a portion of the HLF 990 bench near Station 4+30.

BGC recommends installing a L-shaped finger drain to collect the water and convey it to the nearest lateral drain down the slope as shown in ***Figure 1***. The drain should extend along the 990 bench in the wet area (about 10m long) with a connection across the bench and tie into the lateral drain. The minimum drain dimensions should be 1m wide by 0.5m deep and consist of a clean gravel wrapped in non-woven geotextile. A low permeability plug should be installed in the trench at the bend in the L-shaped drain to direct flow down to the lateral and prevent flow traveling along the 990 bench.

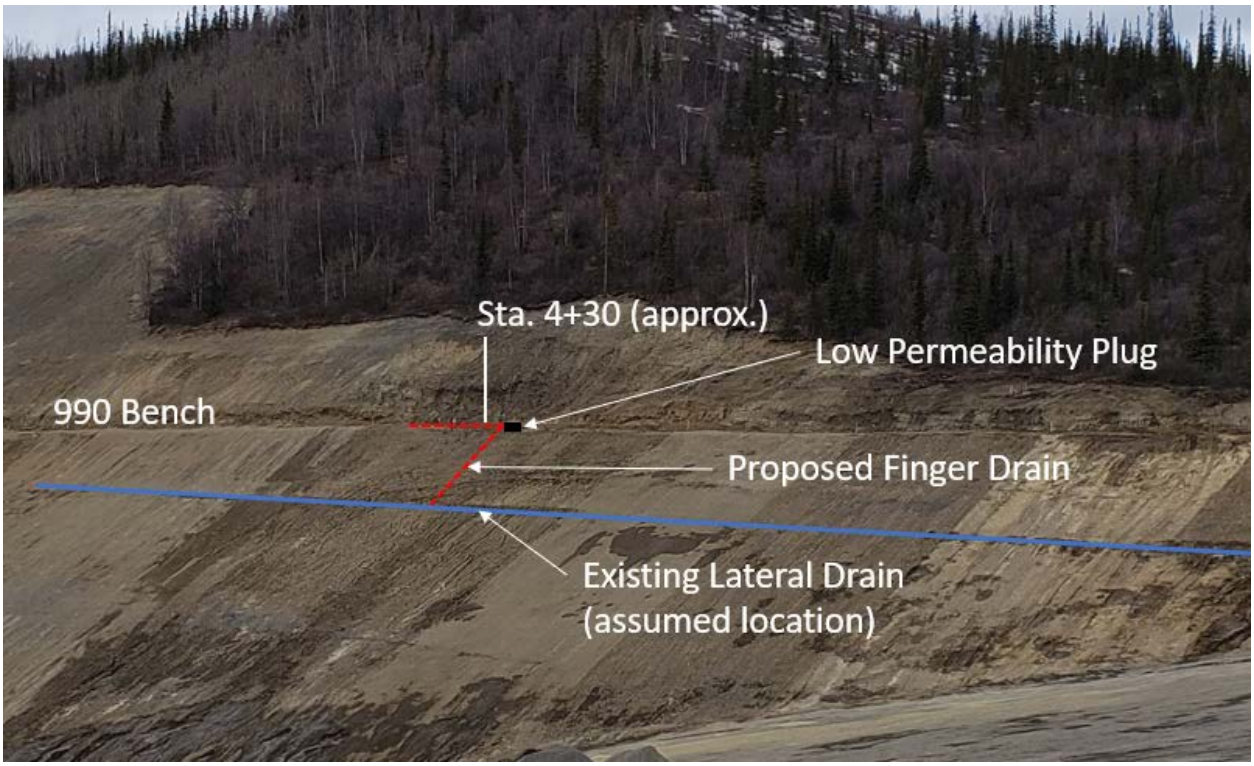
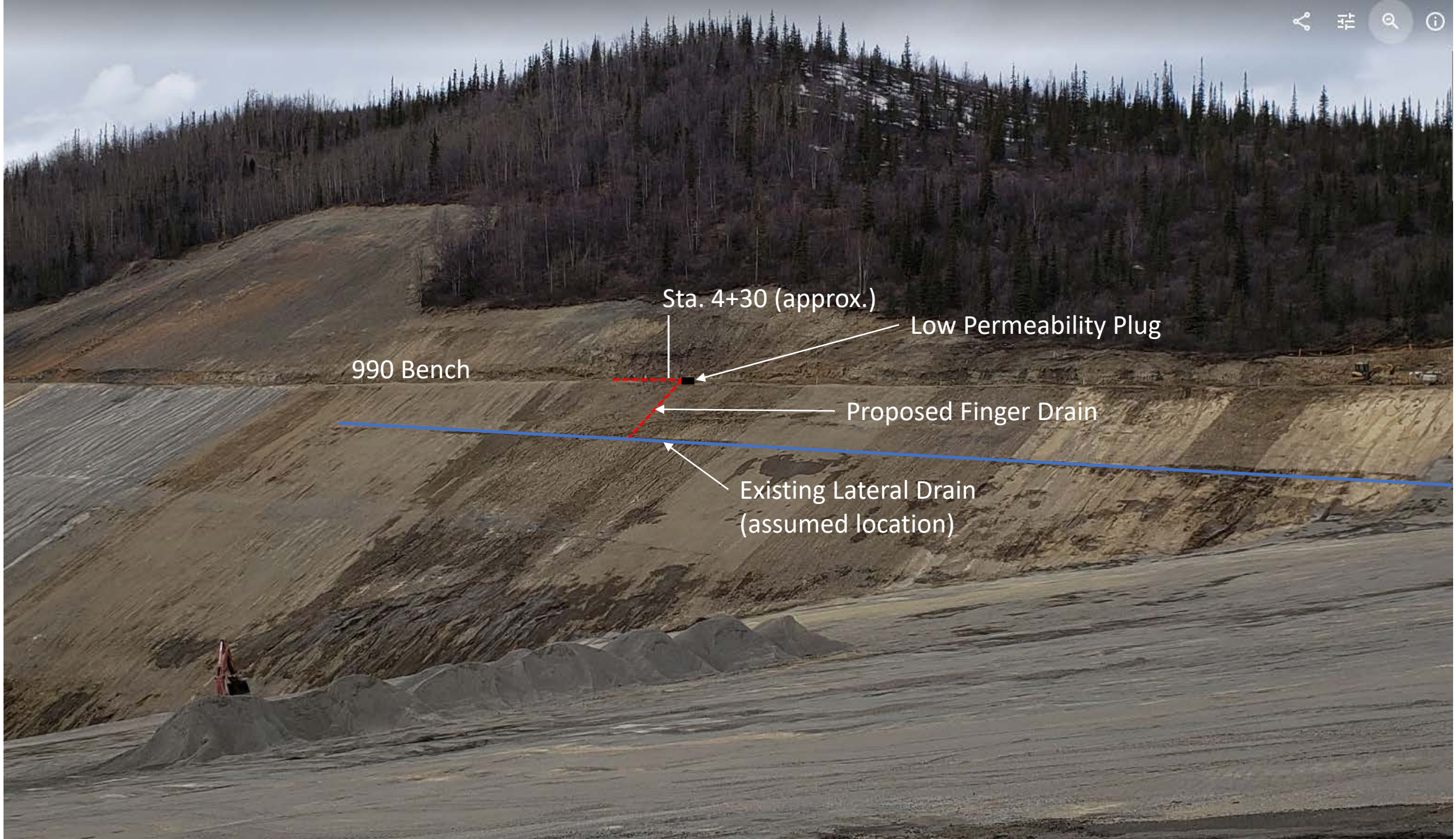


Figure 1.

Response:

Answered by:

Name	Signature	Date


Sta. 4+30 (approx.)
Low Permeability Plug
990 Bench
Proposed Finger Drain
Existing Lateral Drain
(assumed location)

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-035

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792023**
From:	**Troy Meyer (BGC)**	**Date:**	**April 18, 2019**
Copied:	**Roy Morlan (BGC)**	**Record:**	**BGC-RFI-035**

Re: BGC-RFI-035: Event Pond Inclined Casings

BGC is providing this RFI as a response to questions asked by Pelly and JDS. Pelly has suggested alternates for the specified event pond LDRS inclined pipes. The design calls for 150mm Schedule 80 PVC, one for pump and one for instrumentation.

The alternates are 150mm HDPE (butt fused) for the instrumentation casing and corrugated (field-perforated) 250mm HDPE for the pump casing. Both pipes will have prefabricated end caps installed. These alternate pipes are approved to replace the specified PVC pipes provided they properly anchored after liner installation to limit thermal movement (sandbags on both sides of pipe).

Response:

Answered by:

Name Signature Date

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-036

To:	**Calvin Goldshcmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792023**
From:	**Troy Meyer (BGC)**	**Date:**	**April 20, 2019**
Copied:	**Roy Morlan (BGC)**	**Record:**	**BGC-RFI-036**

Re: BGC-RFI-036: HLF Underdrain Transition to Monitoring Vault

BGC is providing this RFI as a response to questions asked by JDS. The HLF underdrains are shown on Drawing XD-05-06 (see Figure 1 below). The battery limits are shown as 2m offset either side of the vault with the vault itself design by JDS. The JDS vault design now incorporates an above-ground sea-can structure with pipes transitioning from buried to above ground entering the vault. The battery limits are therefore changed to the following:

- BGC is responsible for the underdrains in a lined trench to a cutoff berm and JDS is responsible for the pipes after the berm with transition to a cut and cover trench and the insulated and heat-traced pipes above ground.
- JDS is responsible for all aspects of the monitoring vault and the outfall from the vault to environment.

This RFI provides details for the lined trench and cutoff berm. Figure 2 shows a sketch of the proposed section for underdrain transition with the battery limits. There are 4 underdrain pipes, 1 closure pipe and 1 trench drain pipe. The underdrain pipes are gravity flow and can be connected with mechanical couplers. The closure pipe will be pressurized during post-closure operations and needs to be butt-fused to maintain the pipe pressure rating. The trench drain pipe will be perforated in the trench and transition to solid through the cutoff berm. All pipes will be booted to the trench liner. Figure 2 -Detail A shows the cutoff berm detail with fill material types.

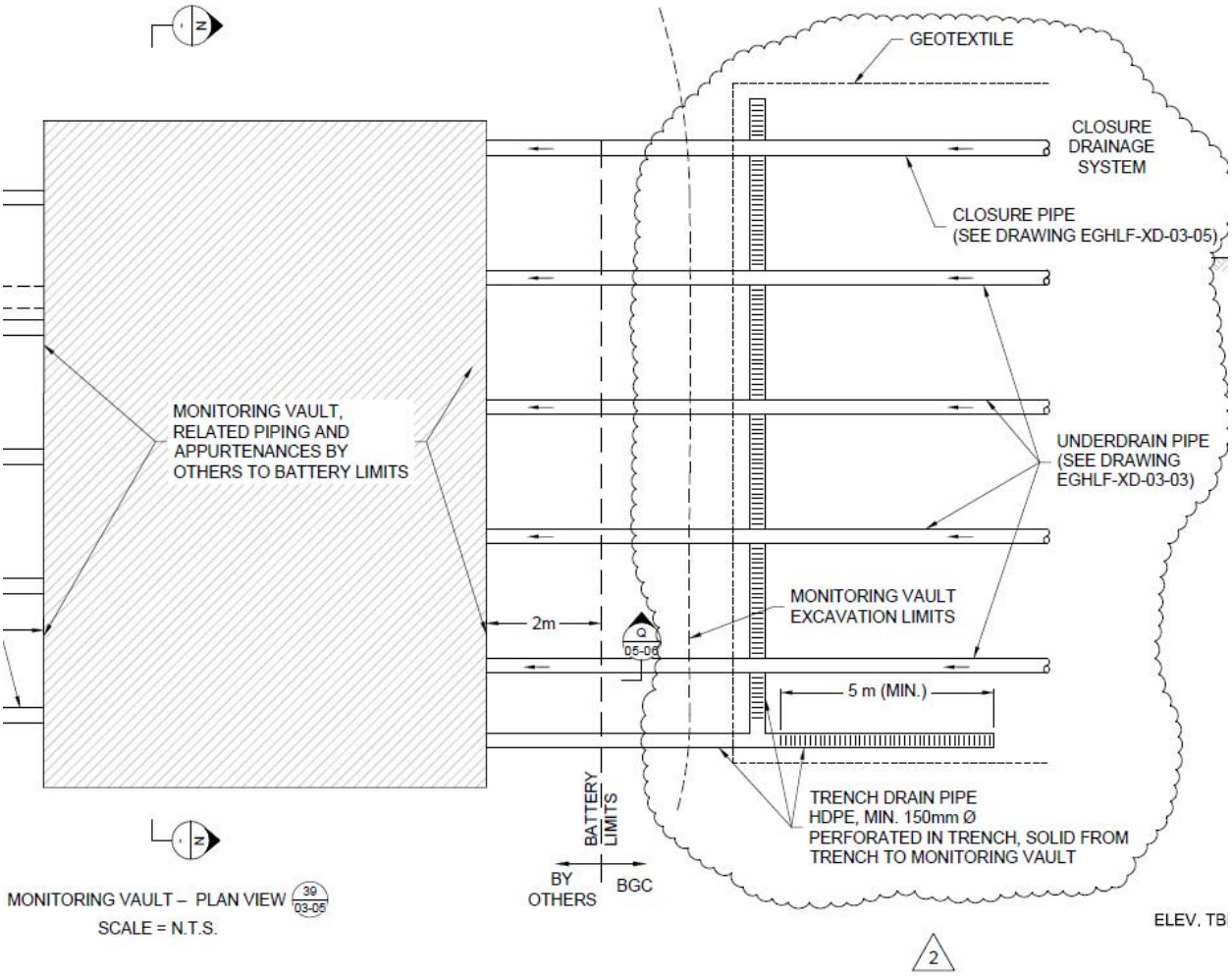


Figure 1: Detail from XD-05-06

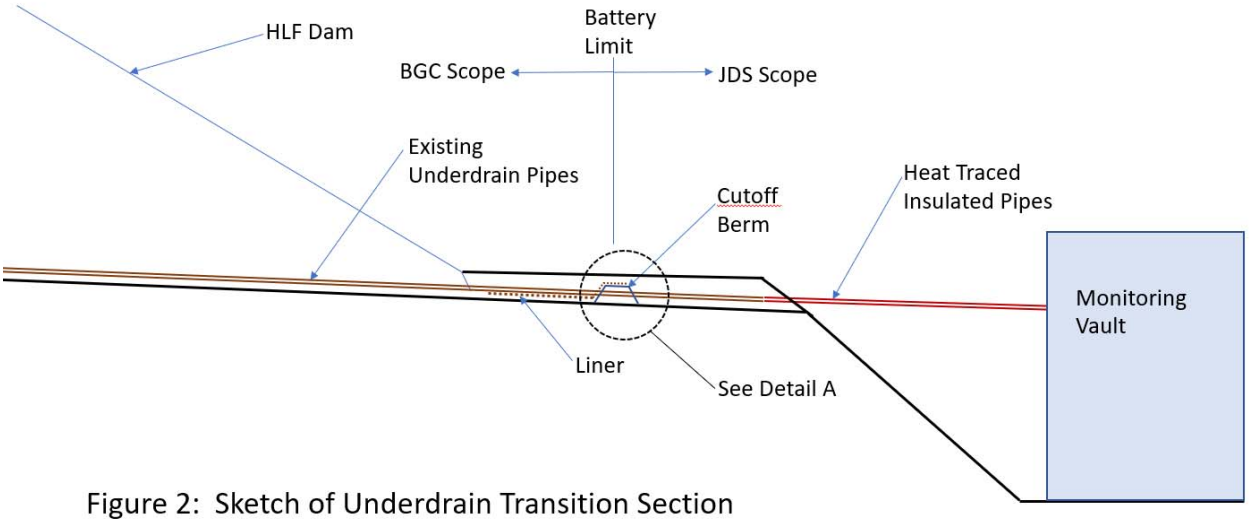
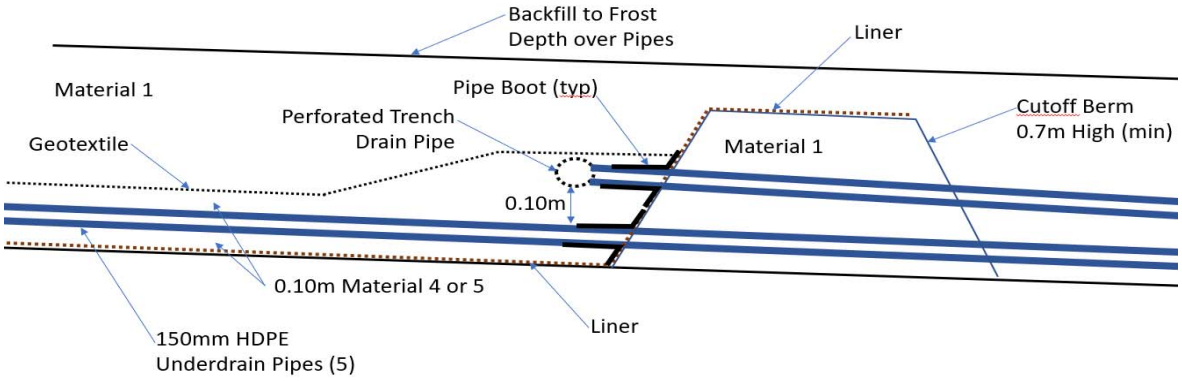


Figure 2: Sketch of Underdrain Transition Section

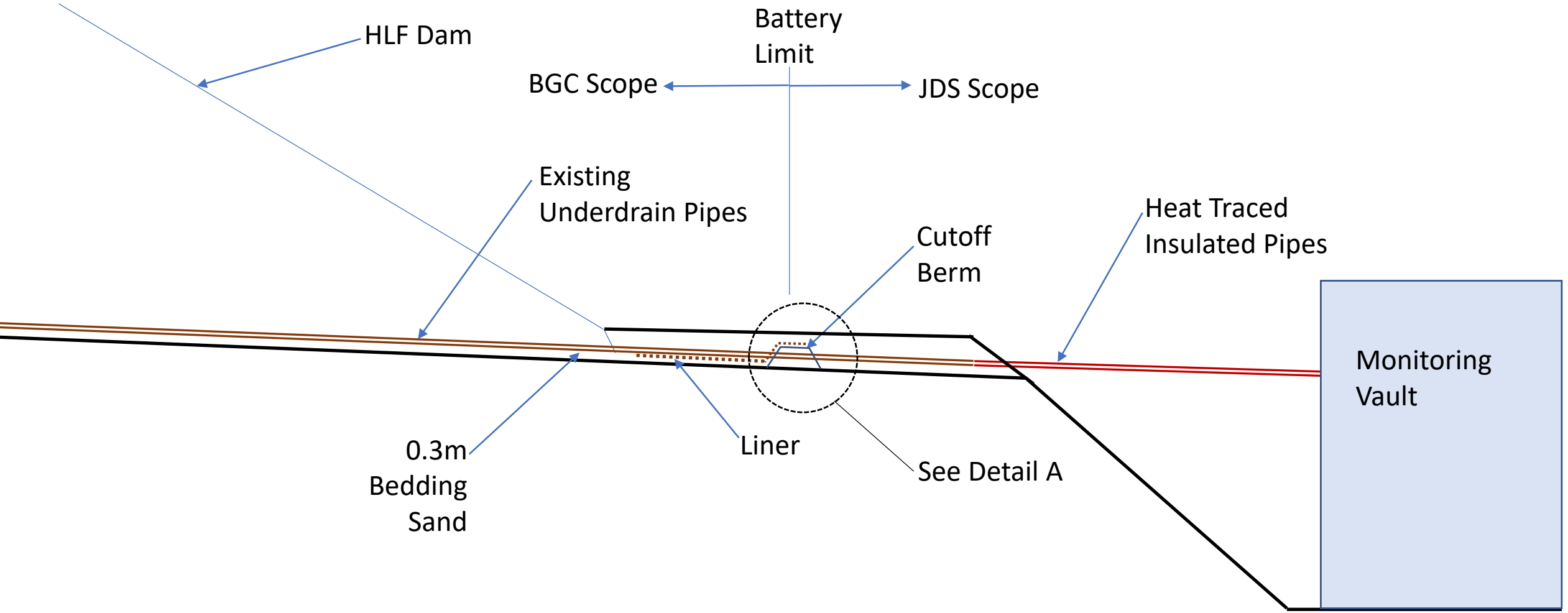


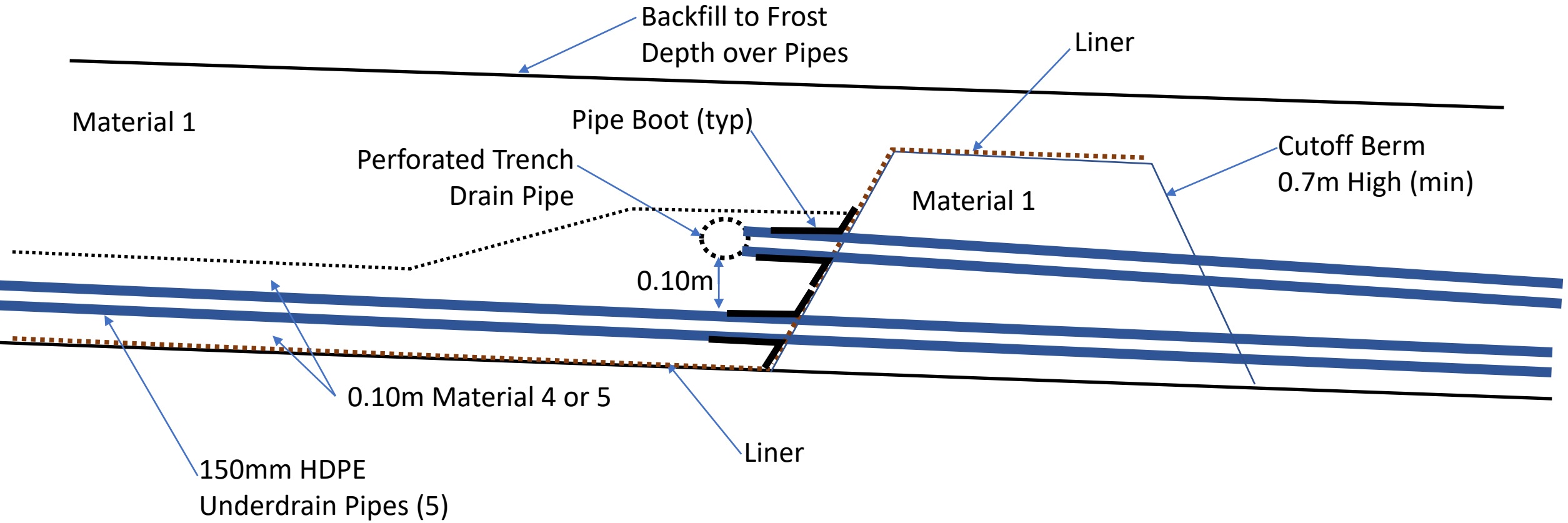
Detail A

Response:

RFI acknowledged and accepted by EPCM

Answered by:	**Matt Coverdale**	Matt Coverdale	**April 21, 2019**
	Name	Signature	Date


HLF Dam
Battery
Limit
BGC Scope
JDS Scope
Existing
Underdrain Pipes
Cutoff
Berm
Heat Traced
Insulated Pipes
Monitoring
Vault
0.3m
Bedding
Sand
Liner
See Detail A


Backfill to Frost
Depth over Pipes
Liner
Material 1
Pipe Boot (typ)
Perforated Trench
Drain Pipe
Material 1
Cutoff Berm
0.7m High (min)
0.10m
0.10m Material 4 or 5
Liner
150mm HDPE
Underdrain Pipes (5)

Detail A

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Victoria Gold
Sub-Contractor RFI No.: CC204-RFI-004	**Date Submitted:** 09/15/2017
Subject: Select Drain Fill specification	Project Zone/Area: HLF Embankment Underdrain pipes
Sub-contractor:	**Station/Location:**
Attention: Calvin Goldschmidt/Tony Monasterio	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-04**	**Other Related Documents:**

Information Request/Description of Issue:

The compaction specification requirement of the Select Drain Fill for the underdrain pipes cannot be located. This information is necessary to determine the size of the vibratory tamper.

Proposed Corrective Action

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:	**n/a**				
Schedule Impact:	**n/a**				

Requested by:	**Shipeng Zheng**	**Sept 15, 2017**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:
Both Select Drain Fill (Material #5) and Pipe Trench Backfill (Material #5) shall be placed with no moisture conditioning in 0.3 m maximum loose lifts and compacted to a minimum 95 percent of the Standard Proctor maximum dry density (ASTM D698).

Answered by: Tony Monasterio, 15 Sept, 2017

Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-007	**Date Submitted:** May 9, 2018
Subject: HLF Underdrain Closure Drain Pipes	Project Zone/Area: HLF Embankment
Sub-contractor: Pelly Construction	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Related Drawings: **BGC EGHLF-XD-03-05** **BGC EGHLF-XD-05-05**	**Other Related Documents:**

Information Request/Description of Issue:

On the drawing 03-05, the Closure Drain Pipe specification is 150mm SDR 11 HPDE. On the details section drawing 05-05, the Closure Drain Pipe specification is 300mm SDR 9 HPDE.

Proposed Corrective Action

Please advise on the correct specification for the Closure Drain Pipes.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by:	**Shipeng Zheng**		**2018-05-09**
	Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response: The closure drain pipe depicted in Closure Sump and Piping Plan detail 37 from drawing number EGHLF-XD-05-05 should be 150mm SDR 11 HDPE. None of the closure drain pipe should be 300mm SDR 9 HDPE. This drawing will be revised and reissued.

Answered by:

Name Roy Morlan Signature Roy Morlan Date May 10, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-008	**Date Submitted:** May 12, 2018
Subject: HLF Underdrain Pipe Fusing	Project Zone/Area: HLF Embankment
Sub-contractor: Pelly Construction	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Related Drawings: **BGC EGHLF-XD-03-03** **BGC EGHLF-XD-03-04** **BGC EGHLF-XD-03-05**	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting the approval to use electrofusion in the construction of joints in the HLF underdrain piping system. Electrofusion will be substituted for butt fusing where the procedure is more feasible.

Proposed Corrective Action

Please advise if electrofusion is a suitable substitution for butt fusing.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Cost Impact:	
Schedule Impact:	

Requested by:	**Dean Serelo**		**2018-05-12**
	Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:
See attached response.

Answered by:

Name Roy Morlan Signature Roy Morlan Date May 23, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-008

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**May 23, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to CC204-RFI-008**

Re: Response to CC204-RFI-008:

1.0 RESPONSE

The use of electro-fusion is conditionally approved as a general replacement for butt-fusion in the underdrains at the embankment, HLF, and event pond. Conditions to this approval are as follows:

-Butt fusing is the preferred method. Electro fusion should only be used where butt fusion is not practical (ie limited space, equipment not available, ect).

-Fusion should be performed in strict adherence to the manufactures recommendations and applicable ASTM standards and that fusion should be performed by a qualified technician. The procedure should adhere to the manufacture's quality control requirements. Fusion procedures and QC plans should be reviewed by the engineer prior to use of this technique. BGC has already been provided the fusion equipment's operation manual.

- Pipe couplings at minimum need to meet the standards and specifications for the pipe they will be joining. Coupling specifications should be provided to the Engineer for review and inclusion in the construction record.

-Provide the Engineer with installation details and procedures ensuring and that the liner system and geotextiles will be protected from puncture or tearing if the pipe and couplings are moved across or placed on these surfaces.

-Joints should not be dragged across uneven, jagged, or rocky ground and fills. If this becomes necessary the Constructor should review the process for dragging the pipe with the Engineer.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-009	**Date Submitted:** May 14, 2018
Subject: HLF Design Materials Take Off List	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1**
Attention:	**Discipline:**

REQUEST

Related Drawings: **All Drawings included in *EAGLE GOLD PROJECT HEAP LEACH FACILITY PHASE 1 FINAL DESIGN***	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting to be provided with the design materials take off list for the *Eagle Gold Project Heap Leach Facility Phase 1 Final Design* IFC drawings package.

Proposed Corrective Action

N/A

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by:	**Dean Serelo**		**2018-05-14**
	Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☒ Rejected as noted

Response:

Material take-off quantities were developed and provided to Pelly by JDS. Pelly should request quantity clarifications from JDS. If additional clarifications on quantities is needed the request should come to BGC through a JDS RFI.

Answered by:

	Name	Roy Morlan	Signature	Roy Morlan	Date May 17, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-010	**Date Submitted:** May 15, 2018
Subject: Horizontal Liner Seams	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1**
Attention:	**Discipline:**

REQUEST

Related Drawings:	**Other Related Documents:** **BGC Eagle Gold Project** **Technical Specifications – Heap Leach Facility** **Geomembrane – 4.1.7.1**

Information Request/Description of Issue:

Layfield liner contractor is requesting change to specification 4.1.7.1 to approve horizontal seams throughout project.

Proposed Corrective Action

Change specification 4.1.7.1 to allow for horizontal seams throughout the project. See attached documents for details.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:	**Potential to maintain or increase schedule**				

Requested by:	**Dean Serelo**		**2018-05-15**
	Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:

Horizontal seams shall be allowed on slopes up to 2.5H:1V. Steeper slopes shall not have horizontal seams without the permission of the Engineer. Horizontal seams must be staggered at different elevations across the slope. No horizontal seams shall be within 2m of the toe or crest of a slope.

Answered by:	Troy Meyer		15 May 2018
	Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

LAYFIELD
CANADIAN PRAIRIES

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW, Edmonton, AB T5V 0C4 Canada

■ Phone: 780 451-7239
■ Fax: 780 455-5218

■ Web: www.layfieldgroup.com

Request for Information

Contract Title	Eagle Gold Heap Leach	**Date Issued**	May 11, 2018
Client	Pelly	**RFI #**	01
Contract #	27233	**Revision #**	00
Layfield Project #	CT001045	**Layfield Originator**	Jason Wheeler

Type: Change specifications to have horizontal seams approved throughout project

Description: We would like to change the specification in 4.1.7.1. to allow for horizontal seams throughout the project. Most of the project will be at 3H:1V and is allowable as per spec but we are hoping we can avoid delays during installation and have horizontal seams approved in advance instead of cutting at 45 degree angles.

Schedule Impact: Should help maintain or increase our schedule as we have many cross seams to do.

Total Value of Change: Quicker installation and less wasted material

Attached Drawings and/or Documents: Proposed Layout plans, Shear testing results

Response Required by: May 30, 2018

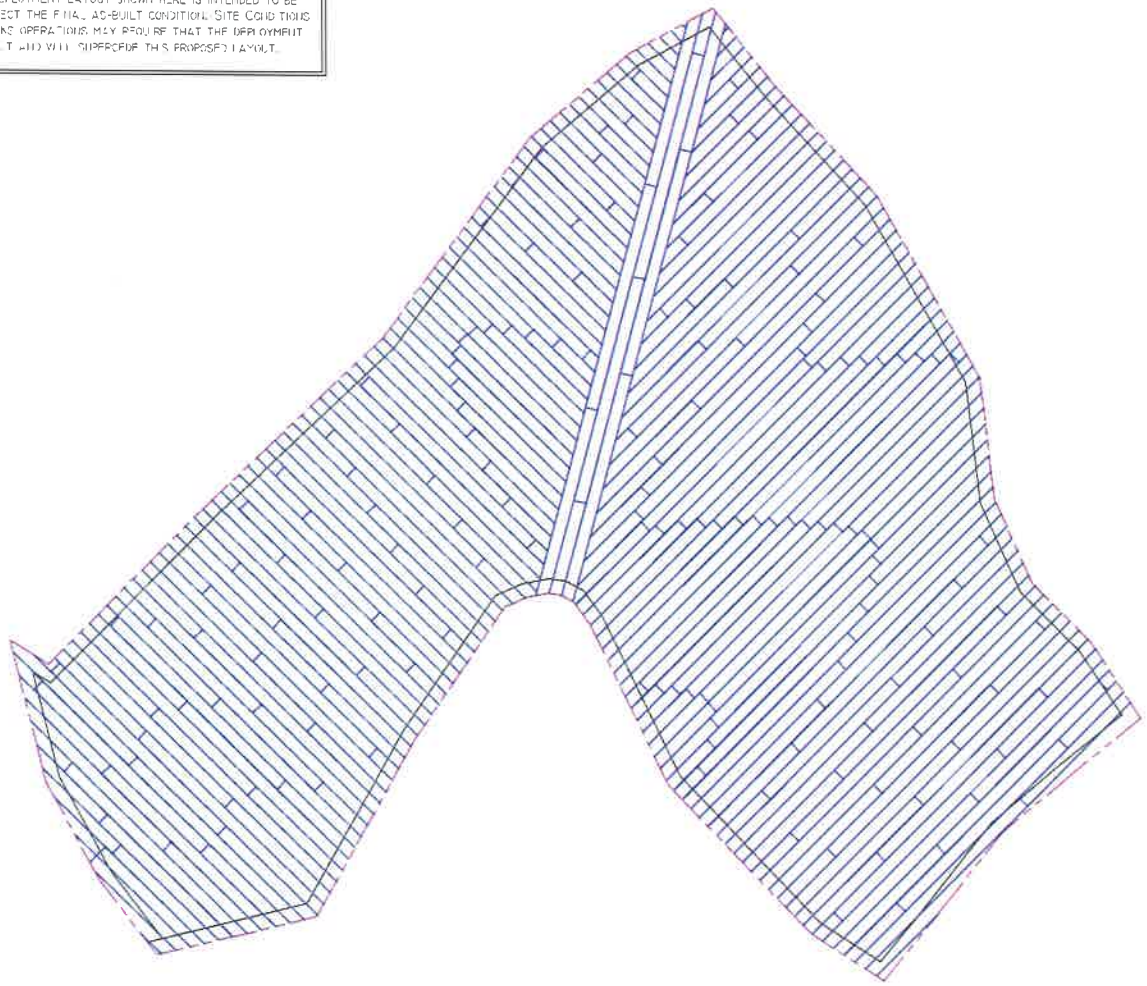
Client Response:

Name & Title:

Signature:

Date:

THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITION. SITE CONDITIONS AND SPECIFICING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT.



LEGEND

ANCHOR TRENCH - NO SLOPE FACTOR

NOTES

LAYFIELD

EAGLE GOLD MINE
HEAP LEACH - PHASE 1A
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

P10348

CT000XXX

SHEET 1 OF 1

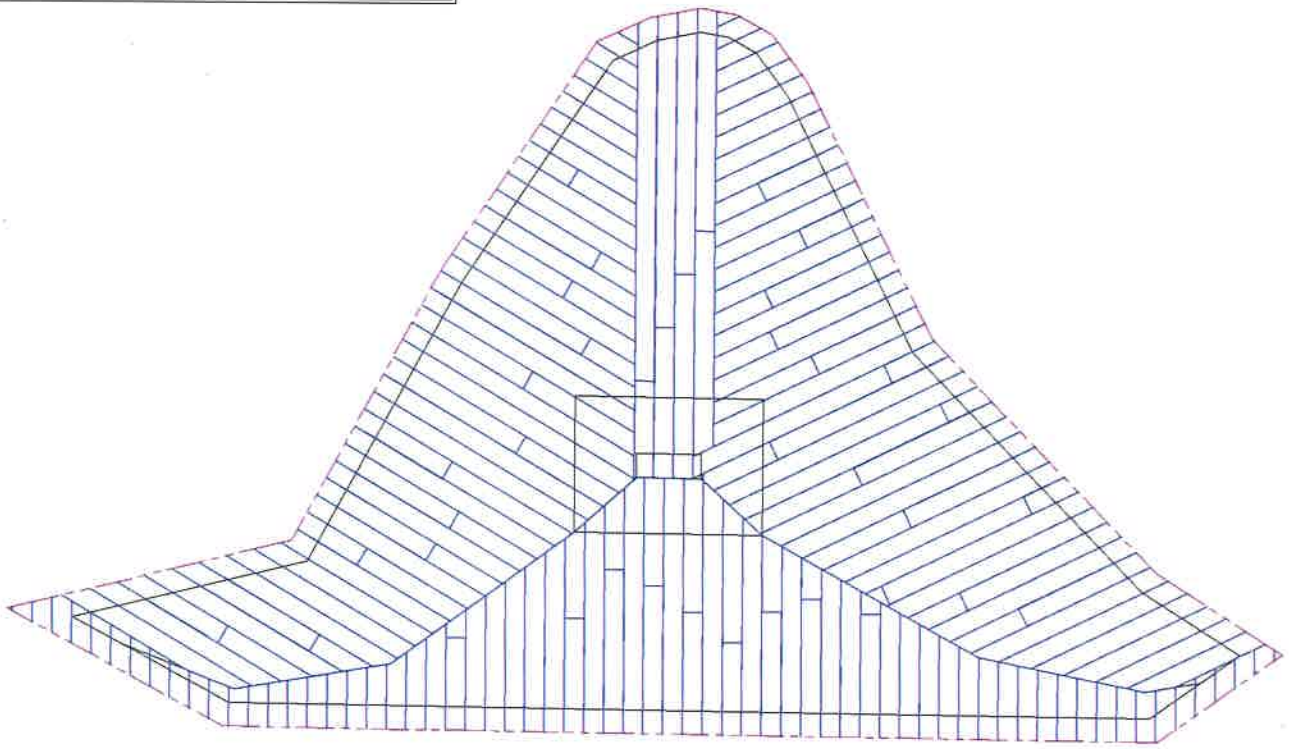
DATE: 02/26/2018

80MIL LLDPE DST LINER - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

ANSI B Size Page (Horizontal)

THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITIONS. SITE CONDITIONS AND SEQUENCING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT.



LEGEND

ANCHOR TRENCH AND SLOPE FACTOR

NOTES

LAYFIELD

EAGLE GOLD MINE
IN-HEAP POND
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

PM548

80MIL LLDPE DST LINER - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

ANSI B Size Page (Horizontal)

Shear Testing of avg. 8" sample of Tex 2 side 80 mil LLDPE
Minimum Pass is 120lb/in

Sample At 45 Degree angle			
Sample #	Width/in	Result	lb/in
1	7.625	1543	202.3607
2	8	1555	194.375
3	7.125	1377	193.2632
		Avg.	196.6663

Sample at 90 Degree angle			
Sample #	Width	Result	lb/in
1	8	1524	190.5
2	7.875	1506	191.2381
3	8	1521	190.125
		Avg.	190.621

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-012	**Date Submitted:** May 16, 2018
Subject: HLF Steel Pipe Specifications and Construction	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1**
Attention:	**Discipline:**

REQUEST

Related Drawings: **HLF PHASE 1 FINAL DESIGN (Issued For Construction)**	**Other Related Documents:** **BGC-01163_EG18-002_HLF Final Design Report_Stamped**

Information Request/Description of Issue:

(1) **Steel/Pipe specification. Please confirm specification for steel materials. Plans and Design Report call for ASTM 139 High Strength Low Alloy Steel (A606 Type 4). We understand that this specification provides some level of corrosion resistance. However, these materials are more difficult and expensive to procure, approximately double the cost before freight and fabrication considerations.**

(2) **Constructability. The long section of pipe and manifold systems will be onerous to cost and schedule, and create more risk to damaging liner if welding fabrication must occur within the sump areas.**

(3) **Information Request: geotextile wrapping of steel:plastic connections in LDRS and PLS sump systems, what is the purpose of this?**

(4) **N12 perf pipe specification. Some supplier vendors proposing socked material for parts of the scope.**

Proposed Corrective Action

(1) **There was verbal suggestion that all these steel pipe requirements in the HLF could be replaced with common stock steel, using schedule 40 pipe with typical ~150psi pressure rating. Pelly would like this confirmed in writing prior to procurement.**

(2) **Fabrication and installation will be more manageable and readily achieved with less risk to liner through use of segmented components that will be flanged together in the field.**
   a. **Pelly would like confirmation that using a flanged approach is acceptable.**
   b. **Pelly would like to know of any design constraints that these flanges must achieve to ensure same structural and performance integrity:**
      i. **Gasket material specification.**
      ii. **Hardware, bolt pattern specification**

(3) **N/A, clarification request.**

(4) **Pelly is seeking permission to use socked material if cost effective to procure.**

Type of Change:	☐	Owner Change	X	Clarification/Info	☐	Field Change	
	☐	Vendor Change	X	Design Change	☐	Other	

Cost Impact:	
Schedule Impact:	

Requested by:	**Dean Serelo**		**2018-05-16**
	Name	Signature	Date

RESPONSE

STRATAGOLD
EAGLE GOLD PROJECT

☐ Approved ☐ Approved as noted ☑ Rejected as noted

Response:

BGC Response to Questions 3 and 4 attached to this document.

Answered by:

Name Roy Morlan Signature Roy Morlan Date May 19, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-012

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**May 19, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to CC204-RFI-012**

Re: Response to CC204-RFI-012:

1.0 RESPONSE

Question 3: "Information request – geotextile wrapping of steel: plastic connections in LDRS and PLS Sump System, what is the purpose of this?"

Response: Secure geotextile wrapping of both sides of the steel: plastic connections are to decrease the risk of sediment infiltration. This wrapping may also serve as an extra layer of protection against damaging the geomembrane, depending on its location and application. Wrapping these connections were one of the recommendations made during a peer review of the project.

Questions 4: "N12 perf pipe specification. Some supplier vendors propose sock material for parts of the scope."

Wrapping of perforated, corrugated, N-12 PE pipes are not permitted due to potential reduction in permeability over time at the pipe slots.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-013	**Date Submitted:** May 16, 2018
Subject: Pipe Penetration in HLF Sump	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1**
Attention:	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-05-02**	**Other Related Documents:**

Information Request/Description of Issue:

Layfield liner contractor is requesting change to penetrating pipe boot. See attached document for details.

Proposed Corrective Action

Corrective actions for review in attached document.

Type of Change:	☐ Owner Change	☐ Clarification/Info	☐ Field Change
	☐ Vendor Change	☐ Design Change	☐ Other
Cost Impact:			
Schedule Impact:			

Requested by:	**Dean Serelo**		**2018-05-16**
	Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:

Option 1 is acceptable as explained in this RFI and on Layfield drawing 08-01-01 HDPE Plate and HDPE Pipe System LLDPE Liner Connection. HDPE plate should be fused or prefabricated around the entire circumference of the pipe to ensure no seepage along the outside pipe walls.

Option 2 is acceptable as shown in Layfield drawing 08-01-01 Slope Pipe Boot.

Answered by:

Roy Morlan	Name	Signature Roy Morlan	Date May 17, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

LAYFIELD
CANADIAN PRAIRIES

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW, Edmonton, AB T5V 0C4 Canada
■ Phone: 780 451-7239
■ Fax: 780 455-5218
■ Web: www.layfieldgroup.com

Request for Information

Contract Title	Eagle Gold Heap Leach	**Date Issued**	May 16, 2018
Client	Pelly	**RFI #**	02
Contract #	27233	**Revision #**	00
Layfield Project #	CT001045	**Layfield Originator**	Jason Wheeler

Type: Change specifications to have horizontal seams approved throughout project

Description: On drawing Number EGHLF-XD-05-02 PLS, LDRS & CLOSURE SUMP DETAIL 22, in the closure sump the drawing shows a boot that is inverted and going into the slope. Layfield will not be able to install a boot like this in the field. We would like to propose 2 options for review:

1. If the pipe installation/fusing crew deems it possible installs a HDPE plate at the location where the pipe meets the slope at the proper slope factor. Layfield can attach to the HDPE plate when we are installing the liner system
2. We install a typical sloped pipe boot which would be going into the pond. We will be able to do this when on site for the liner installation

Schedule Impact: Would need to install the boot during slope construction. Chances of the skirt left to attach to being damaged and not repairable is very high

Total Value of Change: N/A

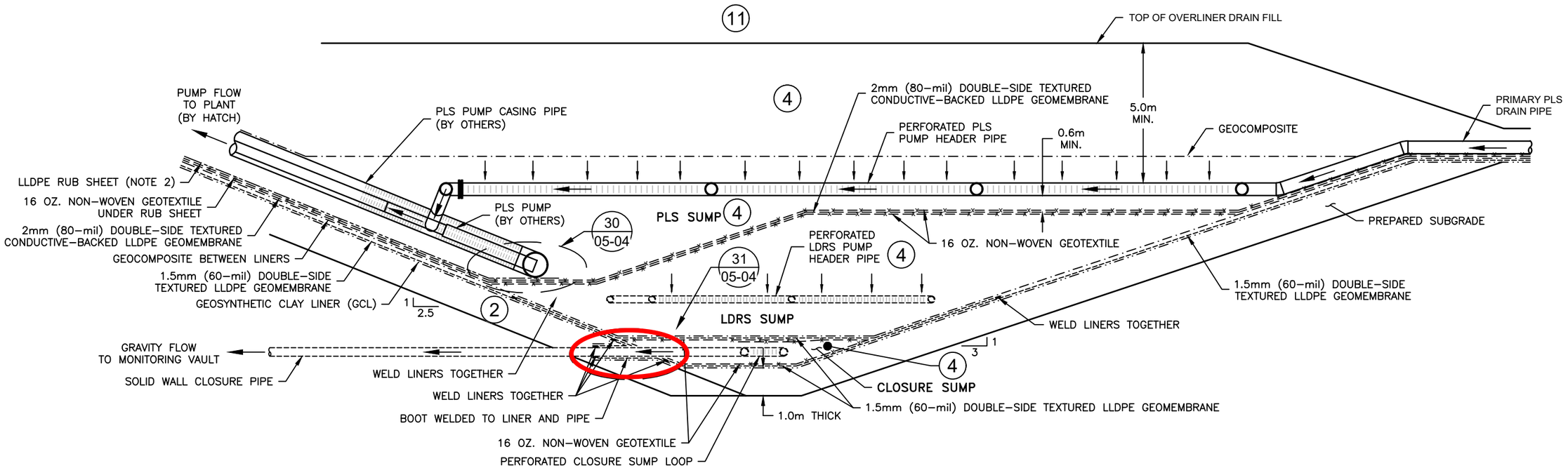
Attached Drawings and/or Documents: Typical sloped pipe boot penetration detail, HDPE plate to pipe penetration, copy of drawing in question

Response Required by: May 30, 2018

Client Response:

Name & Title:

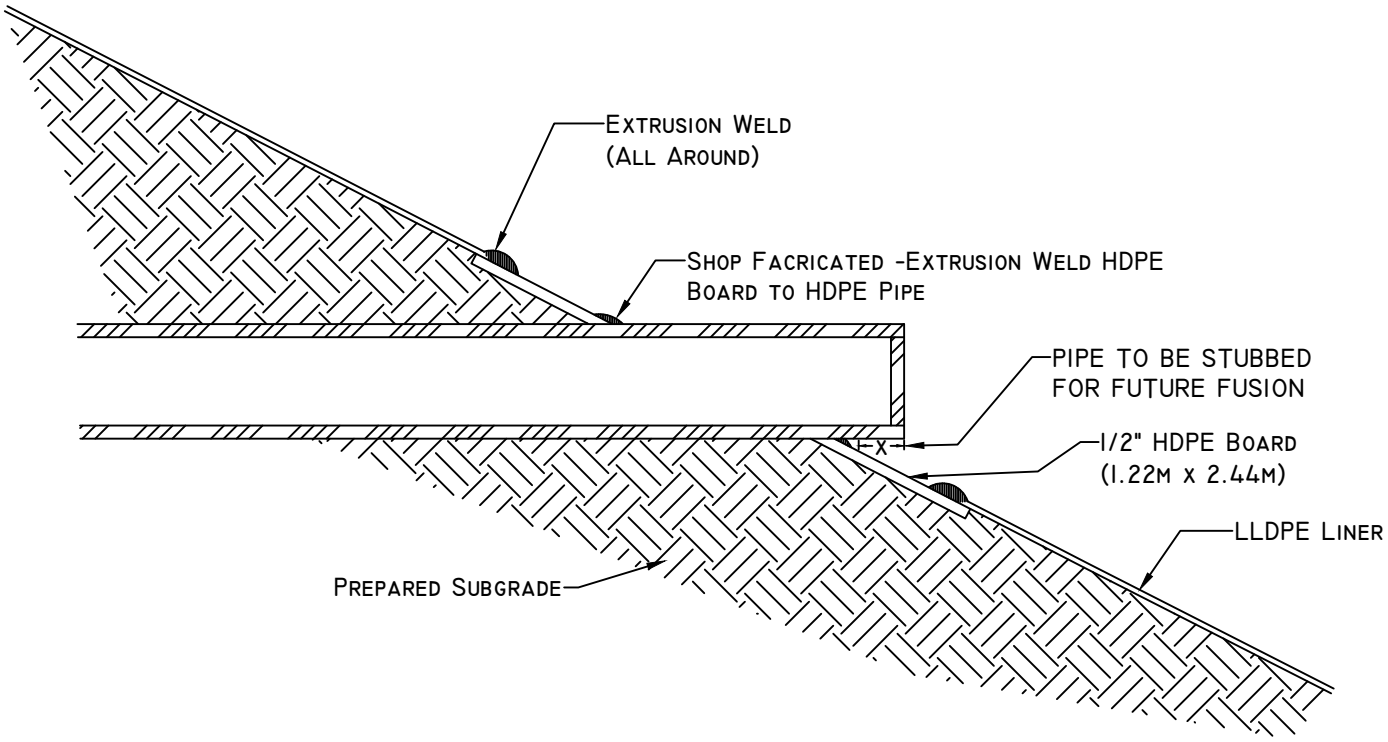
Signature: **Date:**



PLS, LDRS & CLOSURE SUMP DETAIL 22 / 05-01

File Name: LS-04-QF-001

No.	Revisions	Date (MM/DD/YY)	By



HDPE PLATE AND HDPE PIPE SYSTEM
LLDPE LINER CONNECTION

LAYFIELD CANADA LTD.

Standard Detail

Pipe Penetration

DRAWING No.
08-01-01

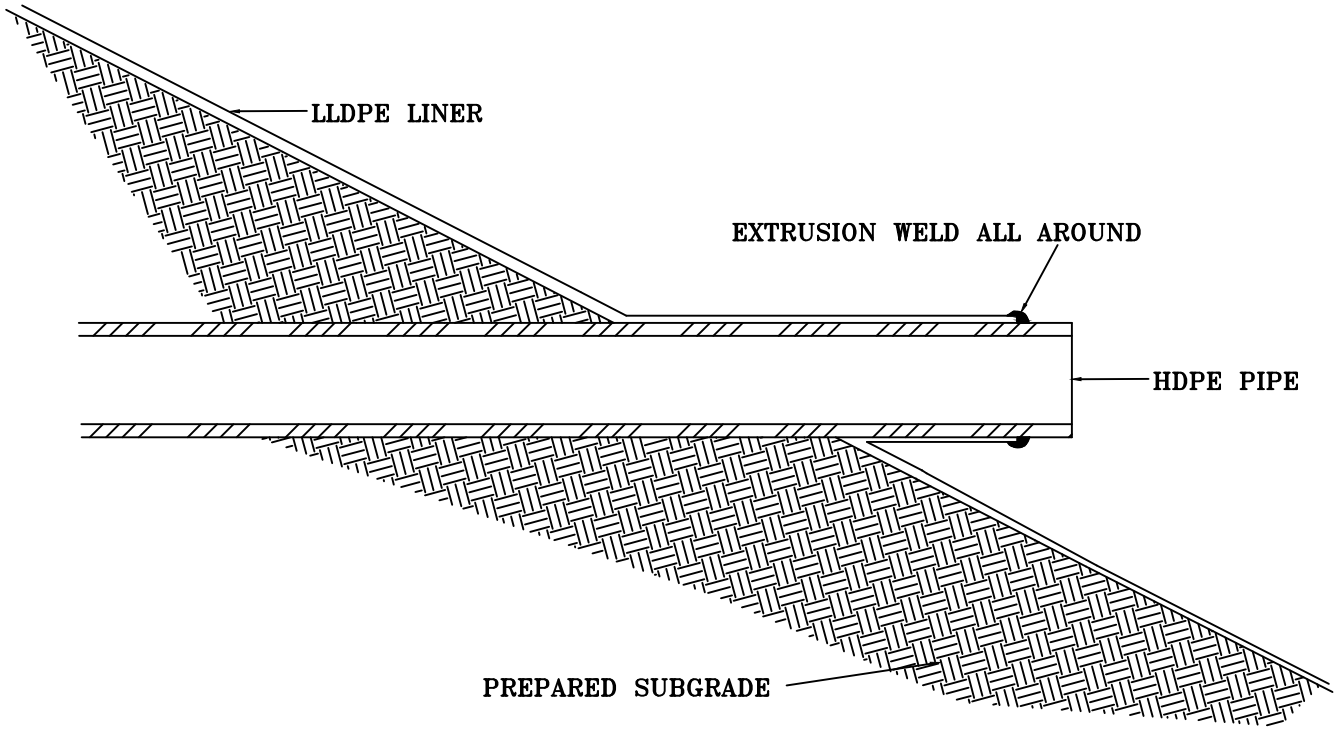
DWG: 1 OF 1	SCALE: N.T.S.	
DWN: KS	CHKD: SR	APP'D: JW
DATE: 05/15/18	REVISION: 1	

Layout Page: 1

ANSI A(Letter) Size Page

File Name: LS-04-QF-001

No.	Revisions	Date (MM/DD/YY)	By



SLOPED PIPE BOOT

LAYFIELD CANADA LTD.

Standard Detail

Pipe Penetration

DRAWING No.
08-01-01

DWG: 1 OF 1		SCALE: N.T.S.
DWN: KS	CHKD: SR	APP'D: JW
DATE: 05/15/18		REVISION: 1

Layout Page: 1

ANSI A(Letter) Size Page

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-014	**Date Submitted:** May 16, 2018
Subject: Nonwoven Geotextile	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1**
Attention:	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-04**	**Other Related Documents:** **BGC Eagle Gold Project** **Technical Specifications – Heap Leach Facility** **Nonwoven Geotextile – 4.3.2**

Information Request/Description of Issue:

Pelly is requesting confirmation on requirement for heat fusing or sewing nonwoven geotextile during installation. This request is for the installation of the underdrain pipes. Please advise if it is applicable to all nonwoven geotextile installation throughout project.

Proposed Corrective Action

Change specification 4.3.2 to remove the requirement for heat fusing/sewing. Maintain minimum 0.5m overlap shown in detail 14 (03-05) drawing EGHLF-XD-03-04.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by:	**Dean Serelo**		**2018-05-16**
	Name	Signature	Date

RESPONSE

☐ Approved ☑ Approved as noted ☐ Rejected as noted

Response:

Fusing/sowing will not be required in the underdrain trench if the Constructor maintains a minimum overlap of 0.5m measured perpendicular from the overlapping edge of one sheet to the underlying edge of the adjacent sheet.

Answered by:

Name Roy Morlan Signature Roy Morlan Date May 17, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-015	**Date Submitted:** May 17, 2018
Subject: Event Pond Underdrain Piping	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: Event Pond**
Attention:	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-03** **EGHLF-XD-03-04**	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting confirmation on the event pond underdrain piping specifications. There is conflicting/ambiguous details specified in EGHLF-XD-03-03 and EGHLF-XD-03-04 specifically where 3 PERFORATED PIPES connect to 1 SOLID WALL PIPE.

Proposed Corrective Action

Confirm pipe specifications regarding event pond underdrain system for all pipe segments.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by:	**Dean Serelo**		**2018-05-17**
	Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:
See attachment below

Answered by:	**Daniel Granda**	**Daniel Granda**	**2018-05-18**
	Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-015

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda**	**Date:**	**May 25, 2018**
Copied:	**Troy Meyer; Roy Morlan**	**Record:**	**Response to CC204-RFI-015**

Re: Response to CC204-RFI-015:

1.0 RESPONSE

Pipe specifications:

The pipe specifications regarding the event pond underdrain system consists of 150 mm diameter perforated corrugated ADS N-12 PE.

The solid wall pipe consists of a solid 150 mm diameter corrugated ADS N-12 PE to Discharge.

The usage of split coupling, elbow or T joints can be considered. A plan for constructing the underdrain system should be submitted to Engineer for approval and any further clarifications.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-017	**Date Submitted:** May 21, 2018
Subject: HLF Embankment Foundation at toe	Project Zone/Area: HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Phase 1 Embankment**
Attention:	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-03** **EGHLF-XD-03-05** **EGHLF-XD-04-02** **EGHLF-XD-04-03** **EGHLF-XD-05-06**	**Other Related Documents:**

Information Request/Description of Issue:

Due to geology at toe of embankment where type 3 rock profile changes, Pelly is requesting direction in completion of excavating underdrain trench towards monitoring vault.

Proposed Corrective Action
Supply direction in moving forward with completion of underdrain trench at toe of embankment toward monitoring vault.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Cost Impact:	
Schedule Impact:	

Requested by:	**Dean Serelo**		**2018-05-21**
	Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response: Please see attachment for response.

Answered by:	**Roy Morlan/Daniel Granda**	**Daniel Granda**	**5/31/18**
	Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-017

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda/Roy Morlan**	**Date:**	**May 31, 2018**
Copied:	**Troy Meyer**	**Record:**	**Response to CC204-RFI-017**

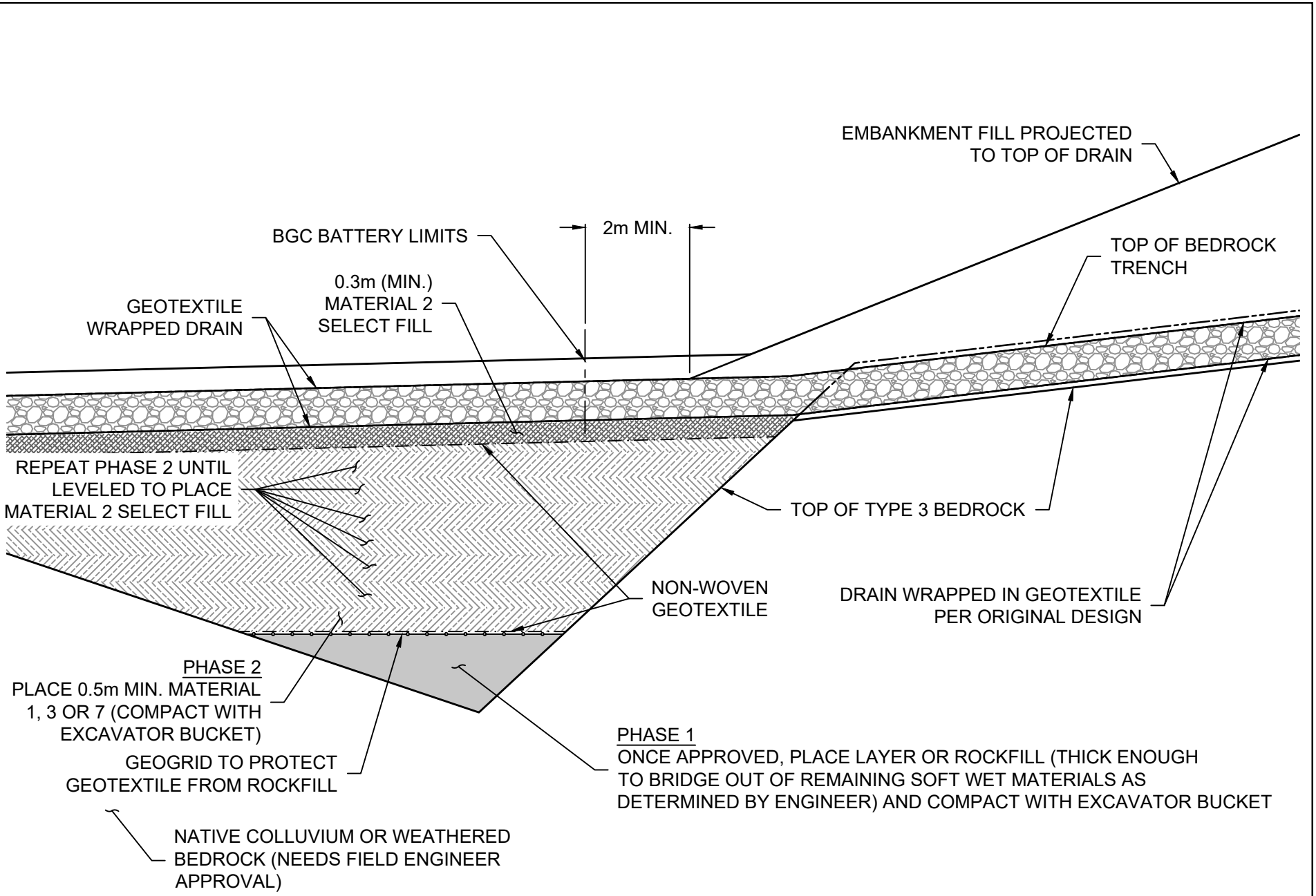
Re: Response to CC204-RFI-017:

1.0 RESPONSE

The embankment toe and drain trench should be completed as shown in the attached ***Figure 1***. Construction should conform with the requirements in the Technical Specifications. Beyond details presented in the figures and specifications the following requirements should also be followed:

- Due to the difficulties of water management in this area and uncertain subsurface conditions the construction approach in this response is discussed in phases. Phase 1 includes identify and preparing competent foundation. Phase 2 includes backfill and drain construction.
- The first step should include water removal, control, and monitoring as well as cleaning loose silt and soil from toe and drain area, as best as possible. Once water runoff to work area is controlled, the work zone should be excavated to take out all sedimentation collected and deteriorated colluvium and type 3. Excavator should indicate when harder material has been reached to Field Engineer.
- Once approved by Field Engineer, Excavator will commence Phase 1 of Detail 1 with approved Rockfill material (should be free draining) by Field Engineer. The Excavator will place material in lifts and compact with bucket until thick enough to bridge out remaining soft wet materials as determined by Field Engineer.
- A geogrid should be placed as a base for the geofabric, before commencing Phase 2 as presented in ***Figure 1***.
- Phase 2 is repeated until surface field matches the point of entry from the underdrain upstream. After this is reached, all aspects of the original design should be considered.
- Course, strong, rockfill can be used as backfill under the pipe trench. The rockfill should be relatively free draining. Rockfill should be approved by the Engineer prior to placement.

- Final elevations will be dependent on work performed to prepare the foundation and will be approved by the Engineer.


EMBANKMENT FILL PROJECTED TO TOP OF DRAIN
BGC BATTERY LIMITS
2m MIN.
TOP OF BEDROCK TRENCH
0.3m (MIN.) MATERIAL 2 SELECT FILL
GEOTEXTILE WRAPPED DRAIN
REPEAT PHASE 2 UNTIL LEVELED TO PLACE MATERIAL 2 SELECT FILL
TOP OF TYPE 3 BEDROCK
NON-WOVEN GEOTEXTILE
DRAIN WRAPPED IN GEOTEXTILE PER ORIGINAL DESIGN
PHASE 2
PLACE 0.5m MIN. MATERIAL 1, 3 OR 7 (COMPACT WITH EXCAVATOR BUCKET)
GEOGRID TO PROTECT GEOTEXTILE FROM ROCKFILL
PHASE 1
ONCE APPROVED, PLACE LAYER OR ROCKFILL (THICK ENOUGH TO BRIDGE OUT OF REMAINING SOFT WET MATERIALS AS DETERMINED BY ENGINEER) AND COMPACT WITH EXCAVATOR BUCKET
NATIVE COLLUVIUM OR WEATHERED BEDROCK (NEEDS FIELD ENGINEER APPROVAL)

PROFILE

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: BGC-RFI-001	**Date Submitted:** May 26, 2018
Subject: HLF Monitoring Holes Location	**Project Zone/Area:** HLF Phase 1
Sub-contractor: Pelly Construction	**Station/Location:** HLF Phase 1 Embankment
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting a map (including coordinates) to show all Boring and Monitoring holes within the HLF area.

Proposed Corrective Action
N/A

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		2018-05-26
Name	Signature	Date

RESPONSE

☒	Approved	☐	Approved as noted	☐	Rejected as noted

Response:

Please see the attached documents detailing the locations of the exploration holes within the HLF boundary.

Please note that the DG-17 holes were surveyed using a handheld GPS only, therefore the precision may not be exact.

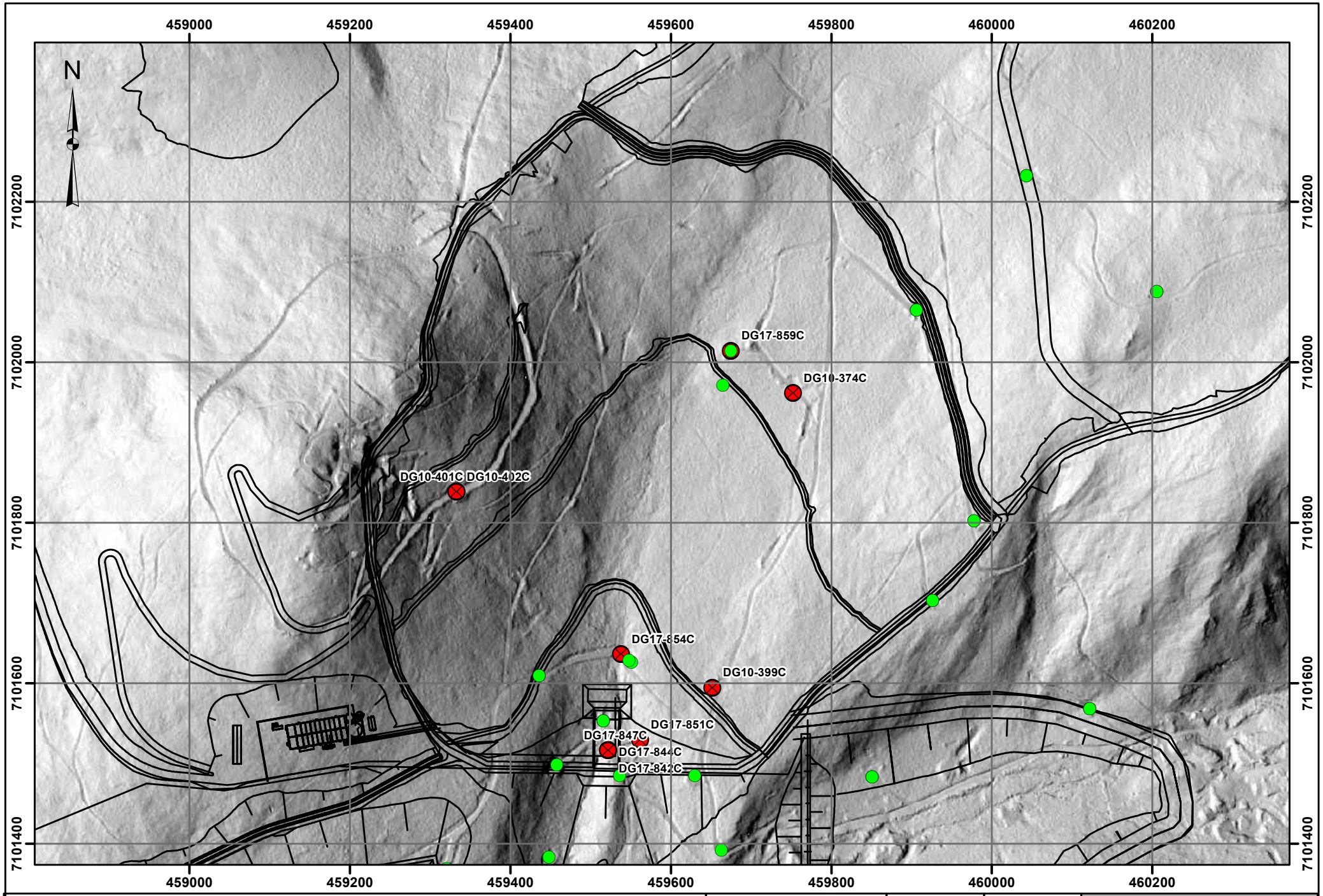
The exploration holes on the project were generally not closed and the casing was usually pulled out.

Answered by:

Branden Fraser		2018-05-26
Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

Hole_ID	Location	UTM_E	UTM_N	Elevation	UTM_Zone	Azimuth	Dip	Depth__m	Type	Hole_Purpo	Surveyed
DG10-374C	Ann Gulch	459752.7	7101962	1001.708	NAD83 UTM8	250	-50	109.42	Core	Condemnation	Y
DG10-399C	Ann Gulch	459652.1	7101594	945.214	NAD83 UTM8	250	-45	120.70	Core	Condemnation	Y
DG10-401C	Tin Dome	459332.9	7101838	1016.837	NAD83 UTM8	110	-45	123.75	Core	Condemnation	Y
DG10-402C	Tin Dome	459332.9	7101838	1016.837	NAD83 UTM8	315	-45	126.19	Core	Condemnation	Y
DG17-842C	Ann Gulch	459522	7101516	911	NAD83 UTM8	350	-45	112.78	Core	Exploration	N
DG17-844C	Ann Gulch	459522	7101516	911	NAD83 UTM8	320	-45	80.77	Core	Exploration	N
DG17-847C	Ann Gulch	459522	7101516	911	NAD83 UTM8	50	-55	159.41	Core	Exploration	N
DG17-851C	Ann Gulch	459562	7101529	916	NAD83 UTM8	350	-45	144.78	Core	Exploration	N
DG17-854C	Ann Gulch	459538	7101636	928	NAD83 UTM8	340	-45	152.41	Core	Exploration	N
DG17-859C	Ann Gulch	459675	7102014	1007	NAD83 UTM8	275	-45	149.35	Core	Exploration	N



Legend

Hole_Purpo

- Exploration
- Other

Victoria GOLD CORP

Meters

0 35 70 140

Projection: NAD83 UTM8

Drawn By: HK

Date: May 26, 2018

EAGLE GOLD PROJECT
YUKON TERRITORY

Heap Leach Facility
Exploration Drilling

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-019	**Date Submitted:** May 26, 2018
Subject: HLF Liner Subgrade Preparation	**Project Zone/Area:** HLF PHASE 1
Sub-contractor: Pelly Construction	**Station/Location: HLF**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: XD-02-03 & 04 Note: #3	**Other Related Documents:**

Information Request/Description of Issue:

A 1.8m subsoil excavation is required below the 940 elevation and 0.3m subsoil excavation is required above the 940 elevation. The design scope calls for these spoiled materials to be backfilled in 0.15m lifts throughout the pad area.

If these materials are unsuitable as backfill, where must these materials be wasted and what will be the alternative backfilling medium? Please identify which cost item this is applicable to if not already clearly identified.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 26, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response: EPCM assumes that the Contractor is referring to Note #3 on BGC drawings XD-02-03 & 04. Please see note #6 on XD-00-02 where it states that Contractor is responsible for verifying subsurface conditions. EPCM recommend that Pelly dig a number of test pits with BGC field representative present to confirm subsurface conditions. EPCM have instructed BGC to further clarify what is meant by “prepared subgrade” and a response will be provided in due course.

Answered by:	**Calvin Goldschmidt**		
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-020	**Date Submitted:** May 26, 2018
Subject: HLF Underdrain System	**Project Zone/Area:** HLF PHASE 1
Sub-contractor: Pelly Construction	**Station/Location: HLF EMBANKMENT**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Upstream of the Embankment structure Pelly would like confirmation on the underdrain installation depths. The underdrain piping will be below the primary collection and liner systems, it is not entirely clear what min/max depths the underdrains need to be installed relative to other infrastructure or if the same type 3 bedrock constraint must be maintained upstream of the embankment.
Q1. Please describe the constraints and where possible provide 3D dxf/dwg linework of designed pipe invert routing as shown on the IFC drawings.
Q2. Please confirm minimum cover requirements for bearing a loaded 40ton articulated truck without damaging the piping associated with the underdrain systems.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 26, 2018**
Name	Signature	Date

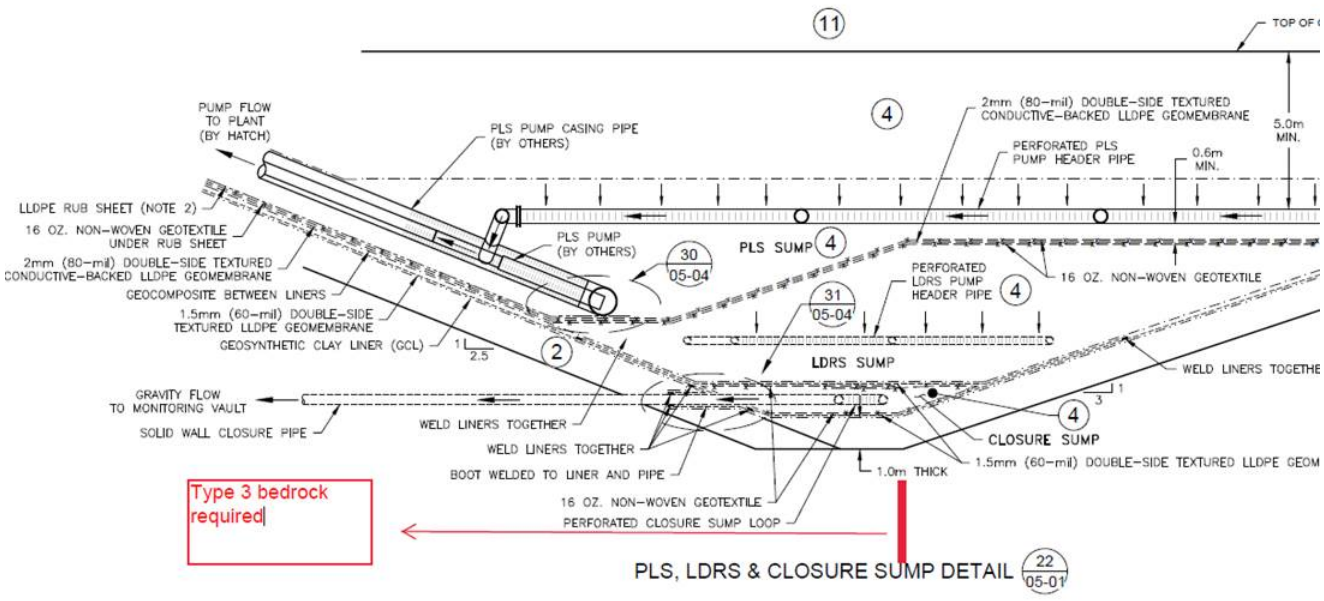
RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

The dimensions can also be found from other details e.g. Detail 22 on drawing 05-02 shows a subgrade thickness of 1 metre. The underdrain will be installed at the bottom of this zone and is about 0.5 metres thick, meaning there will be a 0.5 metres subgrade cover over the drain.

Question 1.
Figure 1 presents the type 3 bedrock constraint.



Question 2.

We will require official specifications of the equipment that will be used. Respond with an RFI attaching official CAT information for trucks and dozers for a better response. Please submit a separate RFI with attached official equipment information.

Answered by:	**Daniel Granda**		**May 31, 2018**
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

aREQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-021	**Date Submitted:** May 26, 2018
Subject: HLF In-Heap Sump	**Project Zone/Area:** HLF PHASE 1
Sub-contractor: Pelly Construction	**Station/Location: HLF In-Heap Sump**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Upstream of the Embankment structure, specifically in the in-heap sump, Pelly would like confirmation on the subgrade preparation requirements. It is understood that 1.8m of subsoil excavation is required. Is there any requirement to establish a specific contact or ground condition in this area?

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 26, 2018**
Name	Signature	Date

RESPONSE

☐	Approved	☐	Approved as noted	☐	Rejected as noted

Response: Please refer to Section 2.3 of Subgrade preparation in the Technical Specifications. Given that Pelly has cleared vegetation and mechanically moved material. BGC will provide locations of test pits to confirm excavation requirements in work areas as needed and follow Section 2.3 recommendations for testing and preparation. The subgrade shall be prepared to the satisfaction of the Engineer.

Answered by:	**Daniel Granda**	**Daniel Granda**	**6/3/2018**
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-023	**Date Submitted:** May 26, 2018
Subject: ADR Pad Excavation	**Project Zone/Area:** ADR Plant Pad Area
Sub-contractor: Pelly Construction	**Station/Location: ADR Plant Pad**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

It was noted during the contract call on May 25th that civil contractors will require 30-50m buffer away from active heavy earthwork activities. The work plan in the ADR continues to prioritize the excavation in the plant area, while drilling and blasting efforts will be fully accomplished throughout the pad area prior to civil works in the plant foundation area. Remaining excavation activities in the ADR pad area will coincide with civil works in the ADR plant foundation. The issue is a 30-50m buffer creates additional volume that will need to be moved in advance of the civil works in the foundation area; delaying the schedule. Per liner installation requirement, a perimeter deployment access is required, this is the constraint that Pelly has been planning with versus a 30-50m buffer. A 4m access width on the west side of the foundation area that is appropriately bermed from the earthwork activities should be sufficient to safely guard the civil workings.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 26, 2018**
Name	Signature	Date

RESPONSE

☐	Approved	☒	Approved as noted	☒	Rejected as noted

Response:
Refer to Contract Letter #3 issued to the Contractor in May 25th, 2018 instructing the Contractor to provide an updated schedule by June 1st, 2018.

The 30-50m buffer mentioned during the Contract call was the distance EPCM provided to the concrete contractor to notify them that earthworks and concrete activities would be happening simultaneously and in close proximity. EPCM believe this distance range provides a reasonable margin of safety.

Additional guidance for planning are below:

- Concrete contractor requires safe access all around the ADR pad liner,
- There should be no high walls adjacent to the concrete contractors work area,
- There should be no bulk or production blasting on the ADR pad after the concrete contractor has mobilized,
- There must be safe access to and from the ADR plant pad with minimal to no heavy/light vehicle interaction.
- Concrete contractor will access the ADR pad via the ARD Access Road

Answered by:	**Calvin Goldschmidt** Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-024	**Date Submitted:** May 27, 2018
Subject: Monitoring and Boring holes location	**Project Zone/Area:** Event Pond
Sub-contractor: Pelly Construction	**Station/Location: Event Pond**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:
Pelly is requesting a map (including coordinates) to show all boring and monitoring holes within the Event Pond area

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 27, 2018**
Name	Signature	Date

RESPONSE

☒ Approved ☐ Approved as noted ☐ Rejected as noted

Response:
Please see the attached documents detailing the locations of the exploration holes within the mine footprint.

There doesn't appear to be any in the event pond area below the ADR.

Please note that the precision of the holes may vary as they were surveyed with a handheld GPS unit.

Answered by:

Branden Fraser		**May 27, 2018**
Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD

EAGLE GOLD PROJECT



Hole ID	Location	UTM_E	UTM_N	Elevation	UTM Zone	Azimuth	Dip	Depth (m)	Type	Hole Purpose	Year
91-001C	EAGLE	460190.81	7099293.25	1277.00	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-002C	EAGLE	459991.10	7099288.65	1180.40	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-003C	EAGLE	460189.61	7099392.08	1280.50	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-004C	EAGLE	459983.99	7099389.72	1181.30	NAD83 UTM8	0	-45	155.45	Core	Exploration	1991
91-005C	EAGLE	460187.36	7099493.10	1259.30	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-006C	EAGLE	459981.76	7099491.62	1201.00	NAD83 UTM8	0	-45	185.01	Core	Exploration	1991
91-007C	EAGLE	460185.60	7099596.77	1245.70	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-008C	EAGLE	460175.95	7099694.47	1229.90	NAD83 UTM8	0	-45	152.40	Core	Exploration	1991
91-009C	EAGLE	460093.71	7099483.76	1242.30	NAD83 UTM8	180	-45	114.91	Core	Exploration	1991
91-010C	EAGLE	460174.29	7099878.75	1179.80	NAD83 UTM8	180	-45	152.40	Core	Exploration	1991
91-011C	EAGLE	460088.08	7099579.73	1239.90	NAD83 UTM8	180	-45	167.64	Core	Exploration	1991
91-014C	EAGLE	460281.36	7099649.36	1250.00	NAD83 UTM8	0	-45	124.97	Core	Exploration	1991
91-016C	EAGLE	459775.26	7099434.59	1093.60	NAD83 UTM8	0	-45	128.02	Core	Exploration	1991
92-017R	EAGLE	460093.20	7099485.72	1242.40	NAD83 UTM8	180	-45	21.34	RC	Exploration	1992
92-018R	EAGLE	459973.37	7099753.22	1151.30	NAD83 UTM8	180	-45	169.77	RC	Exploration	1992
92-019R	EAGLE	459956.93	7100260.43	1072.80	NAD83 UTM8	180	-45	167.64	RC	Exploration	1992
92-020R	EAGLE	460088.08	7099579.73	1239.90	NAD83 UTM8	180	-45	181.36	RC	Exploration	1992
92-021R	EAGLE	459508.91	7099503.65	998.50	NAD83 UTM8	180	-45	76.20	RC	Exploration	1992
92-022R	EAGLE	459479.38	7100022.50	995.60	NAD83 UTM8	180	-45	141.73	RC	Exploration	1992
92-023R	EAGLE	459544.00	7099371.50	984.80	NAD83 UTM8	0	-45	19.81	RC	Exploration	1992
92-024R	EAGLE	460161.69	7100143.50	1092.00	NAD83 UTM8	180	-45	128.02	RC	Exploration	1992
92-025R	EAGLE	460581.84	7099712.00	1318.70	NAD83 UTM8	0	-50	70.10	RC	Exploration	1992
92-027R	EAGLE	460578.53	7100493.50	1139.90	NAD83 UTM8	180	-45	160.00	RC	Exploration	1992
92-028R	EAGLE	460641.69	7100325.50	1188.20	NAD83 UTM8	180	-45	133.20	RC	Exploration	1992
92-029R	EAGLE	459982.28	7099495.50	1200.30	NAD83 UTM8	0	-45	16.76	RC	Exploration	1992
92-030R	EAGLE	460185.63	7099501.50	1258.90	NAD83 UTM8	0	-45	152.40	RC	Exploration	1992
92-031R	EAGLE	459590.75	7099273.00	993.00	NAD83 UTM8	30	-50	91.44	RC	Exploration	1992
92-032R	EAGLE	459737.59	7099843.00	1079.70	NAD83 UTM8	180	-50	152.40	RC	Exploration	1992
92-033R	EAGLE	460274.38	7099643.00	1249.60	NAD83 UTM8	180	-50	150.88	RC	Exploration	1992



92-039R	EAGLE	459760.47	7099721.00	1094.40	NAD83 UTM8	180	-50	169.16	RC	Exploration	1992
92-040R	EAGLE	459981.75	7099999.50	1131.30	NAD83 UTM8	180	-50	156.67	RC	Exploration	1992
92-041R	EAGLE	460363.09	7099881.50	1200.10	NAD83 UTM8	180	-50	141.73	RC	Exploration	1992
92-042R	EAGLE	460438.84	7099615.00	1309.90	NAD83 UTM8	180	-55	148.74	RC	Exploration	1992
92-043R	EAGLE	459608.00	7099680.50	1038.60	NAD83 UTM8	180	-50	152.40	RC	Exploration	1992
92-044R	EAGLE	459473.16	7099688.50	999.70	NAD83 UTM8	180	-50	71.63	RC	Exploration	1992
92-045R	EAGLE	459468.69	7099709.00	1000.60	NAD83 UTM8	5	-70	97.54	RC	Exploration	1992
92-046R	STUTTLE	459113.31	7100870.50	835.10	NAD83 UTM8	123	-50	106.70	RC	Exploration	1992
92-047R	STUTTLE	459110.00	7100873.00	835.00	NAD83 UTM8	308	-50	106.70	RC	Exploration	1992
92-048R	HAGGART	458244.55	7099713.86	755.90	NAD83 UTM8	0	-50	70.10	RC	unknown	1992
92-049R	HAGGART	458205.45	7099905.36	758.10	NAD83 UTM8	0	-90	42.70	RC	unknown	1992
92-050R	EAGLE	460184.73	7099395.13	1280.70	NAD83 UTM8	0	-45	152.40	RC	Exploration	1992
92-051R	EAGLE	460274.42	7099518.68	1281.30	NAD83 UTM8	180	-45	91.44	RC	Exploration	1992
92-052R	EAGLE	460375.55	7099725.61	1248.40	NAD83 UTM8	180	-50	96.62	RC	Exploration	1992
92-053R	EAGLE	460138.19	7099582.03	1245.20	NAD83 UTM8	175	-50	167.64	RC	Exploration	1992
92-054R	EAGLE	460093.44	7099431.24	1239.10	NAD83 UTM8	180	-50	120.40	RC	Exploration	1992
92-055R	EAGLE	460093.10	7099582.82	1239.80	NAD83 UTM8	105	-45	152.40	RC	Exploration	1992
92-056R	EAGLE	459892.28	7099477.13	1152.00	NAD83 UTM8	180	-50	54.86	RC	Exploration	1992
92-057R	EAGLE	459882.47	7099579.00	1152.60	NAD83 UTM8	174	-45	152.40	RC	Exploration	1992
92-058R	EAGLE	459890.73	7099487.78	1152.40	NAD83 UTM8	180	-50	122.83	RC	Exploration	1992
92-059R	EAGLE	459777.56	7099334.38	1068.30	NAD83 UTM8	0	-50	152.40	RC	Exploration	1992
92-060R	EAGLE	460031.36	7099581.43	1222.20	NAD83 UTM8	180	-50	152.40	RC	Exploration	1992
92-061R	EAGLE	460283.80	7099425.83	1303.30	NAD83 UTM8	180	-50	153.92	RC	Exploration	1992
92-062R	EAGLE	459533.81	7099376.61	984.40	NAD83 UTM8	180	-55	152.40	RC	Exploration	1992
93-063R	EAGLE	459613.25	7100093.90	996.00	NAD83 UTM8	180	-60	178.31	RC	Exploration	1993
93-064R	EAGLE	459893.96	7099425.92	1147.60	NAD83 UTM8	180	-52	176.78	RC	Exploration	1993
93-065R	EAGLE	460178.25	7099540.42	1256.10	NAD83 UTM8	180	-50	245.36	RC	Exploration	1993
93-066R	EAGLE	460176.35	7099691.92	1230.50	NAD83 UTM8	180	-50	241.10	RC	Exploration	1993
93-067R	EAGLE	459975.45	7099849.71	1135.70	NAD83 UTM8	180	-59	306.32	RC	Exploration	1993



93-068R	EAGLE	459598.86	7099424.81	1017.60	NAD83 UTM8	173	-50	86.87	RC	Exploration	1993
93-069R	EAGLE	459598.76	7099425.71	1017.70	NAD83 UTM8	173	-60	211.68	RC	Exploration	1993
93-070R	STEINER	459034.22	7100280.00	905.60	NAD83 UTM8	187	-50	154.99	RC	Exploration	1993
93-071R	EAGLE	458795.95	7099851.98	850.40	NAD83 UTM8	180	-48	152.40	RC	Exploration	1993
93-072R	EAGLE	458993.96	7099554.80	857.90	NAD83 UTM8	180	-50	288.95	RC	Exploration	1993
95-074C	EAGLE	460183.95	7099497.12	1259.00	NAD83 UTM8	1	-59	243.20	Core	Metallurgical	1995
95-075C	EAGLE	459979.25	7099538.32	1202.60	NAD83 UTM8	2	-52	234.60	Core	Metallurgical	1995
95-076C	EAGLE	460089.86	7099336.82	1236.00	NAD83 UTM8	0	-54	260.00	Core	Metallurgical	1995
95-077C	EAGLE	460279.35	7099543.52	1276.60	NAD83 UTM8	1	-59	199.60	Core	Metallurgical	1995
95-078C	EAGLE	460186.25	7099594.32	1246.20	NAD83 UTM8	0	-56	100.50	Core	Metallurgical	1995
95-079C	EAGLE	460184.35	7099359.42	1281.40	NAD83 UTM8	2	-56	334.67	Core	Exploration	1995
95-080R	EAGLE	460133.55	7099467.72	1253.80	NAD83 UTM8	0	-55	236.22	RC	Exploration	1995
95-081R	EAGLE	460141.66	7099392.92	1264.10	NAD83 UTM8	0	-55	297.18	RC	Exploration	1995
95-082R	EAGLE	460141.65	7099534.52	1252.20	NAD83 UTM8	0	-55	250.85	RC	Exploration	1995
95-083R	EAGLE	460233.95	7099576.22	1261.10	NAD83 UTM8	0	-55	201.17	RC	Exploration	1995
95-084R	EAGLE	460240.35	7099506.02	1277.10	NAD83 UTM8	0	-55	195.07	RC	Exploration	1995
95-085R	EAGLE	460241.75	7099435.02	1291.80	NAD83 UTM8	0	-55	207.26	RC	Exploration	1995
95-086R	EAGLE	460287.25	7099443.32	1301.80	NAD83 UTM8	0	-55	219.46	RC	Exploration	1995
95-087R	EAGLE	460381.85	7099606.02	1294.60	NAD83 UTM8	0	-55	163.07	RC	Exploration	1995
95-088R	EAGLE	460281.35	7099610.22	1259.70	NAD83 UTM8	0	-55	169.16	RC	Exploration	1995
95-089R	EAGLE	460088.75	7099553.92	1250.00	NAD83 UTM8	0	-60	263.04	RC	Exploration	1995
95-090R	EAGLE	460044.46	7099350.12	1211.20	NAD83 UTM8	0	-55	234.70	RC	Exploration	1995
95-091R	EAGLE	459977.95	7099595.82	1202.80	NAD83 UTM8	0	-55	249.94	RC	Exploration	1995
95-092R	EAGLE	459986.76	7099443.12	1192.00	NAD83 UTM8	0	-55	207.72	RC	Exploration	1995
95-093R	EAGLE	459989.06	7099336.92	1180.30	NAD83 UTM8	0	-55	231.65	RC	Exploration	1995
95-094R	EAGLE	460086.05	7099391.82	1236.20	NAD83 UTM8	0	-55	256.64	RC	Exploration	1995
95-095R	EAGLE	459889.76	7099310.62	1132.60	NAD83 UTM8	0	-55	38.10	RC	Exploration	1995
95-096R	EAGLE	459889.76	7099312.62	1132.60	NAD83 UTM8	0	-55	220.98	RC	Exploration	1995
95-097R	EAGLE	459893.55	7099448.42	1149.00	NAD83 UTM8	0	-56	225.55	RC	Exploration	1995

95-098R	EAGLE	459884.96	7099531.51	1152.50	NAD83 UTM8	0	-56	220.98	RC	Exploration	1995
95-099R	EAGLE	459879.95	7099595.71	1152.00	NAD83 UTM8	0	-56	170.69	RC	Exploration	1995
95-100C	EAGLE	460087.96	7099391.22	1236.30	NAD83 UTM8	4	-55	288.60	Core	Exploration	1995
95-101C	EAGLE	460185.05	7099489.42	1259.30	NAD83 UTM8	180	-55	60.96	Core	Geotech	1995
95-102C	EAGLE	460184.16	7099367.42	1281.30	NAD83 UTM8	180	-56	76.81	Core	Exploration	1995
95-103C	EAGLE	460282.85	7099544.22	1276.40	NAD83 UTM8	78	-61	165.20	Core	Geotech	1995
95-104C	EAGLE	460187.35	7099426.22	1276.40	NAD83 UTM8	357	-56	301.10	Core	Exploration	1995
95-105C	EAGLE	460520.25	7099488.03	1334.40	NAD83 UTM8	0	-90	69.49	Core	unknown	1995
95-106C	EAGLE	460230.45	7099574.02	1261.00	NAD83 UTM8	0	-90	82.30	Core	Geotech	1995
95-107C	EAGLE	459985.76	7099444.12	1192.00	NAD83 UTM8	2	-53	307.20	Core	Exploration	1995
95-108C	EAGLE	459985.76	7099444.12	1192.00	NAD83 UTM8	0	-90	117.35	Core	Geotech	1995
95-109C	EAGLE	460086.86	7099323.02	1234.40	NAD83 UTM8	4	-56	266.00	Core	Exploration	1995
95-110C	EAGLE	460242.05	7099437.92	1291.40	NAD83 UTM8	3	-49	331.60	Core	Exploration	1995
95-111R	EAGLE	460187.35	7099426.22	1276.40	NAD83 UTM8	0	-56	293.22	RC	Exploration	1995
95-112R	EAGLE	460331.65	7099549.32	1289.40	NAD83 UTM8	0	-56	239.88	RC	Exploration	1995
95-113R	EAGLE	460282.85	7099544.22	1276.40	NAD83 UTM8	0	-56	249.94	RC	Exploration	1995
95-114R	EAGLE	460186.05	7099501.52	1259.00	NAD83 UTM8	0	-56	271.27	RC	Exploration	1995
95-115R	EAGLE	460186.45	7099575.82	1249.10	NAD83 UTM8	0	-56	201.17	RC	Exploration	1995
95-116R	EAGLE	460136.55	7099609.52	1239.10	NAD83 UTM8	0	-56	150.88	RC	Exploration	1995
95-117R	EAGLE	460236.25	7099653.22	1247.49	NAD83 UTM8	0	-56	100.58	RC	Exploration	1995
95-118R	EAGLE	460332.15	7099625.22	1270.50	NAD83 UTM8	0	-56	150.88	RC	Exploration	1995
95-119R	EAGLE	460032.45	7099582.72	1222.70	NAD83 UTM8	0	-56	292.61	RC	Exploration	1995
95-120C	EAGLE	460585.14	7099732.75	1316.50	NAD83 UTM8	4	-52	168.20	Core	Exploration	1995
95-121C	EAGLE	460617.54	7100065.75	1206.90	NAD83 UTM8	178	-44	309.90	Core	Exploration	1995
95-122C	Eagle Pup	460379.14	7100411.30	1068.20	NAD83 UTM8	179	-44	148.40	Core	Exploration	1995
95-123C	EAGLE	460181.95	7099503.92	1258.80	NAD83 UTM8	357	-61	246.20	Core	Exploration	1995
95-124C	EAGLE	460181.95	7099503.92	1258.80	NAD83 UTM8	1	-50	38.40	Core	Exploration	1995
95-125R	EAGLE	460034.36	7099502.25	1228.50	NAD83 UTM8	0	-56	298.70	RC	Exploration	1995
95-126R	EAGLE	460044.23	7099425.25	1215.20	NAD83 UTM8	0	-56	277.37	RC	Exploration	1995



95-127R	EAGLE	460092.04	7099465.75	1240.10	NAD83 UTM8	0	-56	288.04	RC	Exploration	1995
95-128R	EAGLE	459978.23	7099538.25	1202.60	NAD83 UTM8	0	-56	259.08	RC	Exploration	1995
95-129R	EAGLE	459936.96	7099506.72	1177.10	NAD83 UTM8	0	-56	246.89	RC	Exploration	1995
95-130R	EAGLE	459936.25	7099563.71	1181.10	NAD83 UTM8	0	-56	62.48	RC	Exploration	1995
95-131R	EAGLE	459890.16	7099372.12	1138.90	NAD83 UTM8	180	-56	88.39	RC	Exploration	1995
95-132R	EAGLE	459786.50	7099562.00	1109.50	NAD83 UTM8	0	-56	199.64	RC	Exploration	1995
95-133R	EAGLE	459785.46	7099506.81	1106.90	NAD83 UTM8	0	-56	122.53	RC	Exploration	1995
95-134R	EAGLE	459932.15	7099626.01	1178.40	NAD83 UTM8	0	-56	249.94	RC	Exploration	1995
95-135R	EAGLE	459688.18	7099518.71	1065.80	NAD83 UTM8	0	-56	49.38	RC	Exploration	1995
95-136C	EAGLE	460087.55	7099591.52	1239.30	NAD83 UTM8	173	-50	302.60	Core	Exploration	1995
95-137C	EAGLE	459989.06	7099368.72	1181.60	NAD83 UTM8	3	-44	45.72	Core	Exploration	1995
95-138C	EAGLE	459979.35	7099538.32	1202.40	NAD83 UTM8	0	-54	243.80	Core	Exploration	1995
95-150C	STEWART	460488.13	7101358.28	982.60	NAD83 UTM8	0	-90	30.20	Core	Exploration	1995
95-151C	Eagle Pup	459679.14	7101037.28	884.00	NAD83 UTM8	0	-90	30.20	Core	Exploration	1995
95-152C	STUTTLE	459156.84	7100967.17	832.70	NAD83 UTM8	0	-90	30.20	Core	Exploration	1995
96-153C	EAGLE	459588.47	7099351.16	995.08	NAD83 UTM8	180	-50	127.10	Core	Exploration	1996
96-154C	EAGLE	459686.56	7099506.21	1065.35	NAD83 UTM8	1	-43	172.21	Core	Exploration	1996
96-155C	EAGLE	459738.16	7099486.12	1085.49	NAD83 UTM8	1	-44	220.37	Core	Exploration	1996
96-156C	EAGLE	459732.33	7099655.91	1087.80	NAD83 UTM8	177	-44	181.97	Core	Exploration	1996
96-157C	EAGLE	459789.08	7099474.78	1105.62	NAD83 UTM8	1	-44	239.88	Core	Exploration	1996
96-158C	EAGLE	459838.23	7099548.98	1130.21	NAD83 UTM8	0	-55	178.31	Core	Exploration	1996
96-159C	EAGLE	459886.66	7099672.02	1146.35	NAD83 UTM8	186	-44	239.88	Core	Exploration	1996
96-160C	EAGLE	459935.63	7099679.18	1164.14	NAD83 UTM8	180	-46	221.59	Core	Exploration	1996
96-161R	EAGLE	459581.66	7099574.04	1028.91	NAD83 UTM8	180	-50	129.54	RC	Exploration	1996
96-162R	EAGLE	459634.88	7099573.99	1045.76	NAD83 UTM8	180	-50	150.88	RC	Exploration	1996
96-163R	EAGLE	459691.78	7099574.09	1070.70	NAD83 UTM8	184	-50	130.15	RC	Exploration	1996
96-164R	EAGLE	459736.38	7099560.63	1088.23	NAD83 UTM8	180	-50	129.54	RC	Exploration	1996
96-165R	EAGLE	459799.10	7099401.45	1102.25	NAD83 UTM8	180	-50	140.21	RC	Exploration	1996
96-166R	EAGLE	459840.41	7099494.39	1129.98	NAD83 UTM8	0	-56	199.64	RC	Exploration	1996



96-167R	EAGLE	459837.45	7099623.05	1130.20	NAD83 UTM8	180	-50	137.16	RC	Exploration	1996
96-168R	EAGLE	460136.39	7099680.53	1218.29	NAD83 UTM8	0	-56	109.73	RC	Exploration	1996
96-169R	EAGLE	460081.38	7099681.76	1202.54	NAD83 UTM8	0	-56	172.21	RC	Exploration	1996
96-170R	EAGLE	460081.38	7099689.76	1202.54	NAD83 UTM8	180	-50	214.88	RC	Exploration	1996
96-171R	EAGLE	460033.36	7099670.20	1199.22	NAD83 UTM8	0	-56	230.12	RC	Exploration	1996
96-172R	EAGLE	460033.36	7099664.20	1199.22	NAD83 UTM8	180	-50	249.94	RC	Exploration	1996
96-173R	EAGLE	459986.88	7099681.01	1183.10	NAD83 UTM8	180	-50	190.50	RC	Exploration	1996
96-174R	EAGLE	459989.09	7099365.37	1181.70	NAD83 UTM8	0	-56	199.64	RC	Exploration	1996
96-175R	EAGLE	460033.87	7099496.96	1228.10	NAD83 UTM8	180	-50	183.64	RC	Exploration	1996
96-176R	EAGLE	460086.04	7099384.63	1236.41	NAD83 UTM8	180	-50	70.10	RC	Exploration	1996
96-177R	EAGLE	460111.03	7099439.73	1249.16	NAD83 UTM8	180	-50	120.40	RC	Exploration	1996
96-178R	EAGLE	460134.58	7099515.26	1252.04	NAD83 UTM8	180	-50	82.30	RC	Exploration	1996
96-179R	EAGLE	460136.98	7099452.84	1255.70	NAD83 UTM8	180	-50	129.54	RC	Exploration	1996
96-180R	EAGLE	460162.96	7099450.59	1267.53	NAD83 UTM8	180	-50	115.82	RC	Exploration	1996
96-181R	EAGLE	460186.70	7099465.86	1266.76	NAD83 UTM8	180	-50	128.02	RC	Exploration	1996
96-182R	EAGLE	460208.33	7099497.08	1267.77	NAD83 UTM8	0	-50	56.39	RC	Exploration	1996
96-183R	EAGLE	460208.33	7099499.08	1267.77	NAD83 UTM8	180	-50	80.77	RC	Exploration	1996
96-184R	EAGLE	460237.04	7099532.36	1268.85	NAD83 UTM8	180	-50	105.16	RC	Exploration	1996
96-185R	EAGLE	460236.02	7099537.98	1268.40	NAD83 UTM8	0	-56	214.12	RC	Exploration	1996
96-186R	EAGLE	460185.19	7099611.50	1245.58	NAD83 UTM8	180	-50	303.28	RC	Exploration	1996
96-187R	EAGLE	460161.32	7099479.70	1259.88	NAD83 UTM8	180	-50	153.92	RC	Exploration	1996
96-188R	EAGLE	460168.42	7099423.70	1274.68	NAD83 UTM8	180	-50	108.20	RC	Exploration	1996
96-189R	EAGLE	460085.62	7099629.44	1223.58	NAD83 UTM8	0	-56	249.94	RC	Exploration	1996
96-190R	EAGLE	460342.95	7099663.78	1258.53	NAD83 UTM8	180	-50	132.59	RC	Exploration	1996
96-191C	EAGLE	459934.48	7099558.67	1180.75	NAD83 UTM8	355	-56	238.35	Core	Exploration	1996
96-192C	EAGLE	460291.56	7099705.93	1237.38	NAD83 UTM8	186	-50	336.50	Core	Exploration	1996
96-193C	EAGLE	460286.84	7099574.05	1270.55	NAD83 UTM8	187	-50	136.24	Core	Exploration	1996
96-194C	EAGLE	460185.51	7099360.34	1281.38	NAD83 UTM8	357	-52	60.66	Core	Metallurgical	1996
96-195C	EAGLE	459891.34	7099308.73	1132.43	NAD83 UTM8	0	-54	79.86	Core	Metallurgical	1996



96-196C	EAGLE	459789.09	7099475.29	1105.62	NAD83 UTM8	0	-45	42.37	Core	Metallurgical	1996
96-197C	EAGLE	459789.09	7099472.29	1105.62	NAD83 UTM8	357	-44	179.83	Core	Metallurgical	1996
96-198C	Eagle Pup	460058.81	7100166.00	1106.80	NAD83 UTM8	180	-50	224.90	Core	Exploration	1996
96-199C	EAGLE	460188.12	7099282.29	1277.04	NAD83 UTM8	331	-50	299.60	Core	Exploration	1996
96-200C	EAGLE	460338.37	7099371.41	1312.15	NAD83 UTM8	315	-55	45.11	Core	Exploration	1996
96-201R	EAGLE	459934.48	7099557.67	1180.75	NAD83 UTM8	180	-50	99.97	RC	Exploration	1996
96-202R	EAGLE	459934.06	7099619.17	1178.32	NAD83 UTM8	180	-50	54.10	RC	Exploration	1996
96-203R	EAGLE	459931.56	7099407.22	1160.79	NAD83 UTM8	180	-50	12.19	RC	Exploration	1996
96-204R	EAGLE	459931.56	7099405.22	1160.79	NAD83 UTM8	180	-50	120.40	RC	Exploration	1996
96-205R	EAGLE	459939.39	7099337.96	1159.47	NAD83 UTM8	0	-56	150.88	RC	Exploration	1996
96-206R	EAGLE	459838.53	7099313.64	1102.95	NAD83 UTM8	0	-56	83.21	RC	Exploration	1996
96-207R	EAGLE	459733.90	7099356.62	1056.41	NAD83 UTM8	180	-50	131.67	RC	Exploration	1996
96-208C	EAGLE	460490.92	7099615.55	1318.79	NAD83 UTM8	276	-59	299.62	Core	Geotech	1996
96-209C	EAGLE	460367.44	7099369.76	1315.08	NAD83 UTM8	317	-57	299.16	Core	Exploration	1996
96-210C	EAGLE	460137.68	7099762.29	1202.89	NAD83 UTM8	181	-50	290.16	Core	Exploration	1996
96-211C	EAGLE	459996.29	7098916.15	1145.23	NAD83 UTM8	0	-90	27.74	Core	engineering	1996
96-212C	EAGLE	459916.32	7098965.40	1116.83	NAD83 UTM8	0	-90	35.36	Core	engineering	1996
96-213C	EAGLE	460248.73	7099077.47	1250.47	NAD83 UTM8	0	-90	45.45	Core	engineering	1996
96-234C	EAGLE	459952.37	7099051.84	1126.70	NAD83 UTM8	0	-90	31.70	Core	engineering	1996
96-235C	EAGLE	460118.87	7099115.74	1223.22	NAD83 UTM8	0	-90	31.70	Core	engineering	1996
96-236C	Eagle Pup	460038.95	7100032.25	1134.73	NAD83 UTM8	0	-90	34.75	Core	engineering	1996
96-237C	Eagle Pup	460051.84	7100131.51	1117.74	NAD83 UTM8	0	-90	28.65	Core	engineering	1996
96-238C	Eagle Pup	459992.64	7100698.33	985.45	NAD83 UTM8	0	-90	64.62	Core	engineering	1996
96-239C	STUTTLE	459369.81	7100027.50	1001.86	NAD83 UTM8	0	-90	22.25	Core	engineering	1996
96-240C	Eagle Pup	460147.27	7100482.86	998.62	NAD83 UTM8	0	-90	62.18	Core	engineering	1996
96-241C	Eagle Pup	459774.42	7100962.94	902.57	NAD83 UTM8	0	-90	56.08	Core	engineering	1996
96-242C	Eagle Pup	459776.17	7100997.98	904.15	NAD83 UTM8	0	-90	36.27	Core	engineering	1996
96-243C	Eagle Pup	460111.91	7100986.09	995.66	NAD83 UTM8	0	-90	56.08	Core	engineering	1996
96-259R	Eagle Pup	460364.08	7100383.63	1065.61	NAD83 UTM8	0	-90	13.72	RC	engineering	1996

96-260R	Eagle Pup	460171.80	7100845.51	983.79	NAD83 UTM8	0	-90	13.72	RC	engineering	1996
96-261R	Eagle Pup	460136.01	7100609.76	976.42	NAD83 UTM8	0	-90	13.72	RC	engineering	1996
96-262R	Eagle Pup	459996.09	7100927.49	943.07	NAD83 UTM8	0	-90	38.10	RC	engineering	1996
96-263R	EAGLE	460228.78	7099573.60	1261.49	NAD83 UTM8	0	-90	44.20	RC	engineering	1996
96-264R	EAGLE	460489.63	7099562.68	1328.53	NAD83 UTM8	0	-90	62.48	RC	engineering	1996
96-265R	EAGLE	460522.42	7099489.89	1335.27	NAD83 UTM8	0	-90	43.89	RC	engineering	1996
96-266R	EAGLE	460535.57	7099516.82	1334.67	NAD83 UTM8	0	-90	80.77	RC	engineering	1996
96-267R	EAGLE	459585.91	7099264.37	993.01	NAD83 UTM8	0	-90	38.10	RC	engineering	1996
96-268R	EAGLE	459687.63	7099490.18	1064.54	NAD83 UTM8	0	-90	38.10	RC	engineering	1996
96-269R	EAGLE	459188.88	7099573.50	884.88	NAD83 UTM8	0	-90	13.72	RC	engineering	1996
96-274R	EAGLE	459955.96	7099043.85	1126.65	NAD83 UTM8	0	-90	13.72	RC	engineering	1996
96-275R	EAGLE	459981.59	7098925.34	1140.92	NAD83 UTM8	0	-90	13.72	RC	engineering	1996
DG05-276C	EAGLE	459626.09	7099419.50	1031.82	NAD83 UTM8	0	-50	258.00	Core	Exploration	2005
DG05-277C	EAGLE	459634.88	7099496.00	1049.90	NAD83 UTM8	0	-50	198.12	Core	Exploration	2005
DG05-278C	EAGLE	459596.41	7099508.50	1036.66	NAD83 UTM8	0	-50	179.83	Core	Exploration	2005
DG05-279C	EAGLE	459587.44	7099447.00	1024.94	NAD83 UTM8	0	-50	201.16	Core	Exploration	2005
DG05-280C	EAGLE	458990.97	7099323.00	898.34	NAD83 UTM8	0	-50	206.64	Core	Exploration	2005
DG05-281C	EAGLE	459512.88	7099424.00	996.37	NAD83 UTM8	0	-50	222.49	Core	Exploration	2005
DG05-282C	EAGLE	458986.75	7099422.00	887.87	NAD83 UTM8	0	-50	251.46	Core	Exploration	2005
DG05-283C	EAGLE	459587.31	7099269.00	1000.26	NAD83 UTM8	0	-50	205.73	Core	Exploration	2005
DG05-284C	EAGLE	458988.19	7099571.00	865.14	NAD83 UTM8	0	-50	138.68	Core	Exploration	2005
DG05-285C	EAGLE	459636.09	7099225.50	1029.78	NAD83 UTM8	0	-50	192.02	Core	Exploration	2005
DG05-286C	EAGLE	459093.44	7099471.50	894.53	NAD83 UTM8	0	-50	149.35	Core	Exploration	2005
DG05-287C	EAGLE	459490.28	7099380.50	973.93	NAD83 UTM8	0	-50	219.46	Core	Exploration	2005
DG05-288C	EAGLE	458994.84	7099225.00	909.11	NAD83 UTM8	0	-50	195.07	Core	Exploration	2005
DG05-289C	EAGLE	459437.50	7099430.00	964.82	NAD83 UTM8	0	-60	207.26	Core	Exploration	2005
DG05-290C	EAGLE	458994.84	7099225.00	909.11	NAD83 UTM8	180	-50	196.90	Core	Exploration	2005
DG05-291C	EAGLE	459389.59	7099427.00	935.83	NAD83 UTM8	0	-55	266.57	Core	Exploration	2005
DG05-292C	HAGGART	458370.16	7098749.00	752.27	NAD83 UTM8	0	-50	202.69	Core	Exploration	2005

DG05-294C	STUTTLE	458962.63	7100913.50	826.26	NAD83 UTM8	30	-50	268.21	Core	Exploration	2005
DG05-295C	EAGLE	459639.28	7099336.50	1015.92	NAD83 UTM8	0	-50	281.94	Core	Exploration	2005
DG05-296C	STEINER	459036.72	7100026.00	919.47	NAD83 UTM8	0	-50	198.12	Core	Exploration	2005
DG05-297C	EAGLE	459488.56	7099480.00	994.80	NAD83 UTM8	0	-60	265.16	Core	Exploration	2005
DG05-298C	EAGLE	459185.34	7099562.50	891.71	NAD83 UTM8	0	-65	280.40	Core	Exploration	2005
DG05-299C	EAGLE	459540.47	7099504.00	1014.92	NAD83 UTM8	0	-55	294.13	Core	Exploration	2005
DG05-300C	EAGLE	459441.28	7099371.00	950.55	NAD83 UTM8	0	-50	246.89	Core	Exploration	2005
DG05-301C	EAGLE	459540.53	7099377.00	993.44	NAD83 UTM8	0	-50	307.83	Core	Exploration	2005
DG05-302C	EAGLE	459936.94	7099450.50	1179.01	NAD83 UTM8	0	-50	306.92	Core	Exploration	2005
DG05-303C	EAGLE	459839.47	7099451.00	1134.64	NAD83 UTM8	0	-50	292.61	Core	Exploration	2005
DG05-304C	EAGLE	459937.94	7099378.50	1168.31	NAD83 UTM8	0	-50	309.36	Core	Exploration	2005
DG05-305C	EAGLE	459789.44	7099768.00	1106.42	NAD83 UTM8	180	-55	259.07	Core	Exploration	2005
DG05-306C	EAGLE	459837.03	7099381.50	1116.61	NAD83 UTM8	0	-50	271.27	Core	Exploration	2005
DG05-307C	EAGLE	459837.16	7099320.50	1111.25	NAD83 UTM8	0	-50	291.08	Core	Exploration	2005
DG05-308C	EAGLE	459837.47	7099272.00	1117.20	NAD83 UTM8	0	-50	299.31	Core	Exploration	2005
DG05-309C	EAGLE	459689.69	7099428.00	1067.54	NAD83 UTM8	0	-50	274.61	Core	Exploration	2005
DG06-310C	EAGLE	460018.94	7100183.00	1102.72	NAD83 UTM8	180	-60	499.26	Core	Exploration	2006
DG06-311C	EAGLE	460019.97	7099878.50	1151.77	NAD83 UTM8	180	-60	511.45	Core	Exploration	2006
DG06-312C	EAGLE	460177.00	7099978.00	1151.01	NAD83 UTM8	180	-60	502.31	Core	Exploration	2006
DG06-313C	EAGLE	459788.88	7099880.50	1078.13	NAD83 UTM8	180	-60	504.44	Core	Exploration	2006
DG06-314C	EAGLE	459641.84	7099747.50	1054.68	NAD83 UTM8	180	-60	507.49	Core	Exploration	2006
DG06-315C	EAGLE	459489.88	7099957.00	1012.61	NAD83 UTM8	180	-60	499.56	Core	Exploration	2006
DG06-316C	STEINER	459126.88	7100325.50	926.75	NAD83 UTM8	180	-55	362.10	Core	Exploration	2006
DG06-317C	EAGLE	459375.72	7099857.00	989.62	NAD83 UTM8	180	-60	334.67	Core	Exploration	2006
DG06-318C	STEINER	459231.31	7100329.50	944.19	NAD83 UTM8	180	-60	210.62	Core	Exploration	2006
DG06-319C	STEINER	458958.66	7100360.50	884.44	NAD83 UTM8	180	-55	349.61	Core	Exploration	2006
DG07-320C	EAGLE	459338.53	7099249.00	944.10	NAD83 UTM8	180	-55	377.34	Core	Exploration	2007
DG07-322C	EAGLE	459344.25	7099147.50	982.52	NAD83 UTM8	180	-55	340.61	Core	Exploration	2007
DG07-327C	EAGLE	460292.00	7099786.00	1218.19	NAD83 UTM8	180	-50	154.23	Core	Exploration	2007



DG07-330C	EAGLE	460302.00	7099791.00	1218.19	NAD83 UTM8	180	-50	408.74	Core	Exploration	2007
DG07-331C	EAGLE	460241.47	7099369.00	1292.67	NAD83 UTM8	360	-50	395.33	Core	Exploration	2007
DG07-332C	EAGLE	460336.72	7099471.00	1302.21	NAD83 UTM8	360	-55	480.36	Core	Exploration	2007
DG07-333C	EAGLE	460186.72	7099298.50	1278.64	NAD83 UTM8	360	-55	485.55	Core	Exploration	2007
DG07-334C	EAGLE	460140.63	7099339.00	1262.60	NAD83 UTM8	360	-55	382.53	Core	Exploration	2007
DG07-335C	EAGLE	460045.22	7099282.50	1213.47	NAD83 UTM8	360	-55	458.11	Core	Exploration	2007
DG07-336C	EAGLE	460441.41	7099629.00	1307.24	NAD83 UTM8	180	-50	122.22	Core	Exploration	2007
DG07-337C	EAGLE	460441.41	7099629.00	1307.24	NAD83 UTM8	360	-55	49.07	Core	Exploration	2007
DG07-338C	EAGLE	459732.41	7099418.50	1077.99	NAD83 UTM8	360	-50	378.26	Core	Exploration	2007
DG07-339C	EAGLE	459346.16	7098993.50	1007.08	NAD83 UTM8	180	-55	297.91	Core	Exploration	2007
DG08-340C	EAGLE	460401.00	7099459.00	1320.33	NAD83 UTM8	0	-60	23.47	Core	Exploration	2008
DG08-341C	EAGLE	460403.03	7099456.50	1320.33	NAD83 UTM8	0	-60	373.38	Core	Exploration	2008
DG08-342C	EAGLE	460452.84	7099455.50	1326.03	NAD83 UTM8	0	-60	424.89	Core	Exploration	2008
DG08-343C	EAGLE	459601.00	7099181.00	1031.00	NAD83 UTM8	0	-50	79.24	Core	Exploration	2008
DG08-344C	EAGLE	459606.00	7099181.00	1031.00	NAD83 UTM8	0	-50	76.42	Core	Exploration	2008
DG08-347C	EAGLE	460451.44	7099565.00	1319.78	NAD83 UTM8	0	-60	399.28	Core	Exploration	2008
DG08-349C	EAGLE	460001.41	7099232.00	1187.78	NAD83 UTM8	0	-50	477.92	Core	Exploration	2008
DG08-351C	EAGLE	459806.72	7099373.00	1092.45	NAD83 UTM8	0	-50	363.93	Core	Exploration	2008
DG08-353C	EAGLE	459795.69	7099237.50	1094.60	NAD83 UTM8	0	-50	449.88	Core	Exploration	2008
DG08-354C	EAGLE	459906.66	7099221.50	1150.97	NAD83 UTM8	4.5	-51.4	502.01	Core	Exploration	2008
DG08-356C	EAGLE	459699.00	7099228.00	1044.75	NAD83 UTM8	0	-50	60.05	Core	Exploration	2008
DG08-357C	EAGLE	459702.03	7099223.50	1044.75	NAD83 UTM8	9.2	-53.3	481.88	Core	Exploration	2008
DG08-358C	EAGLE	459486.69	7099258.00	954.78	NAD83 UTM8	20	-50	398.37	Core	Exploration	2008
DG09-359C	EAGLE	460082.03	7099753.00	1188.07	NAD83 UTM8	0	-52	445.62	Core	Exploration	2009
DG09-360C	EAGLE	460102.66	7099784.00	1192.19	NAD83 UTM8	180	-50	511.15	Core	Exploration	2009
DG09-361C	EAGLE	460177.66	7099790.50	1208.25	NAD83 UTM8	180	-50	526.39	Core	Exploration	2009
DG09-362C	EAGLE	460249.03	7099837.50	1198.66	NAD83 UTM8	180	-49	494.39	Core	Exploration	2009
DG09-363C	EAGLE	460325.56	7099860.50	1198.28	NAD83 UTM8	180	-48	559.92	Core	Exploration	2009
DG09-364C	EAGLE	459436.59	7099286.50	937.23	NAD83 UTM8	355	-48	404.47	Core	Exploration	2009



DG09-365C	EAGLE	459333.38	7099678.50	960.33	NAD83 UTM8	180	-50	354.18	Core	Exploration	2009
DG09-PQ-01	EAGLE	460181.25	7099506.00	1259.08	NAD83 UTM8	360	-50	143.87	Core	Metallurgical	2009
DG09-PQ-02	EAGLE	460088.75	7099336.50	1236.30	NAD83 UTM8	360	-50	166.73	Core	Metallurgical	2009
DG09-PQ-03	EAGLE	459839.59	7099451.00	1126.85	NAD83 UTM8	360	-50	194.16	Core	Metallurgical	2009
DG10-366C	EAGLE	459094.81	7099473.12	886.94	NAD83 UTM8	180	-50	356.60	Core	Exploration	2010
DG10-367C	EAGLE	459481.55	7099531.03	994.57	NAD83 UTM8	180	-60	285.00	Core	Exploration	2010
DG10-368C	EAGLE	459341.94	7099540.51	934.80	NAD83 UTM8	180	-50	225.60	Core	Exploration	2010
DG10-369C	EAGLE	459187.87	7099558.96	884.32	NAD83 UTM8	180	-50	197.20	Core	Exploration	2010
DG10-370C	EAGLE	459439.92	7099531.24	972.34	NAD83 UTM8	180	-50	251.46	Core	Exploration	2010
DG10-371C	Eagle Pup	460365.35	7099880.22	1201.94	NAD83 UTM8	360	-45	102.41	Core	Condemnation	2010
DG10-372C	Eagle Pup	460273.52	7100087.79	1100.91	NAD83 UTM8	180	-45	137.77	Core	Condemnation	2010
DG10-374C	Ann Gulch	459752.74	7101961.58	1001.71	NAD83 UTM8	250	-50	109.42	Core	Condemnation	2010
DG10-392C	Steiner	459035.02	7100121.80	908.49	NAD83 UTM8	360	-50	233.78	Core	Exploration	2010
DG10-394C	Steiner	458945.84	7100129.76	887.73	NAD83 UTM8	360	-50	65.23	Core	Exploration	2010
DG10-396C	Steiner	458945.84	7100129.76	887.73	NAD83 UTM8	360	-50	226.77	Core	Exploration	2010
DG10-398C	Steiner	459131.14	7100121.62	938.75	NAD83 UTM8	360	-50	230.73	Core	Exploration	2010
DG10-399C	Ann Gulch	459652.07	7101594.04	945.21	NAD83 UTM8	250	-45	120.70	Core	Condemnation	2010
DG10-400C	Eagle Pup	460191.05	7100823.91	984.29	NAD83 UTM8	180	-45	99.67	Core	Condemnation	2010
DG10-401C	Tin Dome	459332.87	7101838.46	1016.84	NAD83 UTM8	110	-45	123.75	Core	Condemnation	2010
DG10-402C	Tin Dome	459332.87	7101838.46	1016.84	NAD83 UTM8	315	-45	126.19	Core	Condemnation	2010
DG10-403C	Eagle Pup	460373.97	7100398.50	1067.11	NAD83 UTM8	360	-45	98.76	Core	Condemnation	2010
DG10-405C	Eagle	460177.07	7099549.27	1256.48	NAD83 UTM8	360	-60	203.30	Core	Exploration	2010
DG10-406C	Eagle	460168.14	7099490.75	1261.97	NAD83 UTM8	360	-55	200.25	Core	Exploration	2010
DG10-407C	Eagle	460083.19	7099553.03	1250.35	NAD83 UTM8	180	-50	202.69	Core	Exploration	2010
DG10-408C	Eagle	460136.84	7099412.02	1262.10	NAD83 UTM8	360	-55	63.10	Core	Exploration	2010
DG10-409C	Eagle	460136.84	7099412.02	1262.10	NAD83 UTM8	360	-55	201.20	Core	Exploration	2010
DG10-410C	Eagle	460040.38	7099414.87	1215.05	NAD83 UTM8	180	-55	57.81	Core	Exploration	2010
DG10-411C	Eagle	460040.38	7099414.87	1215.05	NAD83 UTM8	180	-55	153.00	Core	Exploration	2010
DG11-412C	Eagle	459688.64	7099479.73	1064.52	NAD83 UTM8	360	-55	199.03	Core	Exploration	2011

DG11-413C	Eagle	459740.06	7099602.59	1090.72	NAD83 UTM8	180	-55	201.17	Core	Exploration	2011
DG11-414C	Eagle	459786.11	7099502.46	1107.21	NAD83 UTM8	360	-55	204.12	Core	Exploration	2011
DG11-415C	Eagle	459787.69	7099594.64	1111.18	NAD83 UTM8	184	-55	201.17	Core	Exploration	2011
DG11-416C	Eagle	459892.10	7099485.15	1152.98	NAD83 UTM8	1	-55	201.17	Core	Exploration	2011
DG11-417C	Eagle	459935.08	7099649.72	1175.14	NAD83 UTM8	180	-55	201.17	Core	Exploration	2011
DG11-418C	Eagle	459984.10	7099473.23	1197.67	NAD83 UTM8	180	-55	201.17	Core	Exploration	2011
DG11-419C	Eagle	460027.42	7099527.15	1229.15	NAD83 UTM8	180	-55	201.17	Core	Exploration	2011
DG11-420C	Eagle	459903.00	7100196.00	1091.00	NAD83 UTM8	360	-65	28.96	Core	Exploration	2011
DG11-421C	Eagle	460182.28	7100133.09	1090.66	NAD83 UTM8	180	-55	267.31	Core	Exploration	2011
DG11-422C	Eagle	459903.92	7100192.96	1072.47	NAD83 UTM8	360	-65	249.94	Core	Exploration	2011
DG11-424C	Platinum	459434.00	7099289.00	943.00	NAD83 UTM8	360	-65	551.08	Core	Exploration	2011
DG11-427C	Eagle	460022.98	7099880.50	1151.96	NAD83 UTM8	360	-65	373.99	Core	Exploration	2011
DG11-429C	Steiner	458940.19	7100122.73	886.37	NAD83 UTM8	360	-75	343.51	Core	Exploration	2011
DG11-432C	Steiner	459234.06	7100124.91	957.66	NAD83 UTM8	360	-55	224.64	Core	Exploration	2011
DG11-435C	Eagle	459432.11	7099677.35	988.66	NAD83 UTM8	180	-57	477.62	Core	Exploration	2011
DG11-441C	Steiner	459085.34	7100125.83	924.82	NAD83 UTM8	360	-55	276.45	Core	Exploration	2011
DG11-442R	Eagle	459934.00	7099685.00	1180.00	NAD83 UTM8		0	10.00	RC	Metallurgical	2011
DG11-467C	Eagle	459838.17	7099557.24	1130.78	NAD83 UTM8	170	-70	249.50	Core	Exploration	2011
DG11-468C	Eagle	459851.68	7099686.09	1131.54	NAD83 UTM8	170	-52	299.00	Core	Exploration	2011
DG11-469C	Eagle	460001.32	7099788.03	1156.39	NAD83 UTM8	175	-60	319.00	Core	Exploration	2011
DG11-470C	Eagle	460087.61	7099827.60	1186.02	NAD83 UTM8	173	-62	242.00	Core	Exploration	2011
DG11-PQ-04	Eagle	460083.60	7099549.42	1250.29	NAD83 UTM8	180	-50	80.77	Core	Metallurgical	2011
DG11-PQ-05	Eagle	459931.91	7099682.56	1162.84	NAD83 UTM8	180	-45	75.89	Core	Metallurgical	2011
DG12-471C	Eagle	460089.27	7099725.18	1194.74	NAD83 UTM8	180	-53	398.00	Core	Exploration	2012
DG12-472C	Eagle	460293.21	7099705.10	1237.94	NAD83 UTM8	180	-60	361.50	Core	Exploration	2012
DG12-473C	Eagle	460136.10	7099677.47	1217.61	NAD83 UTM8	180	-55	370.00	Core	Exploration	2012
DG12-474C	Eagle	460282.96	7099620.16	1259.55	NAD83 UTM8	180	-55	222.00	Core	Exploration	2012
DG12-475C	Eagle	460246.85	7099761.78	1218.26	NAD83 UTM8	180	-48	350.00	Core	Exploration	2012
DG12-476C	Eagle	460085.87	7099627.59	1224.02	NAD83 UTM8	180	-53	299.50	Core	Exploration	2012



DG12-477C	Eagle	460346.71	7099747.12	1235.99	NAD83 UTM8	180	-55	302.00	Core	Exploration	2012
DG12-478C	Eagle	460135.72	7099604.69	1240.04	NAD83 UTM8	180	-55	321.00	Core	Exploration	2012
DG12-479C	Eagle	460062.03	7099783.39	1178.40	NAD83 UTM8	180	-53	446.00	Core	Exploration	2012
DG12-480C	Eagle	460246.57	7099582.50	1262.55	NAD83 UTM8	180	-50	200.00	Core	Exploration	2012
DG12-481C	Eagle	460402.78	7099673.96	1278.62	NAD83 UTM8	180	-65	255.00	Core	Exploration	2012
DG12-482C	Eagle	459787.28	7099699.92	1107.64	NAD83 UTM8	180	-57	479.00	Core	Exploration	2012
DG12-483C	Eagle	460355.16	7099611.98	1280.60	NAD83 UTM8	180	-55	152.00	Core	Exploration	2012
DG12-484C	Eagle	459787.45	7099646.31	1108.14	NAD83 UTM8	180	-55	401.00	Core	Exploration	2012
DG12-485C	Eagle	460321.71	7099524.10	1290.45	NAD83 UTM8	180	-55	101.00	Core	Exploration	2012
DG12-486C	Eagle	459995.73	7099716.63	1174.93	NAD83 UTM8	180	-57	349.00	Core	Exploration	2012
DG12-487C	Eagle	459885.91	7099794.12	1122.87	NAD83 UTM8	180	-45	362.00	Core	Exploration	2012
DG12-488C	Eagle	459978.83	7099596.74	1203.16	NAD83 UTM8	180	-50	351.00	Core	Exploration	2012
DG12-489C	Eagle	459954.66	7099803.38	1133.85	NAD83 UTM8	180	-45	371.00	Core	Exploration	2012
DG12-490C	Eagle	459349.20	7099399.99	914.78	NAD83 UTM8	360	-72	323.00	Core	Exploration	2012
DG12-491C	Eagle	459901.81	7099735.69	1143.47	NAD83 UTM8	180	-45	332.00	Core	Exploration	2012
DG12-492C	Eagle	459386.41	7099548.30	954.98	NAD83 UTM8	180	-60	308.00	Core	Exploration	2012
DG12-493C	Eagle	459694.25	7099729.45	1069.95	NAD83 UTM8	180	-50	359.00	Core	Exploration	2012
DG12-494C	Eagle	459449.42	7099609.83	988.27	NAD83 UTM8	180	-55	351.00	Core	Exploration	2012
DG12-495C	Eagle	459751.08	7099470.19	1091.04	NAD83 UTM8	0	-60	362.00	Core	Exploration	2012
DG12-496C	Eagle	459498.47	7099623.17	1003.37	NAD83 UTM8	180	-58	339.00	Core	Exploration	2012
DG12-497C	Eagle	459601.95	7099758.05	1044.18	NAD83 UTM8	180	-50	399.00	Core	Exploration	2012
DG12-498C	Eagle	459495.36	7099675.50	1005.37	NAD83 UTM8	180	-60	391.50	Core	Exploration	2012
DG12-499C	Eagle	459607.16	7099621.25	1038.78	NAD83 UTM8	180	-55	329.00	Core	Exploration	2012
DG12-500C	Eagle	459385.93	7099620.39	968.67	NAD83 UTM8	180	-60	360.60	Core	Exploration	2012
DG12-501C	Eagle	459608.96	7099512.02	1033.27	NAD83 UTM8	180	-60	98.00	Core	Exploration	2012
DG12-502C	Eagle	459382.87	7099679.13	975.77	NAD83 UTM8	180	-60	420.70	Core	Exploration	2012
DG12-503C	Eagle	459604.83	7099507.04	1032.95	NAD83 UTM8	180	-60	261.00	Core	Exploration	2012
DG12-504C	Eagle	459553.52	7099443.70	1008.38	NAD83 UTM8	180	-55	252.00	Core	Exploration	2012
DG12-505C	Eagle	459649.48	7099644.48	1054.60	NAD83 UTM8	180	-50	302.00	Core	Exploration	2012



DG12-506C	Eagle	459551.29	7099522.18	1013.02	NAD83 UTM8	180	-58	244.90	Core	Exploration	2012
DG12-507C	Eagle	459650.00	7099694.00	1059.00	NAD83 UTM8	180	-57	360.00	Core	Exploration	2012
DG12-508C	Eagle	459550.00	7099609.00	1024.00	NAD83 UTM8	180	-58	277.00	Core	Exploration	2012
DG12-509C	Eagle	459693.36	7099666.57	1071.62	NAD83 UTM8	180	-50	318.00	Core	Exploration	2012
DG12-510C	Eagle	459846.47	7099745.18	1125.01	NAD83 UTM8	180	-53	361.10	Core	Exploration	2012
DG12-511C	Eagle	459697.79	7099521.86	1069.42	NAD83 UTM8	180	-50	160.00	Core	Exploration	2012
DG12-512C	Eagle	459850.00	7099413.00	1129.00	NAD83 UTM8	180	-50	185.00	Core	Exploration	2012
DG12-513C	Eagle	459743.20	7099737.38	1086.94	NAD83 UTM8	180	-50	360.00	Core	Exploration	2012
DG12-514C	Eagle	459853.35	7099524.37	1135.28	NAD83 UTM8	180	-50	260.00	Core	Exploration	2012
DG12-515C	Eagle	459553.04	7099687.07	1025.02	NAD83 UTM8	180	-58	349.20	Core	Exploration	2012
DG12-516C	Eagle	460054.07	7099730.99	1183.99	NAD83 UTM8	180	-50	344.00	Core	Exploration	2012
DG12-517C	Eagle	459941.65	7099515.29	1180.51	NAD83 UTM8	180	-50	260.00	Core	Exploration	2012
DG12-518C	Eagle	459552.42	7099298.78	975.37	NAD83 UTM8	180	-55	125.00	Core	Exploration	2012
DG12-519C	Eagle	459799.09	7099822.54	1090.97		180	-55	373.60	Core	Exploration	2012
DG12-520C	Eagle	459959.78	7099606.71	1193.99	NAD83 UTM8	180	-50	350.00	Core	Exploration	2012
DG12-521C	Eagle	459691.65	7099585.86	1070.48	NAD83 UTM8	180	-50	189.80	Core	Orientation	2012
DG12-522C	Eagle	459651.82	7099513.67	1051.32	NAD83 UTM8	180	-50	140.00	Core	Exploration	2012
DG12-523C	Eagle	460004.86	7099664.66	1194.77	NAD83 UTM8	180	-60	240.90	Core	Exploration	2012
DG12-524C	Eagle	460004.86	7099664.66	1194.77	NAD83 UTM8	180	-70	251.00	Core	Exploration	2012
DG12-536R	Eagle	459838.52	7099575.93	1131.91	NAD83 UTM8	180	-55	131.06	RC	Development	2012
DG12-537R	Eagle	459861.66	7099614.02	1143.63	NAD83 UTM8	180	-60	35.05	RC	Development	2012
DG12-538R	Eagle	459861.59	7099565.78	1141.68	NAD83 UTM8	360	-60	109.73	RC	Development	2012
DG12-539R	Eagle	459845.66	7099662.11	1132.44	NAD83 UTM8	180	-60	100.58	RC	Development	2012
DG12-540R	Eagle	459862.04	7099668.79	1136.71	NAD83 UTM8	180	-60	120.40	RC	Development	2012
DG12-541R	Eagle	459888.10	7099622.18	1156.89	NAD83 UTM8	180	-50	137.16	RC	Development	2012
DG12-542R	Eagle	459914.24	7099657.08	1161.67	NAD83 UTM8	180	-60	137.16	RC	Development	2012
DG12-543R	Eagle	459906.42	7099525.00	1165.32	NAD83 UTM8	360	-60	137.16	RC	Development	2012
DG12-544R	Eagle	459863.20	7099562.24	1141.84	NAD83 UTM8	180	-60	121.92	RC	Development	2012
DG12-545R	Eagle	459915.47	7099599.91	1171.33	NAD83 UTM8	180	-60	137.16	RC	Development	2012



DG12-546R	Eagle	459961.45	7099531.38	1194.80	NAD83 UTM8	360	-60	160.02	RC	Development	2012
DG12-547R	Eagle	459959.02	7099591.94	1195.23	NAD83 UTM8	360	-60	137.16	RC	Development	2012
DG12-548R	Eagle	459958.86	7099610.16	1193.99	NAD83 UTM8	180	-50	201.17	RC	Development	2012
DG12-549R	Eagle	459982.16	7099629.75	1197.86	NAD83 UTM8	180	-55	160.02	RC	Development	2012
DG12-550R	Eagle	460006.69	7099660.25	1195.01	NAD83 UTM8	180	-70	201.17	RC	Development	2012
DG12-551R	Eagle	460063.28	7099670.11	1203.85	NAD83 UTM8	180	-55	109.73	RC	Development	2012
DG12-552R	Eagle	459961.17	7099663.77	1180.46	NAD83 UTM8	180	-60	137.16	RC	Development	2012
DG12-553R	Eagle	460009.53	7099602.18	1215.64	NAD83 UTM8	180	-55	160.02	RC	Development	2012
DG12-554R	Eagle	460003.48	7099556.02	1217.69	NAD83 UTM8	360	-55	160.02	RC	Development	2012
DG12-555R	Eagle	460063.31	7099605.90	1224.18	NAD83 UTM8	180	-55	137.16	RC	Development	2012
DG12-556R	Eagle	460117.05	7099651.01	1220.33	NAD83 UTM8	180	-50	100.58	RC	Development	2012
DG12-557R	Eagle	460136.01	7099646.39	1225.93	NAD83 UTM8	180	-50	121.92	RC	Development	2012
DG12-558R	Eagle	460191.67	7099674.83	1238.59	NAD83 UTM8	180	-50	82.30	RC	Development	2012
DG12-559R	Eagle	460120.94	7099578.75	1245.43	NAD83 UTM8	180	-50	120.40	RC	Development	2012
DG12-560R	Eagle	460186.91	7099551.67	1253.19	NAD83 UTM26	180	-50	109.73	RC	Development	2012
DG12-561R	Eagle	460164.26	7099538.49	1252.72	NAD83 UTM8	180	-50	120.40	RC	Development	2012
DG12-562R	Eagle	460120.63	7099522.20	1253.13	NAD83 UTM8	180	-50	120.40	RC	Development	2012
DG12-563R	Eagle	460042.75	7099444.56	1217.39	NAD83 UTM26	360	-60	129.54	RC	Development	2012
DG12-564R	Eagle	460057.75	7099400.62	1221.88	NAD83 UTM26	360	-60	100.58	RC	Development	2012
DG12-565R	Eagle	460067.79	7099439.27	1229.08	NAD83 UTM26	360	-60	120.40	RC	Development	2012
DG12-566R	Eagle	459854.49	7099409.63	1127.12	NAD83 UTM26	180	-50	160.02	RC	Development	2012
DG12-567R	Eagle	460051.62	7099728.19	1183.61	NAD83 UTM26	180	-50	160.02	RC	Development	2012
DG12-568R	Eagle	459992.56	7099714.44	1174.45	NAD83 UTM26	180	-57	160.02	RC	Development	2012
DG12-569R	Eagle Pup	460141.41	7099993.49	1155.24	NAD83 UTM26	340	-60	160.02	RC	Condemnation	2012



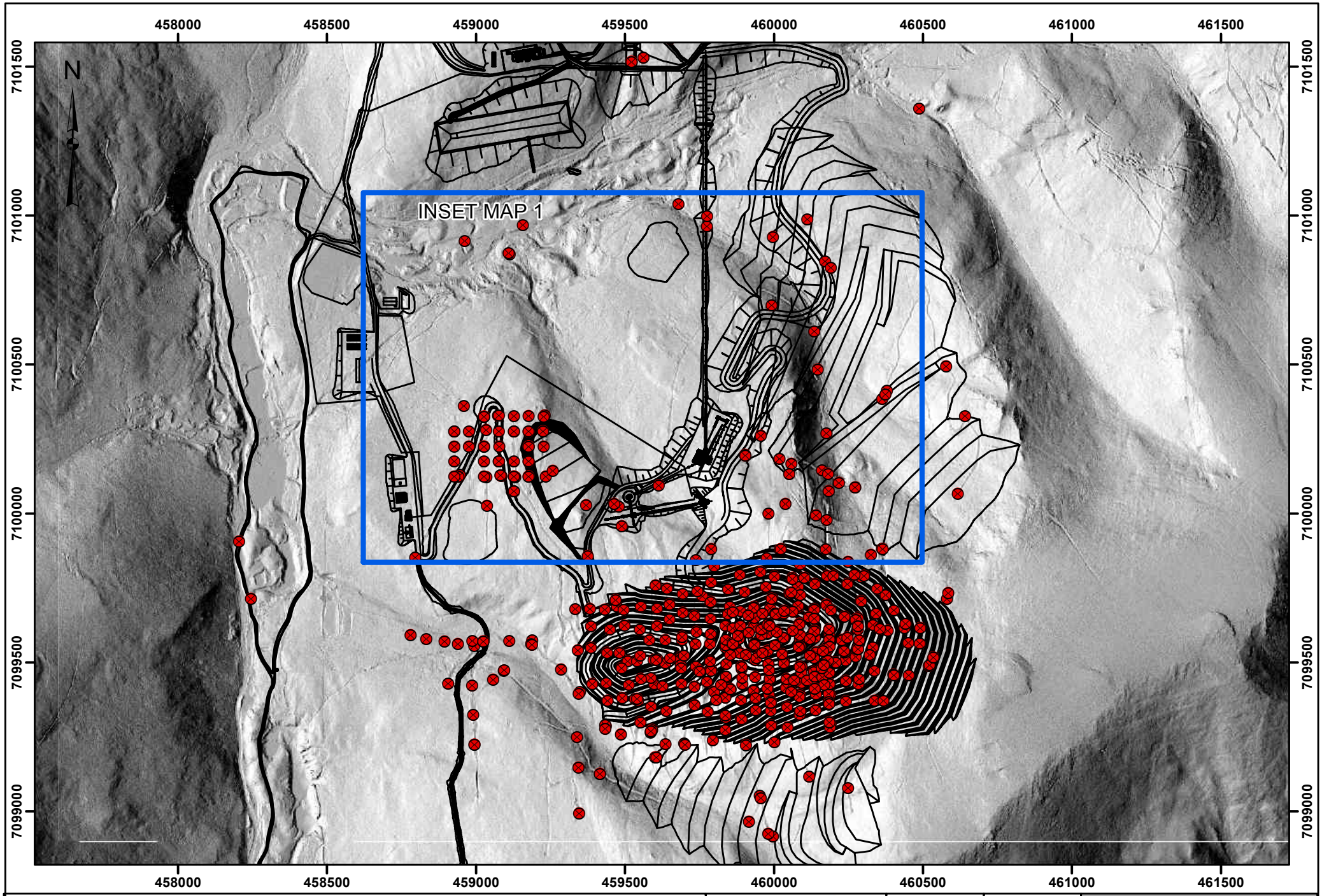
DG12-570R	Eagle Pup	460272.08	7100086.50	1101.01	NAD83 UTM26	340	-60	160.02	RC	Condemnation	2012
DG12-571R	Eagle Pup	460217.83	7100102.62	1091.76	NAD83 UTM	160	-55	160.02	RC	Condemnation	2012
DG12-572R	Eagle Pup	460183.86	7100074.75	1113.87	NAD83 UTM	340	-60	160.02	RC	Condemnation	2012
DG12-573R	Eagle Pup	460175.65	7100268.55	1042.02	NAD83 UTM	340	-50	65.53	RC	Condemnation	2012
DG12-575C	Steiner	459258.03	7100142.63	959.65	NAD83 UTM	180	-60	350.00	Core	Exploration	2012
DG12-576C	Steiner	459463.59	7100031.71	994.89	NAD83 UTM	180	-60	350.00	Core	Exploration	2012
DG12-577C	Eagle	459788.03	7099703.08	1107.77	NAD83 UTM8	180	-60	202.50	Core	Comminution	2012
DG12-578C	Eagle	460062.25	7099779.70	1178.32	NAD83 UTM8	180	-60	199.50	Core	Comminution	2012
DG12-579C	Eagle	460054.16	7099730.82	1183.49	NAD83 UTM8	180	-50	160.50	Core	Comminution	2012
DG12-580C	Eagle	459979.41	7099626.46	1197.79	NAD83 UTM8	180	-60	196.40	Core	Comminution	2012
DG12-581C	Eagle	460058.36	7099734.49	1183.64	NAD83 UTM8	180	-50	117.50	Core	Comminution	2012
DG17-779C	West Eagle	458927.00	7100274.00	882.00	NAD83 UTM8	180	-65	77.72	Core	Exploration	2017
DG17-780C	West Eagle	458927.00	7100274.00	882.00	NAD83 UTM8	0	-90	47.85	Core	Exploration	2017
DG17-781C	West Eagle	458927.00	7100224.00	882.00	NAD83 UTM8	180	-50	57.76	Core	Exploration	2017
DG17-782C	West Eagle	458927.00	7100174.00	882.00	NAD83 UTM8	180	-65	62.48	Core	Exploration	2017
DG17-783C	West Eagle	458977.00	7100274.00	893.00	NAD83 UTM8	180	-60	51.82	Core	Exploration	2017
DG17-784C	West Eagle	458977.00	7100224.00	893.00	NAD83 UTM8	180	-50	70.10	Core	Exploration	2017
DG17-786C	West Eagle	459027.00	7100324.00	903.00	NAD83 UTM8	180	-50	67.06	Core	Exploration	2017
DG17-787C	West Eagle	459027.00	7100224.00	906.00	NAD83 UTM8	0	-50	73.46	Core	Exploration	2017
DG17-788C	West Eagle	459027.00	7100224.00	906.00	NAD83 UTM8	180	-60	60.96	Core	Exploration	2017
DG17-789C	West Eagle	459027.00	7100174.00	906.00	NAD83 UTM8	180	-50	65.53	Core	Exploration	2017
DG17-791C	West Eagle	459027.00	7100124.00	907.00	NAD83 UTM8	180	-50	60.96	Core	Exploration	2017
DG17-792C	West Eagle	459077.00	7100174.00	921.00	NAD83 UTM8	180	-60	50.29	Core	Exploration	2017
DG17-793C	West Eagle	459077.00	7100174.00	921.00	NAD83 UTM8	360	-50	53.34	Core	Exploration	2017
DG17-795C	West Eagle	459082.00	7100127.00	925.00	NAD83 UTM8	180	-50	54.56	Core	Exploration	2017
DG17-796C	West Eagle	459082.00	7100127.00	925.00	NAD83 UTM8	360	-50	66.75	Core	Exploration	2017
DG17-798C	West Eagle	459078.00	7100224.00	920.00	NAD83 UTM8	360	-65	65.53	Core	Exploration	2017
DG17-799C	West Eagle	459077.00	7100274.00	910.00	NAD83 UTM8	360	-60	57.00	Core	Exploration	2017
DG17-800C	West Eagle	459074.00	7100329.00	916.00	NAD83 UTM8	360	-60	49.68	Core	Exploration	2017

DG17-802C	West Eagle	459077.00	7100329.00	916.00	NAD83 UTM8	180	-50	59.44	Core	Exploration	2017
DG17-803C	West Eagle	459127.00	7100274.00	934.00	NAD83 UTM8	0	-50	67.18	Core	Exploration	2017
DG17-805C	West Eagle	459127.00	7100274.00	934.00	NAD83 UTM8	180	-45	70.10	Core	Exploration	2017
DG17-806C	West Eagle	459127.00	7100174.00	935.00	NAD83 UTM8	0	-55	151.00	Core	Exploration	2017
DG17-809C	West Eagle	459127.00	7100074.00	941.00	NAD83 UTM8	0	-55	74.83	Core	Exploration	2017
DG17-810C	West Eagle	459127.00	7100074.00	941.00	NAD83 UTM8	50	-55	80.77	Core	Exploration	2017
DG17-811C	West Eagle	459127.00	7100124.00	938.00	NAD83 UTM8	50	-50	59.44	Core	Exploration	2017
DG17-812C	West Eagle	459127.00	7100124.00	938.00	NAD83 UTM8	325	-50	208.94	Core	Exploration	2017
DG17-814C	West Eagle	459227.00	7100324.00	945.00	NAD83 UTM8	0	-85	48.77	Core	Exploration	2017
DG17-816C	West Eagle	459225.00	7100275.00	946.00	NAD83 UTM8	270	-50	108.96	Core	Exploration	2017
DG17-817C	West Eagle	459227.00	7100224.00	951.00	NAD83 UTM8	270	-50	92.28	Core	Exploration	2017
DG17-819C	West Eagle	459177.00	7100327.00	944.00	NAD83 UTM8	180	-55	76.35	Core	Exploration	2017
DG17-820C	West Eagle	459177.00	7100274.00	944.00	NAD83 UTM8	360	-55	66.29	Core	Exploration	2017
DG17-821C	West Eagle	459177.00	7100274.00	944.00	NAD83 UTM8	160	-55	142.55	Core	Exploration	2017
DG17-825C	West Eagle	459177.00	7100224.00	945.00	NAD83 UTM8	180	-65	89.31	Core	Exploration	2017
DG17-826C	West Eagle	459177.00	7100224.00	945.00	NAD83 UTM8	360	-55	68.58	Core	Exploration	2017
DG17-827C	West Eagle	459177.00	7100174.00	950.00	NAD83 UTM8	360	-55	117.50	Core	Exploration	2017
DG17-829C	West Eagle	459177.00	7100174.00	950.00	NAD83 UTM8	180	-55	77.72	Core	Exploration	2017
DG17-831C	West Eagle	459082.00	7100127.00	923.00	NAD83 UTM8	290	-50	170.85	Core	Exploration	2017
DG17-833C	West Eagle	459027.00	7100324.00	903.00	NAD83 UTM8	200	-50	188.37	Core	Exploration	2017
DG17-835C	West Eagle	459177.00	7100224.00	945.00	NAD83 UTM8	290	-50	190.50	Core	Exploration	2017
DG17-837C	West Eagle	459177.00	7100124.00	948.00	NAD83 UTM8	180	-50	35.07	Core	Exploration	2017
DG17-840C	West Eagle	459177.00	7100124.00	884.00	NAD83 UTM8	360	-50	60.35	Core	Exploration	2017
DG17-841C	Eagle Extension	458940.00	7099562.00	852.00	NAD83 UTM8	180	-50	216.00	Core	Exploration	2017
DG17-842C	Ann Gulch	459522.00	7101516.00	911.00	NAD83 UTM8	350	-45	112.78	Core	Exploration	2017
DG17-844C	Ann Gulch	459522.00	7101516.00	911.00	NAD83 UTM8	320	-45	80.77	Core	Exploration	2017
DG17-846C	Eagle Extension	458894.00	7099570.00	853.00	NAD83 UTM8	180	-50	229.00	Core	Exploration	2017
DG17-847C	Ann Gulch	459522.00	7101516.00	911.00	NAD83 UTM8	50	-55	159.41	Core	Exploration	2017
DG17-851C	Ann Gulch	459562.00	7101529.00	916.00	NAD83 UTM8	350	-45	144.78	Core	Exploration	2017

DG17-852C	Eagle Extension	459058.00	7099442.00	889.00	NAD83 UTM8	0	-50	171.60	Core	Exploration	2017
DG17-854C	Ann Gulch	459538.00	7101636.00	928.00	NAD83 UTM8	340	-45	152.41	Core	Exploration	2017
DG17-855C	Eagle Extension	458907.00	7099428.00	868.00	NAD83 UTM8	0	-45	172.21	Core	Exploration	2017
DG17-858C	Eagle Extension	458781.00	7099592.00	850.00	NAD83 UTM8	180	-50	191.00	Core	Exploration	2017
DG17-859C	Ann Gulch	459675.00	7102014.00	1007.00	NAD83 UTM8	275	-45	149.35	Core	Exploration	2017
DG17-864C	Eagle Extension	458833.00	7099578.00	840.00	NAD83 UTM8	160	-50	192.02	Core	Exploration	2017
DG17-872C	Eagle Extension	459025.00	7099570.00	884.00	NAD83 UTM8	180	-50	103.63	Core	Exploration	2017
DG17-875C	Eagle Extension	459025.00	7099570.00	884.00	NAD83 UTM8	180	-75	176.78	Core	Exploration	2017
DG17-879C	Eagle Extension	459112.00	7099571.00	884.00	NAD83 UTM8	180	-70	136.26	Core	Exploration	2017
DG17-882C	Eagle Extension	459345.00	7099395.00	915.00	NAD83UTM8	180	-50	178.31	Core	Exploration	2017
DG17-887C	Eagle Extension	459285.00	7099476.00	896.00	NAD83 UTM8	180	-50	172.21	Core	Exploration	2017
DG17-891C	Eagle Extension	459434.00	7099277.00	949.00	NAD83 UTM	160	-45	121.92	Core	Exploration	2017
DG17-894C	Eagle Extension	459416.00	7099126.00	997.00	NAD83 UTM8	280	-45	202.69	Core	Exploration	2017
DG17-898C	Eagle Extension	459416.00	7099126.00	997.00	NAD83 UTM8	280	-75	204.22	Core	Exploration	2017
DG17-910C	Deep EAGLE	460270.00	7099794.00	1214.00	NAD83 UTM8	180	-65	643.06	Core	Exploration	2017
DG17-922C	Deep Eagle	460200.00	7099791.00	1208.00	NAD83 UTM8	180	-60	624.07	Core	Exploration	2017
DG17-930C	Deep Eagle	460034.00	7099673.00	1189.00	NAD83 UTM8	180	-80	655.00	Core	Exploration	2017
DG17-937C	Deep Eagle	459854.00	7099410.00	1130.00	NAD83 UTM8	180	-70	635.00	Core	Exploration	2017
DG17-PQ-1	Eagle Agglomeration	459823.00	7099424.00	1128.00	NAD83 UTM8	0	-90	70.00	Core	Compaction	2017
DG17-PQ-2	Eagle Agglomeration	459823.00	7099424.00	1128.00	NAD83 UTM8	360	-75	19.82	Core	COMPACTION	2017
DG17-PQ-3	Eagle Agglomeration	459880.00	7099589.00	1153.00	NAD83 UTM8	0	-90	70.10	Core	COMPACTION	2017
DG17-PQ-4	Eagle Agglomeration	459978.00	7099412.00	1159.00	NAD83 UTM8	0	-90	68.58	Core	COMPACTION	2017
DG17-PQ-5	Eagle Agglomeration	459978.00	7099412.00	1159.00	NAD83 UTM8	0	-75	22.86	Core	COMPACTION	2017
DG17-PQ-6	Eagle Agglomeration	459985.00	7099623.00	0.00	NAD83 UTM8	0	-90	28.96	Core	COMPACTION	2017
DG17-PQ-7	Eagle Agglomeration	459985.00	7099623.00	0.00	NAD83 UTM8	0	-75	33.53	Core	COMPACTION	2017
DG17-PQ-8	Eagle Agglomeration	460087.00	7099485.00	1249.00	NAD83 UTM8	0	-90	16.76	Core	COMPACTION	2017
DG17-STM-1	West Eagle	459177.00	7100224.00	945.00	NAD83 UTM8	0	-90	44.72	Core	Metallurgical	2017
DG17-STM-2	West Eagle	459077.00	7100174.00	921.00	NAD83 UTM8	0	-90	64.01	Core	Metallurgical	2017
DG17-STM-3	West Eagle	459027.00	7100324.00	903.00	NAD83 UTM8	0	-90	34.44	Core	Metallurgical	2017



DG17-STM-4	West Eagle	458927.00	7100124.00	884.00	NAD83 UTM8	0	-90	85.34	Core	Metallurgical	2017
DG17-STM-5	West Eagle	459027.00	7100324.00	903.00	NAD83 UTM8	170	-50	51.21	Core	Metallurgical	2017



Legend

- Mine_Plan_Explo_Drilling

Victoria GOLD CORP

Meters

0 100 200 400

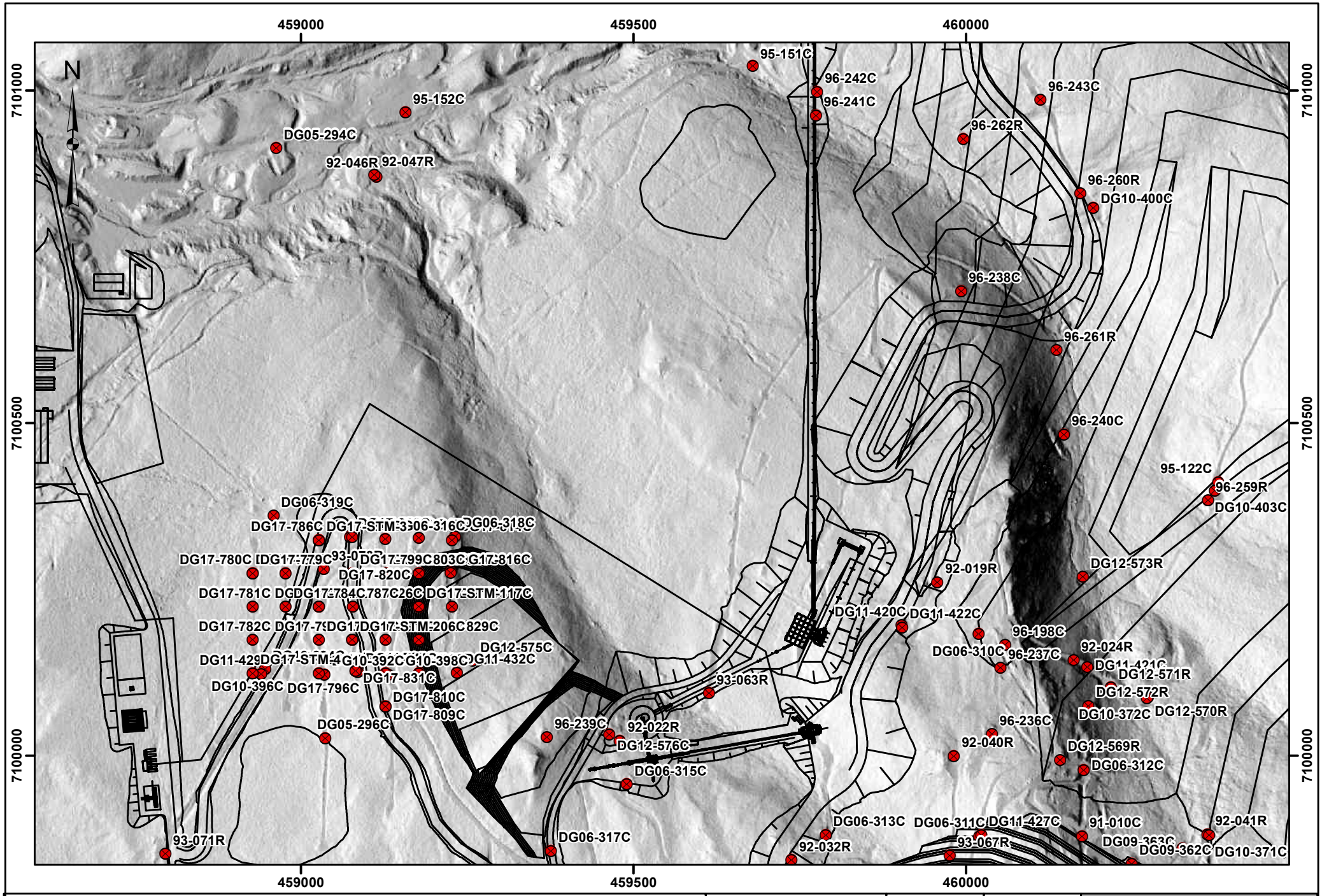
Projection: NAD83 UTM8

Drawn By: HK

Date: May 27, 2018

EAGLE GOLD PROJECT
YUKON TERRITORY

Mine Footprint
Exploration Drillholes



Legend

- Mine_Plan_Explo_Drilling

Victoria GOLD CORP

Meters

0 50 100 200

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD83 UTM8	HK	
Date: May 27, 2018		Inset Map 1 Exploration Drillholes

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-030	**Date Submitted:** May 29, 2018
Subject: Steel Pipe Works	**Project Zone/Area:** HLF PHASE 1A
Sub-contractor: Pelly Construction	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings:

1) EGHLF-XD-05-03 Detail #27
2) EGHLF-XD-05-04 Detail #28 and #29
3) EGHLF-XD-05-03 Detail #27 & EGHLF-XD-05-05 Detail #36
4) EGHLF-XD-05-05 Detail #34
5) EGHLF-XD-05-01 Detail #31
6) RFI-12 RESPONSE

Other Related Documents:

Information Request/Description of Issue:

1) Please confirm the supply and installation of the PLS and LDRS pump casing is by Pelly; this is contrary to what the drawing shows

2) Pelly understands that the PLS and LDRS pump piping, pipe supports, concrete and polylock embedment strip or batten strip liner anchor will be by others, please confirm

3) For ease of fabrication, Pelly would like to know if there are any limiting constraints or specific design criteria associated with the piping and connections between the casing and manifold piping that must be achieved. Angles, spacing, distances. A pipe schematic design diagram with angles and distances is requested.
   Other than some faint hatching on the pipe drawings there are no specific references to slotting requirements for the PLS casing pipes. Please confirm slotting requirements, if any, with the PLS pump casings.

4) Per note #9, slotting of the casing materials for the LDRS sump is specified for the instrumentation casing. Please confirm that no slotting is required for the LDRS pump casings.

5) Given the slope distance and mean average temperature, please confirm overall length of pipe that is required for each casing. To understand constructability constraints, please provide minimum cover and/or submersion requirements for the thermal protection of buried pipe infrastructure over winter/persisting freezing conditions.

6) Albeit different pipe diameter, please confirm the same gasket and bolt requirements are the same for steel components associated with the LDRS system. Please also confirm if flanging is permissible on the embankment slope components (pump and instrumentation casings) that follow the slope. Pelly's fabricator highly recommends a flanged approach for sectioning the spiral pipe components; this will speed up installation, increase quality assurance, reduce overall cost, and reduce risk of damaging liner by reducing onsite welding and fabrication.

Proposed Corrective Action	
Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 29, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

1) Notes on the drawings indicating "by others" means the final design and specification is by others. For these items please contact JDS/Hatch.
2) Notes on the drawings indicating "by others" means the final design and specification is by others. For these items please contact JDS/Hatch.
3) The steel well casings are not within the BGC scope. Please contact JDS/Hatch for specifications. For angles, spacing and distances related to the manifold piping, there are no specific constraints. BGC requests that Pelly provide a shop drawing for review.
4) The LDRS pump casing does not require slotting.
5) The steel well casings are not within the BGC scope. Please contact JDS/Hatch for specifications.
6) The steel well casings are not within the BGC scope. Please contact JDS/Hatch for specifications. Consideration should be made for the potential impact flanges could have on the liner system, particularly associated with thermal expansion/contraction of the casings.

Answered by:

Troy Meyer		**6/15/2018**
Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-031	**Date Submitted:** May 30, 2018
Subject: Split Coupling	**Project Zone/Area:** HLF PHASE 1A
Sub-contractor: Pelly Construction Ltd.	**Station/Location: HLF Embankment Underdrain**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: XD-03-04 Detail 19	**Other Related Documents:** Attached drawing

Information Request/Description of Issue:

Pelly's supplier does not stock off the shelf split couplings for the solid HDPE pipe to Corrugated ADS N12. Attached is a solution that our supplier will be able to fabricate using an extrusion weld to fuse the 2 pipe types. Please confirm this is acceptable.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 30, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☒ Rejected as noted

Response: BGC asks Pelly to provide drawing detailing how this change will be used per the design drawings provided. Also provide all engineering properties, procedures of installation to evaluate design change. An installation plan is needed to understand how Pelly will use this item in the the presented design. The drawing should include on a plan view where this item will be used.

Answered by:	**Daniel Granda**	**Daniel Granda**	**6/3/2018**
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response*

only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-032	**Date Submitted:** May 30, 2018
Subject: Monitoring Well Decommissioning Requirements	**Project Zone/Area:** HLF Phase 1
Sub-contractor: Pelly Construction Ltd	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐ Owner Change	☒ Clarification/Info	☐ Field Change	
	☐ Vendor Change	☐ Design Change	☐ Other	

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting BGC's requirements for the monitor well decommissioning.

Pelly's contractor is mobilizing on June 4, 2018, please send requirements as soon as possible to allow time for the contractor to prepare.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 30, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

The requirements should follow the Protocol for the ***Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installations, Sampling and Decommissioning, effective March 1, 2011***. This document, along with ***ASTM D5299-99*** should be the main guide for monitoring well decommissioning requirements. Further requirements are attached to this response.

Answered by: **Daniel Granda** **June 1, 2018**

Name Signature Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Monitoring Well Decommissioning Requirements

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda**	**Date:**	**June 1, 2018**
Copied:	**Troy Meyer; Roy Morlan**	**Record:**	**Water Management**

Re: Monitoring Well Decommissioning Requirements

The requirements should follow the Protocol for the ***Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installations, Sampling and Decommissioning, effective March 1, 2011***. This document, along with ***ASTM D5299-99*** should be the main guide for monitoring well decommissioning requirements.

1.0 PURPOSE

To decommission monitoring wells within the vicinity of the Eagle Gold HLF and achieve the following:

- Preventing contamination of groundwater by surface sources,
- Reducing risk of void creation in foundation area of Heap Leach Facility,
- Reducing environmental and engineering risk through construction phases, operation and closure.

2.0 GROUT MATERIAL

The grout mix should be designed by contractor and meet the following criteria:

- Not react with groundwater or in-situ geology,
- Have a lower than in-situ geology hydraulic conductivity,
- Form a tight bond with the borehole wall (wall should be clean of obstructions),
- Be resistant to cracking and shrinking,
- Be capable of being placed safely, and
- Have sufficient strength to withstand subsurface pressures.

3.0 FIELD PROCEDURE

The suggested field procedure for decommissioning a groundwater monitoring well is described below.

3.1. Inspection and Preparation

Each borehole and decommissioned well should be inspected to confirm depth, obstructions (e.g. debris, and caving) that may interfere with the placement and performance of the grout. A camera survey can identify the depth and construction of the well if this information is not known.

3.2. Casing Removal

Casings will be removed as part of properly sealing a borehole or decommissioned well. The technique of pulling casing using a rig is acceptable only for steel casings. The technique of over drilling, which means drilling around the borehole or decommissioned well casing and pulling out the casing, is also acceptable.

If casing cannot be removed through these two methods, the Engineer with consultation from Victoria Gold's Environmental Representatives will need to approve a plan to seal properly.

3.3. Grouting

The borehole should be pressure grouted using a tremie pipe as the drilling stem is removed. The grout should be applied in one continuous procedure to prevent segregation, bridging and dilution. The tremie pipe should be in constant contact with the grout level inside the borehole or decommissioned well to prevent air pockets from forming. The borehole and decommissioned well should be sealed from the bottom of hole to surface. Grout should be inspected 24 hours after placement for settlement, more grout should be added if needed. Inspection should be done by Engineer.

4.0 ARTESIAN WELLS

Driller should be equipped to handle a 10 litre per minute artesian well. The hole ID: DG17-847C, is 154.25 metres deep, angle with a true azimuth of 50 degrees and adip of -45 degrees. Hole size is HTW. Regulations should be followed on decommissioning this type of hole, grout from bottom of hole to surface is the expected solution.

5.0 DOCUMENTATION

Driller contractor should keep logs of end of construction sealing practices, product certificates and specification. This documentation will be collected for the final construction report from BGC and to document decommissioning of the wells on the Heap Leach Facility.

6.0 PROCEDURES AND PROTOCOL

Contractor should refer to “Protocol for the Contaminated Sites Regulation Under the Environment Act, Protocol No. 7: Groundwater Monitoring Well Installation, Sampling and Decommissioning.

Section 4, titled Well Decommissioning, applies and governs all procedures. The standard used by this document refers to American Society of Testing and Materials (ASTM) standard D 5299-99 Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes and Other Devices for Environmental Activities.

7.0 NOTIFICATION

BGC is expected to be notified of activities for decommissioning to observe procedures and conduct an independent inspection 24 hours after grouting was placed. BGC will ask for copy of the logs at the earliest convenience of drilling contractor for records of construction and foundation preparation.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-034	**Date Submitted:** June 1, 2018
Subject: Closure Drill Casing	**Project Zone/Area:** HLF Embankment Phase 1
Sub-contractor: Pelly Construction	**Station/Location:**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings:	**Other Related Documents:**
Closure Drill Casing Detail #33	

Information Request/Description of Issue:

1) Is linear welding a necessary requirement here, can we drill, bolt and fishplate these together?

2) Within sump zones, the steel plates are shown as continuous to dimensions provided.
   (a) Standard stock generally ranges up to 5'x10' sheets without requiring special order. Can fabricator construct with standard stock?
   (b) And if so, can fabricator use connection method described in Q1?
   (c) Standard stock is 10' width, ~3m, whereas plan calls for 4m, using 3m will align with standard stock dimension and improve installation efficiency and overall cost, is 3m width acceptable?

3) Steel angle stop at bottom. Please provide dimensions for height of angled stop that is required for drill termination.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**June 1, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

1.) Fish-plating or any method requiring bolting of plates together is not acceptable. Bold can cause stress points on the liner during operation.
2.) Plate width should be 4m wide per the design. If two connected plates are used the total width should be 4m.
3.) The steel angle should be the width of the steel plate (i.e. 4m) and should have a height of 0.5m perpendicular to the steel plate.

Answered by:

Name Troy Meyer Roy Morlan | Signature Roy Morlan | Date June 17, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-036	**Date Submitted:** June 13, 2018
Subject: Embankment Underdrain Design	**Project Zone/Area:** HLF Embankment Phase 1
Sub-contractor:	**Station/Location: HLF**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings:	**Other Related Documents:**
EGHLF-XD-03-03 EGHLF-XD-03-04 EGHLF-XD-03-05	

Information Request/Description of Issue:

Pelly is requesting details on design changes to the HLF embankment underdrain plan where seeps have been identified within the embankment footprint.

Proposed Corrective Action
Provide detailed drawings outlining the design changes, materials required, and placement to accommodate the identified seeps.

Cost Impact:	Additional work and materials required beyond contract scope
Schedule Impact:	Extended schedule for underdrain installation

Requested by:

Dean Serelo		**June 13, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

Response included in the attached memorandum FM-003 Seeps and Finger Drains.

Answered by:

Name Roy Morlan Signature Roy Morlan Date June 14, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

To:	**JDS**	**Project:**	**Eagle Gold Construction Support**
Company:	**BGC**	**Project No.**	**1406-006**
From:	**Daniel Granda, P.E./Roy Morlan, P.G.**	**Date:**	**2018-06-13**
Copied:	**Elliot Matthew EIT; Troy Meyer**	**Record:**	**FM-003**

Re: Seeps and Finger Drains

1.0 INTRODUCTION

The purpose of this memorandum is to discuss the field observations made along the exposed right abutment and artesian well identified upstream of the partially excavated undrain pipe trench.

Field observations included daily monitoring of potential seeps during no precipitation days, photo records to document observations, and visual confirmation of water flow. The intend of this document is to classify areas that may interfere with moisture conditioning of lifts during construction, damage approved fill placement through water flow and present solutions to be implemented in the field during construction.

2.0 WATER MANAGEMENT FIELD OBSERVATION

On May 26th, 2018, representatives from Pelly and JDS, accompanied BGC Resident Engineer (Daniel Granda) to walk the site (**Figure 1**). This meeting took place a day after significant rainfall and the ground was fairly moist. This was used a baseline for identifying seeps occurring during drier conditions.



Figure 1: Pelly and JDS representatives present for water management field observation visit.

During the visit, the ground was found to be moist. Sediments had been transported on exposed Type 3 foundation in underdrain pipe trench and moisture from the abutments seemed to be rainfall moisture (**Figure 2**).



Figure 2: Seeps were difficult to see after significant rainfall events.

3.0 OBSERVATIONS

During a course of 5 days, and in consistent drier weather, moisture spots remained concentrated in areas identified. **Figure 3** presents observations from June 1st, 2018 inspection. **Figure 4** presents field interpretation and seep identification.



Figure 3: Upstream view from proposed embankment toe looking upstream



Figure 4: Field Interpretation of seeps with identifications for descriptions.

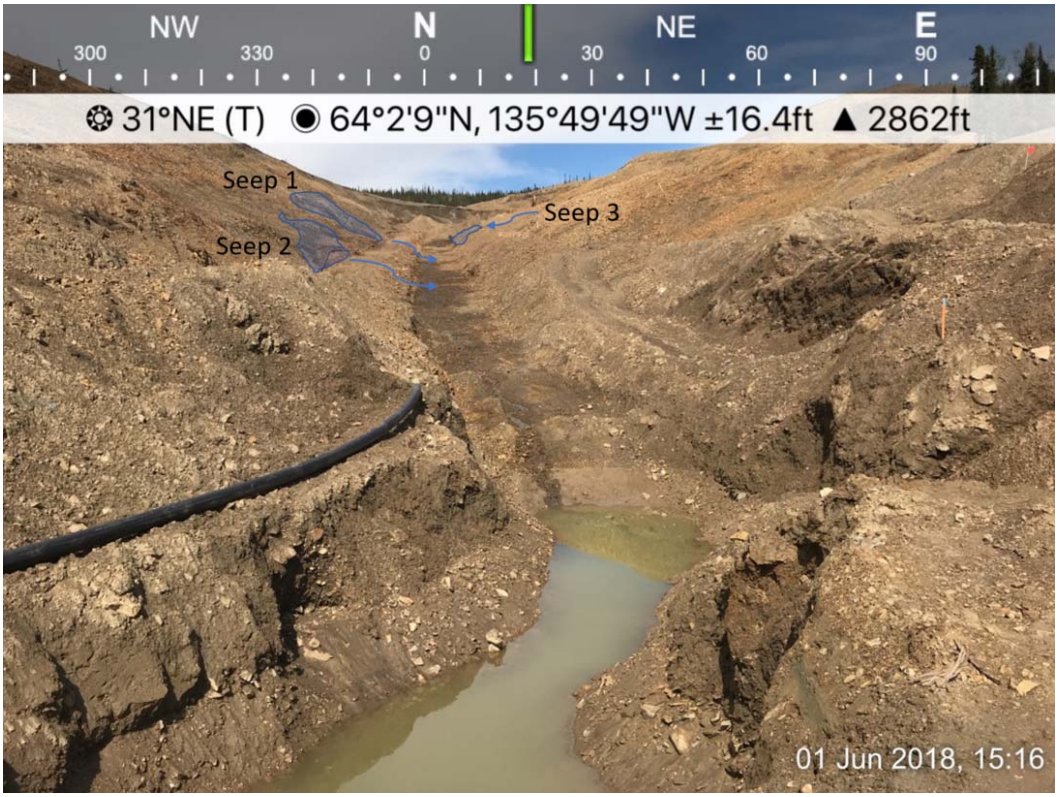


Figure 4: Field Interpretation of seeps with identifications for descriptions.

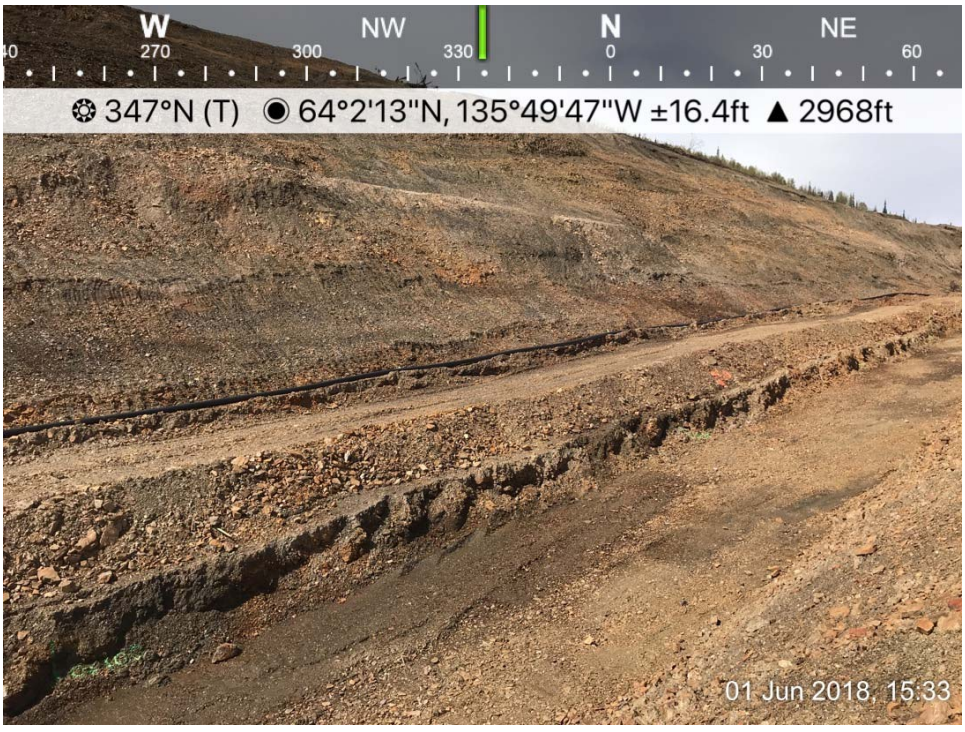


Figure 5: Seep 1 view from left abutment.

Both Seep 1 and 2 have been occurring for the past 5 days. Weak, very moist and low resistance to puncture zones were identified by applying finger pressure on wet areas. **Figure 6** presents the interpretation that may be confirmed during abutment foundation preparation for seep 1.

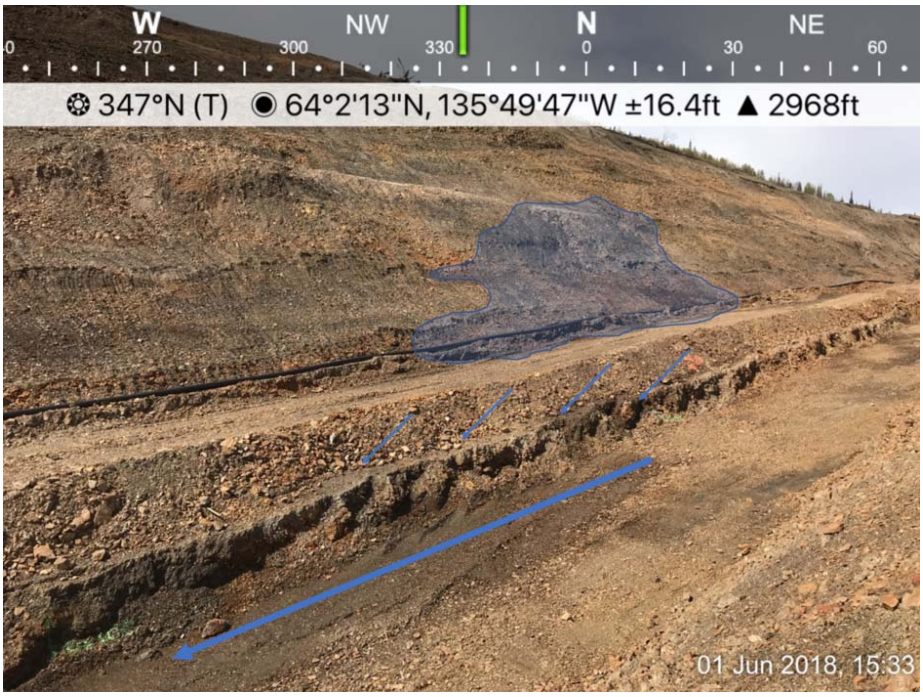


Figure 6: Seep 1 interpretation of potential flow path.

The specific source zone point is unknown as the materials on the abutment have high moisture absorption and fine lenses exhibit matric suction properties. In seep 1, the moisture is visible at the close sight on the abutment, liquid is transported downstream of the abutment and reconnects to the underdrain trench sides.



Figure 7: Seep 2 view from left abutment.

Seep 2 exhibits the same characteristics as seep 1, with ponded water on surface on bench between abutment and bottom of underdrain trench.



Figure 8: Seep 2 interpretation of potential flow path.



Figure 9: Seep 3 view from upstream underdrain trench

Seep 3 is believed to be coming from the artesian source identified during inspections. There is a clear connection of moisture oriented from the assumed source to the underdrain trench.

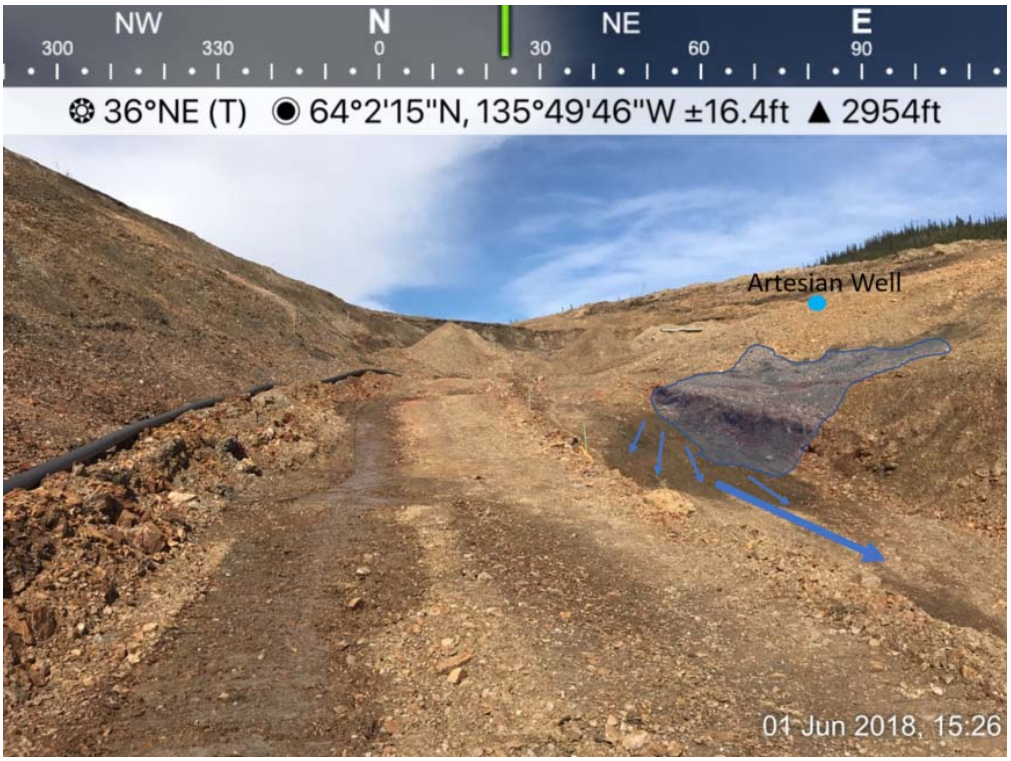


Figure 10: Seep 3 interpretation of potential flow path.

4.0 SUGGESTED MITIGATION

A field design to help the contractor to dissipate seepage and surface runoff from the abutments during construction seems to be the best approach. The goal of this mitigation is to provide a way of transporting excess water during construction (lift placements and compaction) to meet compaction specifications, transport and reduce pore water pressures inside the constructed embankment for long term stability.

5.0 FINGER DRAIN

A total of 3 finger drains are proposed (one finger drain at Seep 1, one finger drains at Seep 2, and one finger drain at Seep 3). The centerline location of each finger drain was surveyed by Pelly's survey team. A figure showing the location was not provided to BGC before completion of this memorandum. However, each drain will be an estimated 10 m in length. Although it is not currently anticipated, these finger drains can be extended in length if moisture along the abutments appear to be an issue during construction.

The finger drain trenches should be a minimum of 2 m wide, by a minimum of 0.75 m high, with a 2:1 slope on each side. The drain trench should be excavated in Type 3 Bedrock or better. Similar requirements to the underdrain will be used to construct it (e.g. geotextile overlap, select throughout). The final drain will be field fitted and the final length and construction details will be dependent on the ground conditions and its ability to tie into the Pipe Trench. However, the drain should meet the minimum dimensions discussed here. The detail for the minimum requirements is presented as **Figure 11**.

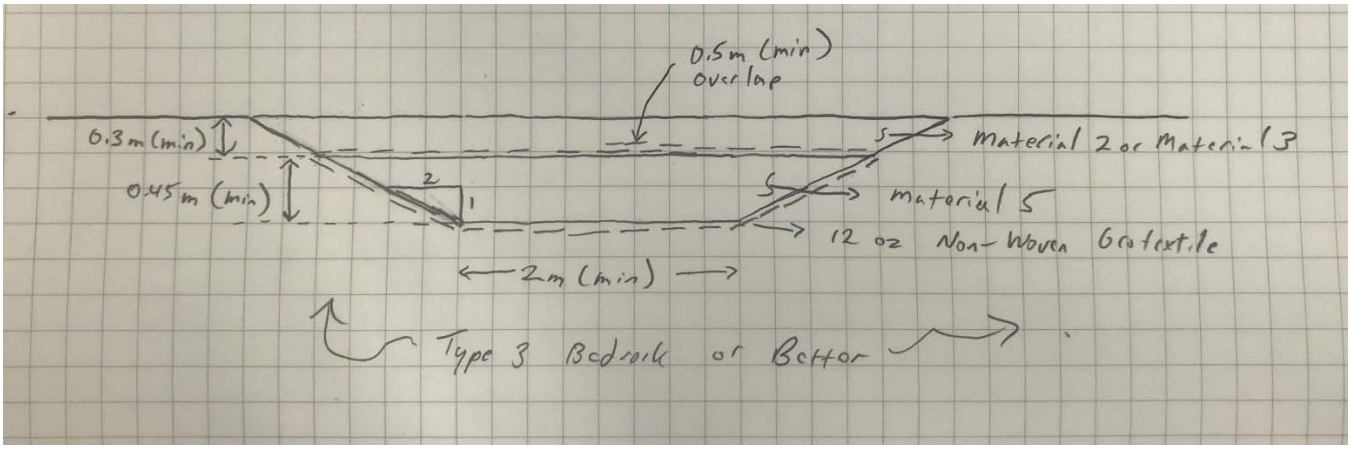


Figure 11: Typical section for finger drain.

Finger drains will tie into the drain rock at the pipe trench. Geotextile in the finger drains should overlap with the pipe trench by a minimum of 0.5 m. The Constructor should propose a method to overlap the geotextile at this connection based on constructability. BGC should review this connection prior to construction. The following sketch is a plan view of the finger drains in relation to the pipe trench (**Figure 12**).

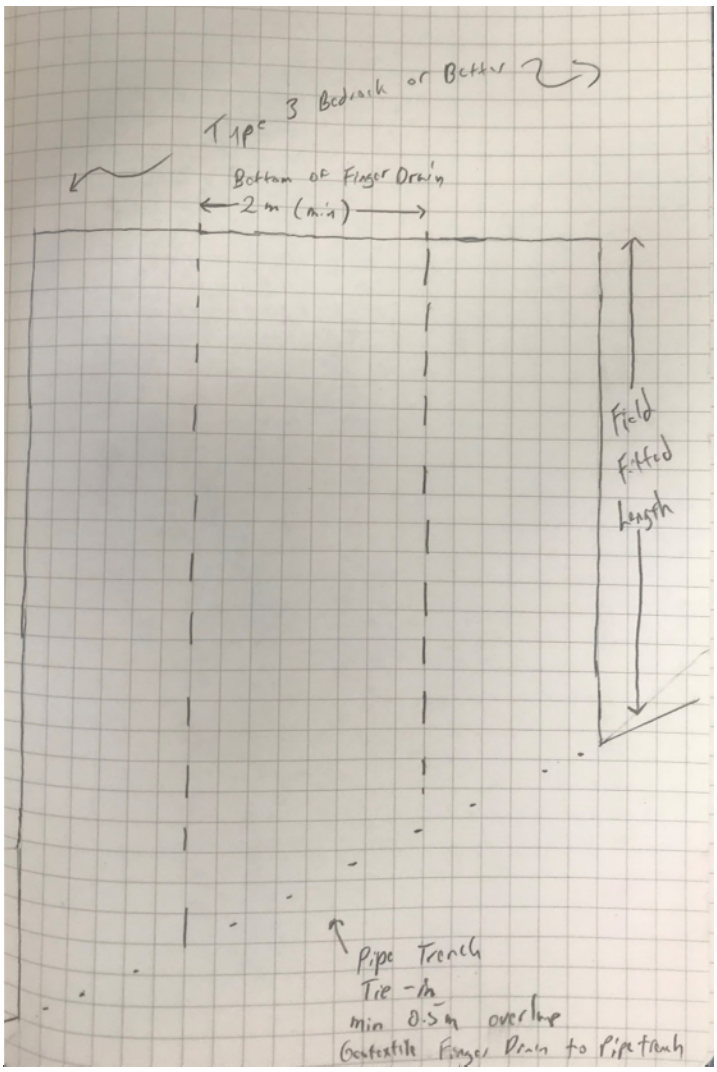


Figure 12: Plan view for finger drain layout.

6.0 SUMMARY AND RECOMMENDATIONS

A finger drain will be needed to reduce porewater pressures during construction through operations. The design presented could help drain slopes and maintain control of water during material lift placements prior to compaction.

This drain design is not intended for the control of the water on the east side of the embankment where the artesian hole was discovered. A separate design will be developed for the drain on that side of the embankment.

7.0 CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of JDS. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

As a mutual protection to our client, the public, and ourselves, all documents and drawings are submitted for the confidential information of our client for a specific project. Authorization for any use and/or publication of this document or any data, statements, conclusions or abstracts from or regarding our documents and drawings, through any form of print or electronic media, including without limitation, posting or reproduction of same on any website, is reserved pending BGC's written approval. If this document is issued in an electronic format, an original paper copy is on file at BGC and that copy is the primary reference with precedence over any electronic copy of the document, or any extracts from our documents published by others.

Yours sincerely,

BGC ENGINEERING INC.
per:

Roy Morlan, PG.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-40	**Date Submitted:** Aug 1, 2018
Subject: HLF Embankment Construction	**Project Zone/Area:**
Sub-contractor:	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☐ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: See attached 03-05	**Other Related Documents:**

Information Request/Description of Issue:
Pelly is requesting the confirmation of the new Embankment material geometry discussed in the field on July 27, 2018.

Cost Impact:	
Schedule Impact:	

Requested by:

Name	Signature	Date
Shipeng Zheng		**Aug 1, 2018**

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

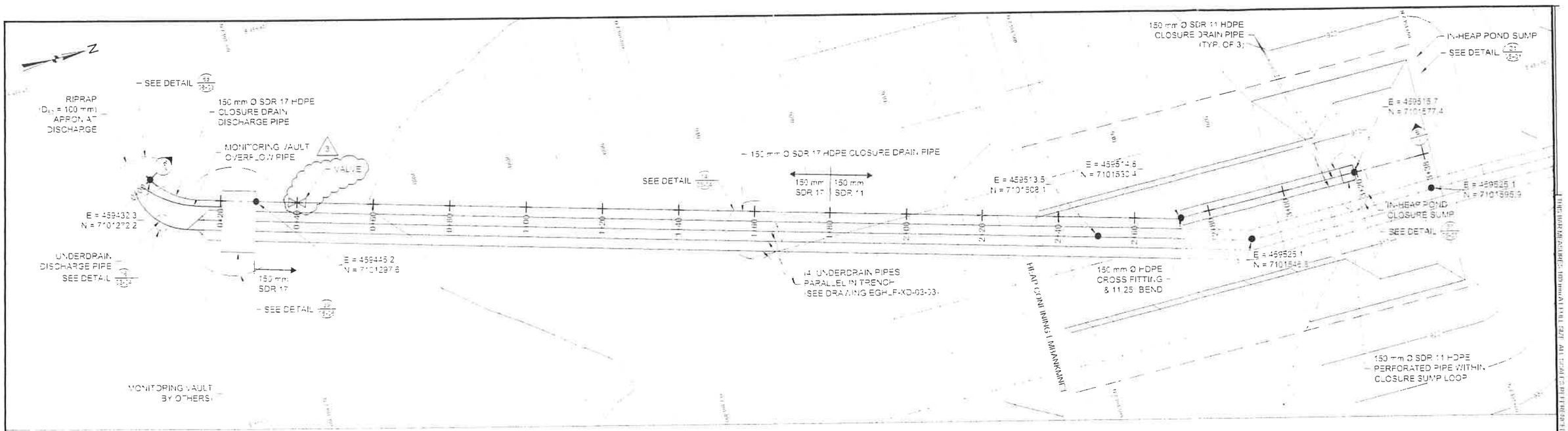
Response:

See attached drawing with zoning discussed in the field July 27, 2018. An answer to this RFI was informally provided the week of July 30 and work has proceeded forward in compliance with this change. This response is to formally close this RFI.

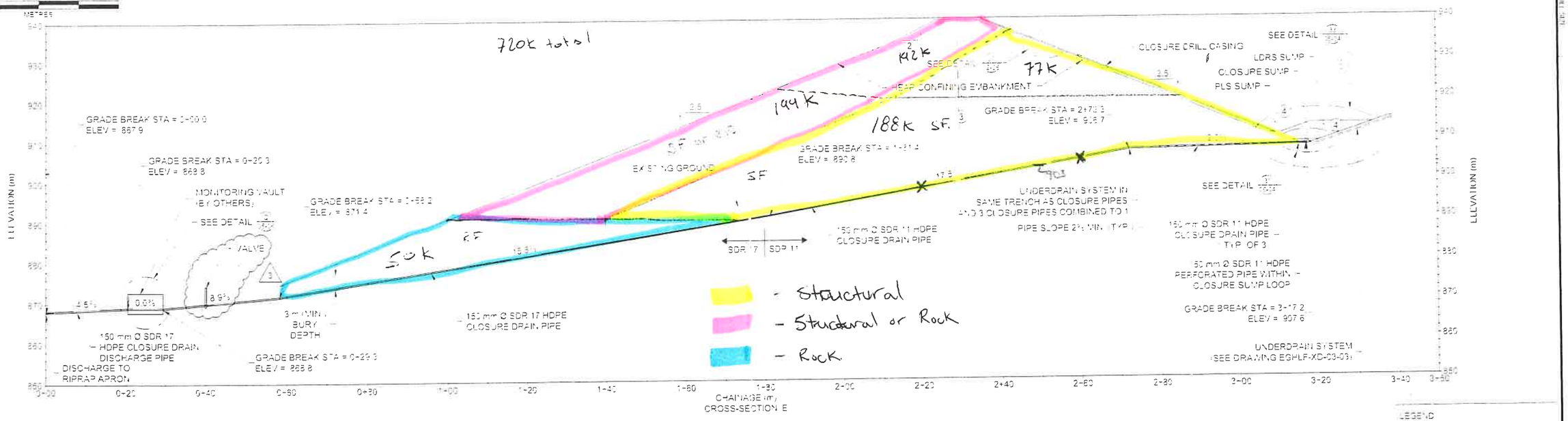
Answered by:

Name: Roy Morlan Signature: Roy Morlan Date: September 6, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*







THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL

NOTES
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV NO	YY MM DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
4	17 09 11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
3	17 09 08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17 09 22	DAG	TLM	MEH	TLM	CLOSURE AND UNDERDRAIN ALIGNMENT AND PROFILE REVISED
2	17 10 12	DAG	TLM	MEH	TLM	REVISED PIPE SDR
0	13 05 27	DAG	TLM	MEH	TLM	ADD VALVE AT STATION 0+40

REV NO	YY MM DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY	DAG	CHECK DRAWING	CJT
DESIGN BY	TLM	CHECK DESIGN	MEH
LEAD ENGINEER	DEH	APPROVAL DATE	09 03 17
PROJECT MANAGER	TLM	APPROVAL DATE	09 03 17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Eagle Gold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CLOSURE PIPING PLAN AND PROFILE

SCALE: 1:500

DWG No: EGHLF-XD-03-05

REV: 3

X:\Projects\0292\Victoria Gold\CAD\Production\PDF\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-03-05.mxd Layout: EGHLF-XD-03-05 Plot Date: Jan 26, 18 Time: 12:00 PM

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-042	**Date Submitted:** Sept 21, 2018
Subject: HLF PLS Header and Recovery Piping	**Project Zone/Area:** HLF in heap
Sub-contractor: Pelly Construction	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☒	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Related Drawings:	**Other Related Documents:**
XD-06-02-Detail 47 and 49	

Information Request/Description of Issue:

1) Regarding detail #47 (EGHLF-XD-06-02):
   -calls for 3m of 300mm SDR11 connected to 250mm Corrugated & Perforated PE N-12. I'd like to proceed as we did with the underdrain laterals with the ADS N-12 material fused onto the end of the HDPE pipe. This will require a slight change in the design whereby the upstream end of the 3m 12" HDPE pipe will have a 12"x10" HDPE reducer incorporated that is then fused with the ADS. Total assembly rated to 0 PSI due to the ADS end connection. For your reference I've attached the ADS-N12 manufacturer specifications.
2) Regarding detail #49 (EGHLF-XD-06-02):
   -Trying to understand the reasoning for this in the design?? Seems like a cumbersome requirement for installation, not to mention added cost.
   -for the double pipe section, are these required to be 1m minimum distance apart as noted in other detail?
   -assuming 1m clearance, I think a T connection with pair of 90's will be required versus a wye connection.
3) Use of sleepers. Constructability and fusing on top of liner, can we utilize sleepers (wood dunnage to prop pipe off of the liner) to provide clearance and for aligning pipe to perform fusing in place? Is this permissible, and what kind of precautions should we need in place to protect liner – I'm thinking in terms of point loading, ie. 16oz rub sheet on top of liner, overlain by plywood of sum area(?), overlain by dimensional blocking (8" sleeper) to support the pipe. If impractical to remove without risking damage to liner, can we leave these sleepers in place (permanently? -I anticipate this only for the 18" HDPE piping.

For (1) and (2), hoping to hear from you in next few hours so I can line up final ordering details and fabrication requirements by end of today.

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**Sept 21, 2018**
Name	Signature	Date

RESPONSE

☐	Approved	☐	Approved as noted	☐	Rejected as noted

Response: 1) the proposed pipe arrangement is acceptable. 2) detail #49 can be disregarded due to recent reduction in the design process flow rate. 3) BGC suggests the use of geosynthetics in place of wood, where possible. A geocomposite and geomembrane rub sheet combination should provide protection for the liner and could be left in place. Wood products shall not be left in place.

Answered by: Troy Meyer — Name | Signature | Sept 25, 2018 — Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-044	**Date Submitted:** October 08, 2018
Subject: PLS Piping Installation Rub Sheets (4110.7.01)	**Project Zone/Area:** HLF Phase 1A
Sub-contractor:	**Station/Location: HLF Phase 1A B**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☒ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: EGHLF-XD-06-01 rev1	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting confirmation for the following:
1. 18" DR11 collection piping can be pulled over the HLF liner providing there is a rub sheet between the collection pipe and HLF liner.
2. The aforementioned rub sheet will consist of a 16oz non-woven geotextile over and under a layer of 2mm (80-mil) double-side textured LLDPE geomembrane.
3. There is no geomembrane on geomembrane contact permitted – meaning in the case where geomembrane rolls are wider than those of the geotextile, the geotextile will require multiple rolls in width (both over and under the geomembrane).
4. Rub sheets meeting these requirements will be permitted to be left in place.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Dean Serelo		**October 08, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response: BGC agrees with the method. The geotextile can be 12 or 16 oz. And the geomembrane liners can be 60 or 80 mil.

Answered by: **Daniel Granda** **Daniel Granda** **10/9/2018**

Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-045	**Date Submitted:** October 31, 2018
Subject: PLS Piping Flange Connection and Schedule (4110.7.01)	**Project Zone/Area:** HLF Phase 1A
Sub-contractor: Pelly Construction Ltd	**Station/Location: HLF Phase 1A B**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change
	☐	Vendor Change	☒	Design Change	☐	Other

Related Drawings: EGHLF-XD-05-03	**Other Related Documents:**

Information Request/Description of Issue:

Pelly is requesting confirmation for the following:

1. Flange connection can be used for connecting pre-fabricated N12 PE/SDR 11 HDPE pipe to PLS header pipe directly upstream of split coupling in drawing EGHLF-XD-05-03 (see attached photo)

2. Clarification on Pelly's scope for installation of the PLS piping extents within the construction schedule for 2018.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Dean Serelo		**October 31, 2018**
Name	Signature	Date

RESPONSE

☐	Approved	☒	Approved as noted	☐	Rejected as noted

Response:

See attachment

Answered by:

Name: Roy Morlan	Signature	Date: December 1, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

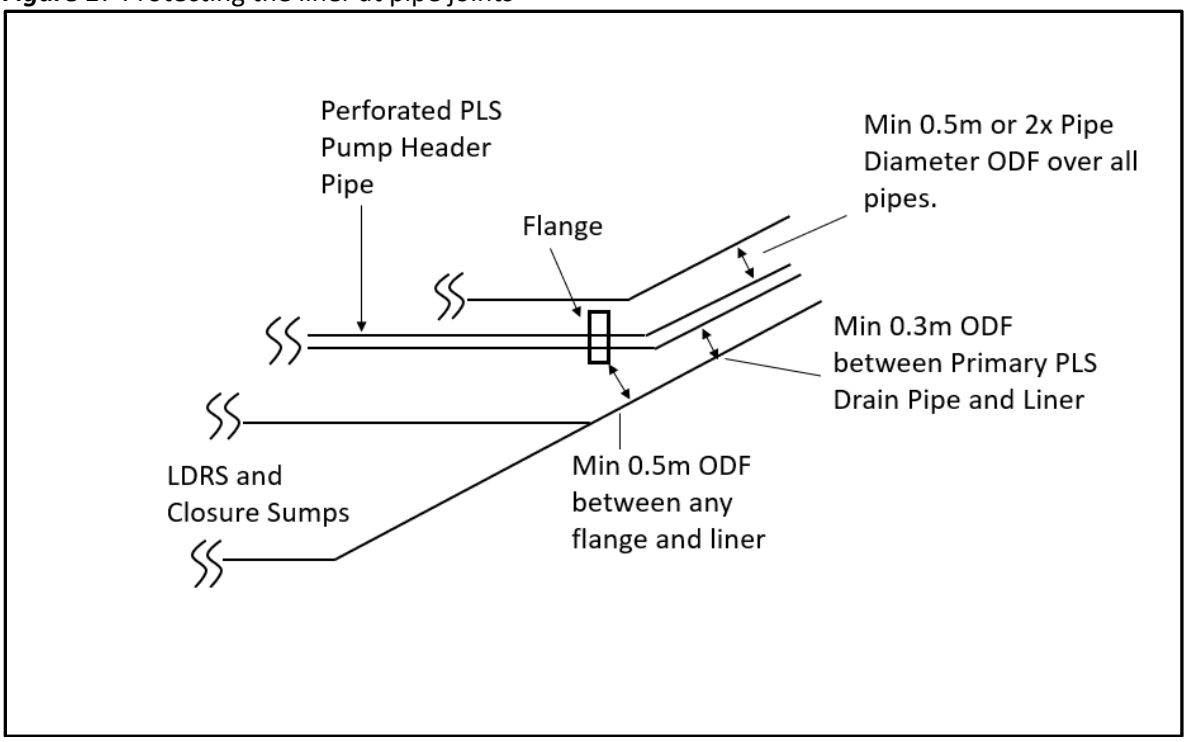


BGC Response

Item 1: The use of a flange connection is permitted. Flanges can only be used if a minimum of 0.5m of ODF material is placed between the flange and the liner. To help protect the liner during butt welding or electrofusion a minimum of 0.3m of ODF material should be placed between the Primary PLS Drain Pipe and the liner. It should be noted that cover should be a minimum of 0.5m or twice the pipe diameter, whichever is larger, over the top of all pipes per IFC drawings EGHLF-XD-06-02 and EGHLF-XD-06-03. See ***Figure 1***.

Item 2: To be responded to by JDS.

Figure 1: Protecting the liner at pipe joints



REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-046	**Date Submitted:** December 4, 2018
Subject: PLS Piping Connections	**Project Zone/Area:** HLF Phase 1A
Sub-contractor: Pelly Construction Ltd	**Station/Location: HLF Phase 1A**
Attention:	**Discipline:**

REQUEST

Type of Change:					
	☐	Owner Change	☒	Clarification/Info	☐ Field Change
	☐	Vendor Change	☒	Design Change	☐ Other

Related Drawings:	**Other Related Documents:**
EGHLF-XD-06-02	

Information Request/Description of Issue:

1. Note 6 on drawing EGHLF-XD-06-02 states “the first 3m of all collectors will be 300mm diameter HDPE SDR 11”. Pelly is requesting the use of prefabricated 450mm HDPE SDR 11 to 250mm HDPE SDR 11 wye’s with approx. 0.75m of 250mm HDPE SDR 11 before connecting to 250mm corrugated & perforated PE N-12. See Photo 1 attached.

2. Pelly is requesting the use of MarMac DP Couplers (part #1067RCD) to transition from 250mm HDPE SDR 11 pipe to 250mm corrugated & perforated PE N-12 in place of the split couplers in detail 46, 47, and 48 of drawing EGHLF-XD-06-02. See attached product description and installation instructions.

Proposed Corrective Action

Cost Impact:	
Schedule mpact:	

Requested by:

Dean Serelo		**December 4, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:

1.) Approved.
2.) Approved with conditions. See BGC response below.

Answered by:

Name Roy Morlan Signature *Roy Morlan* Date 12-07-2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*



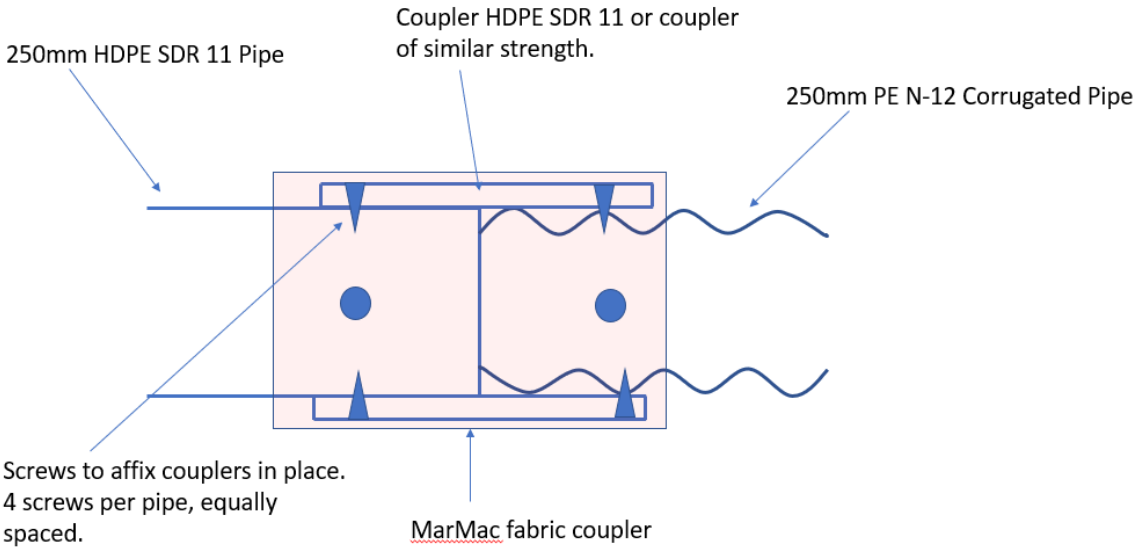
Photo 1: PLS header to collector pipe connection

1.0 RESPONSE TO QUESTION 2

The use of this product is approved. However, due to the potential for shearing at the joints BGC will require one of the two configurations below be used.



Configuration 1: Pipe configuration suggested by MarMac. Corrugated pipe fits into smooth wall pipe and then is wrapped. If mastic does not stick due to cold weather or other issues then additional compression rings may be required. If this method is used 4 screws, equally spaced around the diameter of the pipe, should be used to affix the smooth walled pipe to the corrugated pipe.



Configuration 2: An HDPE coupler, or a coupler with similar strength, is used. Mar Mac coupler would be installed per manufacture's instructions. If mastic does not stick due to cold or other issues then additional compression rings may be required.

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-047	**Date Submitted:** February 18, 2019
Subject: ODF Construction Equipment Approval	**Project Zone/Area:** HLF Phase 1A
Sub-contractor: Pelly Construction Ltd	**Station/Location: HLF Phase 1A**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐ Owner Change	☒ Clarification/Info	☐ Field Change		
	☐ Vendor Change	☐ Design Change	☒ Other		

Related Drawings:	**Other Related Documents:** Attachment A: CAT ground pressure chart Attachment B: CAT articulated rock truck specs

Information Request/Description of Issue:

Pelly is requesting the approval to use the CAT 745C articulating rock truck for ODF placement. The 745C remains a similar class machine with the ability to offer better reliability, full lock up breaking during dumping and automatic traction control with manually locking axles to help prevent slippage on loose underfoot slope conditions.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	Increased reliability to reduce scheduling and improve safety.

Requested by:

Dean Serelo		**February 18, 2019**
Name	Signature	Date

RESPONSE

☐	Approved	☐	Approved as noted	☐	Rejected as noted

Response:

Answered by:

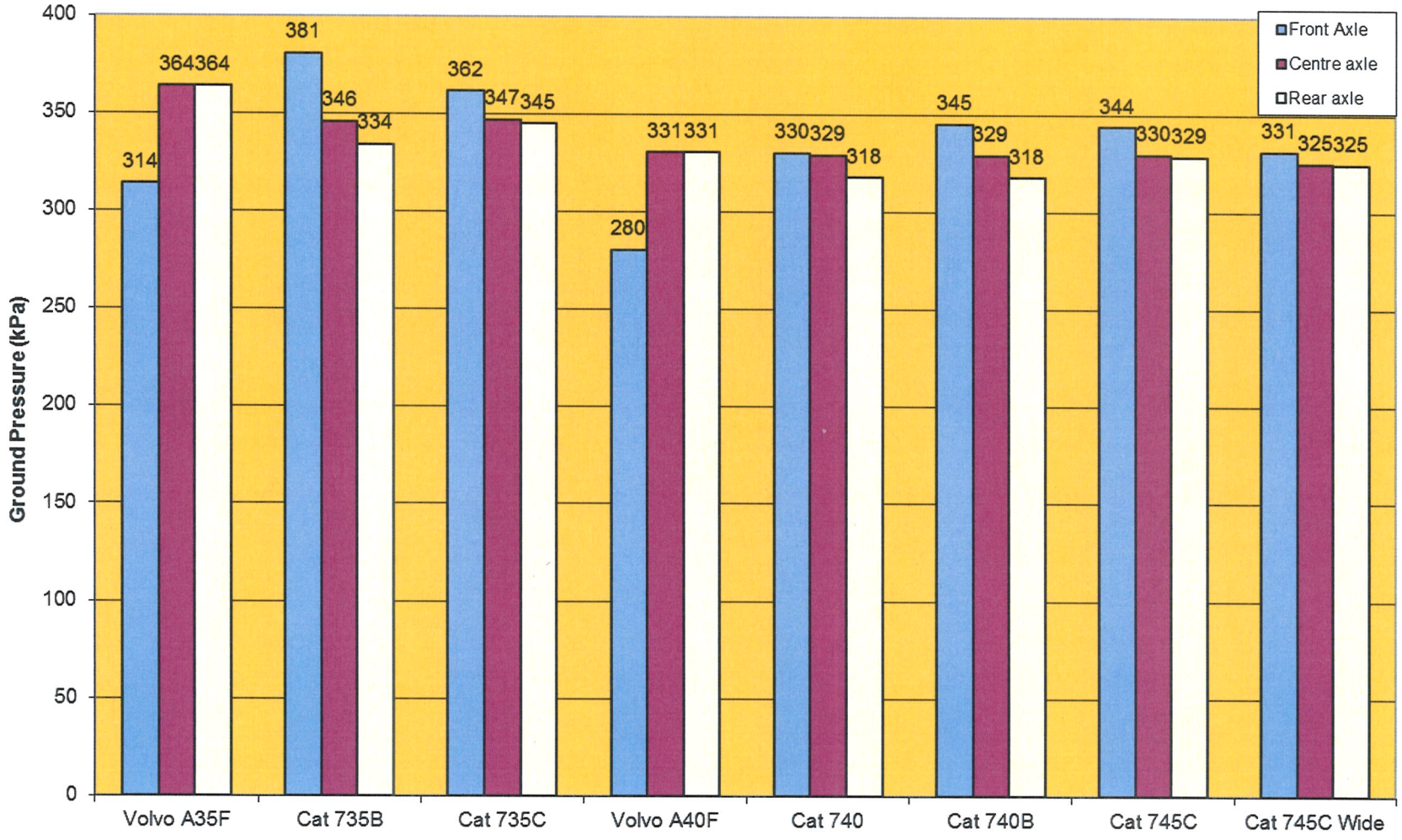
Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

Attachment A

Ground Pressure

745C Ground pressure is the same as 740B



Cat Conf YELLOW

•All figures based on Michelin XADN tyres

Use of Ground Pressure Charts

Articulated trucks are normally equipped with wide base radial tires, for improved flotation in poor underfoot conditions. Ground pressure is a function of tire deflection and is also affected by tire penetration. The charts in this section provide a means to estimate ground pressure for 0 and 76 mm (3") tire penetration, when gross vehicle weight, axle load distribution and tire inflation pressure are known. The ground pressure charts on the following pages are based on Michelin XADN tire characteristics. Results may differ for other tread patterns.

Tire load can be calculated by the following formula:

$$\text{Tire Load} = \frac{\text{Heaviest Axle Load}}{2}$$

Example

Find the ground pressure generated by a 725C fully loaded with zero and 76 mm (3") tire penetration. The machine is equipped with standard Michelin 23.5R25 tires, inflated to the recommended pressure.

$$\text{725C Tire Load} = \frac{46\,820 \text{ kg} \times 0.34}{2} = 7959 \text{ kg}$$

$$\text{725C Tire Load} = \frac{103{,}220 \text{ lb} \times 0.34}{2} = 17{,}547 \text{ lb}$$

From the tire section in this book, inflation pressure for the 725C is 325 kPa = 3.25 bar (47 psi).

From the ground pressure chart for 23.5R25 tires, Ground pressure = 3.1 kg/cm^2 (44 psi) with zero tire penetration.

Ground pressure = 1.4 kg/cm^2 (21 psi) with 76 mm (3") tire penetration.

See the Wheel Tractor Scraper section for explanation on using:

- **Rimpull-Speed-Gradeability Curves**
- **Retarder Curves**

See Mining & Off-Highway Trucks section for Fixed Times for Hauling Units.

Attachment B

ARTICULATED TRUCKS

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Features:

- **Cat® engines with ACERT™ Technology** meet U.S. EPA Tier 4 Final/EU Stage IV/Japan 2014 (Tier 4 Final), or Tier 2/Stage II/Japan 2001 (Tier 2) equivalent emission standards. The four core elements of meeting these standards are:

  I) Common Rail;

  II) Electronics, ADEM™ A4;

  III) Fuel delivery, Mechanical-activated Electronic Unit Injection (MEUI™ A-C);

  IV) Air Management, Wastegate Turbocharging, Air to Air Aftercooling (ATAAC) with the proven technology of a crossflow cylinder head.

- **Cat electronically controlled transmissions** ... Transmissions purpose built and designed for articulated trucks and their applications. Advanced Productivity Electronic Control Strategy (APECS) delivering smooth shifting transmissions with improved acceleration and high productivity. Providing complete integration with the engines for efficient power delivery as well as offering advanced diagnostic and troubleshooting capabilities.

- **Articulating and fully oscillating hitch** ... Links front and rear frames for exceptional maneuverability and traction on uneven terrain while eliminating damaging twisting of the frames. Bolted hitch design allows optimum material choices for the cast hitch head and the hard-wearing tube. Bolted design allows easier rebuild and repair.

- **Three-point front suspension** ... Three-point front suspension with long-stroke, low-pressure suspension cylinders provide unparalleled ride quality for operator comfort and higher average haul speeds. Front and rear suspension together with the hitch provide for excellent traction in all conditions.

- **Wide, long and low dump body design** ... For excellent loadability and high fill factors, excellent machine stability and load retention as well as a good match for other Cat loading systems. Diverging flow design also gives excellent material ejection.

- **Standard ROPS/FOPS, low sound level cab** ... Two man cab common across the range. Large cab with excellent visibility, ergonomic control layout and plentiful storage.

- **High capacity low pressure tires in single formation** ... For superior traction and flotation in poor underfoot conditions.

- **Bare Chassis offerings** ... For certain applications the Caterpillar OEM Solutions Group offers non-dumper/Bare Chassis arrangements.

  Bare Chassis arrangements applications could include: water, service (fuel and lube), high capacity body (waste, coal, etc.), open body (log, pipe, etc.), container carrier, hook lift, tow, cable reel, etc. Please refer to specific OEM for additional information.

MODEL	725C2		730C2		730C2 EJ	
Gross Power — SAE J1995	239 kW	**320 hp**	280 kW	**375 hp**	280 kW	**375 hp**
Net Power — SAE J1349	234 kW	**314 hp**	274 kW	**367 hp**	274 kW	**367 hp**
Net Power — ISO 14396	236 kW	**316 hp**	276 kW	**370 hp**	276 kW	**370 hp**
Operating Weight (Empty)*	23 040 kg	**50,795 lb**	23 725 kg	**52,305 lb**	26 395 kg	**57,277 lb**
Top Speed (Loaded)	55 km/h	**34 mph**	55 km/h	**34 mph**	55 km/h	**34 mph**
Gross Machine Weight	47 040 kg	**103,707 lb**	51 725 kg	**114,034 lb**	54 515 kg	**119,270 lb**
Distribution Empty:						
Front		**63%**		**62%**		**59%**
Center		**19%**		**19%**		**21%**
Rear		**18%**		**19%**		**20%**
Distribution Loaded:						
Front		**36%**		**34%**		**30%**
Center		**32%**		**33%**		**35%**
Rear		**32%**		**33%**		**35%**
Max. Capacity**	24.0 t	**26.5 T**	28 t	**31 T**	28 t	**31 T**
Struck (SAE)	11 m^3	**14.4 yd^3**	13.3 m^3	**17.4 yd^3**	13.5 m^3	**17.7 yd^3**
Heaped (2:1) (SAE)	15 m^3	**19.6 yd^3**	17.5 m^3	**23 yd^3**	16.9 m^3	**22.1 yd^3**
Tailgate Heaped SAE 2:1	15.6 m^3	**20.4 yd^3**	18.8 m^3	**24.6 yd^3**	—	
Tailgate Struck	11.1 m^3	**14.5 yd^3**	13.9 m^3	**18.2 yd^3**	—	
Engine Model	**C9.3 ACERT**		**C13 ACERT**		**C13 ACERT**	
No. Cylinders	**6**		**6**		**6**	
Bore	115 mm	**4.53"**	130 mm	**5.12"**	130 mm	**5.12"**
Stroke	149 mm	**5.87"**	157 mm	**6.18"**	157 mm	**6.18"**
Displacement	9.3 L	**567 in^3**	12.5 L	**763 in^3**	12.5 L	**763 in^3**
Tires	**23.5R25**		**23.5R25**		**750/65/R26**	
Clearance Radius	8075 mm	**317.9"**	8075 mm	**317.9"**	8075 mm	**317.9"**
Fuel Tank Refill Capacity	412 L	**108.8 U.S. gal**	412 L	**108.8 U.S. gal**	412 L	**108.8 U.S. gal**
DEF Tank Capacity	20 L	**5.3 U.S. gal**	20 L	**5.3 U.S. gal**	20 L	**5.3 U.S. gal**
General Dimensions (Empty):						
Height to Cab Top	3482 mm	**137.1"**	3482 mm	**137.1"**	3461 mm	**136"**
Overall Length	10 547 mm	**415.2"**	10 555 mm	**415.6"**	10 376 mm	**408.5"**
Loading Height (Empty)	2725 mm	**107.3"**	2911 mm	**114.6"**	3025 mm	**119.1"**
Height at Full Dump	6306 mm	**248.3"**	6464 mm	**254.5"**	—	
Body Length	5696 mm	**224.3"**	5783 mm	**227.7"**	5340 mm	**210.2"**
Width (Operating — Over Mirrors)	3704 mm	**145.8"**	3704 mm	**145.8"**	3704 mm	**145.8"**

*Includes coolant, lubricant and full fuel tank.
**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.

MODEL	725C2		730C2		730C2 EJ	
Gross Power — SAE J1995	239 kW	**320 hp**	280 kW	**375 hp**	280 kW	**375 hp**
Net Power — SAE J1349	234 kW	**314 hp**	274 kW	**367 hp**	274 kW	**367 hp**
Net Power — ISO 14396	236 kW	**316 hp**	276 kW	**370 hp**	276 kW	**370 hp**
Operating Weight (Empty)*	22 775 kg	**50,211 lb**	23 305 kg	**51,378 lb**	25 980 kg	**57,277 lb**
Top Speed (Loaded)	55 km/h	**34 mph**	55 km/h	**34 mph**	55 km/h	**34 mph**
Gross Machine Weight	46 775 kg	**103,121 lb**	51 305 kg	**113,107 lb**	54 100 kg	**119,270 lb**
Distribution Empty:						
Front		**62%**		**62%**		**58%**
Center		**19%**		**19%**		**21%**
Rear		**19%**		**19%**		**21%**
Distribution Loaded:						
Front		**35%**		**34%**		**29%**
Center		**33%**		**33%**		**36%**
Rear		**32%**		**33%**		**35%**
Max. Capacity**	24.0 t	**26.5 T**	28 t	**31 T**	28 t	**31 T**
Struck (SAE)	11 m^3	**14.4 yd^3**	13.3 m^3	**17.4 yd^3**	13.5 m^3	**17.7 yd^3**
Heaped (2:1) (SAE)	15 m^3	**19.6 yd^3**	17.5 m^3	**23 yd^3**	16.9 m^3	**22.1 yd^3**
Tailgate Heaped SAE 2:1	15.6 m^3	**20.4 yd^3**	18.8 m^3	**24.6 yd^3**	—	
Tailgate Struck	11.1 m^3	**14.5 yd^3**	13.9 m^3	**18.2 yd^3**	—	
Engine Model	**C9.3 ACERT**		**C13 ACERT**		**C13 ACERT**	
No. Cylinders	**6**		**6**		**6**	
Bore	115 mm	**4.53"**	130 mm	**5.12"**	130 mm	**5.12"**
Stroke	149 mm	**5.87"**	157 mm	**6.18"**	157 mm	**6.18"**
Displacement	9.3 L	**567 in^3**	12.5 L	**763 in^3**	12.5 L	**763 in^3**
Tires	**23.5R25**		**23.5R25**		**750/65/R26**	
Clearance Radius	8075 mm	**317.9"**	8075 mm	**317.9"**	8075 mm	**317.9"**
Fuel Tank Refill Capacity	412 L	**108.8 U.S. gal**	412 L	**108.8 U.S. gal**	412 L	**108.8 U.S. gal**
General Dimensions (Empty):						
Height to Cab Top	3482 mm	**137.1"**	3482 mm	**137.1"**	3461 mm	**136"**
Overall Length	10 547 mm	**415.2"**	10 555 mm	**415.6"**	10 376 mm	**408.5"**
Loading Height (Empty)	2725 mm	**107.3"**	2911 mm	**114.6"**	3025 mm	**119.1"**
Height at Full Dump	6306 mm	**248.3"**	6464 mm	**254.5"**	—	
Body Length	5696 mm	**224.3"**	5783 mm	**227.7"**	5340 mm	**210.2"**
Width (Operating — Over Mirrors)	3704 mm	**145.8"**	3704 mm	**145.8"**	3704 mm	**145.8"**

*Includes coolant, lubricant and full fuel tank.
**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.

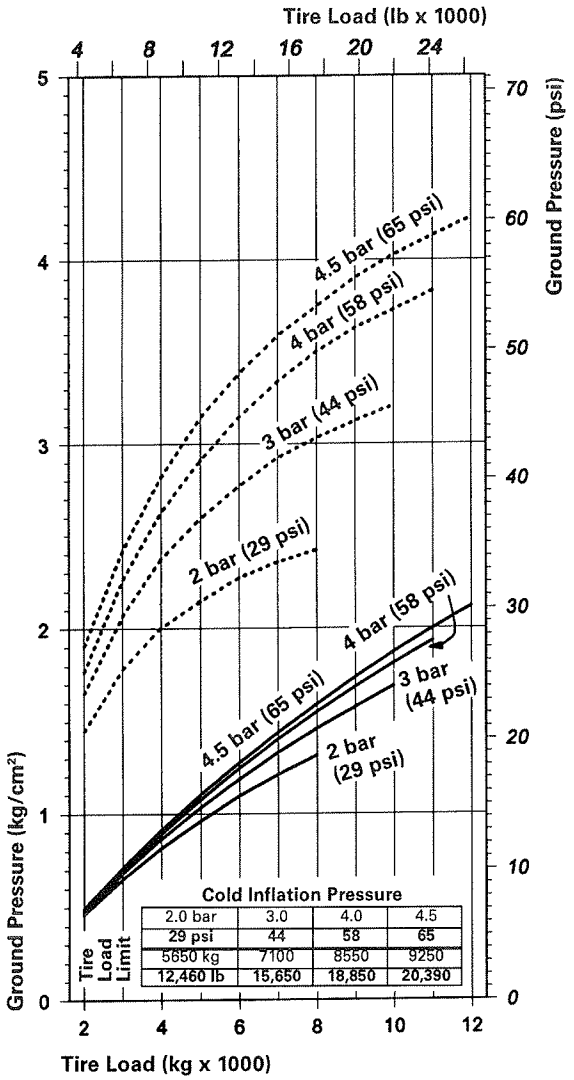
MODEL	735C		740C EJ		745C	
Gross Power — SAE J1995	337 kW	**452 hp**	381 kW	**511 hp**	381 kW	**511 hp**
Net Power — SAE J1349	329 kW	**441 hp**	370 kW	**496 hp**	370 kW	**496 hp**
Net Power — ISO 14396	333 kW	**447 hp**	376 kW	**504 hp**	376 kW	**504 hp**
Operating Weight (Empty)*	31 500 kg	**69,446 lb**	36 000 kg	**79,366 lb**	33 400 kg	**73,634 lb**
Top Speed (Loaded)	53.9 km/h	**33.5 mph**	54.8 km/h	**34 mph**	54.8 km/h	**34 mph**
Gross Machine Weight	64 200 kg	**141,537 lb**	74 000 kg	**163,142 lb**	74 400 kg	**164,024 lb**
Distribution Empty:						
Front	**60%**		**57%**		**58%**	
Center	**19%**		**22%**		**21%**	
Rear	**21%**		**21%**		**21%**	
Distribution Loaded:						
Front	**34%**		**30%**		**35%**	
Center	**33%**		**35%**		**33%**	
Rear	**33%**		**35%**		**32%**	
Max. Capacity**	32.7 t	**36 T**	38 t	**42 T**	41 t	**45.2 T**
Struck (SAE)	15 m^3	**19.6 yd^3**	18 m^3	**23.5 yd^3**	18.5 m^3	**24.2 yd^3**
Heaped (2:1) (SAE)	20.5 m^3	**26.8 yd^3**	23 m3 ^{3}	**30.1 yd^3**	25 m^3	**32.7 yd^3**
Tailgate Heaped SAE 2:1	22 m^3	**28.7 yd^3**	—		26.5 m^3	**34.7 yd^3**
Tailgate Struck	15.5 m^3	**20.3 yd^3**	—		19.5 m^3	**25.5 yd^3**
Engine Model	**C15 ACERT**		**C18 ACERT**		**C18 ACERT**	
No. Cylinders	**6**		**6**		**6**	
Bore	137 mm	**5.4"**	145 mm	**5.7"**	145 mm	**5.7"**
Stroke	171.5 mm	**6.75"**	183 mm	**7.2"**	183 mm	**7.2"**
Displacement	15.2 L	**926 in^3**	18.1 L	**1106 in^3**	18.1 L	**1106 in^3**
Tires	**26.5R25**		**29.5R25**		**29.5R25**	
Clearance Radius	8420 mm	**331.5"**	9082 mm	**357.6"**	9082 mm	**357.6"**
Fuel Tank Refill Capacity	550 L	**145.3 U.S. gal**	550 L	**145.3 U.S. gal**	550 L	**145.3 U.S. gal**
DEF Tank Capacity	25 L	**6.6 U.S. gal**	25 L	**6.6 U.S. gal**	25 L	**6.6 U.S. gal**
General Dimensions (Empty):						
Height to Cab Top	3684 mm	**145.0"**	3725 mm	**146.7"**	3725 mm	**146.7"**
Overall Length	11 061 mm	**435.5"**	11 776 mm	**463.6"**	11 429 mm	**450.0"**
Loading Height (Empty)	2932 mm	**115.4"**	2987 mm	**117.6"**	3101 mm	**122.1"**
Height at Full Dump	6550 mm	**257.9"**	—		7239 mm	**285.0"**
Body Length	5912 mm	**232.8"**	6761 mm	**266.2"**	6447 mm	**253.8"**
Width (Operating — Over Mirrors)	4166 mm	**164.0"**	4166 mm	**164.0"**	4166 mm	**164.0"**

*Includes coolant, lubricant and full fuel tank.
**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.

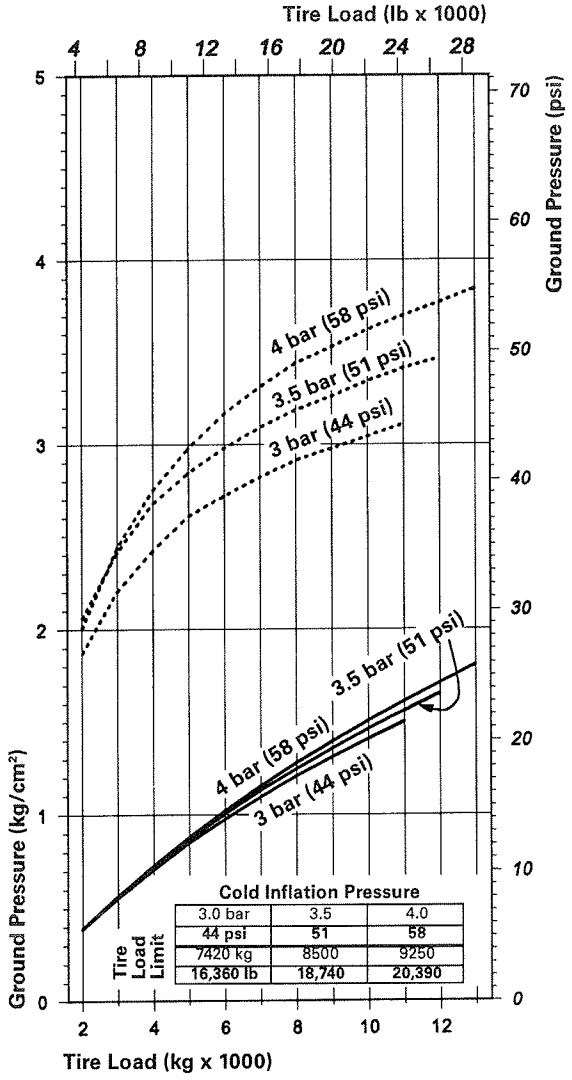
MODEL	735C		740C EJ		745C	
Gross Power — SAE J1995	336 kW	**450 hp**	381 kW	**511 hp**	381 kW	**511 hp**
Net Power — SAE J1349	329 kW	**441 hp**	370 kW	**496 hp**	370 kW	**496 hp**
Net Power — ISO 14396	333 kW	**447 hp**	376 kW	**484 hp**	376 kW	**484 hp**
Operating Weight (Empty)*	31 200 kg	**68,784 lb**	35 600 kg	**78,484 lb**	33 000 kg	**72,752 lb**
Top Speed (Loaded)	53.9 km/h	**33.5 mph**	54.8 km/h	**34 mph**	54.8 km/h	**34 mph**
Gross Machine Weight	63 900 kg	**140,875 lb**	73 600 kg	**162,260 lb**	74 000 kg	**163,142 lb**
Distribution Empty:						
Front	**60%**		**56%**		**58%**	
Center	**19%**		**23%**		**21%**	
Rear	**21%**		**21%**		**21%**	
Distribution Loaded:						
Front	**33%**		**29%**		**34%**	
Center	**33%**		**36%**		**33%**	
Rear	**34%**		**35%**		**33%**	
Max. Capacity**	32.7 t	**36 T**	38 t	**42 T**	41 t	**45.2 T**
Struck (SAE)	15 m^3	**19.6 yd^3**	18 m^3	**23.5 yd^3**	18.5 m^3	**24.2 yd^3**
Heaped (2:1) (SAE)	20.5 m^3	**26.8 yd^3**	23 m^3	**30.1 yd^3**	25 m^3	**32.7 yd^3**
Tailgate Heaped SAE 2:1	22 m^3	**28.7 yd^3**	—		26.5 m^3	**34.7 yd^3**
Tailgate Struck	15.5 m^3	**20.3 yd^3**	—		19.5 m^3	**25.5 yd^3**
Engine Model	**C15 ACERT**		**C18 ACERT**		**C18 ACERT**	
No. Cylinders	**6**		**6**		**6**	
Bore	137 mm	**5.4"**	145 mm	**5.7"**	145 mm	**5.7"**
Stroke	171.5 mm	**6.75"**	183 mm	**7.2"**	183 mm	**7.2"**
Displacement	15.2 L	**926 in^3**	18.1 L	**1106 in^3**	18.1 L	**1106 in^3**
Tires	**26.5R25**		**29.5R25**		**29.5R25**	
Clearance Radius	8420 mm	**331.5"**	9082 mm	**357.6"**	9082 mm	**357.6"**
Fuel Tank Refill Capacity	550 L	**145.3 U.S. gal**	550 L	**145.3 U.S. gal**	550 L	**145.3 U.S. gal**
General Dimensions (Empty):						
Height to Cab Top	3684 mm	**145.0"**	3725 mm	**146.7"**	3725 mm	**146.7"**
Overall Length	11 061 mm	**435.5"**	11 776 mm	**463.6"**	11 429 mm	**450.0"**
Loading Height (Empty)	2932 mm	**115.4"**	2987 mm	**117.6"**	3101 mm	**122.1"**
Height at Full Dump	6550 mm	**257.9"**	—		7239 mm	**285.0"**
Body Length	5912 mm	**232.8"**	6761 mm	**266.2"**	6447 mm	**253.8"**
Width (Operating — Over Mirrors)	4166 mm	**164.0"**	4166 mm	**164.0"**	4166 mm	**164.0"**

*Includes coolant, lubricant and full fuel tank.
**Rating dependent on optional equipment. Maximum gross weight (empty weight plus payload) should not be exceeded.

23.5R25 Tires*



30/65R25 Tires*



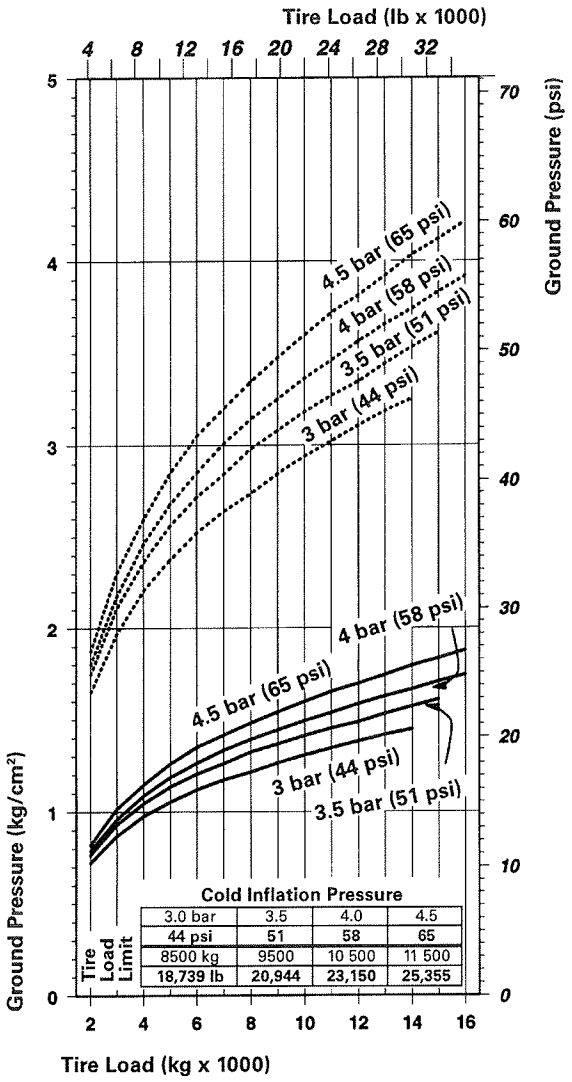
KEY

Zero Penetration (Flat Plate)

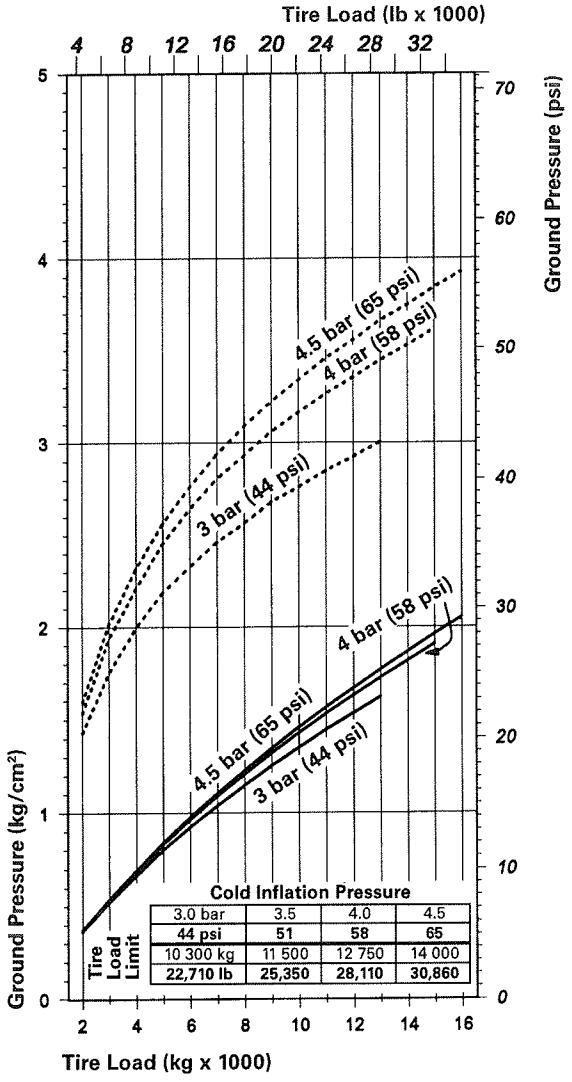
76 mm (3") Penetration

*Charts based on Michelin XADN tire characteristics. Results may differ for other tread patterns and/or brands. Charts are to be used to calculate ground pressure. To determine the inflation as a function of load and conditions or when loads exceed tire load limit, contact your tire manufacturer representative.

26.5R25 Tires*



29.5R25 Tires*

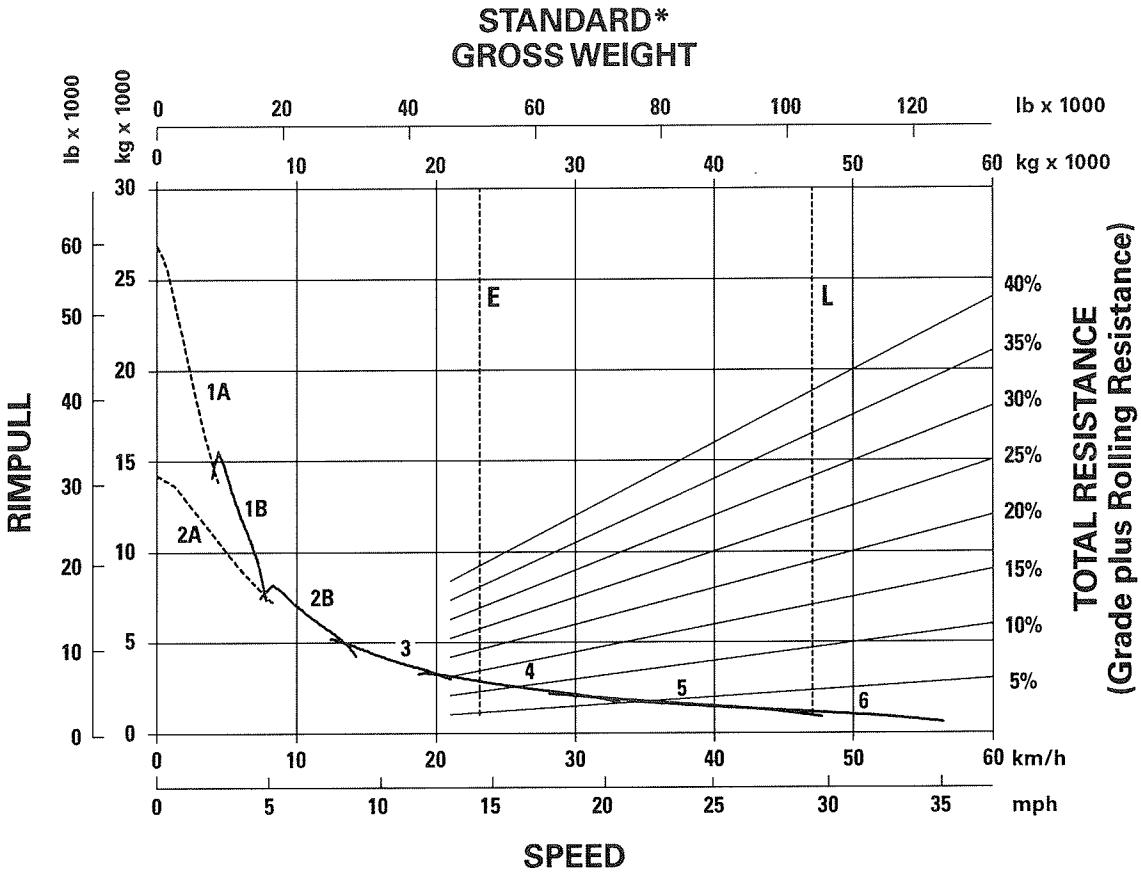


KEY

Zero Penetration (Flat Plate)

76 mm (3") Penetration

*Charts based on Michelin XADN tire characteristics. Results may differ for other tread patterns and/or brands. Charts are to be used to calculate ground pressure. To determine the inflation as a function of load and conditions or when loads exceed tire load limit, contact your tire manufacturer representative.



KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

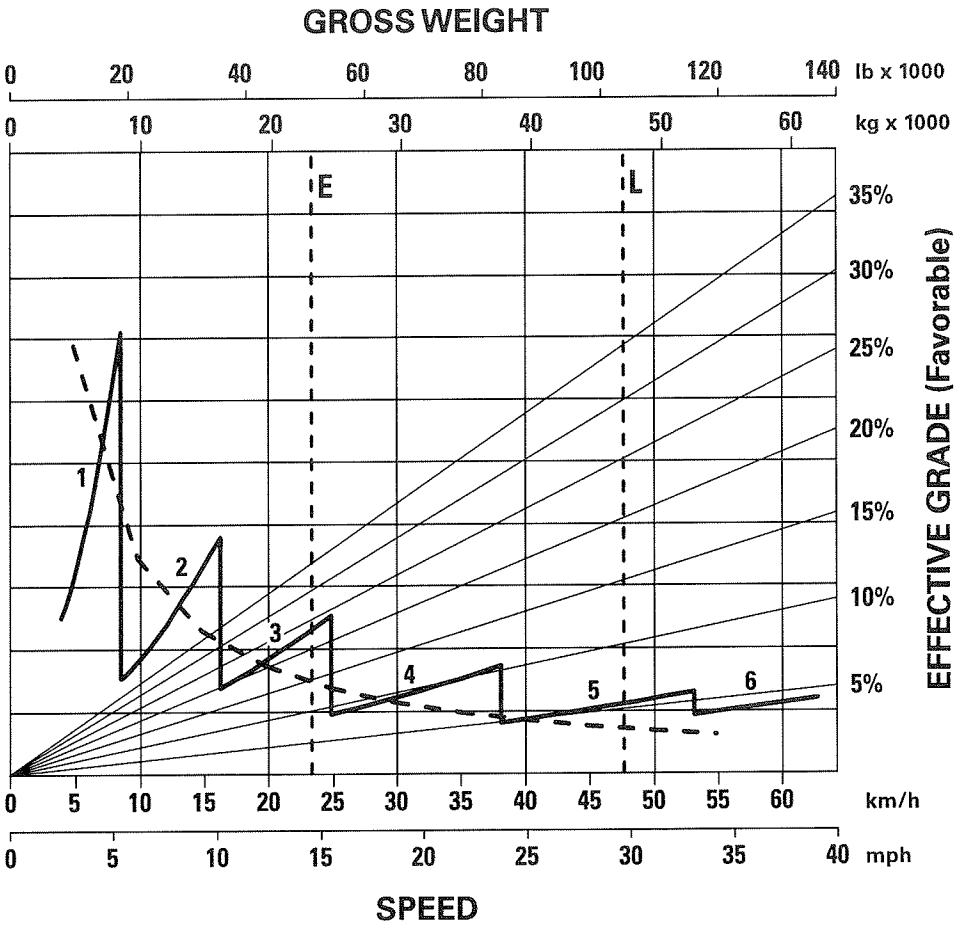
KEY

E — Empty 23 040 kg (50,795 lb)
L — Loaded 47 040 kg (103,707 lb)

*At sea level.

Articulated Trucks

725C2 Brake/Retarder Performance Curve
- 23.5R25 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)

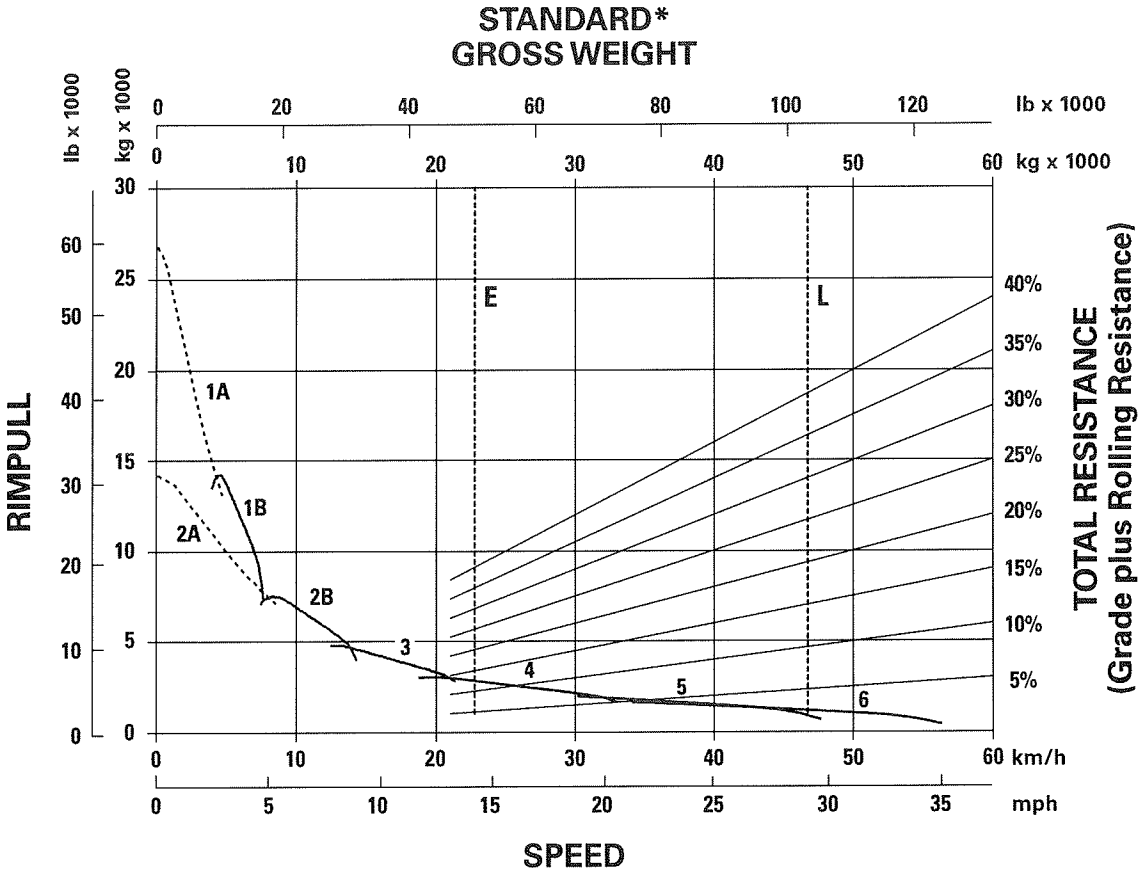


KEY

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 23 040 kg (50,795 lb)
L — Loaded 47 040 kg (103,707 lb)



KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

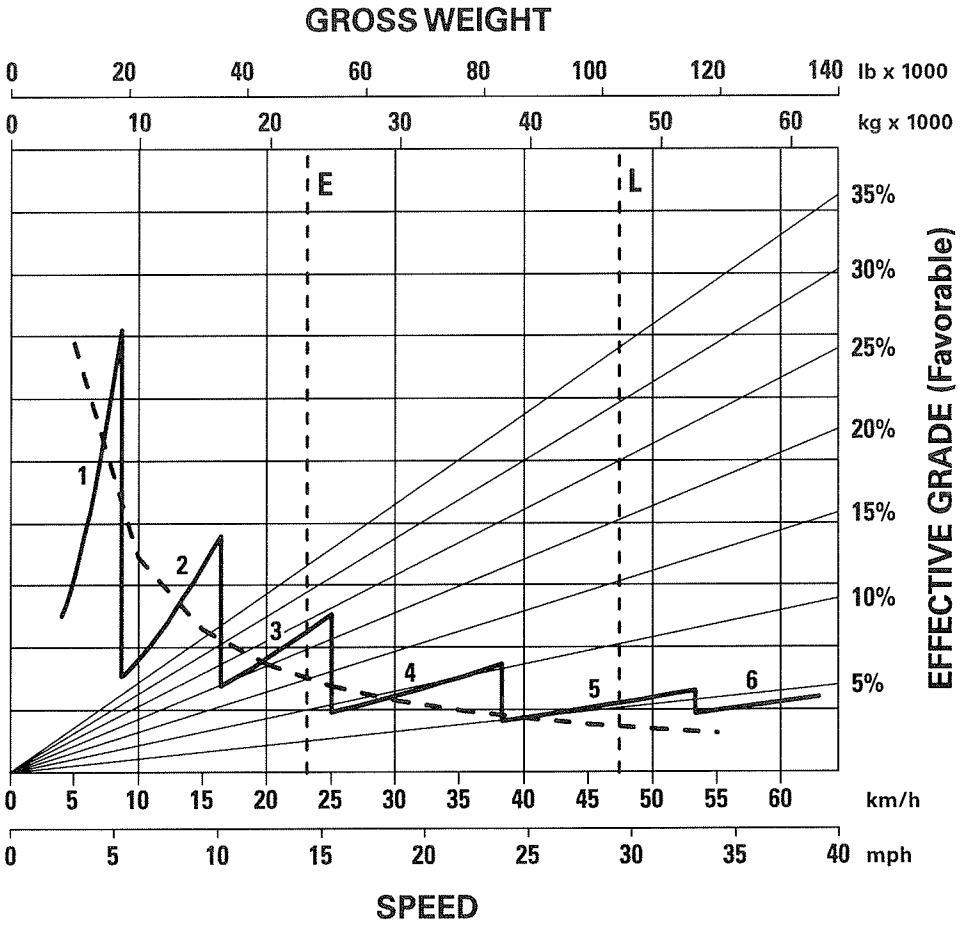
KEY

E — Empty 22 775 kg (50,211 lb)
L — Loaded 46 775 kg (103,121 lb)

*At sea level.

Articulated Trucks

725C2 Brake/Retarder Performance Curve
- 23.5R25 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent

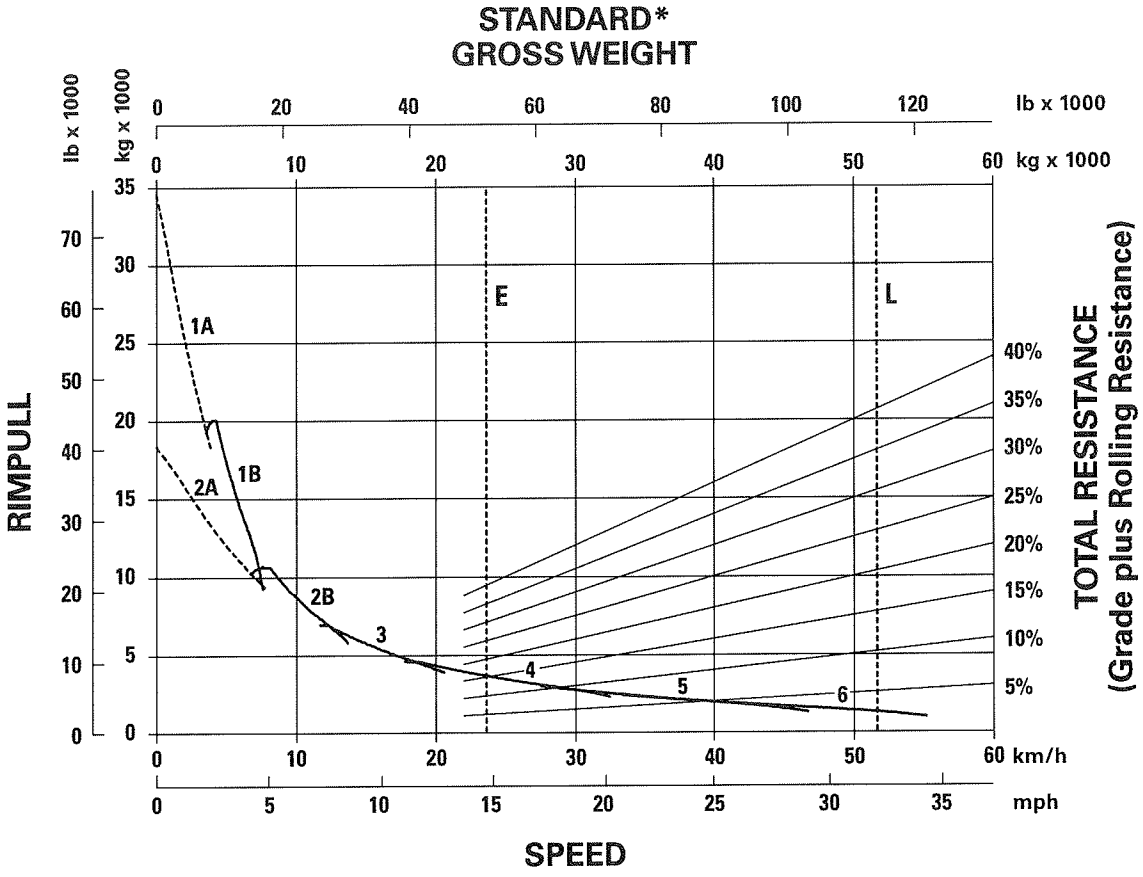


KEY

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 22 775 kg (50,211 lb)
L — Loaded 46 775 kg (103,121 lb)



KEY

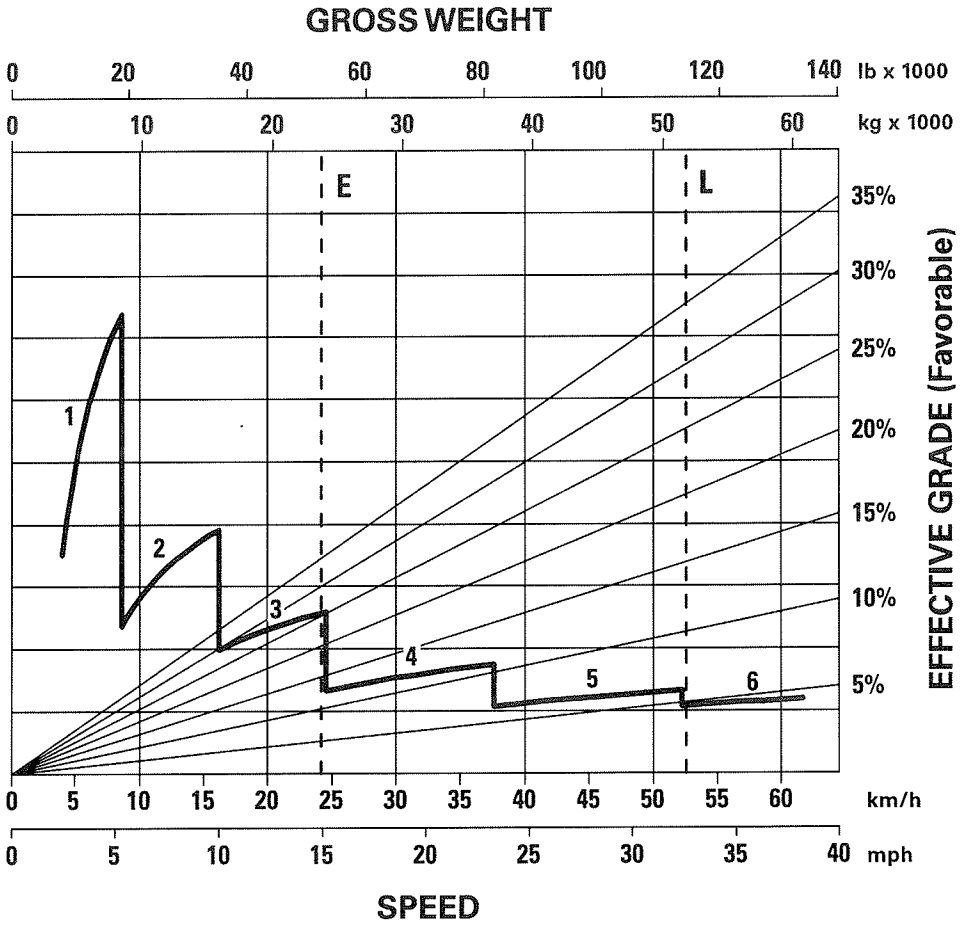
1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 23 725 kg (52,305 lb)
L — Loaded 51 725 kg (114,034 lb)

*At sea level.

730C2 Brake/Retarder Performance Curve
- 23.5R25 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)

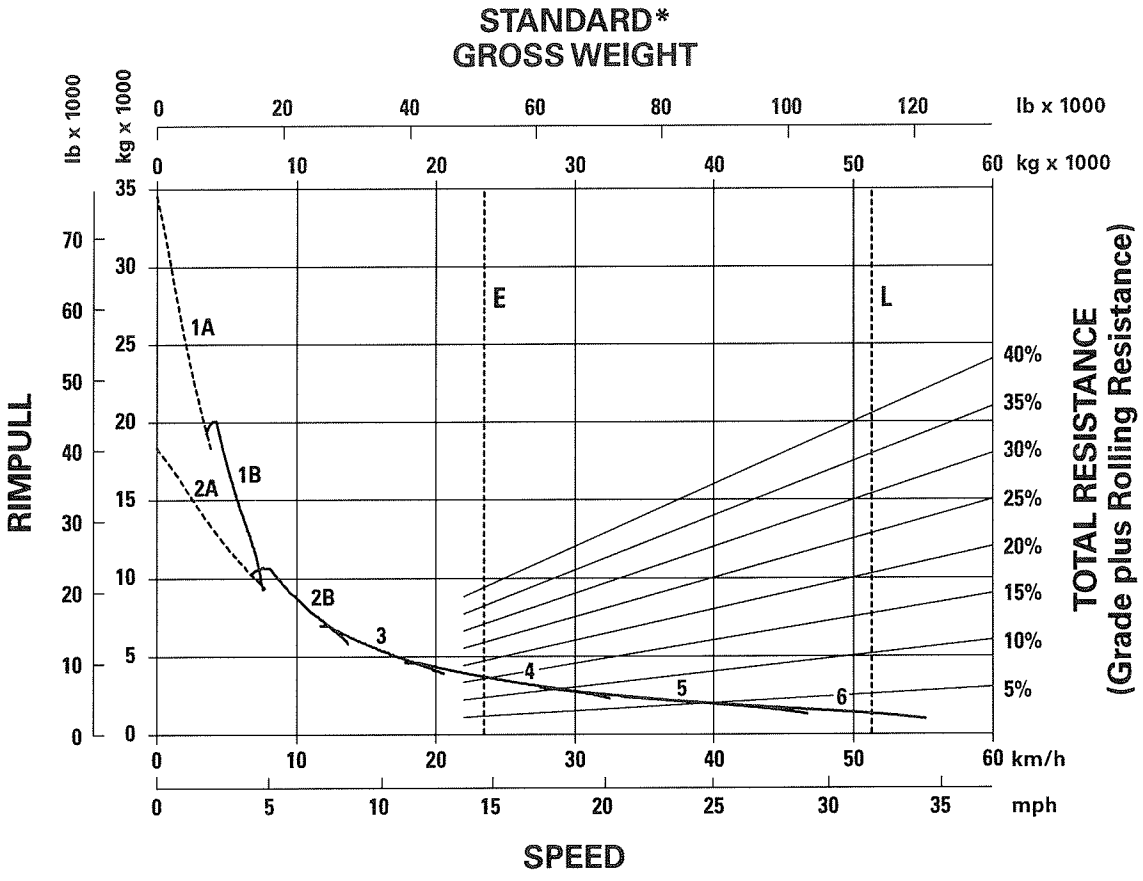


KEY

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 23 725 kg (52,305 lb)
L — Loaded 51 725 kg (114,034 lb)



KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

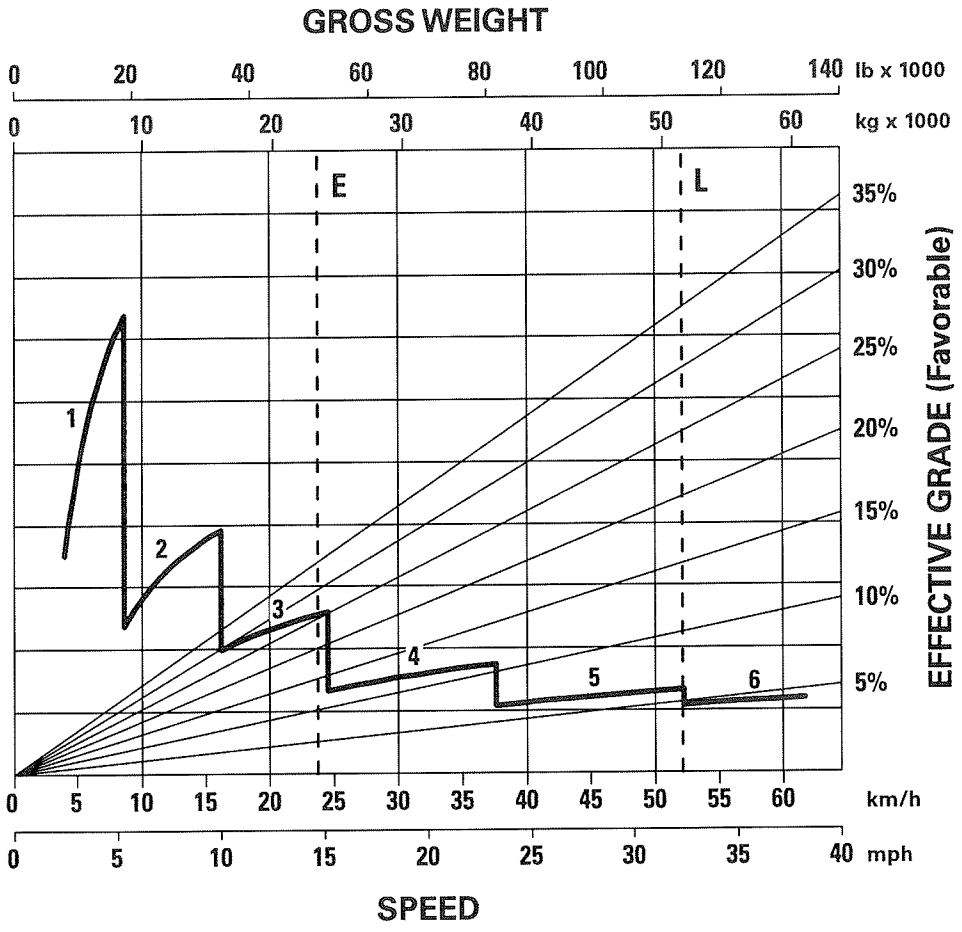
KEY

E — Empty 23 505 kg (51,378 lb)
L — Loaded 51 305 kg (113,107 lb)

*At sea level.

Articulated Trucks

730C2 Brake/Retarder Performance Curve
- 23.5R25 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent

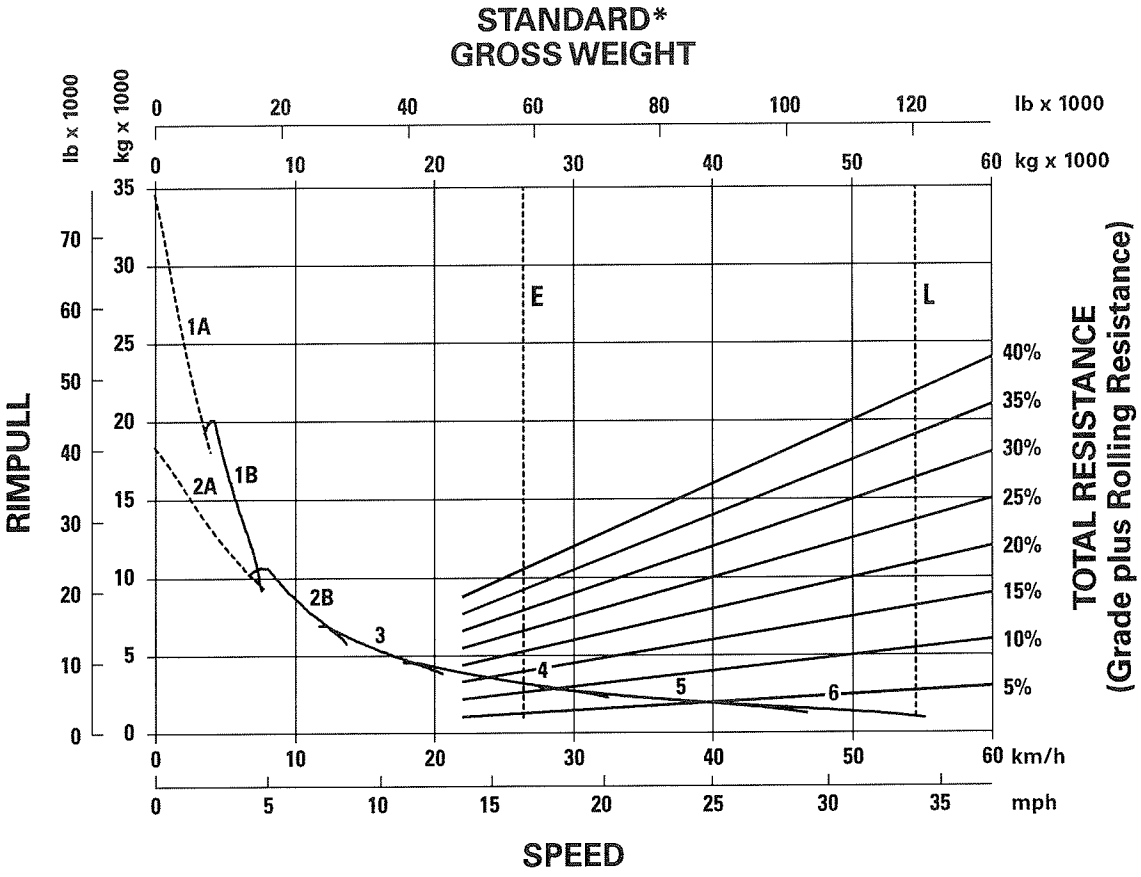


KEY

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 23 505 kg (51,378 lb)
L — Loaded 51 305 kg (113,107 lb)



KEY

1A — 1st Gear (Converter Drive)
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2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
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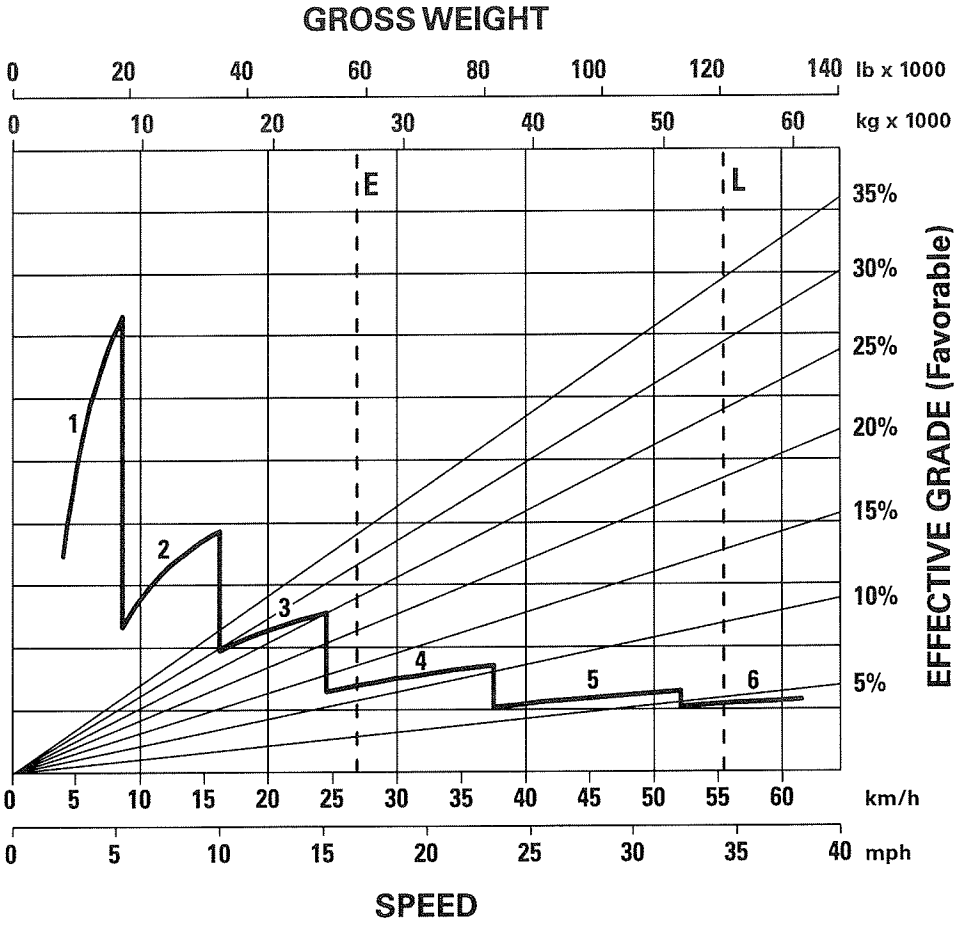
KEY

E — Empty 26 395 kg (58,190 lb)
L — Loaded 54 515 kg (120,186 lb)

*At sea level.

Articulated Trucks

730C2 EJ Brake/Retarder Performance Curve
- 750/65/R26 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)

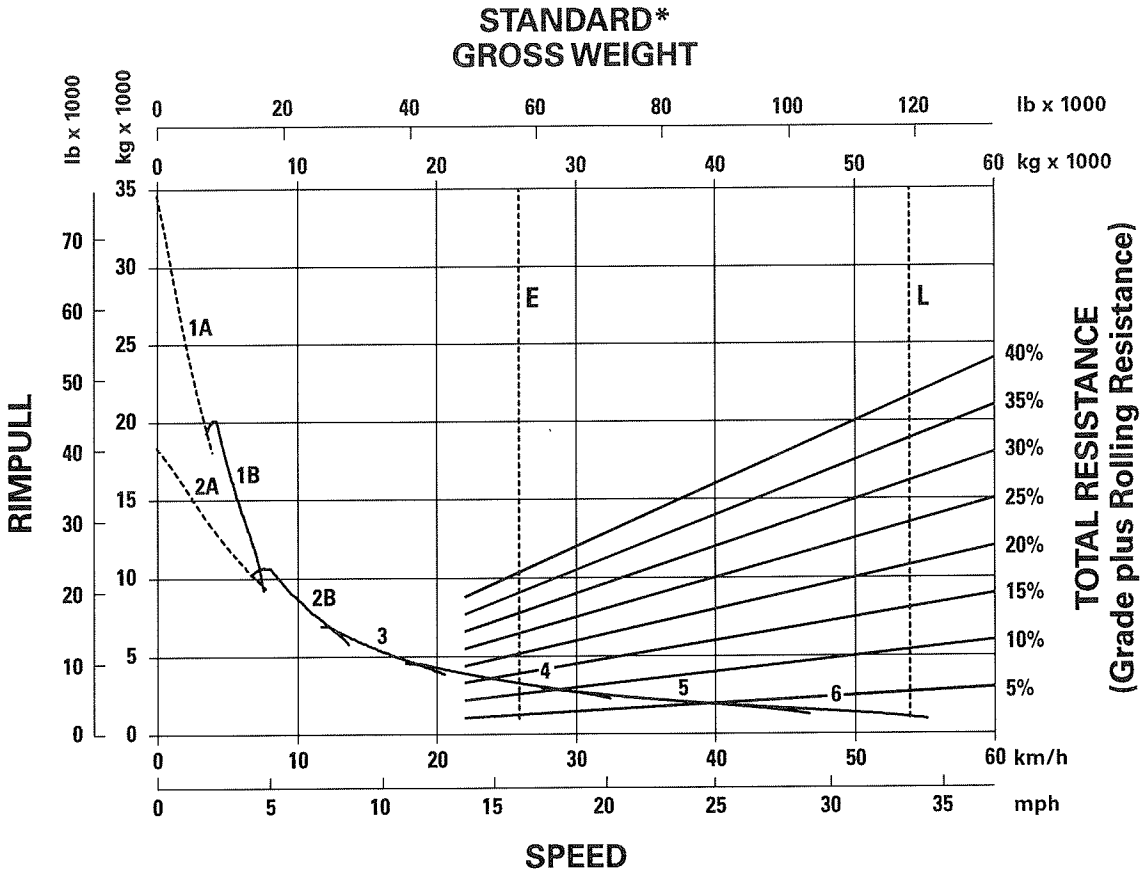


KEY

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 26 395 kg (58,190 lb)
L — Loaded 54 515 kg (120,186 lb)



KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2A — 2nd Gear (Converter Drive
2B — 2nd Gear (Direct Drive)
3 — 3rd Gear
4 — 4th Gear
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6 — 6th Gear

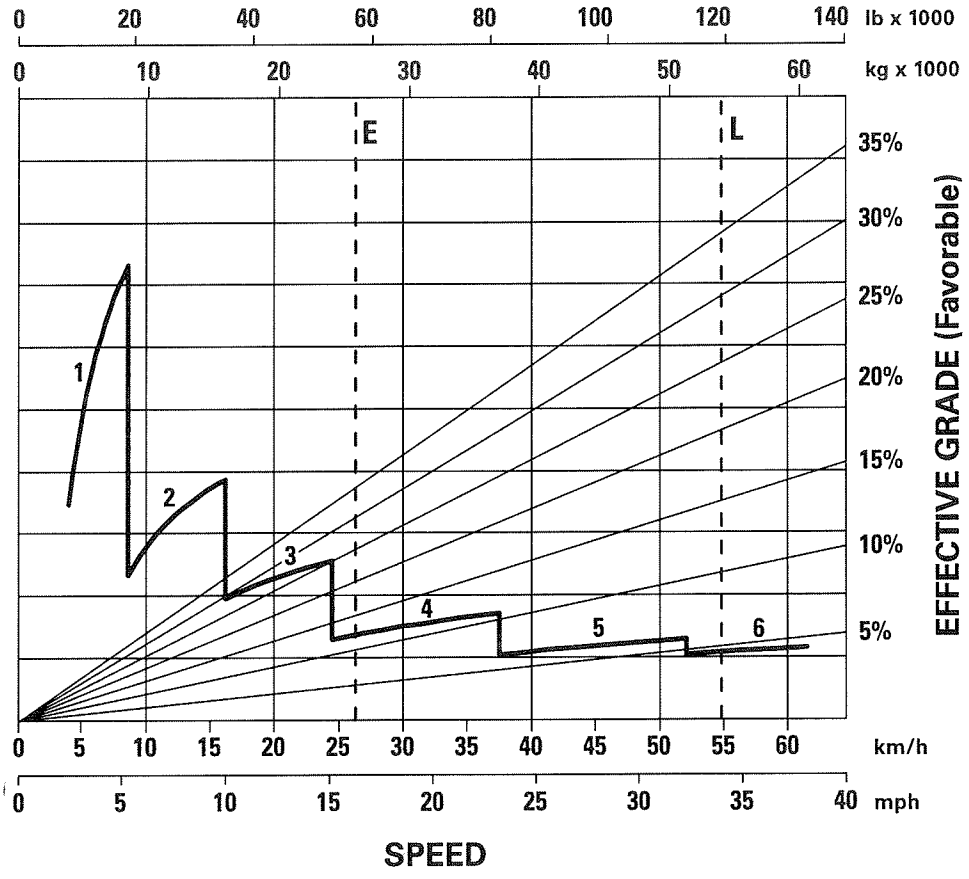
KEY

E — Empty 25 980 kg (57,277 lb)
L — Loaded 54 100 kg (119,270 lb)

*At sea level.

Articulated Trucks

730C2 EJ Brake/Retarder Performance Curve
- 750/65/R26 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent



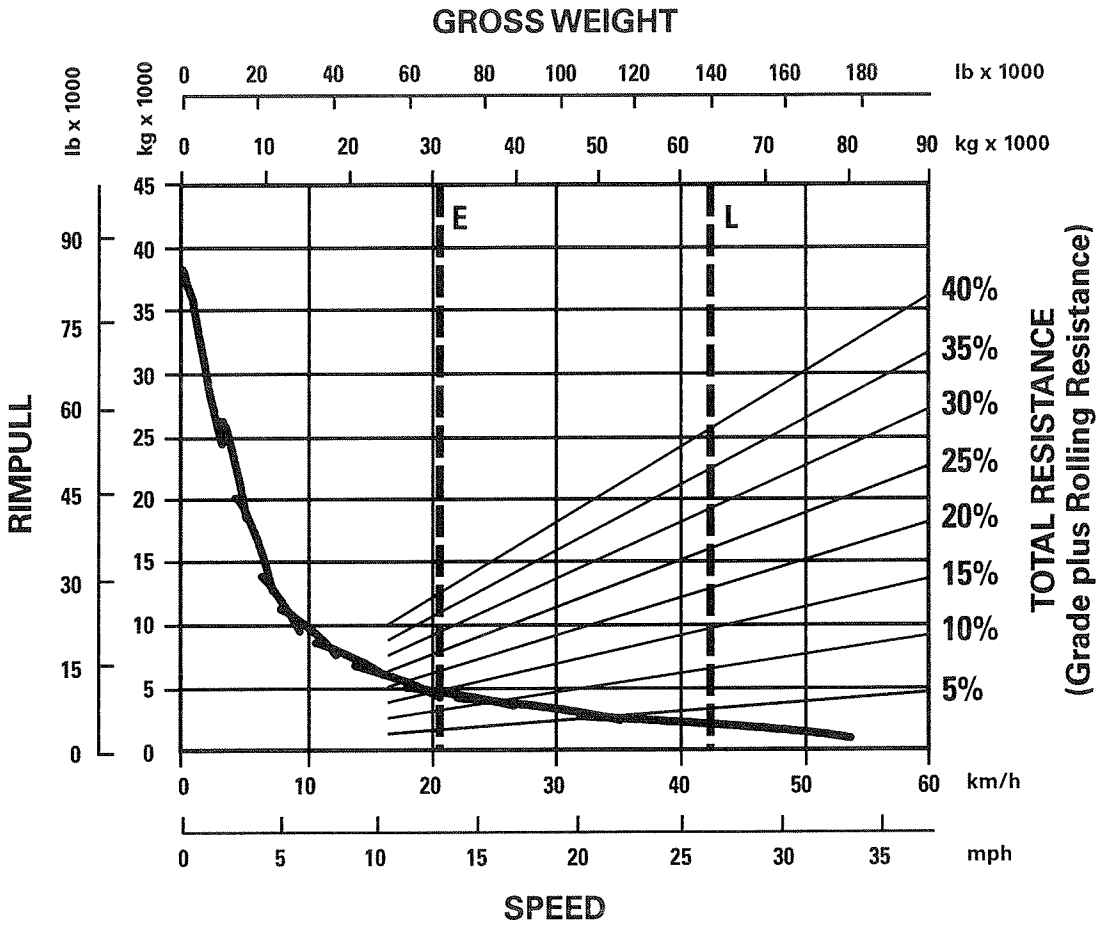
KEY

1 — 1st Gear
2 — 2nd Gear
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4 — 4th Gear
5 — 5th Gear
6 — 6th Gear

KEY

E — Empty 25 980 kg (57,277 lb)
L — Loaded 54 100 kg (119,270 lb)

STANDARD*



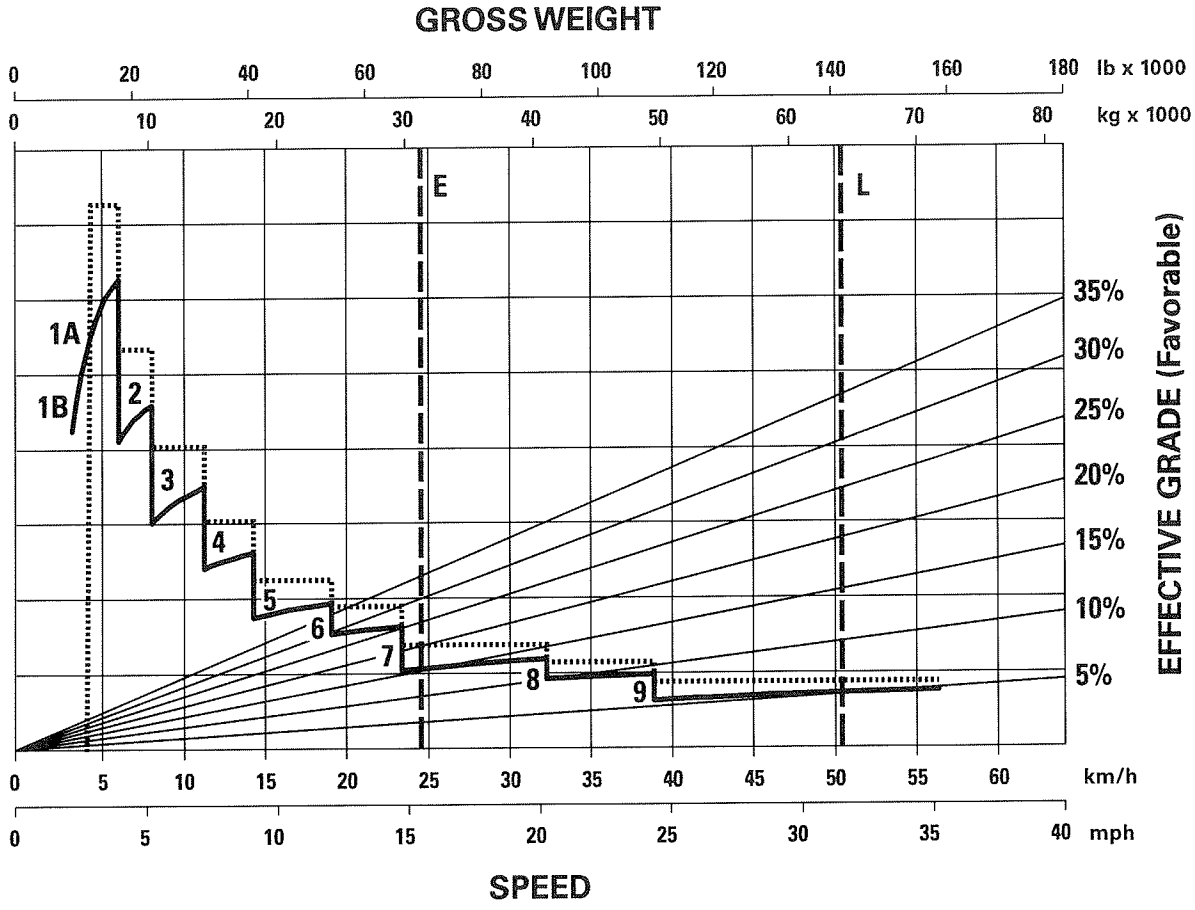
KEY

E — Empty 31 220 kg (68,800 lb)
L — Loaded 63 920 kg (140,900 lb)

*At sea level.

Articulated Trucks

735C Series Brake/Retarder Performance Curve
- 26.5R25 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)

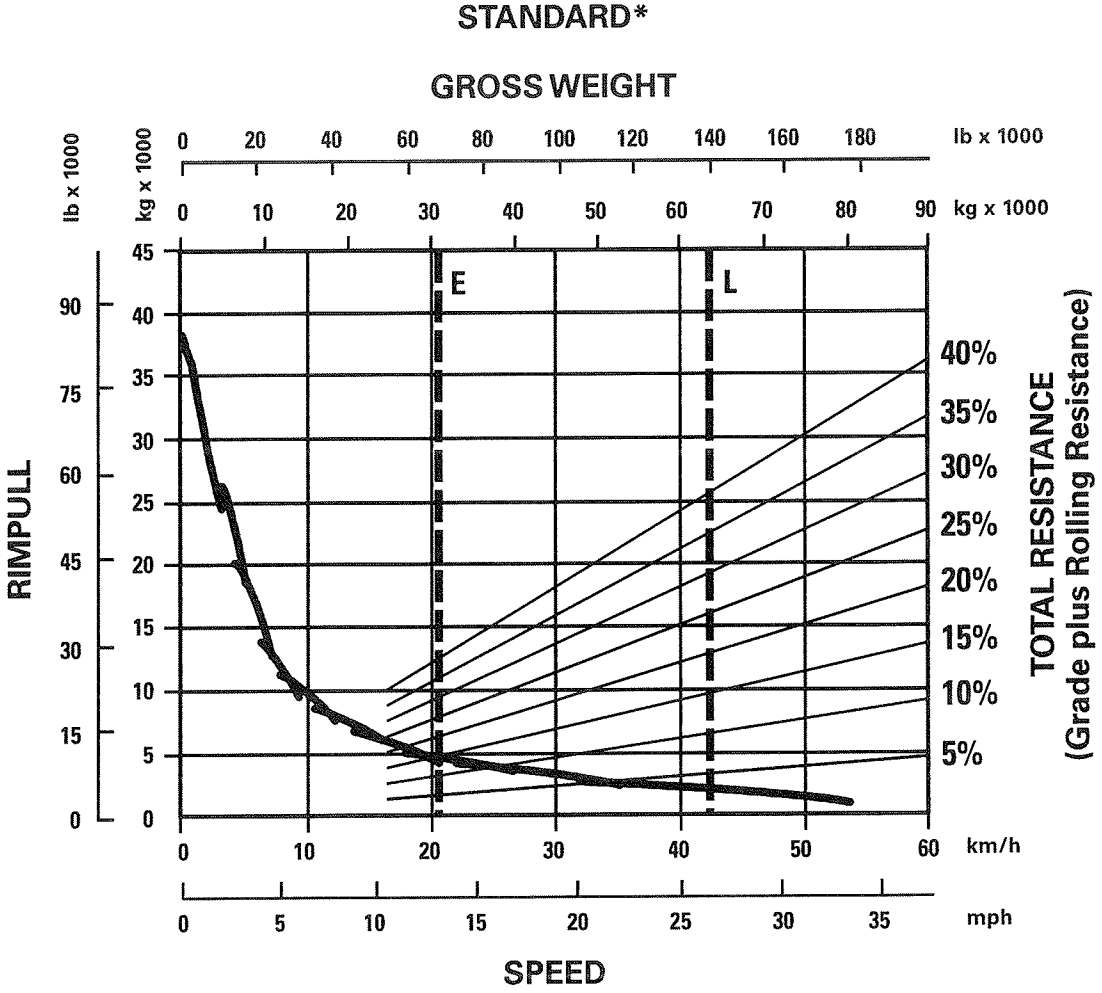


KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 31 400 kg (69,225 lb)
L — Loaded 64 100 kg (141,316 lb)



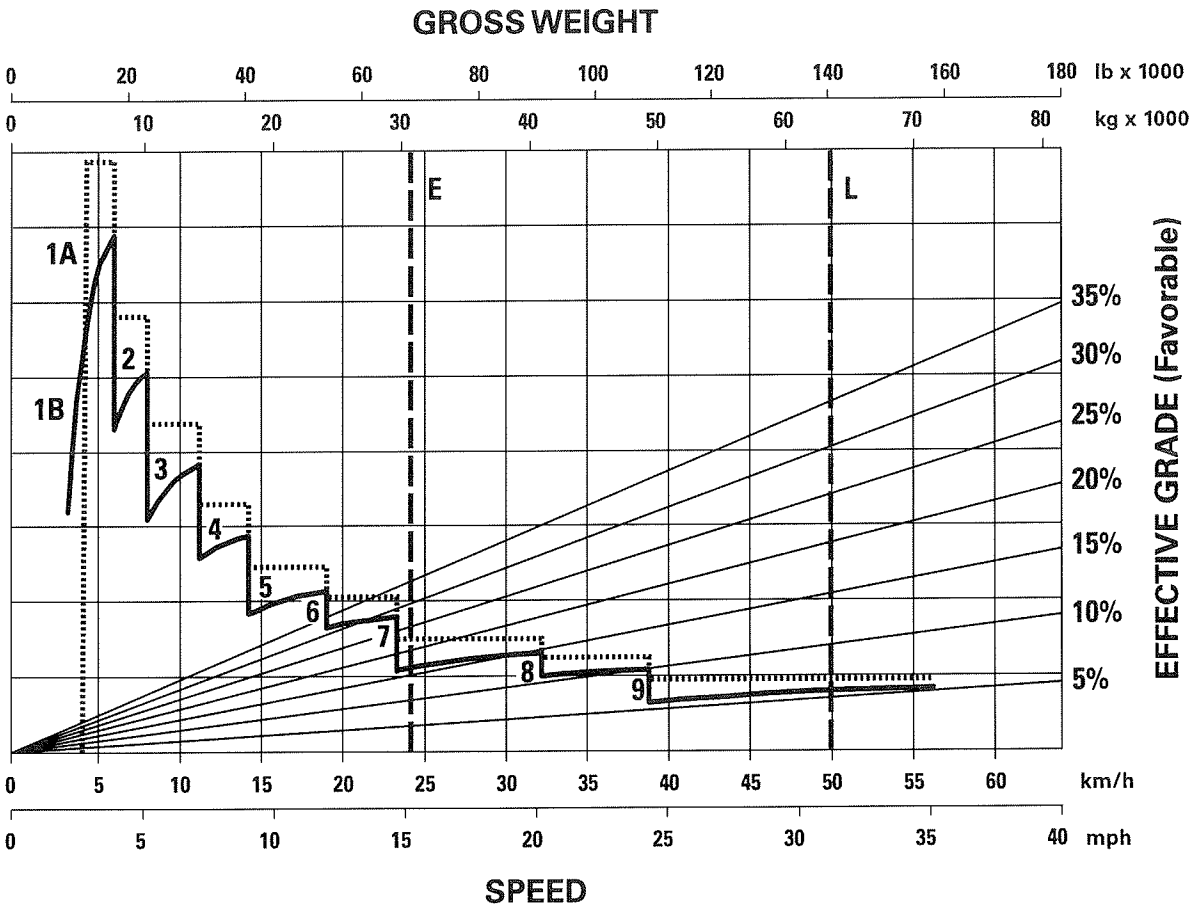
KEY

E — Empty 31 220 kg (68,800 lb)
L — Loaded 63 920 kg (140,900 lb)

*At sea level.

Articulated Trucks

735C Series Brake/Retarder Performance Curve
- 26.5R25 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent



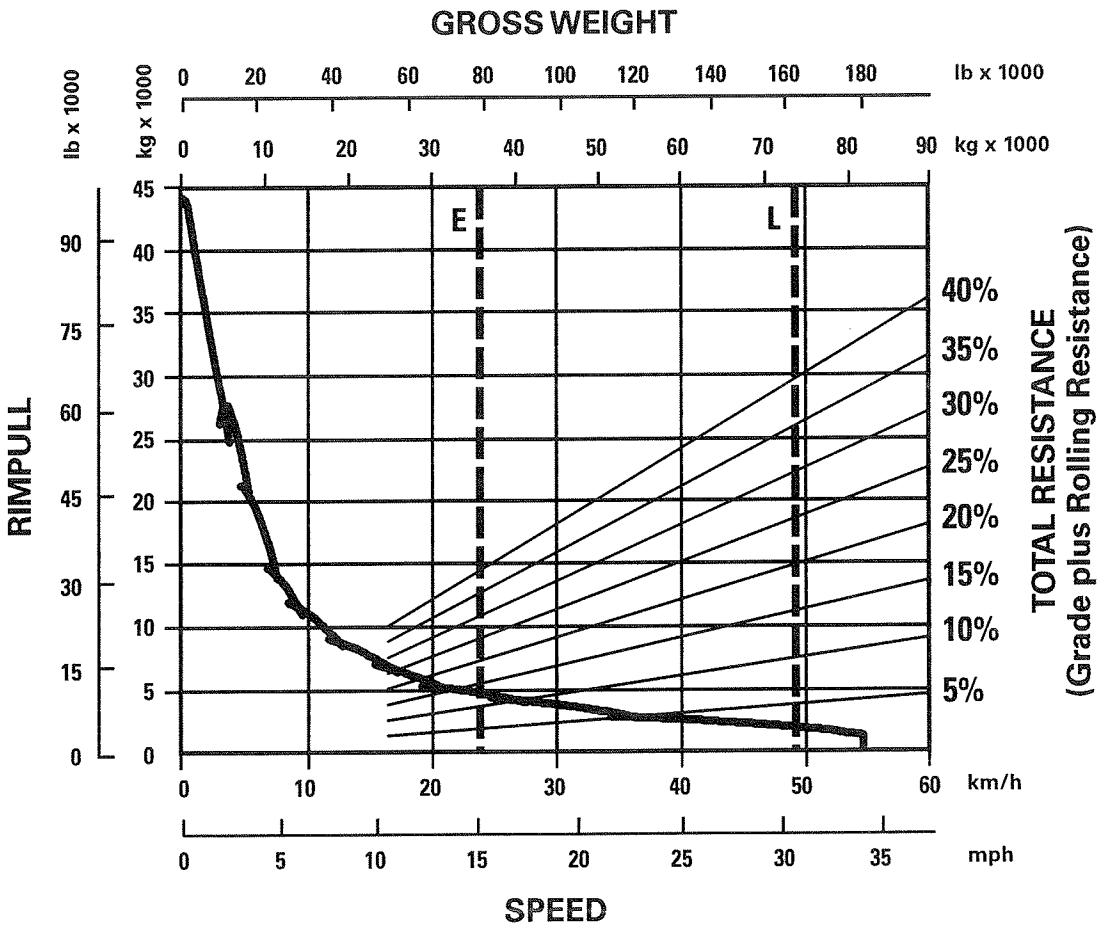
KEY

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2 — 2nd Gear
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5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 30 970 kg (68,277 lb)
L — Loaded 63 670 kg (140,368 lb)

STANDARD*



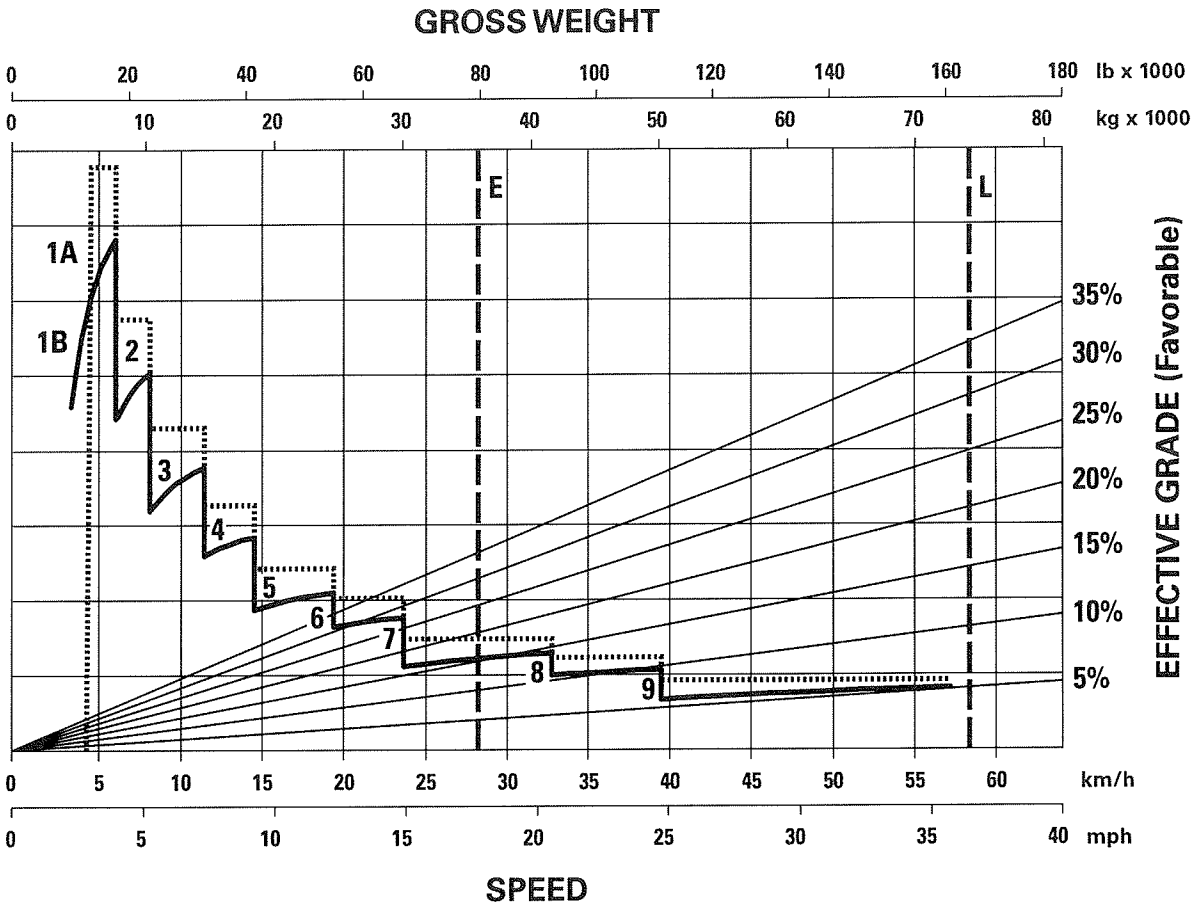
KEY

E — Empty 36 000 kg (79,400 lb)
L — Loaded 74 000 kg (163,100 lb)

*At sea level.

Articulated Trucks

740C EJ Series Brake/Retarder Performance Curve
- 29.5R25 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)

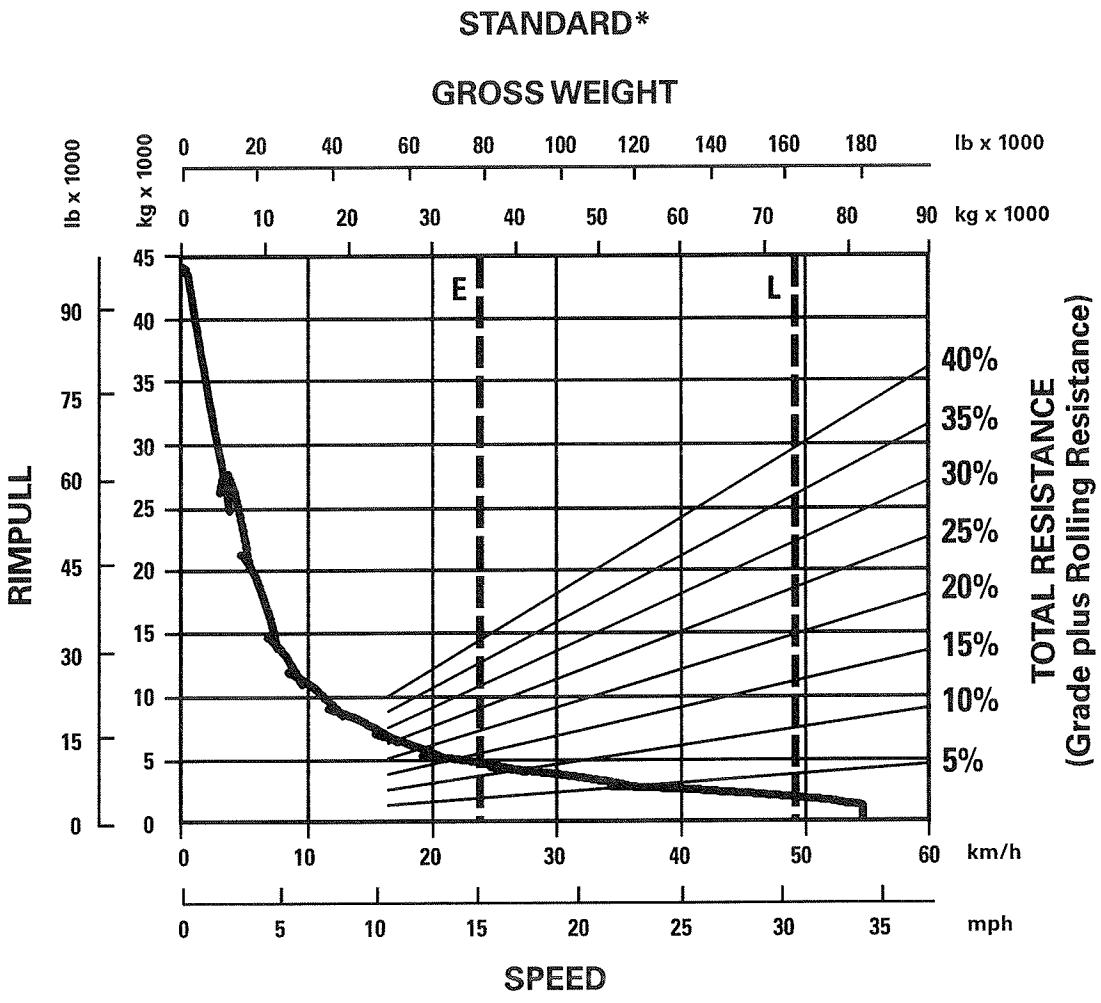


KEY

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1B — 1st Gear (Direct Drive)
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 36 070 kg (79,521 lb)
L — Loaded 74 070 kg (163,296 lb)



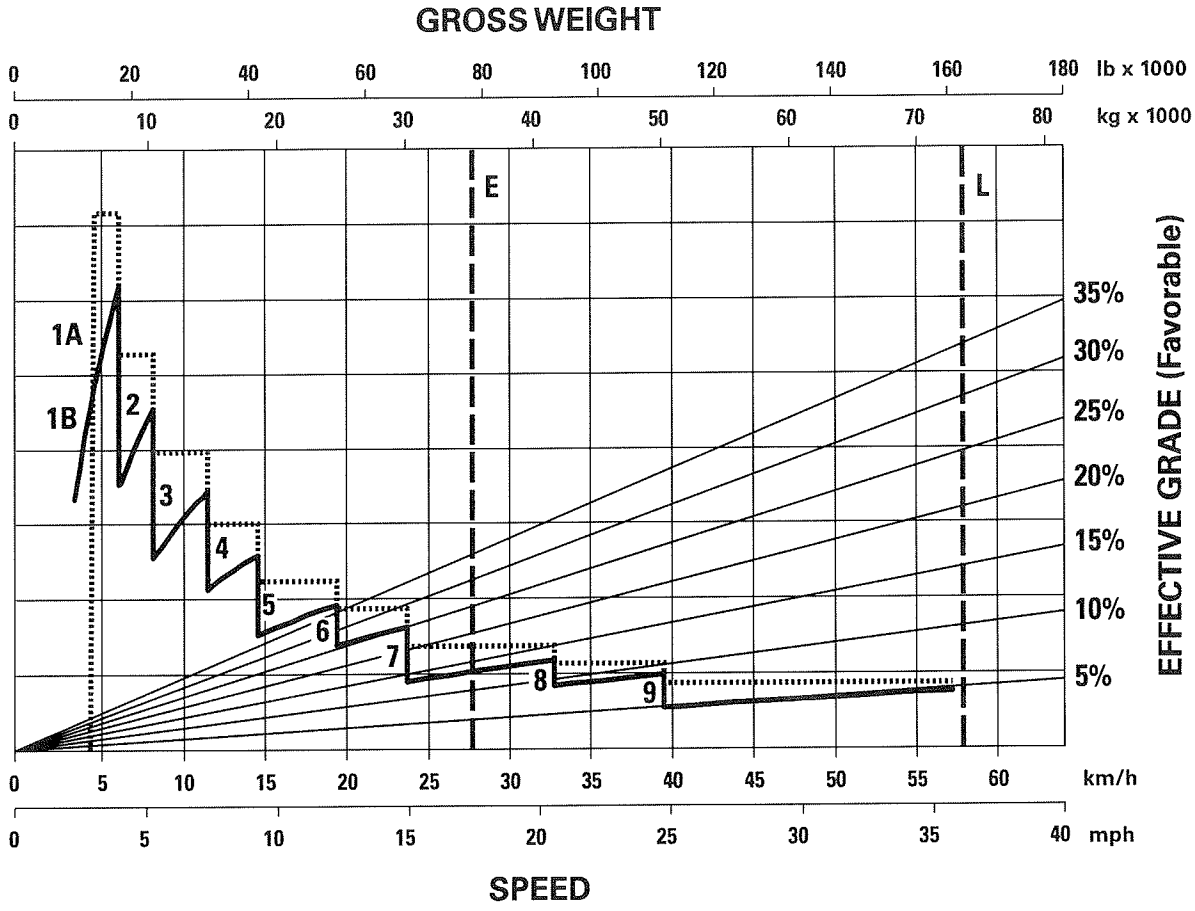
KEY

E — Empty 36 000 kg (79,400 lb)
L — Loaded 74 000 kg (163,100 lb)

*At sea level.

Articulated Trucks

740C EJ Series Brake/Retarder Performance Curve
- 29.5R25 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent



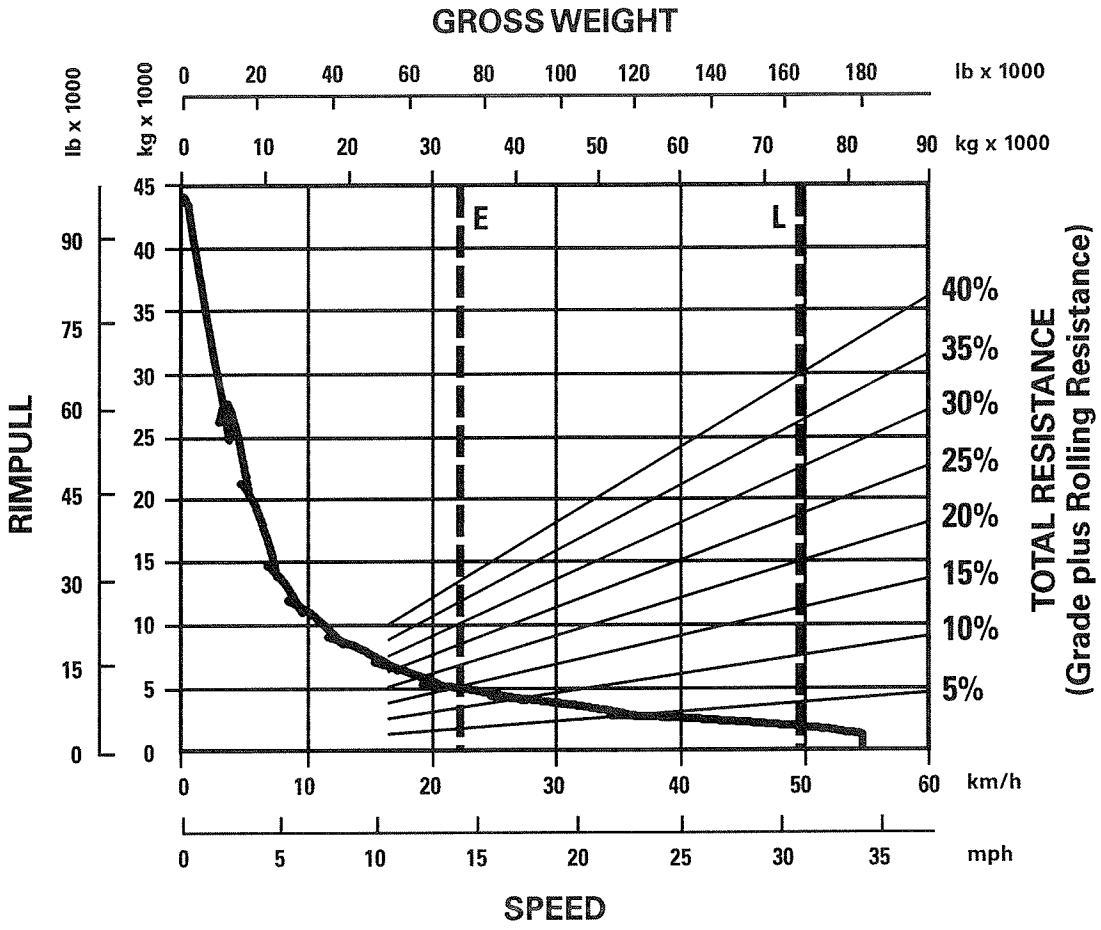
KEY

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2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 35 540 kg (78,352 lb)
L — Loaded 73 540 kg (162,128 lb)

STANDARD*



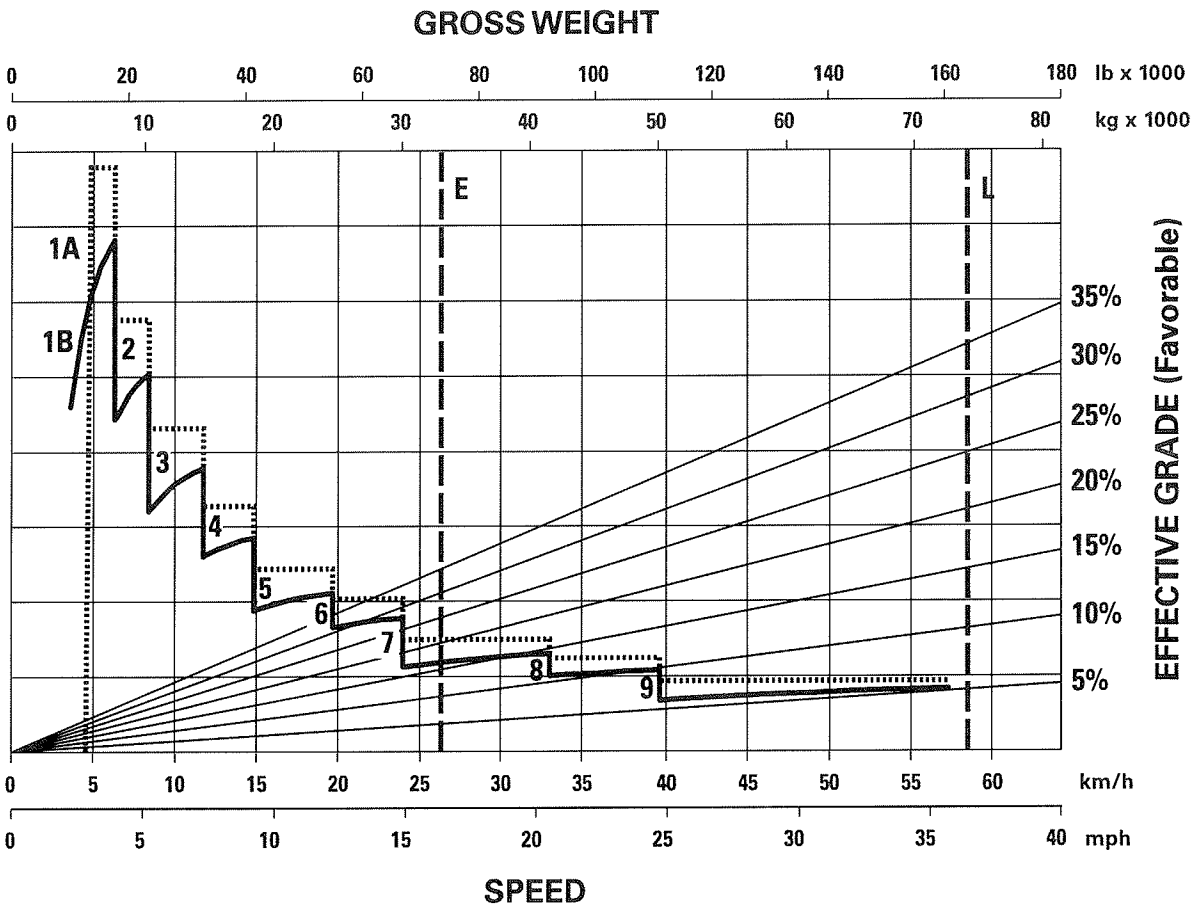
KEY

E — Empty 33 600 kg (74,100 lb)
L — Loaded 74 600 kg (164,500 lb)

*At sea level.

Articulated Trucks

745C Series Brake/Retarder Performance Curve
- 29.5R25 Tires
- Tier 4 Final/Stage IV/Japan 2014 (Tier 4 Final)



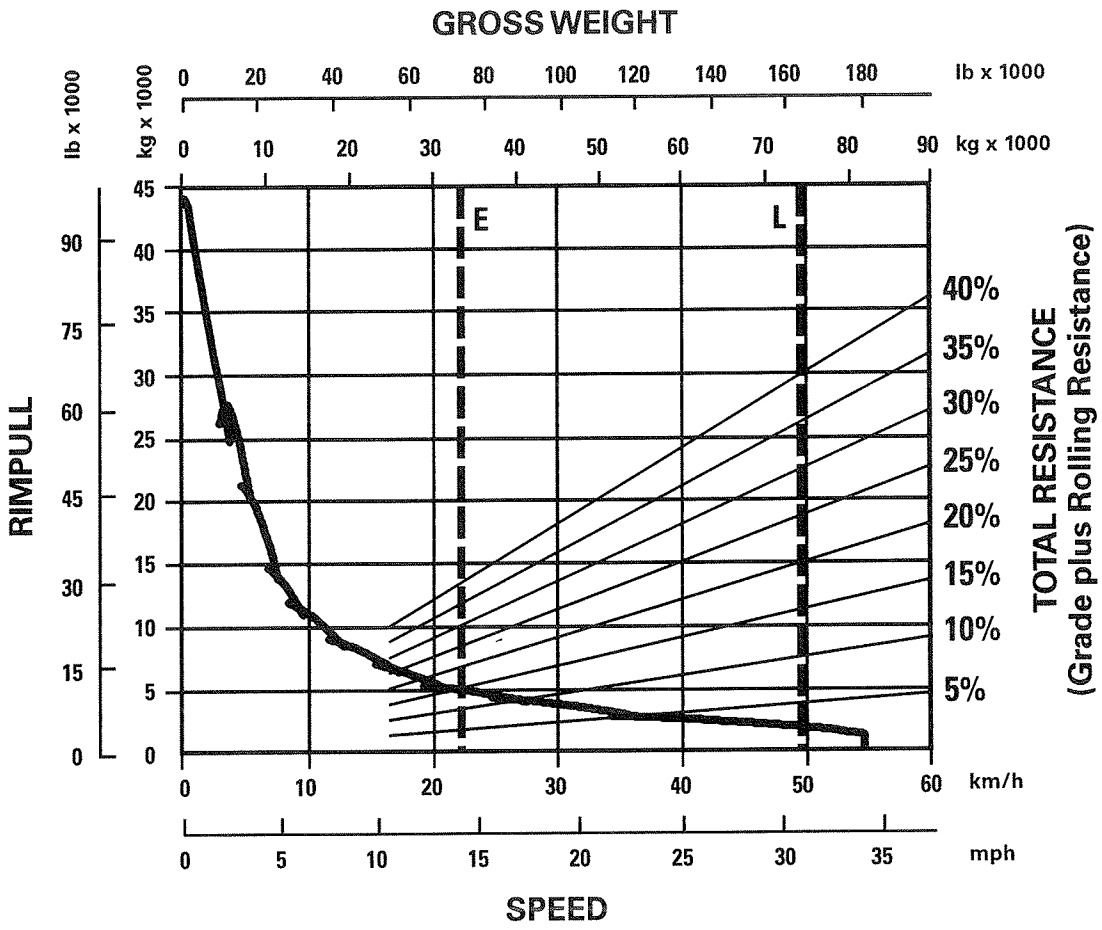
KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 33 400 kg (73,635 lb)
L — Loaded 74 400 kg (164,024 lb)

STANDARD*



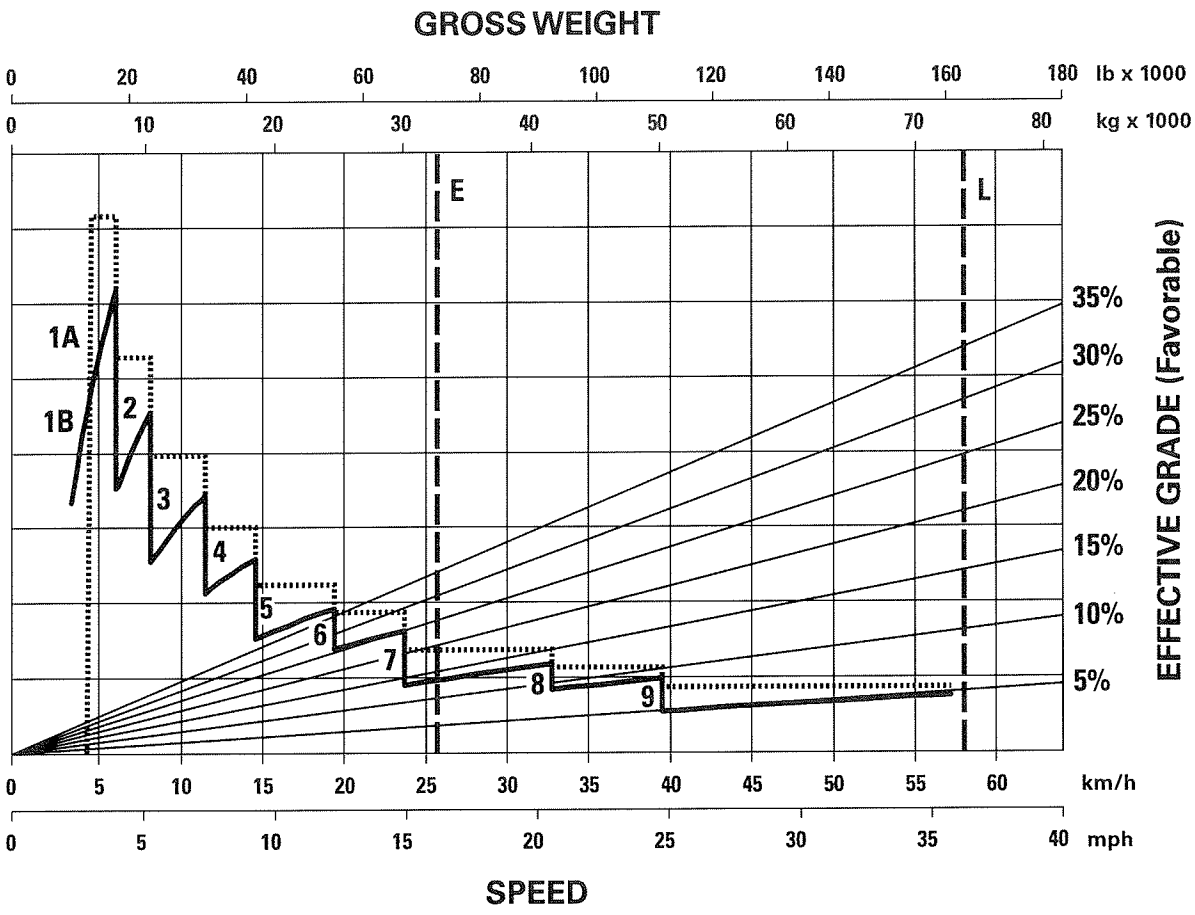
KEY

E — Empty 33 600 kg (74,100 lb)
L — Loaded 74 600 kg (164,500 lb)

*At sea level.

Articulated Trucks

745C Series Brake/Retarder Performance Curve
- 29.5R25 Tires
- Tier 2/Stage II/Japan 2001 (Tier 2) equivalent



KEY

1A — 1st Gear (Converter Drive)
1B — 1st Gear (Direct Drive)
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear
8 — 8th Gear
9 — 9th Gear

KEY

E — Empty 32 870 kg (72,466 lb)
L — Loaded 73 870 kg (162,855 lb)

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-049	**Date Submitted:** April 5, 2019
Subject: Spillway North Slope Redesign	**Project Zone/Area:** HLF Event Pond
Sub-contractor: Pelly Construction Ltd	**Station/Location: HLF Event Pond and EP Spillway**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☐ Clarification/Info ☒ Field Change ☐ Vendor Change ☒ Design Change ☐ Other

Related Drawings:	**Other Related Documents:**
1. EGHLF-XD-08-01	1. Attached redesign sketch of section AC

Information Request/Description of Issue:

The current spillway design near the entrance into the Event Pond has the north slope at 2:1 from the outside edge of the flat bench. To establish the design toe, a cut into the slope was required. However, from shaping performed in 2018 the existing slope is already at a 2:1. Pelly requests BGC approval of proposed change.

Proposed Corrective Action

Cut the slope at 1.5:1 from the toe until it intersects with the existing ground, at which point the slope will continue at 2:1 up to the crest.

Cost Impact:	
Schedule Impact:	

Requested by:

Yuheng Fei		**April 5, 2019**
Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:

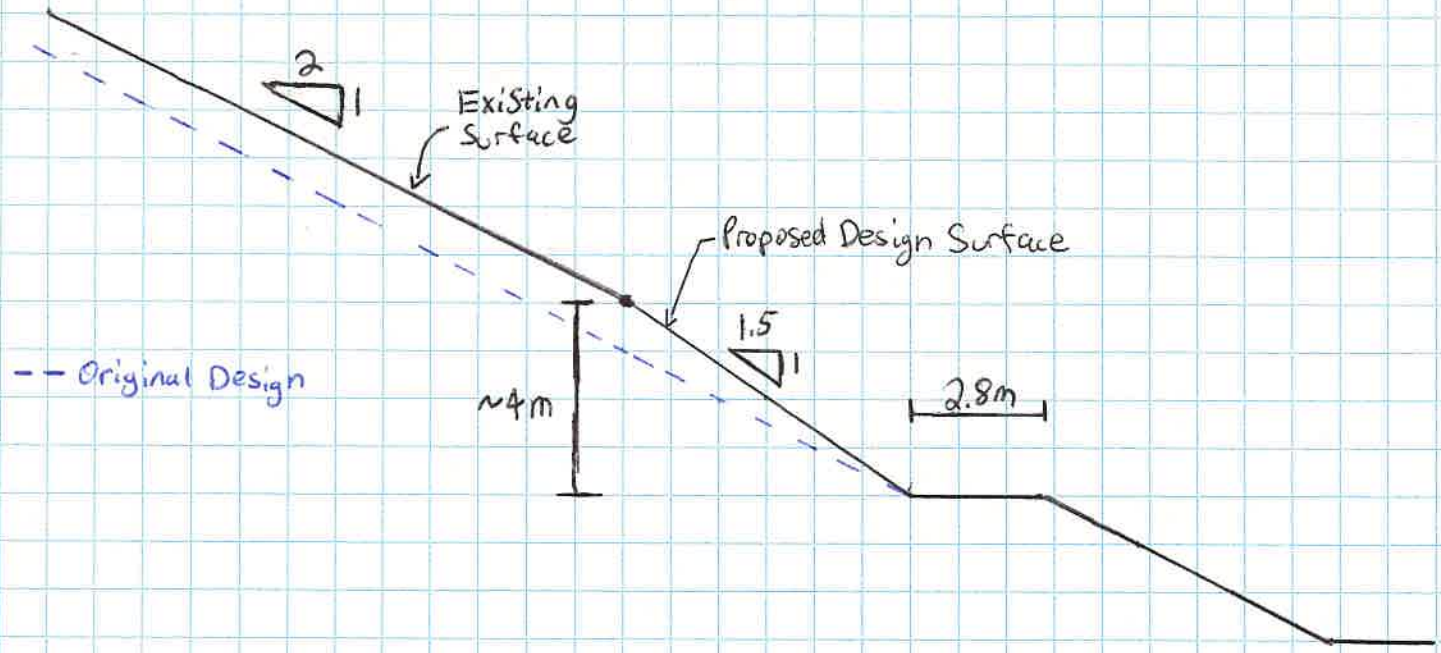
Approved for area at the spillway turn as noted by Pelly. If needed in other sections BGC should review and approve. 2:1 slope should be carried to the top of hill and all soil overhangs and trees that may slide into the spillway construction should be removed. This may be modified if weaker zones are observed during construction.

Answered by:

Name Roy Morlan Signature Roy Morlan Date April 6, 2019

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

EGHLF-XO-08-01 Section Detail AC



STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Victoria Gold
Sub-Contractor RFI No.: CC204-RFI-001	**Date Submitted:** 08/25/2017
Subject: Requesting additional culverts	Project Zone/Area:
Sub-contractor: Pelly Construction Ltd.	**Station/Location: HLF Embankment, Topsoil Stockpile B**
Attention: Jeff Depape	**Discipline:**

REQUEST

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

1) Pelly is planning to construct a temporary road within the HLF embankment which allows easier removal of top soil. A culvert is required to allow drainage into the sediment pond below the embankment.

2) Pelly will also be widening an existing section of the Eagle Pub road to allow for heavy truck access to the Topsoil Stockpile B. There is a small section of the existing culvert crossing that's too narrow. Pelly is requesting to extend the existing culvert (900mm) to allow the construction of a wider road section.

Proposed Corrective Action

1) The proposed culvert length is 15.0m and the size of the culvert will be dependent on the recommendation from the owner.
2) The proposed culvert length is 10.0m and the size of the culvert will be 800mm. The proposed culvert will be placed upstream side allowing the culvert to slide into the existing culvert eliminating the need for a collar.

Type of Change: ☐ Owner Change ☐ Clarification/Info ☐ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Cost Impact:	Cost increase over additional culverts
Schedule Impact:	Allows Pelly to access the Topsoil Stockpile B

Requested by:	**Jason Abel**	**08/25/207**
Name	Signature	Date

RESPONSE

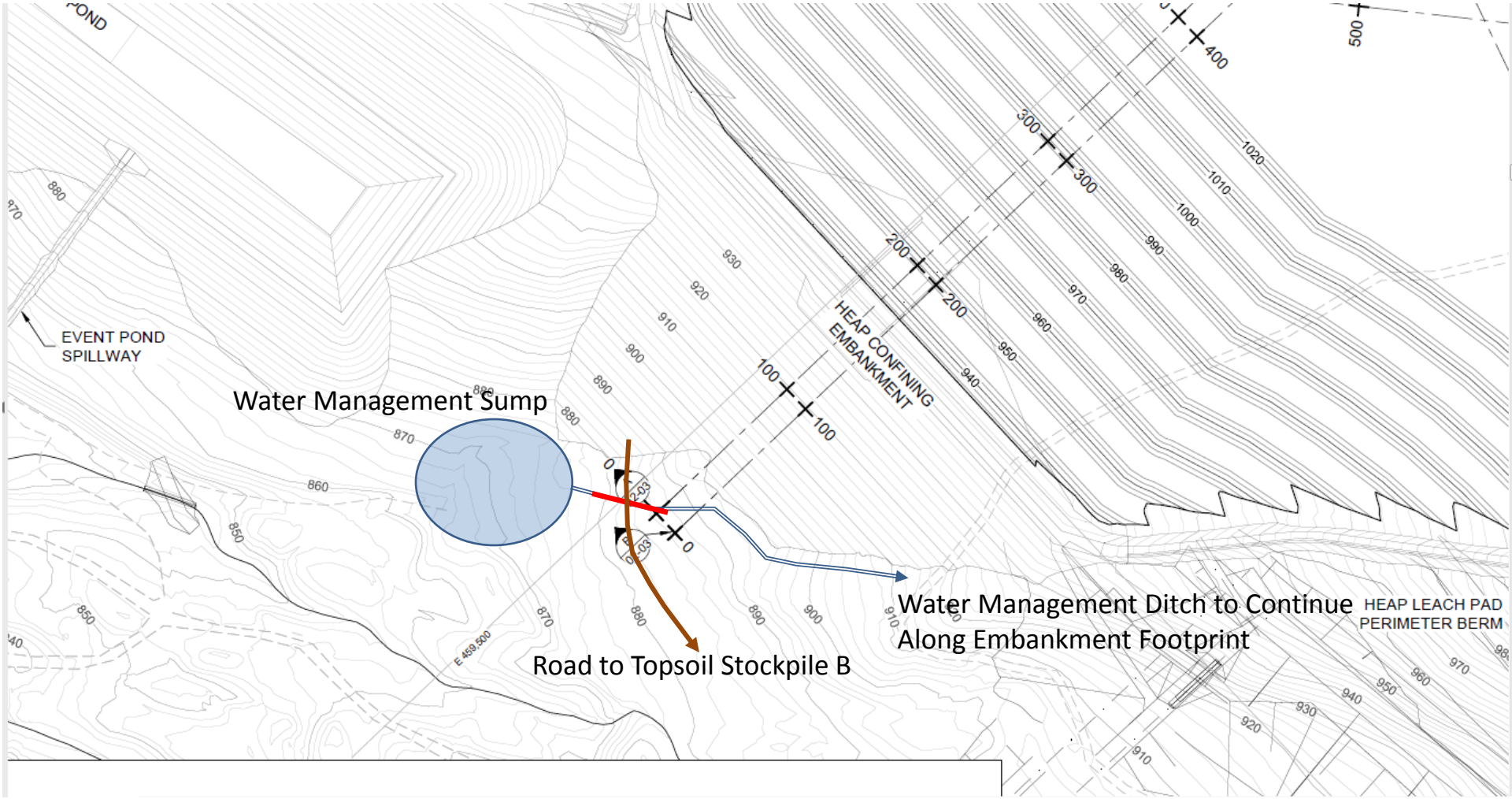
☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

Answered by:

Name Signature Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.


EVENT POND
SPILLWAY
Water Management Sump
HEAP CONFINING
EMBANKMENT
Water Management Ditch to Continue
Along Embankment Footprint
HEAP LEACH PAD
PERIMETER BERM
Road to Topsoil Stockpile B

Roy Morlan

From: Richard Boehnke
Sent: Tuesday, September 5, 2017 6:59 PM
To: Chris Copley; Calvin Goldschmidt
Subject: Fwd: Cobalt CC205 RFI 1 - Control Pond Outlet structures

In case I didn't send last Friday, below is initial acceptance from Mauricio on proposed outlet structures.

Also pipe all the way at 450mm

I'll follow up with EPG on pipe price for us in the morning.

Richard

Sent from my Samsung Galaxy smartphone.

-------- Original message --------
From: "Herrera, Mauricio" <Mauricio.Herrera@tetratech.com>
Date: 2017-09-01 7:16 AM (GMT-08:00)
To: Richard Boehnke <richardb@jdsmining.ca>
Subject: RE: Cobalt CC205 RFI 1 - Control Pond Outlet structures

Richard

As discussed I'm OK with the proposed changes as outlined in your email below. As I mentioned the outlet can be a 450 HDPE all the way, no need to have the 450 and then transition into a 600.

Regards,

Mauricio

From: Richard Boehnke [mailto:richardb@jdsmining.ca]
Sent: Friday, September 01, 2017 6:52 AM
To: Herrera, Mauricio <Mauricio.Herrera@tetratech.com>
Subject: FW: Cobalt CC205 RFI 1 - Control Pond Outlet structures

Good Morning Mauricio,

Can you please provide an email approving the attached design changes. We need to be sure that the outlet design is acceptable. I can also call you to discuss this morning if you have a few minutes.

Cheers,

Richard Boehnke P Eng
JDS Energy & Mining inc.
☏ Cell (250) 801-9474

From: Richard Boehnke
Sent: Tuesday, August 22, 2017 9:06 AM
To: 'Herrera, Mauricio' <Mauricio.Herrera@tetratech.com>
Subject: FW: Cobalt CC205 RFI 1 - Control Pond Outlet structures

Hi Mauricio,

Just as an FYI, I sent the attached and the below email to the contractor to price out the modifications. Unless you have any objections, we will be proceeding with the design as described here.

I also sent them a separate note clarifying that the bentonite plug will stay in the design.

Let me know if you have any questions or concerns. Looks like I am only available Thursday morning at 8 in Vancouver, if you want to discuss anything. I will be travelling all day tomorrow.

Richard Boehnke P Eng
JDS Energy & Mining inc.
☏ Cell (250) 801-9474

From: Richard Boehnke
Sent: Monday, August 21, 2017 1:52 PM
To: Bruce MacLean <macleanamericas@yahoo.ca>; harveymcintyre <harveymcintyre@gmail.com>; 'jon' <jon@cobaltconstruction.ca>; shaun <shaun@cobaltconstruction.ca>
Cc: Roman Bilobrowka <romanb@jdsmining.ca>; Jeff DePape <jdepape@jdsmining.ca>; Chris Copley <chrisc@jdsmining.ca>; Clint Abel <clinta@jdsmining.ca>
Subject: Cobalt CC205 RFI 1 - Control Pond Outlet structures

Bruce,

After the meeting we had last week, I prepared an RFI for you on the issues we discussed wrt to the control pond outlet structures from EBA-TetraTech design package, WTRM03037-01 - Eagle Gold Design_IFC R2.

Please proceed to price and source out all the materials and installation for work for the clarifications and redesigns in the attached RFI and two sketches provided in the attached documents. ASAP. Then advise cost and schedule of items for construction.

Also, going forward for the work on this contract, please provide an RFI if there are and requests for information, clarifications or proposed design changes for any IFC or specific instructions provided to Cobalt for work here at the Victoria Gold site. I have also attached a blank RFI template for the project.

Let me know if you have any questions or require further clarifications.

Best regards,

Richard Boehnke, P.Eng.
Engineering Manager
JDS ENERGY & MINING INC.
Suite 900, 999 West Hastings St.
Vancouver, BC, V6C 2W2
email richardb@jdsmining.ca
office 604.558.6300
Canada cell 250.801.9474

VANCOUVER | TORONTO | KELOWNA | WHITEHORSE | YELLOWKNIFE | TUCSON | HERMOSILLO
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STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Victoria Gold
Sub-Contractor RFI No.: CC204-RFI-002	**Date Submitted:** 08/28/2017
Subject:	Project Zone/Area: **HLF embankment underdrain pipes**
Sub-contractor: Pelly Construction	**Station/Location: STA 2+88**
Attention: Chris Copley/Jeff Depape	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-05**	**Other Related Documents:**

Information Request/Description of Issue:
At STA 2+88, the transition from 3 closure pipes to 1 closure pipe. Substitute the 45 degree lateral connections on the 03-05 drawing.

Proposed Corrective Action
Pelly's supplier is requesting to use a cross fit piece to connect the 3 closure pipes at STA 2+88 which will achieve the same result.

Type of Change:	☐ Owner Change	☐ Clarification/Info	☐ Field Change
	☐ Vendor Change	☐ Design Change	☐ Other
Cost Impact:	**n/a**		
Schedule Impact:	**n/a**		

Requested by:	**Dan Russell**	**08/28/2017**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:
The proposed change is approved; however the connection point shall be moved from Sta. 2+88 to Sta. 2+80.

Answered by: Troy Meyer		**08/29/2017**
Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Victoria Gold
Sub-Contractor RFI No.: CC204-RFI-003	**Date Submitted:** 09/06/2017
Subject:	Project Zone/Area: **HLF embankment underdrain pipes**
Sub-contractor: Pelly Construction	**Station/Location: STA 2+88**
Attention: Chris Copley/Jeff Depape	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-05**	**Other Related Documents:**

Information Request/Description of Issue:
Safeguarding the construction workings to help reduce construction continuation delays in 2018 associated with the underdrains and in-heap sump components.

Frozen conditions coupled with spring freshet, will likely:

- **increase the required effort to restore conditions (ice, snow, mud removal) for construction;**
- **lengthen the schedule for completing the in-heap sump scope of work, a critical path component to other pipe and geomembrane activities within the HLF;**

Deferral of 160mm/6" SDR9 pipe order and installation, will likely:

- **lengthen the schedule for completing the in-heap sump scope of work, a critical path component to other pipe and geomembrane activities within the HLF;**

Proposed Corrective Action

(1) Further clearing and grubbing to limits (to be provided by JDS) outside of the in-heap pond sump.
(2) Further underdrain installation 160mm/6" SDR9 below and safely past the in-heap pond sump (assuming SDR9 pipe availability for completion this fall) or can this section be completed with continuation of SDR11, including approval to order required materials (which in itself may be worth considering in 2017 versus waiting for 2018; this approach may also protect the underdrains from inadvertent damage at exposed ends when excavating/preparing the sump area in 2018.
(3) Establishing diversion ditching upslope of the works, temporary or otherwise, to help direct freshet runoff away from the workings, reduce amount of ice, water and off-spec material (mud) that will need be removed from the sump area.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other

Cost Impact:	**Incremental to 2017, but most likely an overall savings in schedule driven costs attributed to 2018 construction.**

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EAGLE GOLD PROJECT

Schedule Impact:	**Lower risk to startup and delays affecting 2018 schedule**

Requested by:	**Dan Russell**	**(signature c/o Jason Abel at site)**	**09/06/2017**
	Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

1: Contractor to clear area required to access the in-heap pond sump safely and practically.

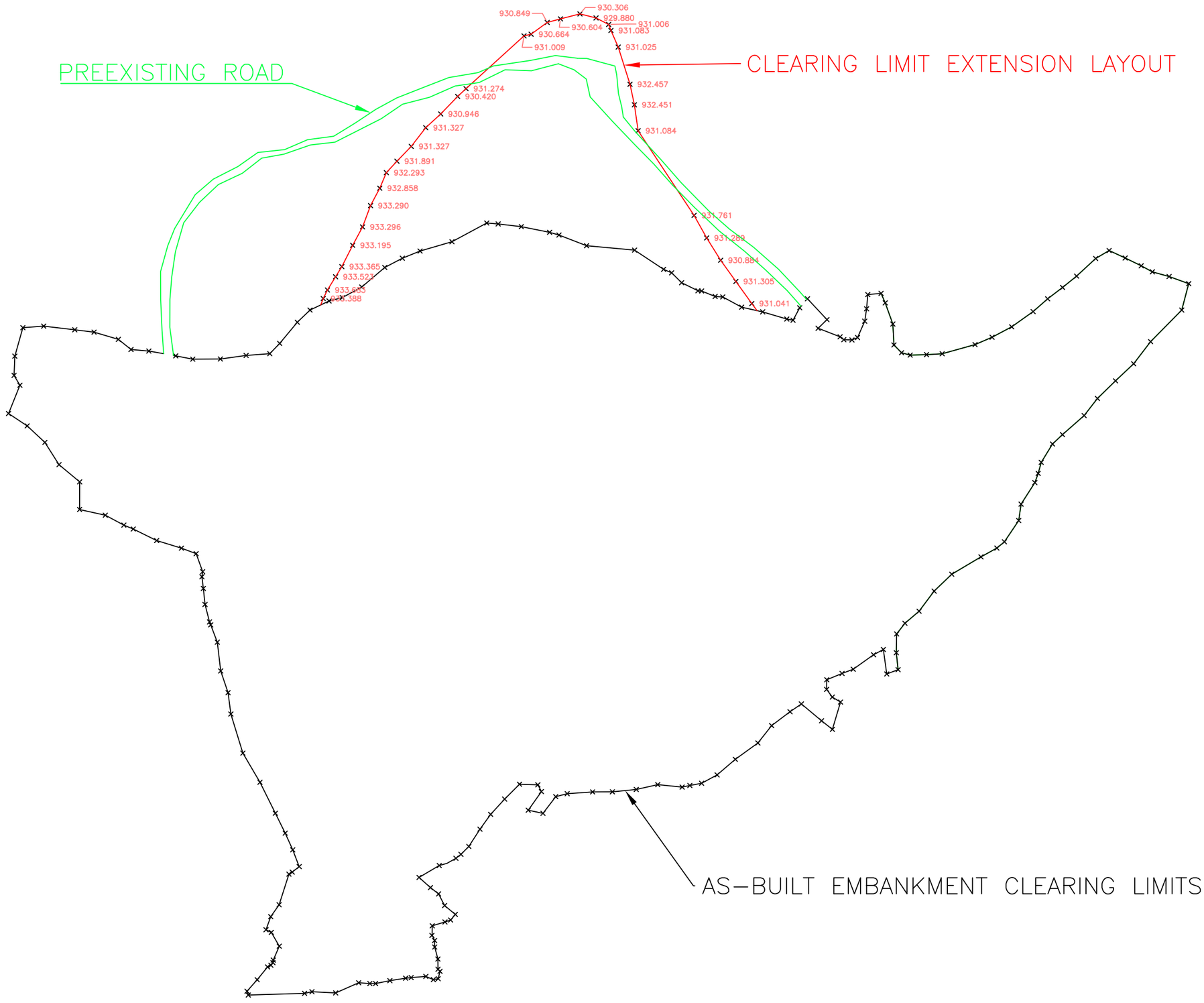
2: BGC agrees and approves the continuation beyond the closure sump for off-season protection as described. The transition to 160mm DR9 pipe will occur at approximately Station 0+400. Please advise if this length beyond the closure sump I adequate for this year's construction.

3: Contractor to proceed with establishing diversion ditches upslope of works. Contractor to propose alignment of ditches for review to EPCM supervisor for approval prior to proceeding.

Answered by:#1 and #3 answered by C. Goldschmidt. #2 answered by T. Monaterio. Sept 15th,2017

Name Signature Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. BLACK LINE WORK DENOTES AS-BUILT CLEARING LIMIT AREA
2. RED LINE WORK DENOTES CLEARING LIMIT EXTENSION LAYOUT
3. TEAL LINE WORK DENOTES PREEXISTING ROAD WAY

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	17/09/16	CM	EMBANKMENT CLEARING LIMIT EXTENSION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

EMBANKMENT CLEARING LIMIT EXTENSION LAYOUT

DRAWING SCALE: NTS

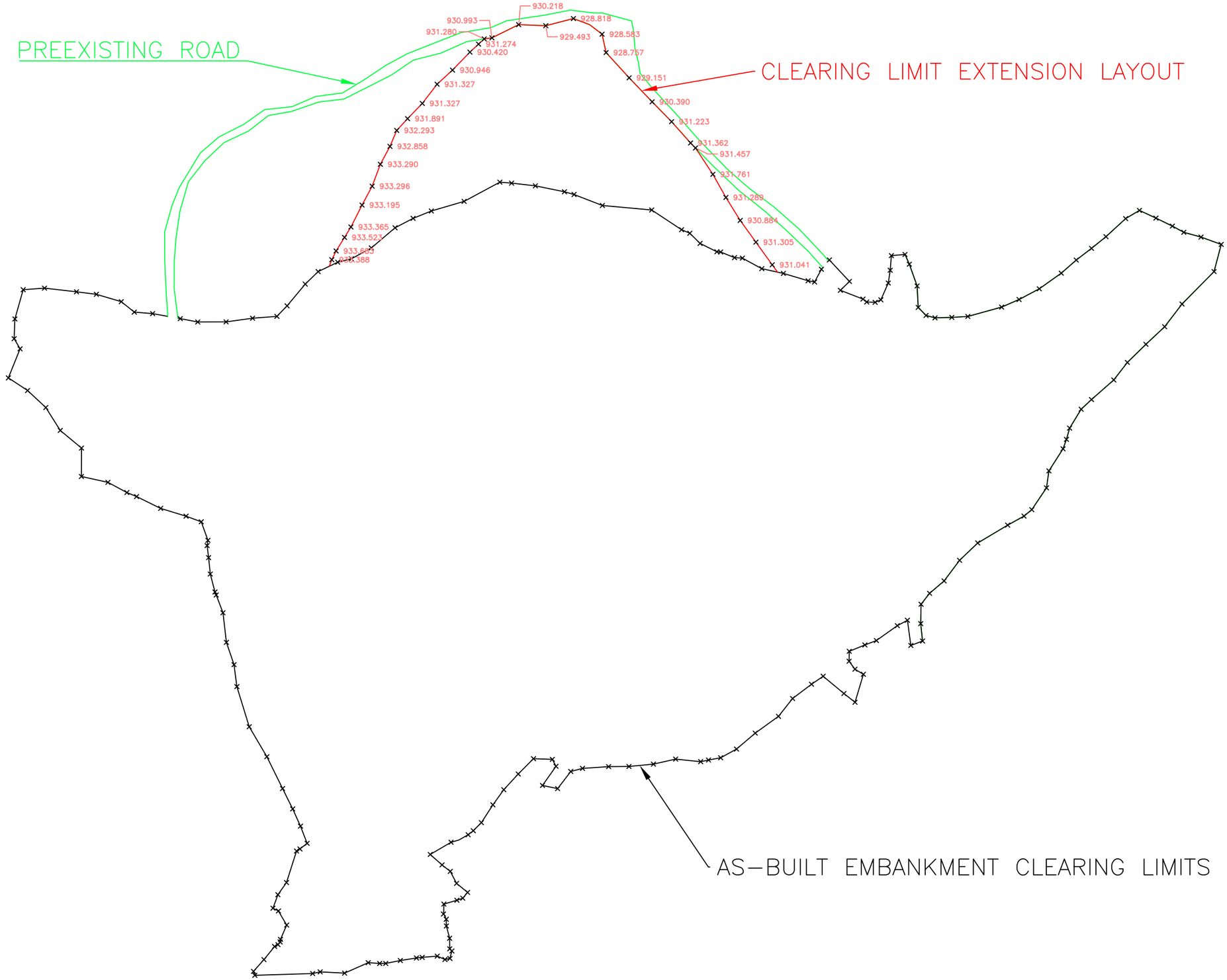
DATE:	17/09/16	DWG No. :	EMB001 - REV 1
SURVEYED:	C.M. & C.J	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170910 EMBANKMENT CLEARING LIMIT EXTENSION LAYOUT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. BLACK LINE WORK DENOTES AS-BUILT CLEARING LIMIT AREA
2. RED LINE WORK DENOTES CLEARING LIMIT EXTENSION LAYOUT
3. TEAL LINE WORK DENOTES PREEXISTING ROAD WAY

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
2.0	17/09/18	CM	EMBANKMENT CLEARING LIMIT EXTENSION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

EMBANKMENT CLEARING LIMIT EXTENSION LAYOUT

DRAWING SCALE: NTS

DATE:	17/09/18	**DWG No. :**	EMB001 - REV 2
SURVEYED:	C.M. & C.J	**CHECKED:**	
DRAWN:	C.M.	**APPROVED:**	

DRAWING FILE: 170918 EMBANKMENT CLEARING LIMIT EXTENSION LAYOUT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Calvin Goldschmidt

From: Chris Copley
Sent: Thursday, September 07, 2017 8:13 AM
To: Dan Russell; Richard Boehnke; Jeff DePape; Calvin Goldschmidt
Cc: Jason Abel; Dean Serelo; Shipeng Zheng; Roman Bilobrowka; Clint Abel
Subject: RE: JDS Eagle Project_CC204-RFI-003_170906_Pelly

Hi Dan,

Calvin will respond formally to the RFI, but in concept, this is approved as discussed. SDR11 can be extended to the upslope side of the sump.

Can you please also RFI the lift thickness spec we discussed last night and I'll run that by Troy as well?

Thanks,
Chris

From: Dan Russell [mailto:dan@pelly.net]
Sent: Wednesday, September 06, 2017 12:43 PM
To: Chris Copley <chrisc@jdsmining.ca>; Richard Boehnke <richardb@jdsmining.ca>; Jeff DePape <jdepape@jdsmining.ca>
Cc: Jason Abel <jason@pelly.net>; Dean Serelo <dean@pelly.net>; Shipeng Zheng <shipeng@pelly.net>; Roman Bilobrowka <romanb@jdsmining.ca>; Clint Abel <clinta@jdsmining.ca>
Subject: JDS Eagle Project_CC204-RFI-003_170906_Pelly

Hi Chris et al, not sure if I'm on the correct #'ing for the RFI, but please see attached concerning the in-heap sump area.

Thanks,
Dan

Dan Russell, P.Eng. | *Superintendent of Engineering*
PELLY CONSTRUCTION LTD. 111 Industrial Road Whitehorse, Yukon Y1A 2T7
Office: (867) 667-6161 | Fax: (867) 667-4194 | www.pelly.net

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Victoria Gold
Sub-Contractor RFI No.: CC204-RFI-005	**Date Submitted:** 09/25/2017
Subject: Underdrain critical points elevation	Project Zone/Area: HLF Embankment Underdrain
Sub-contractor:	**Station/Location:**
Attention: Tony Monasterio	**Discipline:**

REQUEST

Related Drawings: **EGHLF-XD-03-05**	**Other Related Documents:**

Information Request/Description of Issue:

Elevation of the critical points on drawing EGHLF-XD-03-05 is not shown on the drawing.

Proposed Corrective Action:

Please clarify the elevation of the critical points on drawing EGHLF-XD-03-05

Type of Change:	☐ Owner Change	☐ Clarification/Info	☐ Field Change
	☐ Vendor Change	☐ Design Change	☐ Other
Cost Impact:	**n/a**		
Schedule Impact:	**n/a**		

Requested by:	**Shipeng Zheng**	**Sept 25, 2017**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

The elevations of the bottom of the pipe at points shown on the plan of drawing EGHLF-XD-03-05 are as follows:

Closure Pipe Points:
Sta: 0+29.33 – Elev: 868.792m
Sta: 2+72.29 – Elev: 906.702m
Sta: 3+17.21 – Elev: 907.600m
Underdrain Points:
Sta: 2+50.55 – Elev: 902.908m
Sta: 2+88.95 – Elev: 907.035m
Sta: 3+37.99 – Elev: 913.518m

Answered by:	**Tony Monasterio**	**Sept. 25, 2017**
Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: CC204-RFI-006	**Date Submitted:** May 02, 2018
Subject: HLF Embankment Fill	Project Zone/Area:
Sub-contractor: PELLY CONSTRUCTION LTD	**Station/Location: HLF EMBANKMENT**
Attention:	**Discipline:**

REQUEST

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:
The material from the ADR plant excavation, some of which is designated to go into the heap leach embankment is getting hard to rip and may have to be blasted. Blasting of the ADR cut was not expected. The resulting material may not meet the contract criteria for embankment fill.

Proposed Corrective Action
See attached.

Type of Change:	☐	Owner Change	☐	Clarification/Info	☐	Field Change
	☐	Vendor Change	x	Design Change	☐	Other

Cost Impact:	**Unknown until owner specifies alternate source, excepting quantity and unit price to haul rock material to waste dump.**
Schedule Impact:	**Depends on cost of developing alternate source and extra haul.**

Requested by:	DAN RUSSELL		MAY 1/2018.
	Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:

See BGC Attachment for approval details.

Answered by:	Roy Morlan, BGC Engineering	Roy Morlan	May 10, 2018
	Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis

The borrow for use as general fill is defined as "course grained colluvial/alluvial soils or weathered bedrock with little or no ice content and/or coarse grained sands and gravels with zones of variable ice content." The excavated material coming from the ADR cut is beginning to turn hard. If it continues to be rippable it should meet the criteria for weathered bedrock which is within specification.

Should the material become unrippable, it will be necessary to complete the excavation by drilling and blasting, the resulting material should still be quite satisfactory and is likely to be denser than the specified general fill and still be porous enough to better aid in the prevention of pore pressure build up from moisture entering the embankment from the insitu contacts. Good consolidation can be achieved by placing the material in 0.5 meter lifts and consolidating by cat packing and passing over each lift with a vibratory compactor equipped with Elliot Grid drum surface. Any pieces larger than can be accommodated in the lift could be bladed off of the fill. There would be no change in the unit prices other than the drill and blast costs that will be incurred in any case.

If the use of shot rock is not permitted in the embankment, the alternative is to take that material to the waste dump and replace it with other material which may be very hard to source nearby. This would raise the cost of the embankment fill considerably.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-006

To:	**D'Arcy Comerford**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**May 10, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to CC204-RFI-006**

Re: Response to CC204-RFI-006:

1.0 INTRODUCTION AND OBJECTIVE

Use of rock generated from blasting for Rockfill as a substitution for structural fill is permittable. A final determination of Rockfill suitability should be evaluated by BGC once the material is generated. In general, Rockfill used in the embankment should conform with the following:

- Shot-rock will generally be allowed provided it meets the requirements for Rockfill in the project specifications.
- The rockfill shall generally have 300 mm maximum rock particle size and oversized rocks larger than 300 mm shall be removed to the exterior fill slopes. Rocks larger than 300 mm may be incorporated in thicker fill lifts provided the rocks do not protrude from the lift surfaces after compaction and the required compaction of the lifts is proven achievable by a test fill.
- Larger particles (>8”) should have a rock strength of at least an R3 on the International Society of Rock Mechanics Field Identification Hardness Scale.
- A test fill should be performed using the Rockfill material to determine the lift size and compaction/wetting method. A lift thickness of 50cm has been proposed by Pelly and can be tested with a test fill. The max Rockfill particle size should be 2/3 the lift thickness. Therefore, a 50cm lift would require a maximum particle size of 33cm (13 -inches). Other lift thicknesses can also be tested depending on the maximum particle sizes being generated.
- Rockfill and Structural Fill lifts cannot be interbedded. Rockfill and Structural Fill materials cannot be interchanged during construction of a single lift. Zones defined in EPCM-RFI-002 should be maintained.
- A method for keying the rockfill and structural fill zones should be proposed by Pelly and reviewed by BGC. It should include the equipment proposed to do the work.

- The QC program for Rockfill placement at the embankment will be developed by BGC after the test fill observations.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-022	**Date Submitted:** May 26, 2018
Subject: HLF Embankment Fill	**Project Zone/Area:** HLF PHASE 1
Sub-contractor: Pelly Construction	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change:	☐	Owner Change	☒	Clarification/Info	☐	Field Change
	☐	Vendor Change	☐	Design Change	☐	Other

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Please provide data for the various material zones. This is needed for construction survey to layout targeted zone boundaries as the embankment raises. Please provide design data in dxf/dwg format.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**May 26, 2018**
Name	Signature	Date

RESPONSE

☐	Approved	☐	Approved as noted	☐	Rejected as noted

Response:

See attached response.

Answered by:

Name	Roy Morlan/ Troy Meyer	Signature	Roy Morlan	Date	June 16, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

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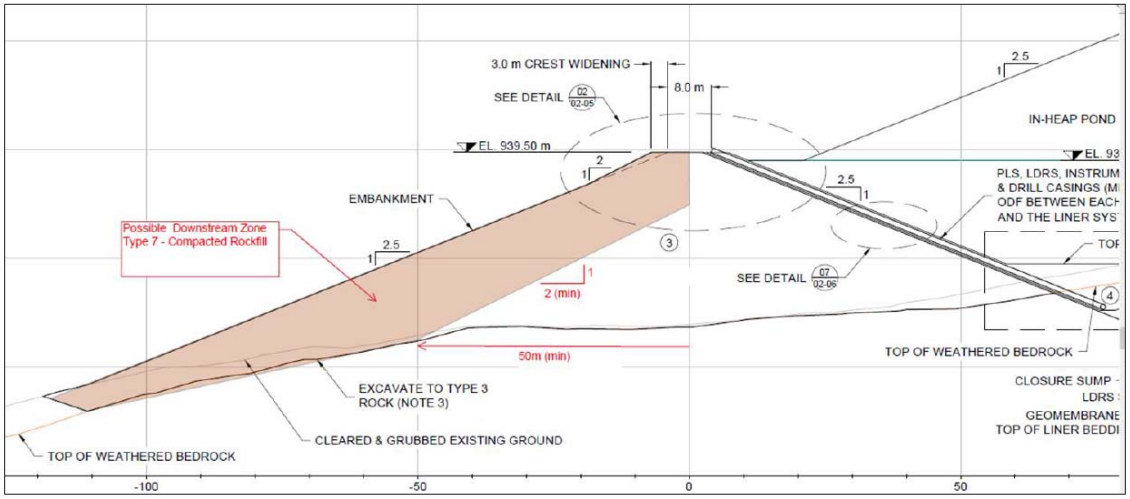
Response to CC204-RFI-022

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**June 16, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to CC204-RFI-022**

Re: Response to CC204-RFI-022:

1.0 RESPONSE

The use of rockfill for construction of the HLF embankment was approved and initially described in EPCM-RFI-002. A drawing was included in the response to that RFI to provide guidance for the use of Rockfill and is presented as ***Figure 1***.



Sketch illustrating acceptable area for placement of Compacted Rockfill, shown in red shade. Background drawing (black) is for reference only, not for construction.

Figure 1: Figure included in response to EPCM-RFI-002 showing the general configuration of Material 7 – Rockfill and Material 3 – Structural Fill in the embankment.

CC204-RFI-022 requested design lines provided in a dxf/dwg file. Design lines cannot be provided by BGC because the amount of Structural Fill Pelly will substitute with Rockfill is unknown to us. For this reason we provided the general guidelines in the EPCM-RFI-002 response.

The following response provides further clarification to the use of Material 7 – Rockfill in the embankment to help Pelly plan for its use.

Configuration of Zones

BGC originally approved the use of Material 7 using the dimensions shown in Figure 1. Take-off volumes for the conditions set forth in Figure 1 were provided to Pelly and JDS via email on May 5, 2018. As shown in Figure 1, rockfill should be placed in a separate zone downstream of the structural fill core. The structural fill should have a base of a minimum of 50 m measured from the center line of the crest to the downstream toe of the Structural Fill core zone. The contact between the Rockfill and Structural Fill on the downstream side of the embankment should be sloped in the downstream direction and should not be greater than 1 vertical for every 2 horizontal. A near horizontal slope at the contact between the Rockfill and Structural Fill is not acceptable as it can potentially create a zone susceptible to increased pore water pressure and/or water accumulation at this contact. Rockfill and Structural Fill cannot be interbedded. The height of the structural fill on the downstream side of the embankment will be governed by the final thickness of rockfill and the downstream slope of the Structural Fill/Rockfill contact. Rockfill cannot be in contact with Material 2 – Select Fill used as bedding underneath the upstream liner system.

Construction Considerations

If Rockfill is used in the construction of the embankment lift thicknesses should be chosen to allow the Rockfill to be easily tied into the Structural Fill lifts. Downstream lifts should be keyed into upstream construction by removing all lose material from the face of the slope and excavating a key platform to allow a minimum 1m overlap (measured horizontally). Key platforms must be prepared as a typical lift surface prior to placement and compaction of the Rockfill lift as is required in the Technical Specifications.

Alternative Sloping of the Contact Between Rockfill and Structural Fill

Alternative grade breaks in the contact between Rockfill and Material 3 – Structural Fill can be considered. The location of the grade break would be determined by the volumes of materials being generated. Pelly should propose a grade break based on material quantities available and constructability. All grades used at the contact between the rockfill on the downstream side of the embankment should be a minimum 1 vertical for every 2 horizontal. Slopes should be sufficient to allow water filtration from the overlaying rockfill to drain towards the downstream underdrain. An example of the grade break proposed by Pelly is included in ***Figure 2***.

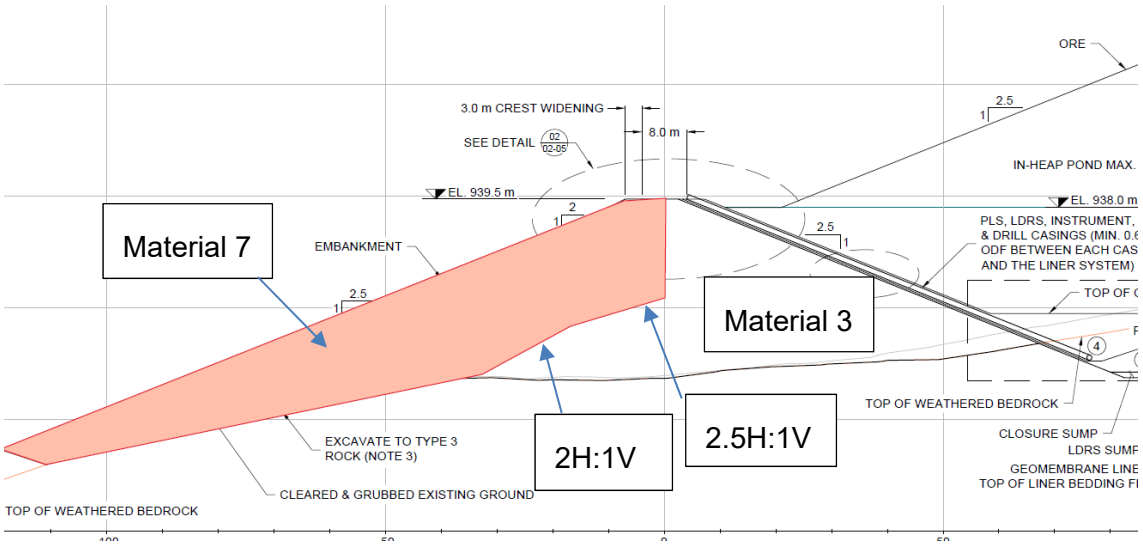


Figure 2: Example of potential grade break.

Upstream Construction Phasing

Pelly discussed the potential use of upstream construction by building a portion of the upstream embankment face with Material 3 then completing the remaining raise of the dam using both Material 3 and Material 7 as shown in ***Figure 3***. This is an acceptable method if Pelly finds it more efficient to construct. Configurations of zones should follow the layout previously discussed in this document. Downstream embankment phases must be keyed into the upstream phase as discussed earlier in this document. The top surface of the Phase 1 construction should be prepared like a typical lift surface as discussed in the Technical Specifications.

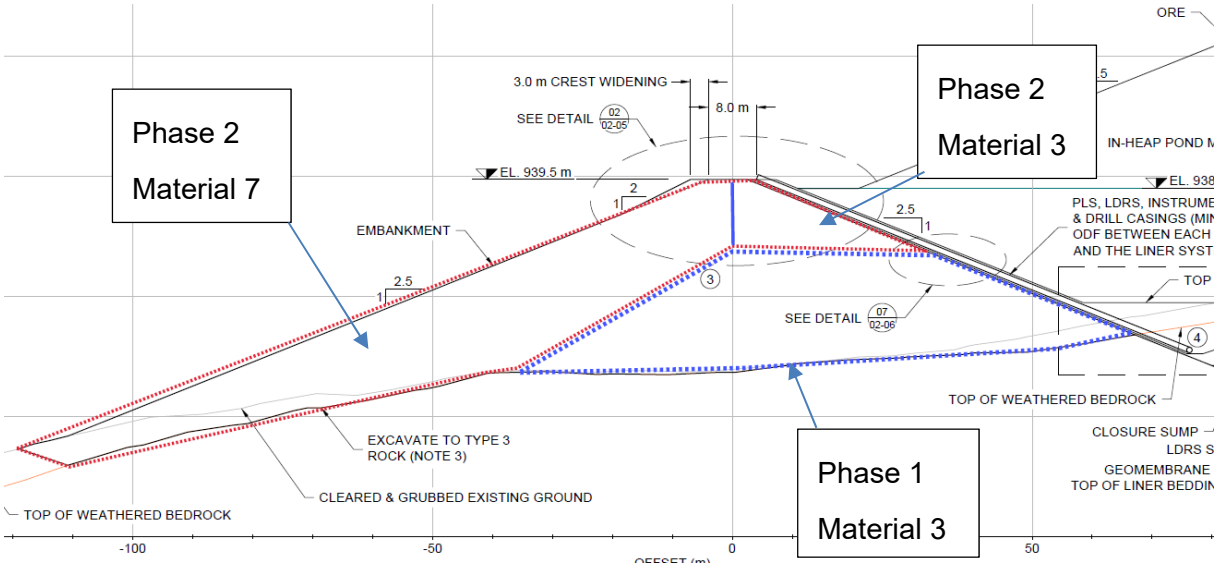


Figure 3: Phase construction proposed by Pelly.

Construction using Material 3 over Material 7

The use of Material 3 over Material 7 is not recommended as it can result in piping from the Material 3 into the Material 7. Options to prevent piping in such a configuration would include development of transition zones and/or engineering the gradation of both the Material 3 and 7. Both options would limit the availability of the materials, increase the complexity of the design, and could add a significant amount of cost to the project.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-032	**Date Submitted:** June 1, 2018
Subject: LDRS Pump Casings	**Project Zone/Area:** HLF Embankment Phase 1
Sub-contractor: Pelly Construction Ltd	**Station/Location:**
Attention:	**Discipline:**

REQUEST

Type of Change:
☐ Owner Change ☒ Clarification/Info ☐ Field Change
☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: XD-05-01/02/03/03/05	**Other Related Documents:**

Information Request/Description of Issue:

1) LDRS Pump Casings: confirm if perforations required on all 3 casings or just the instrumentation casing as depicted on the drawings. XD-05-05 showing only instrumentation casing with inset note "Perforated & Geotextile Wrapped, 600mm dia SCH 40, 1m Each Way"

2) LDRS & PLS Pump Casings: confirm upper elevation or distance off bottom of pump casing for where perforations should cease, if/where perforations are applicable.

Proposed Corrective Action

Cost Impact:	
Schedule Impact:	

Requested by:

Shipeng Zheng		**June 1, 2018**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

Answered by:

Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response*

only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

From:	Calvin Goldschmidt
To:	Dan Russell; Troy Meyer; Clint Abel
Cc:	Matt Coverdale; D"Arcy Comerford; Jason Abel; Declan McGovern; Shipeng Zheng; Mike Blusson; Roy Morlan; Dean Serelo; Daniel Granda
Subject:	RE: VG_CC204 RFI-032 LDRS Pump Casings
Date:	Monday, June 11, 2018 3:15:51 PM
Attachments:	image001.jpg

Already forwarded to Bruce @ Hatch for a response. Specifically asked for an IFC details drawing.

Thanks Dan & Troy.

Calvin

From: Dan Russell [mailto:dan@pelly.net]
Sent: June 11, 2018 2:14 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Clint Abel <clinta@jdsmining.ca>
Cc: Matt Coverdale <MattC@jdsmining.ca>; D'Arcy Comerford <darcyc@jdsmining.ca>; Jason Abel <jason@pelly.net>; Declan McGovern <declan@pelly.net>; Shipeng Zheng <shipeng@pelly.net>; Mike Blusson <mikeb@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Dean Serelo <dean@pelly.net>; Daniel Granda <DGranda@bgcengineering.ca>
Subject: RE: VG_CC204 RFI-032 LDRS Pump Casings

Thanks Troy.

Hatch via JDS. Clint?

Dan

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Monday, June 11, 2018 2:09 PM
To: Daniel Granda <DGranda@bgcengineering.ca>; Dan Russell <dan@pelly.net>
Cc: Matt Coverdale (MattC@jdsmining.ca) <mattc@jdsmining.ca>; D'Arcy Comerford <darcyc@jdsmining.ca>; Jason Abel <jason@pelly.net>; Declan McGovern <declan@pelly.net>; Shipeng Zheng <shipeng@pelly.net>; Clint Abel (clinta@jdsmining.ca) <clinta@jdsmining.ca>; Mike Blusson (mikeb@jdsmining.ca) <mikeb@jdsmining.ca>; Calvin Goldschmidt <calving@jdsmining.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Dean Serelo <dean@pelly.net>
Subject: Re: VG_CC204 RFI-032 LDRS Pump Casings

Dan
The PLS casings are outside of BGC scope. What is shown on the ICF drawing is for illustration only. Hatch is designing the PLS casings and the pumping systems for the PLS and LDRS. The need and configuration of slots in these wells will be specified by Hatch.

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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From: Dan Russell <dan@pelly.net>
Sent: Monday, June 11, 2018 1:53:26 PM
To: Daniel Granda
Cc: Matt Coverdale (MattC@jdsmining.ca); D'Arcy Comerford; Jason Abel; Declan McGovern; Shipeng Zheng; Clint Abel (clinta@jdsmining.ca); Mike Blusson (mikeb@jdsmining.ca); Calvin Goldschmidt; Troy Meyer; Roy Morlan; Dean Serelo
Subject: RE: VG_CC204 RFI-032 LDRS Pump Casings

Hi Daniel, JDS has provided the 3D information with specific instruction that we cannot rely on it directly for design information, the IFC drawings take precedence. Please provide Pelly with a clear response on question 2 as to the elevation or distance from bottom of the pipe required for perforations. This scope is being performed offsite and we need to ensure it is correctly fabricated.
Thanks, Dan

From: Daniel Granda <DGranda@bgcengineering.ca>
Sent: Monday, June 11, 2018 1:45 PM
To: Dean Serelo <dean@pelly.net>
Cc: Matt Coverdale (MattC@jdsmining.ca) <MattC@jdsmining.ca>; D'Arcy Comerford <darcyc@jdsmining.ca>; Jason Abel <jason@pelly.net>; Dan Russell <dan@pelly.net>; Declan McGovern <declan@pelly.net>; Shipeng Zheng <shipeng@pelly.net>; Clint Abel (clinta@jdsmining.ca) <clinta@jdsmining.ca>; Mike Blusson (mikeb@jdsmining.ca) <mikeb@jdsmining.ca>; Calvin Goldschmidt <calving@jdsmining.ca>; Troy Meyer <TMeyer@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>
Subject: VG_CC204 RFI-032 LDRS Pump Casings

Attached is the response to CC204-RFI-033.

Please let me know if you have any questions.

Kind Regards,

Dan

BGC ENGINEERING INC.
per:

Daniel A. Granda, M.Sc., P.E.
Geotechnical Engineer

BGC ENGINEERING INC.

701 12th Street, Suite 211
Golden, CO, USA, 80401
Telephone: 720.598.5982 ext. 52111
Cellular: 303.888.3477
www.bgcengineering.ca

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REQUEST FOR INFORMATION

EPCM RFI No.: 37	**Site Location:** EGP_HLF
Sub-Contractor RFI No.:CC204	**Date Submitted:** June 20, 2018
Subject: HLF PAD UNDERDRAINS	Project Zone/Area:
Sub-contractor: Pelly	**Station/Location: Eagle Gold**
Attention: JDS	**Discipline: Earthworks**

REQUEST

Related Drawings: **EGHLF-XD-03-03** **EGHLF-XD-03-04 Detail 18, 19** **EGHLF-XD-03-05 REV A DRAFT IFC** **EGHLF-XD-03-05**	**Other Related Documents:**

Information Request/Description of Issue:

Issue:

(1) The majority of surface water and groundwater seepage is found at the interface between colluvial material and bedrock, as a result, the use of temporary sumps and ditching in the overlying colluvium are not sufficient to capture/divert upslope drainage from reaching embankment underdrain system during course of construction.

The colluvium materials exhibit signs of high moisture: a solution is required to help drain elevated moistures in advance of subsequent pad development while helping to reduce unsuitable material classification that results from excessive moisture content.

The wet colluvium materials and drainage along bedrock contacts is already disruptive to planned productivities in achieving timely embankment construction and threatens to delay further embankment and pad area preparations if not sufficiently addressed.

(2) Potential encroachment conflict between underdrain piping and overlying liner and PLS collection systems.

(3) IFC drawings showing a pitchfork arrangement for the closure underdrain that splits into 3 runs leading up to the closure sump. This was changed from Y connections in the course of the draft drawings in response to procurement options that were being explored.

(4) The drawings do not specify the exact type of ADS N12 product to use, therefore Pelly is seeking formal approval of the ADS N12 pipe material that our vendor can supply.

Proposed solution for approval relative to above numbering:

(1)

a. Begin construction of pad area underdrains upstream of the embankment. Pelly seeks approval to proceed with the sump and pad area underdrain installations (associated with this will be COR#3 pertaining to

4110.5.03/04 pad area underdrains, to follow after confirmation of the construction approach).

b. Help ensure drainage occurring at the interface with bedrock is most efficiently captured by the underdrains by excavating trenches for the underdrains such that the underdrains are sufficiently recessed below the bedrock contact, including consideration for Select Fill and Select Drain Fill.

   i. Trench spoil will be side cast as there will be no practical means to achieve hauling access for loading out materials; colluvial and bedrock materials will both be casted and mixed together.

   ii. Once the headers and laterals are installed, colluvium to design depth will be dozed down slope, above/across installed underdrains for loading out where practical truck access may be achieved.

(2) Pelly requests a 3D profile of the trench before backfill that establishes the maximum elevation profile for underdrain piping occurring below the PLS header piping. This is needed to ensure a minimum excavation depth such that there is no encroachment on the liner and PLS collection system requirements, with consideration for minimum thicknesses for Select Fill and Select Drain Fill, liner bedding and geometries as may be applicable.

(3) Revert to Y connection arrangement as originally shown on EGHLF-XD-03-05 REV A; insofar as the Y type connections versus a cross connection with 2x 90 degree elbows to establish the 3 runs to the closure sump.

(4) ADS N12 BXS HDPE Perforated Corrugated.

Proposed Corrective Action

Type of Change:	☐	Owner Change	■	Clarification/Info	☐ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by: **Dan Russell** **June 20, 2018**

Name Signature Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

See attached Response to CC204-RFI-037

Answered by:

Name Roy Morlan Signature Roy Morlan Date June 25, 2018

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall

immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-037

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**June 25, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to CC204-RFI-037**

Re: Response to CC204-RFI-037:

1.0 RESPONSE

Response to Question 1: The use of heap leach underdrains as water control for construction.

Construction of the Header Trench and Lateral Trenches into Bedrock

The Header Trench and Lateral Trenches will meet the design intent if excavated into the upper bedrock zone and the drains constructed. If done so, the final construction to grade should be as shown in ***Figure 1*** where colluvium will separate the drain construction from the liner system. Construction can be done prior to preparation of subgrade at the Phase 1 HLF, as is suggested in the RFI. BGC would provide approval of what constitutes the upper bedrock zone based on the Technical Specifications. Excavation should not be performed unless BGC is present.

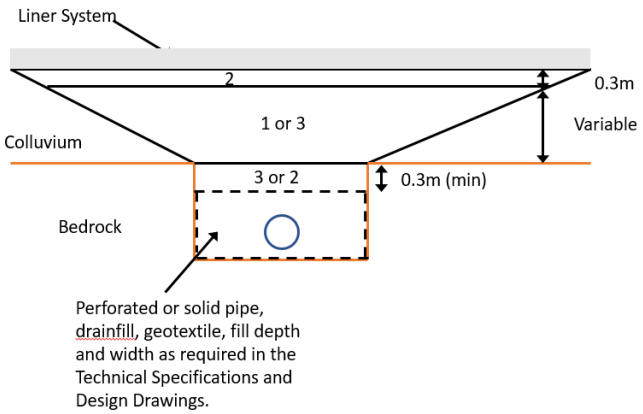


Figure 1: Typical completed drain trench design when build in bedrock with colluvium overburden.

Construction considerations

The following construction considerations should be taken into account:

- Trench spoils can be side cast from the trench with the assumption that they will be removed or used later in construction.
- Trench spoils may be used to backfill in the trench. However, the spoils must meet requirements in the Technical Specifications for the zone it will be used in (i.e. Material 1, Material 2, or Material 3).
- Dozing over drain construction is acceptable if the drain fill maintains a cover of at least 0.3m. Trafficking over a drain with less than 0.3m of cover may result in excavation and re-construction of the drain due to the potential for damaging of the drain pipe.
- If dozing during site grading results in undercutting of the pipe trench fill materials or adjacent bedrock then the undercut area will be filled back to grade with Material 2 or Material 3. Damage to the geotextile in the drain will result in excavation and repair of that drain.
- All Lateral Drains must be sloped at a minimum of 2% towards the Header Trench through the entire run of the drain.
- If high velocity water flows are observed in the drain trenches measures may be needed to reduce the volume and/or flow velocities in order to place materials.
- Material 2 and Material 1 must be graded such that they are filter compatible when placed next to each other. The field engineer will determine compatibility based on lab testing and recommend mitigation measure (such as geotextile separation) if appropriate.
- Drain construction (i.e select drain fill, geotextile, and 30cm cover) should be protected from erosion caused by surface flow. This can be done by placing sacrificial lifts above the construction. Pelly can propose other methods to protect the construction for BGC's review.
- Installed drain rock, piping, and geotextile should not be left exposed where siltation can occur.
- The final spacing, location, and number of the laterals may be altered by the field engineer to accommodate observed field conditions and/or to collect observed seeps and drain wet areas.

Response to Question 2: 3D profile

BGC can provide a 3D profile of the Lateral and Header pipe trenches before backfill, pursuant on JDS's approval of the costs associated with the effort. For Pelly's planning purposes it should be understood that before a profile can be generated BGC will need to be provided a detailed topography and raw data for the entire area to be modeled with a resolution of 1m. BGC will require 7 days from the time we receive this data to complete the model and perform quality control.

Response to Question 3: Y Connection

A Y connection will be acceptable.

Response to Question 4: ADS N12

The cell classification for ADS N12 BXS HDPE perforated, corrugated pipe provided does not meet all criteria of the Technical Specifications. Pelly should provide pipe manufacture information that shows a minimum compliance with all cell classification or an explanation from the pipe manufacture how a comparable test method shows compliance with the cell classifications.

Pelly should provide BGC specifications sheets showing that the perforations in the pipe meet the required standards referenced in the Technical Specifications.

Via an email sent by Dan Russel (Pelly) on June 21, 2018 Pelly has also asked for approval to remove wire ties from the ADS N12 installation. BGC recommends that the wire ties not be removed due to risk of pipe separation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to CC204-RFI-048

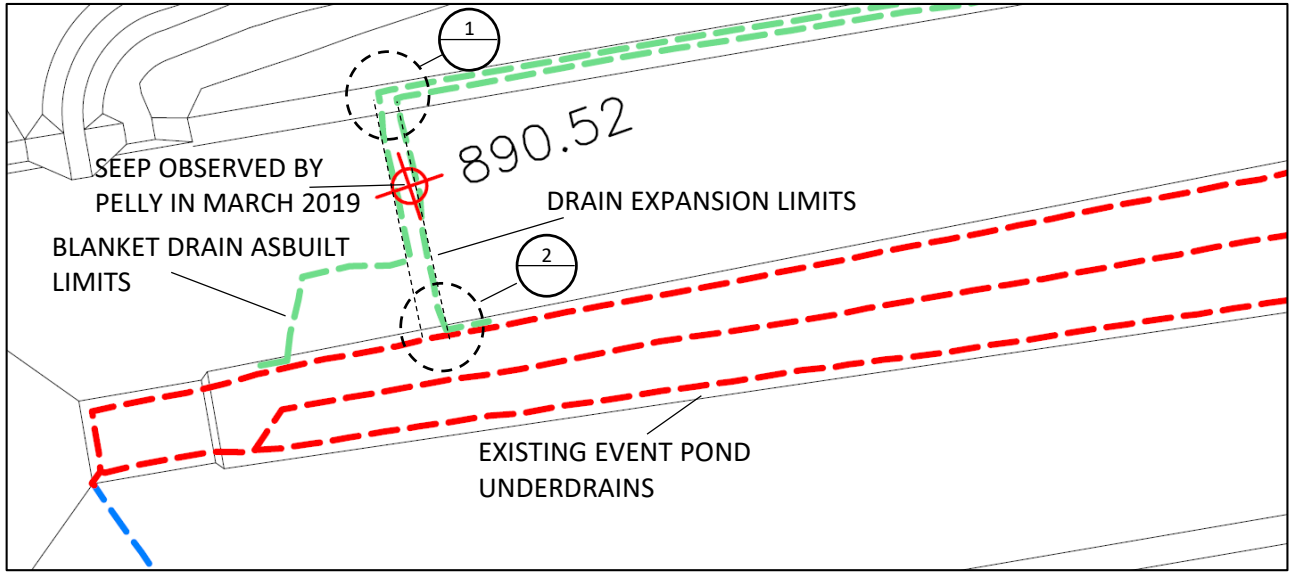
To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**April 7, 2019**
Copied:	**Troy Meyer**	**Record:**	**Response to CC204-RFI-048**

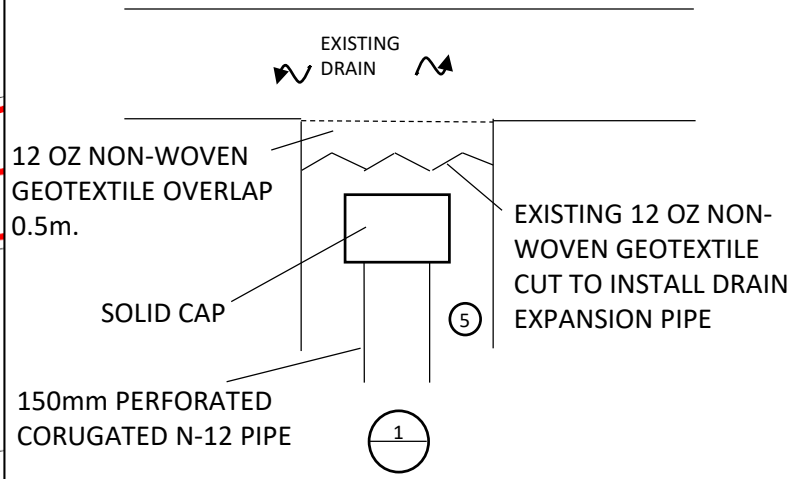
Re: Response to CC204-RFI-048:

1.0 RESPONSE

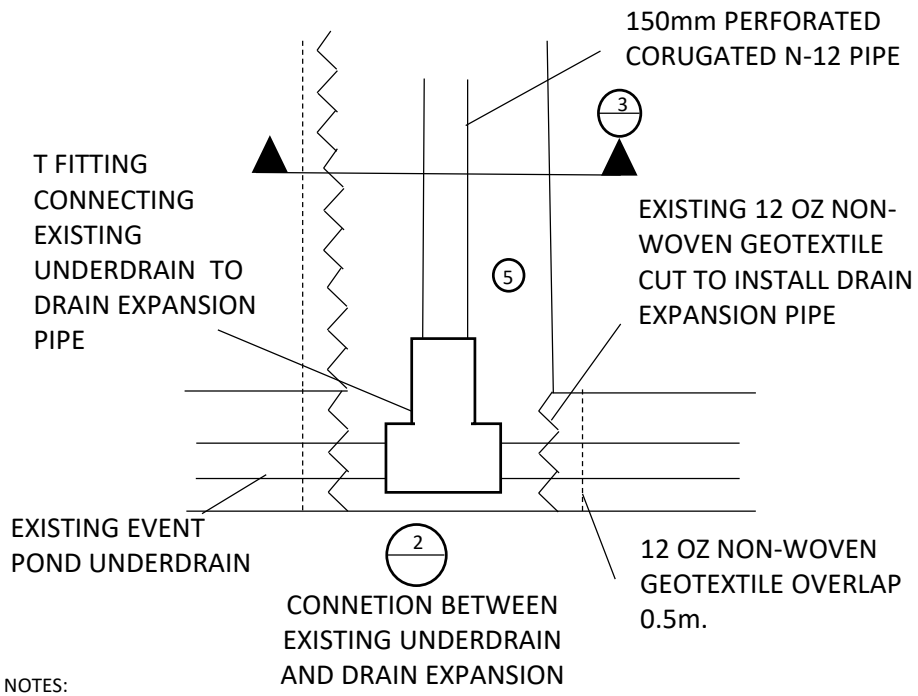
To mitigate the seeps on the north side of the Event Pond wall the blanket drain on the north wall was excavated and replaced with a piped drain as shown in ***Figure 1***.

To mitigate seepage along the spillway alignment an underdrain will be constructed. Three concepts were presented to JDS and Pelly for this drain. One providing a drain outlet to the lined Event Pond (***Figure 2***), one connecting the spillway underdrain to the Event Pond underdrains (***Figure 3***), and one diverting the spillway underdrain into a lined channel and discharging it to the west of Event Pond and away from the waste pile next to the Event Pond (***Figure 4***). JDS requested a design for the 3rd option believing it is more constructible. JDS also requested that the underdrain not be located directly under the spillway therefore it was moved to the northern extent of the spillway construction. The general design for this underdrain follows the typical underdrain design discussed in the IFC drawings with field fitting modification assumed and the special requirements discussed in ***Figures 5, 6, and 7***.

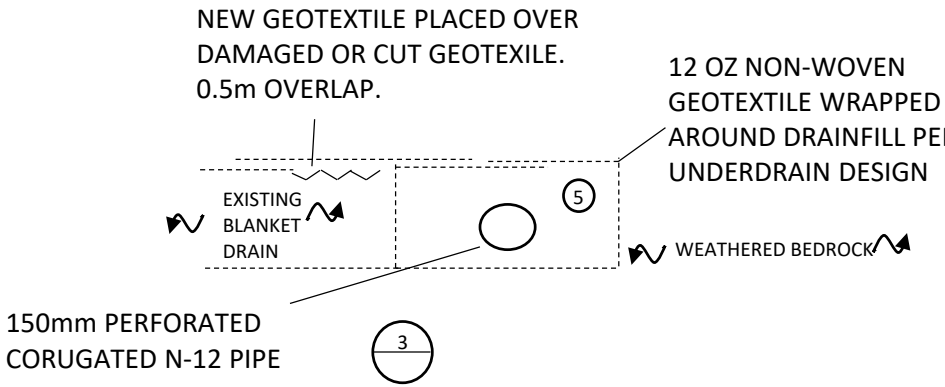




CONNECTION BETWEEN EXISTING FINGER DRAIN AND DRAIN EXPANSION



CONNETION BETWEEN EXISTING UNDERDRAIN AND DRAIN EXPANSION



TYPICAL DRAIN EXPANSION DETAIL

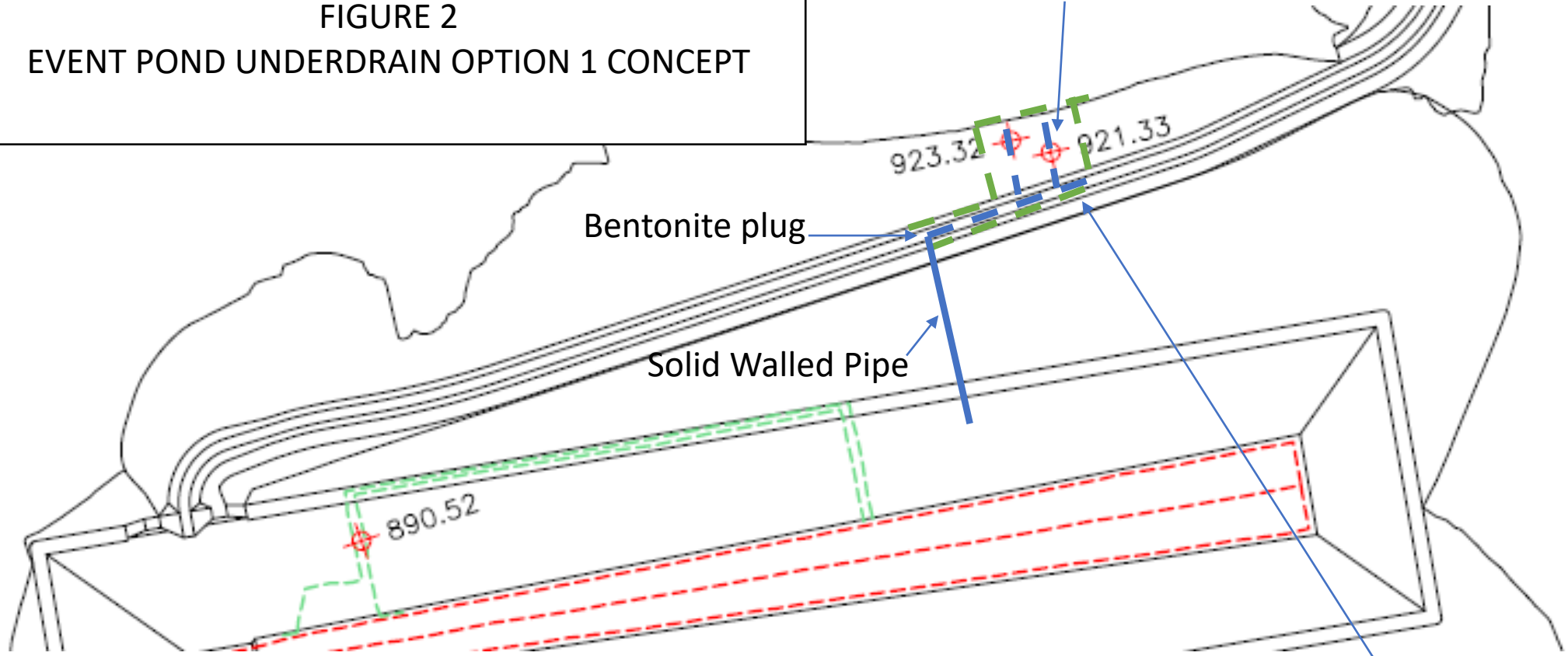
NOTES:
1. Drain size field fit to current blanket drain finger size or wide enough to install piping properly.
2. Damaged geotextile should be overlapped with new geotextile by 0.5m.
3. Drain design is typical for Event Pond udnerdrains as shown in drawings EGHLF-XD-07-03 unless otherwise specified in this drawing.
4. (5) = Material 5: Select Drain Fill
5. Not to scale.

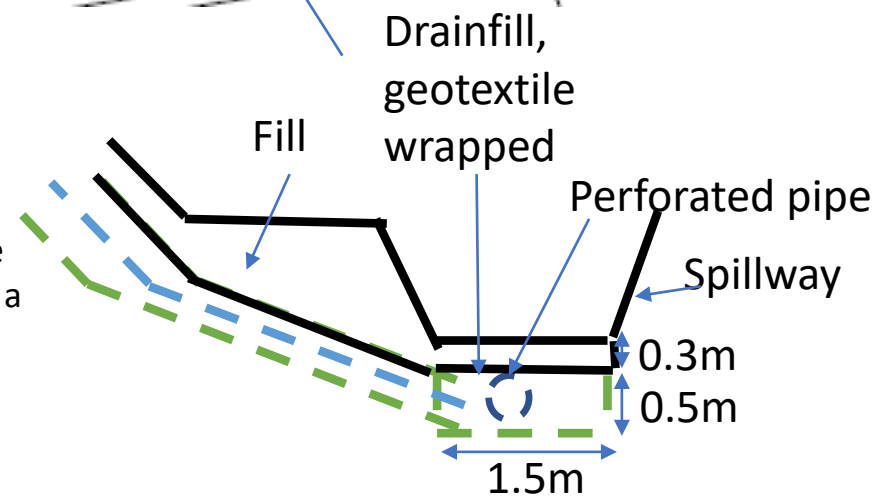
EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 1
EVENT POND BLANKET DRAIN EXPANSION DETAILS

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 2
EVENT POND UNDERDRAIN OPTION 1 CONCEPT

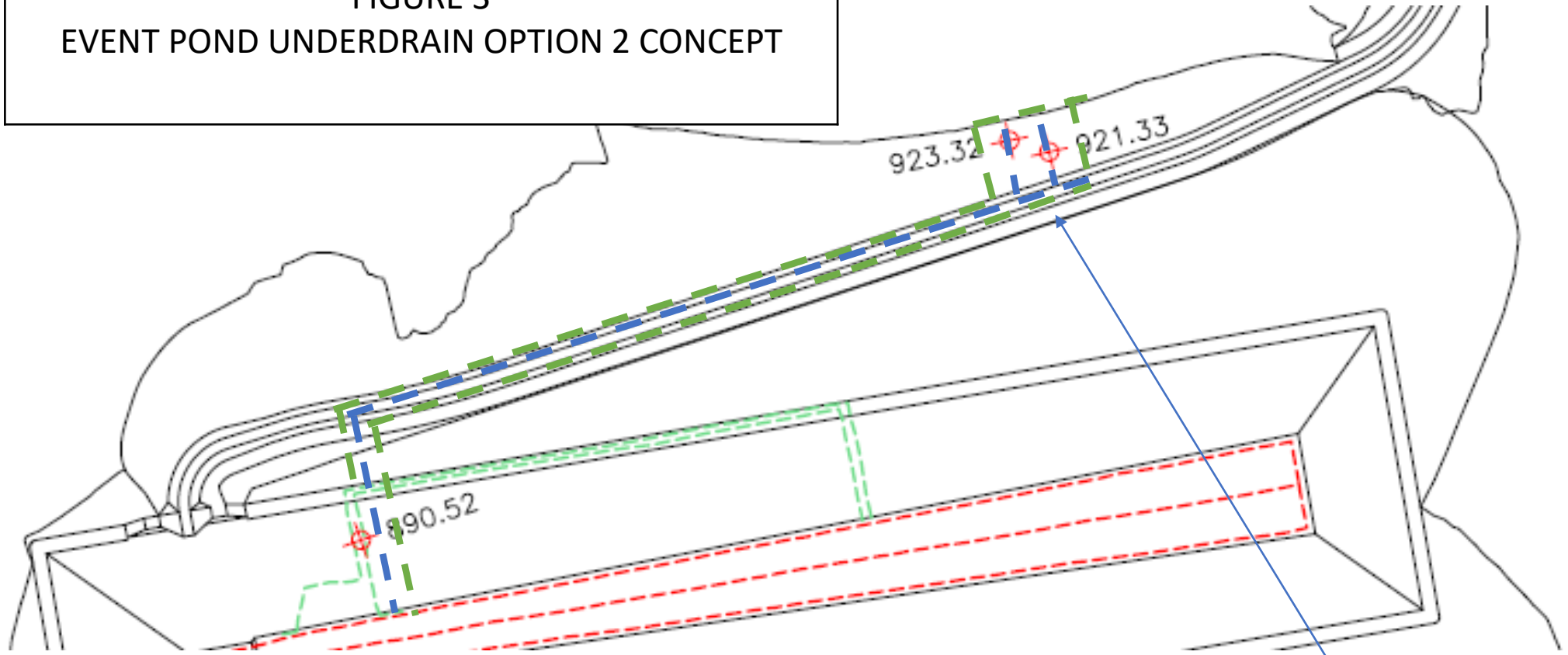


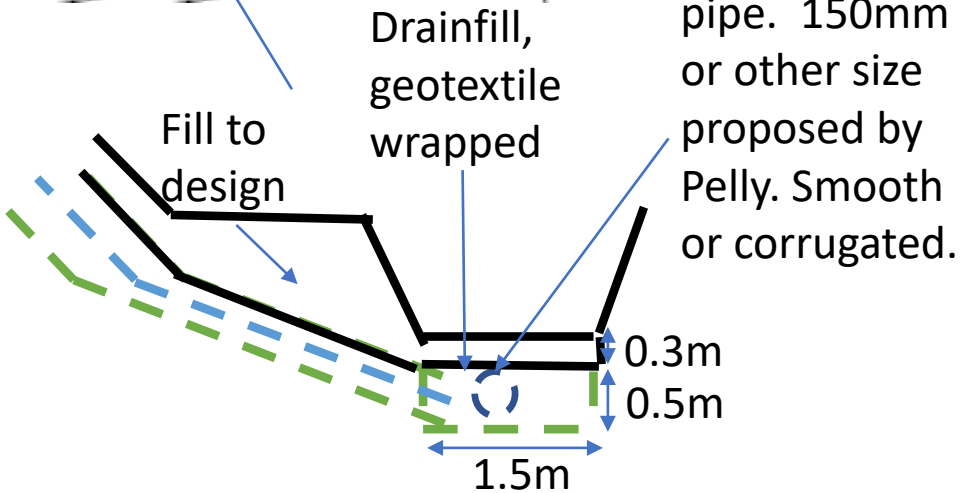


Drain ending with bentonite plug and solid walled (non perforated) pipe. Solid walled pipe can be run above ground or buried and flow into the lined event pond or around it to the east of there is a suitable place to discharge. Solid pipe would need to be affixed or supported to prevent it from damaging the bentonite plug. Pipe would need winterization.

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FIGURE 3
EVENT POND UNDERDRAIN OPTION 2 CONCEPT

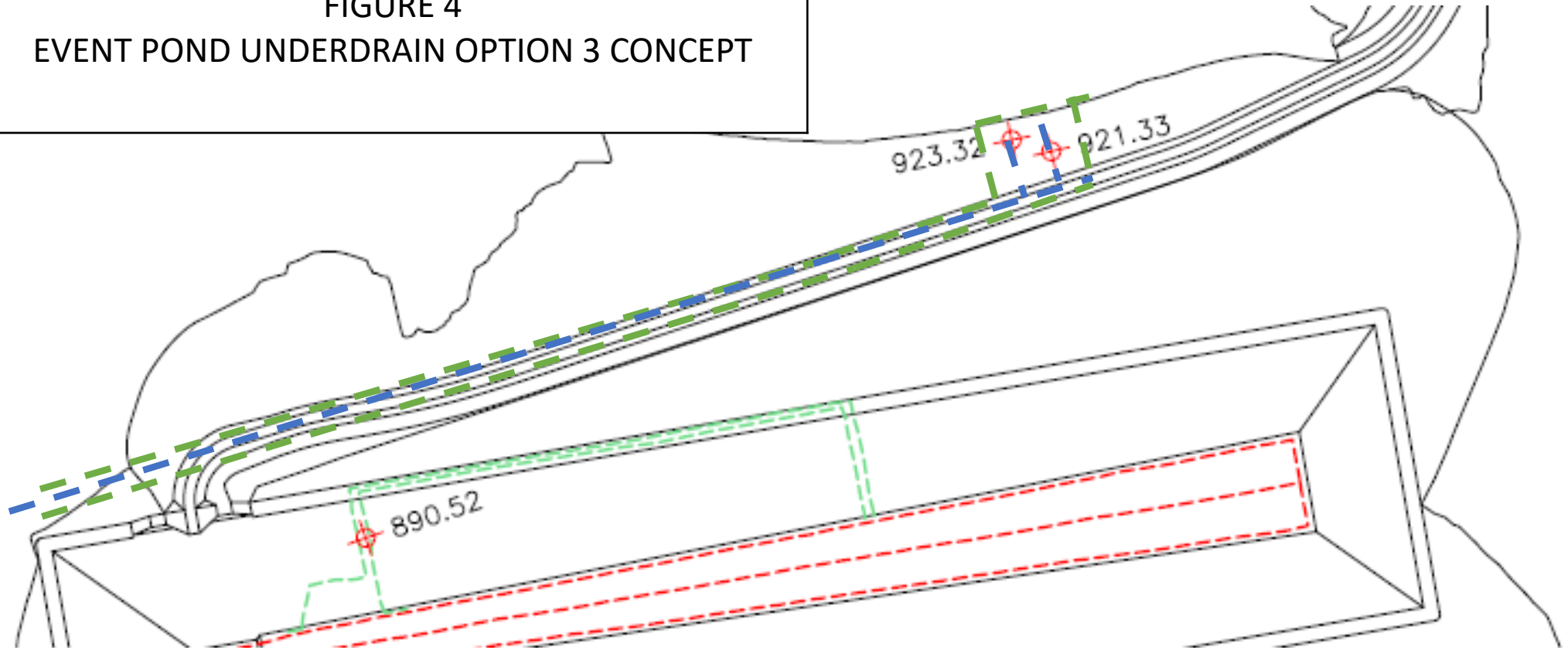




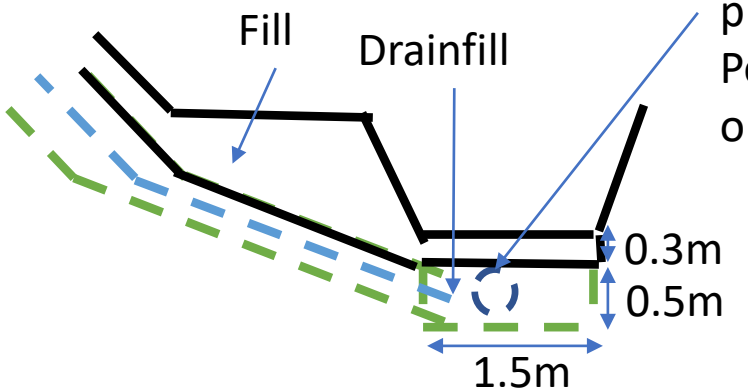
Spillway under drain is connected to the underdrain to be built on the event pond north slope.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 4
EVENT POND UNDERDRAIN OPTION 3 CONCEPT



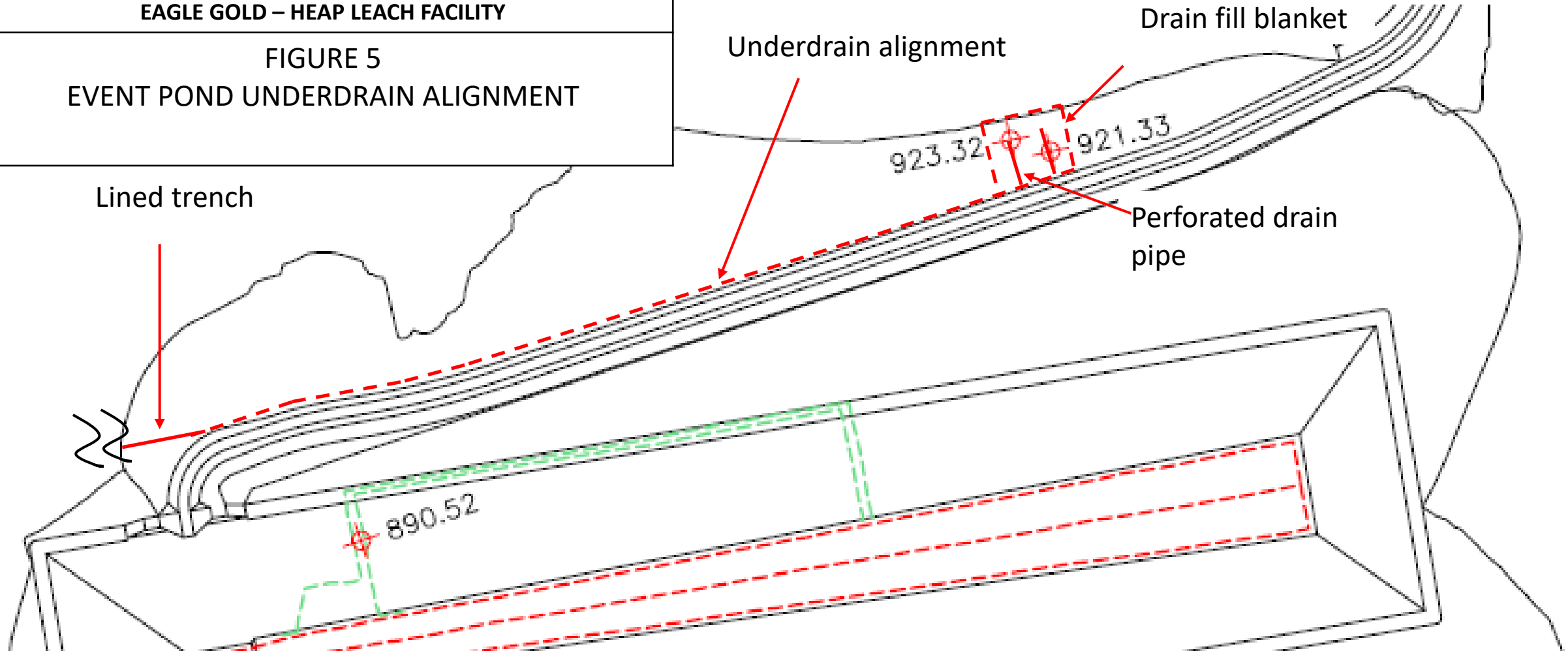
Underdrain outflow west of the spillway. Outflow would have to be controlled so it does not destabilize the waste pile and event pond berm by saturating them or their foundations.



Perforated pipe. 150mm or other size proposed by Pelly. Smooth or corrugated.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 5
EVENT POND UNDERDRAIN ALIGNMENT



Notes:

1.) Length and alignment of lined trench to be field fitted to drain away from the Event Pond and waste pile located directly west of the Event Pond. Alignment and final length to be approved by BGC.

2.) Blanket drain to be min 0.45m thickness for drain fill and 0.5m of cover. Drainfill should be wrapped with geotextile.

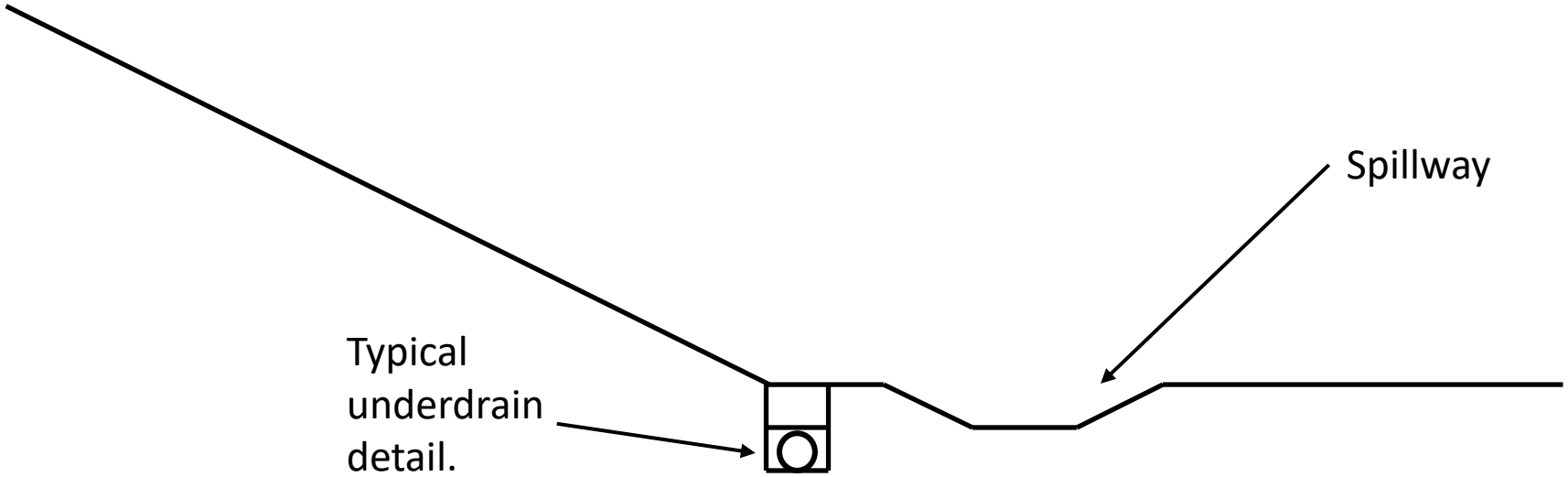
3.) Pipe sizes to be proposed by Pelly based on material available and approved by BGC.

4.) Size of blanket, number of pipes, and final location dependent on seepage observations observed during excavation. Blanket pipe to be tied into spillway underdrain perforated pipe using a T fitting or Y fitting depending on availability.

5.) No portion of the underdrain and lined trench should have a grade less than 2%.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 6
SPILLWAY UNDERDRAIN TYPICAL SECTION



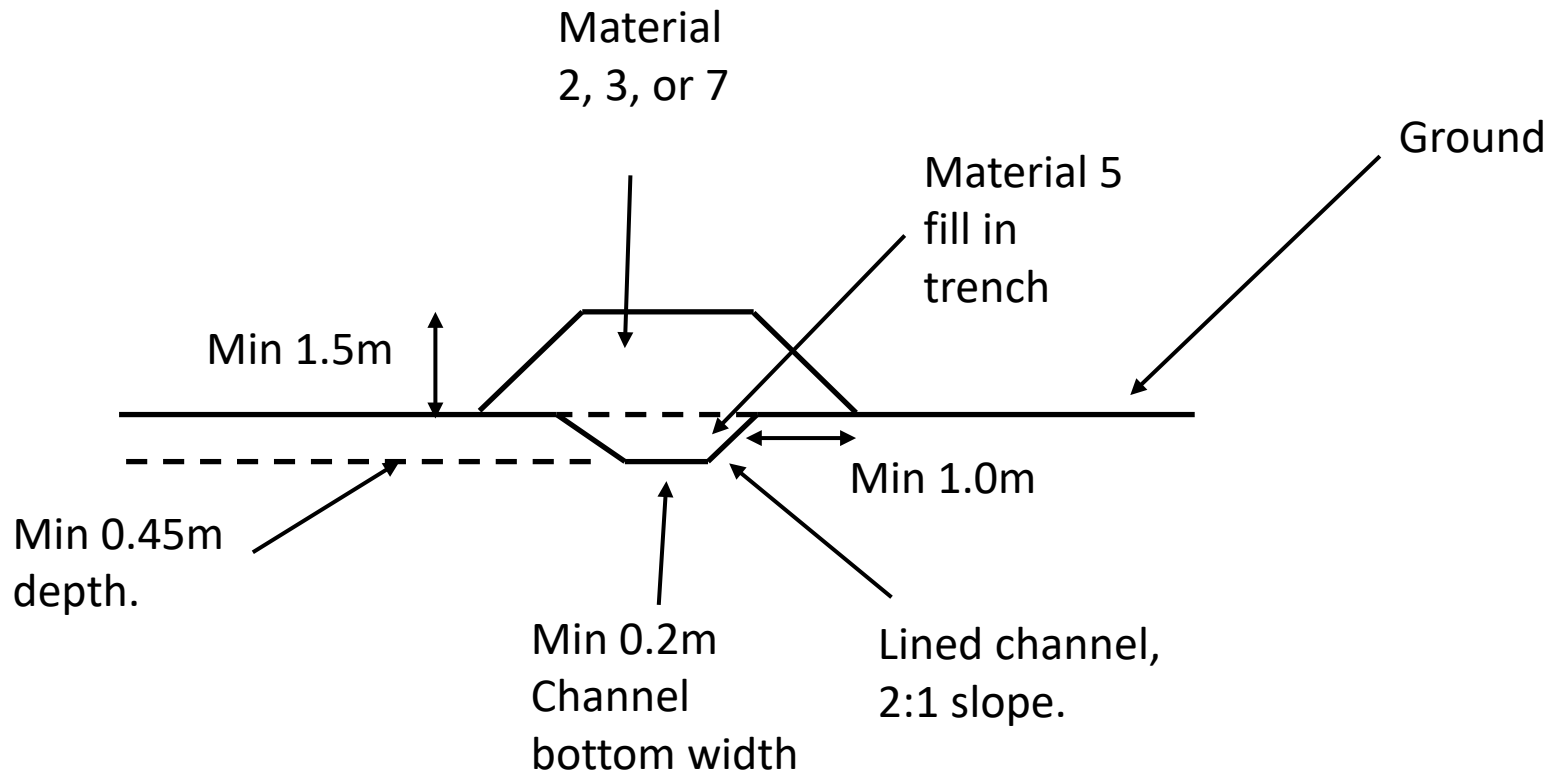
Notes:

1.) Typical Event Pond Underdrain details per IFC EGHLF-XD-03-04.

2.) Perforated drain pipe size to be chosen by Pelly based on availability and approved by BGC. Drain trench size may be modified to allow 0.1m of drain rock below the pipe and 0.2m of drain rock above depending on size of pipe.

3.) Top of drain fill should be no higher than the bottom of the spillway for any given section.

4.) Alignment of underdrain to be field fit to north extent of spillway bench.



Notes:

1.) Channel to be lined with geomebrane. Liner thickness, type , and bedding to be proposed by Pelly based on available material and approved by BGC. Lining to overlap min 0.5m in downstream direction.

2.) Channel to end in min 1m radius rip rap fan to be field fitting at construction.

3.) Trench cover should be compacted.

4.) JDS/Victoria Gold Environmental to determine if channel outlet is an acceptable distance from waste pile and if it meets environmental discharge requirements.

EAGLE GOLD – HEAP LEACH FACILITY

FIGURE 7

SPILLWAY UNDERRAIN CHANNEL TYPICAL SECTION

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: CC206-RFI-017	**Date Submitted:** Dec 13, 2018
Subject: PLS header corrected angle pup pieces	**Project Zone/Area:** HLF – PLS
Sub-contractor: Heavy North Construction	**Station/Location:** Steel Flanges connection to Manifold
Attention: JF Maille, Matt Coverdale	**Discipline:** Civil – Structural

REQUEST

Type of Change: ☐ Owner Change ☐ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: as per attached	**Other Related Documents:** as per attached

Information Request/Description of Issue:

Based on the incorrect fabrication of the 450mm PLS header spools of 162.4° vs. the design ISO of 112°, causing the incorrect invert elevation and receiving flanges orientation unable to tie in to the design PLS manifold at the invert elevation of 915.600

Proposed Corrective Action:

As per approved NCR CC206-HN-HLF-001 corrective action to produce pup pieces with corrected angle to connect PLS Steel Header to 20 x 450mm ADS Perf Corrugated inlets with flange on both ends, HN is proposing "Corix 50.5 DEG DR11 FxF" for the 18 N-S inlets and "S-Bend DR-11 FxF" for both East (INV 915.155) and West (INV 915.306) inlets as per attached shop drawings.

Cost Impact:	N/A		
Schedule Impact:	N/A		
Requested by:	**Tony Jay**		**Dec 13, 2018**
	Name	Signature	Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response: The proposed solution is acceptable. The following items were not specifically stated in the RFI but are assumed:

-BGC has not been provided the final as built for the in place manifold but rely on the dimensions and angles presented in this RFI.

-It is assumed that flange connections shall adhere to the requirements stated in Section 4.5.2 of the technical specificaitons.

Answered by:

Name Roy Morlan Signature Roy Morlan Date 12-14-18

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

Specified Fittings, LLC

164 West Smith Road • PO Box 28157 • Bellingham, WA 98228-0157 | Email: sales@specfit.com

Bellingham: 360-398-7700 | 360-398-7051 Fax
Stevensville: 406-777-3466 | 406-777-7181 Fax
Mexico (Toll Free): 800-429-1705 | 800-574-1075 Fax

SIGNED DRAWINGS MUST ACCOMPANY PURCHASE ORDER OR DIMENSIONS OF FITTINGS WILL NOT BE GUARANTEED

Specifications for HDPE

All fittings for HDPE pipe meet or exceed the following specifications.

ASTM F714 Standard Specification for Poltethylene (PE) Plastic Pipe (SDR-PR) Based on outside diameter.

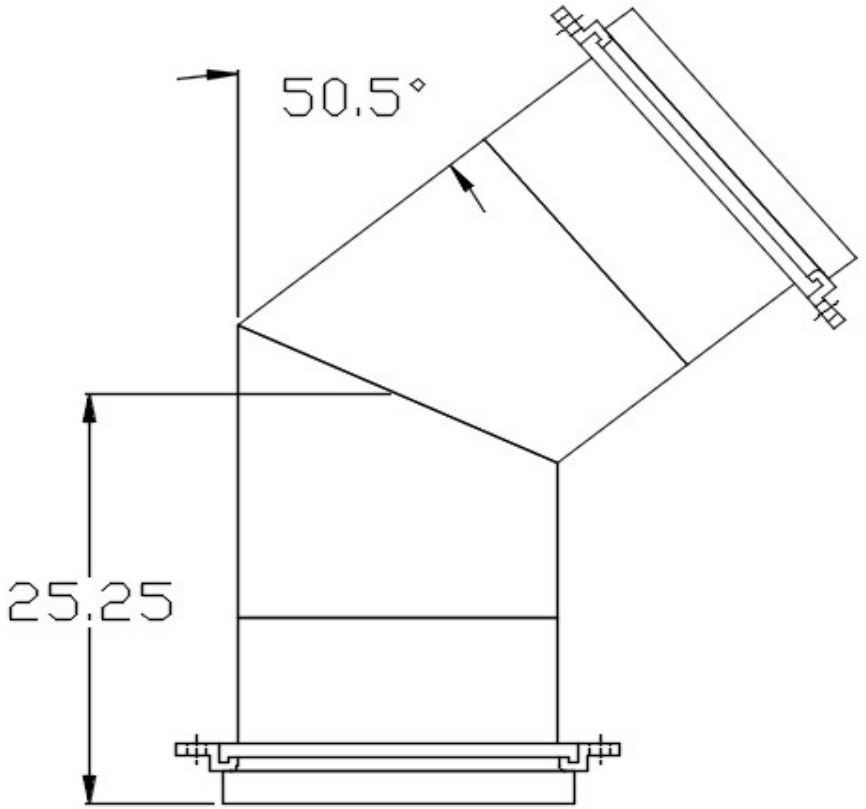
ASTM D3350 Standard Specification for Polyethylene Plastic Pipe and Filling Material

ASTM D3035 Standard Specifications for Polyethylene (PE) Plastic Pipe (SDR-PR). Based on Controlled Outside Diameter.

ASTM D2837 Standard Specification for Hydrostatic Design Basis

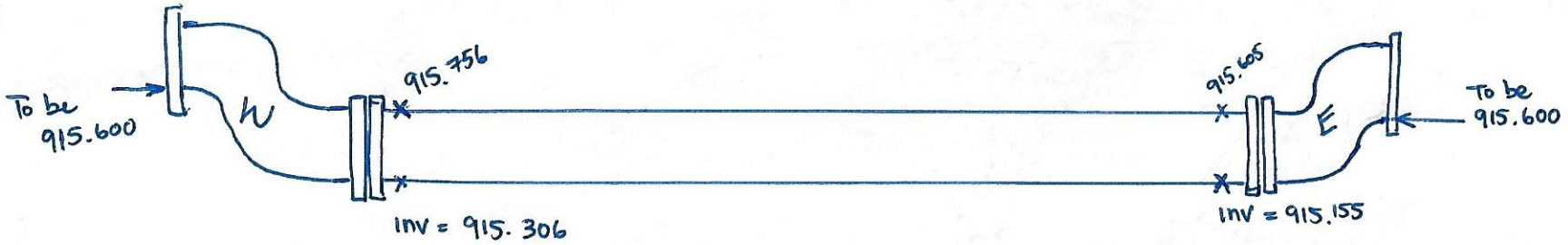
DISCLAIMER - PLEASE READ

1) All dimensions approximate, subject to change without notice
--Angle tolerance is +/- 2 degrees
--All other dimensions to +/- 1"
2) This drawing only applicable if a copy is referenced at time of order.
--Without a copy of drawing, fitting construction may differ from that shown.
3) Subject to Specified Fittings Standard Terms and Conditions.



12/11/2018	
Description:	50.5 DEGREE ELBOW
Material:	HDPE 4710 DR11
Size:	18" IPS
Configuration:	FLANGE X FLANGE

SALES	KC
CAD TECH	DE


To be
915.600
W
915.756
915.605
E
To be
915.600
Inv = 915.306
Inv = 915.155

NON-CONFORMANCE REPORT BGC Review

NCR #: CC206-HN-HLF-001

Site Location: Eagle Gold, Yukon

Date Submitted: Dec 9, 2018

Subject: HLF – Fabrication of Steel Manifold	**Project Zone/Area:** Central Yukon, Canada
Contractor: Heavy North	**Station/Location:** Victoria Gold, Eagle Gold, Yukon
PO/Contract No: CC206	**Discipline:** Construction

NON-CONFORMANCE DETAILS

System: PLS Sump Header Spool	**Sub-System:**
Related Drawings: H354138-4120-250-278-0004_00 H354138-4120-250-278-0005_00	**Other Related Documents (Specifications, etc.):**

Description of the Non-Conformance:
Based on survey as-built information collected in the field, the PLS sump Header spools was fabricated at 162.4° vs. the designed of 112° causing an alignment issue tying in to the manifold (Perforated BBQ Grill).

Materials Quarantined:	Prepared By: Tony Jay	JDS Receipt: JFalcette
n/a	Date: December 9, 2018	Date: 2018-12-11

PROPOSED SOLUTIONS

Proposal By:

☒ Supplier/Contractor ☐ JDS

Proposed Action:

☒ Use as is ☒ Modification ☐ Deviation ☐ Replacement ☐ Repair subject to procedure indicated

Proposal Details:
Install PLS Sump Header Spool as is. Once the header is installed, survey to complete as-built and provide all information to fabricate HDPE pup pieces with corrected angle to fit between PLS Sump Header Spool and the PLS manifold as per attached markup drawing (20181208 – HLF Header Spool Angle – Proposed corrective action).

Proposed by: Tony Jay, Project Coordinator — Dec 11/18

Name/Title | Signature | Date

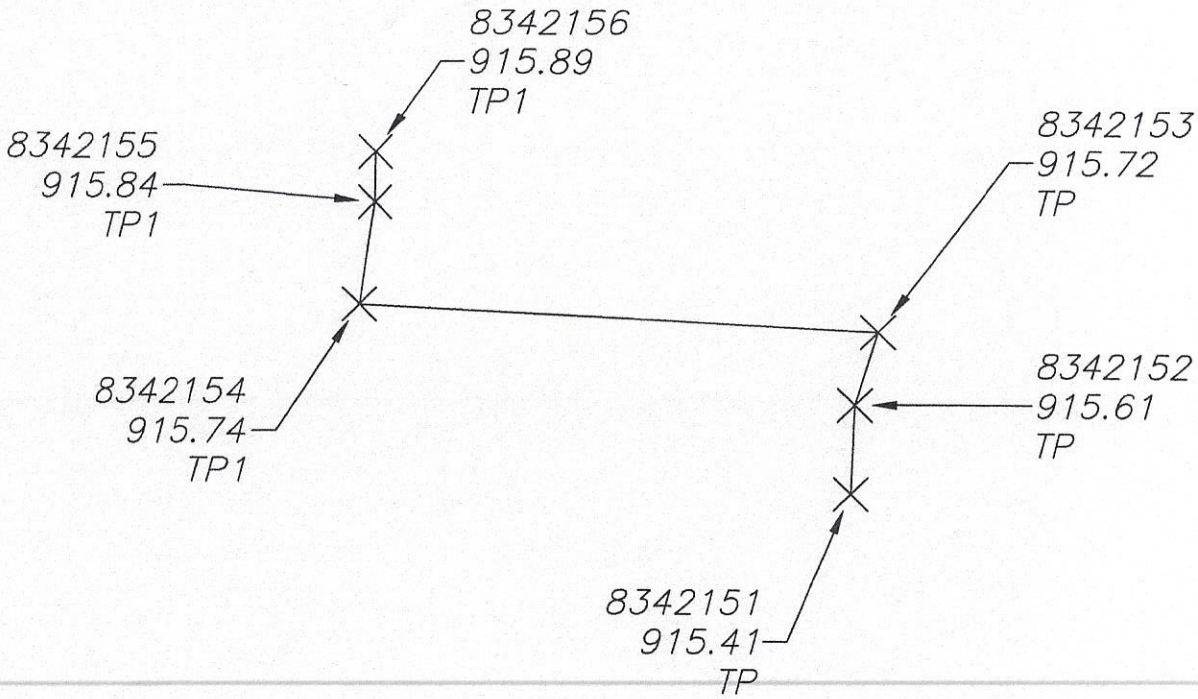
DECISION

Decision:

☒ Accepted with proposed remedial action ☐ Does not conform but accepted ☐ Does not conform & rejected

Additional Comments: A formal RFI should be submitted to BGC w/ details for the proposed solution for approval. Details should include a drawing w/ Adapter dimentions and materials and Final expected elevation for all pipes involved.

Supplier/~~Contractor~~: Engineer of Record Rep	JDS:
Signature: Roy Morlan, BGC	Signature: JFalcette
Title: Sr. Geologist Date: 12/11/18	Title: Date: 2018/12/11

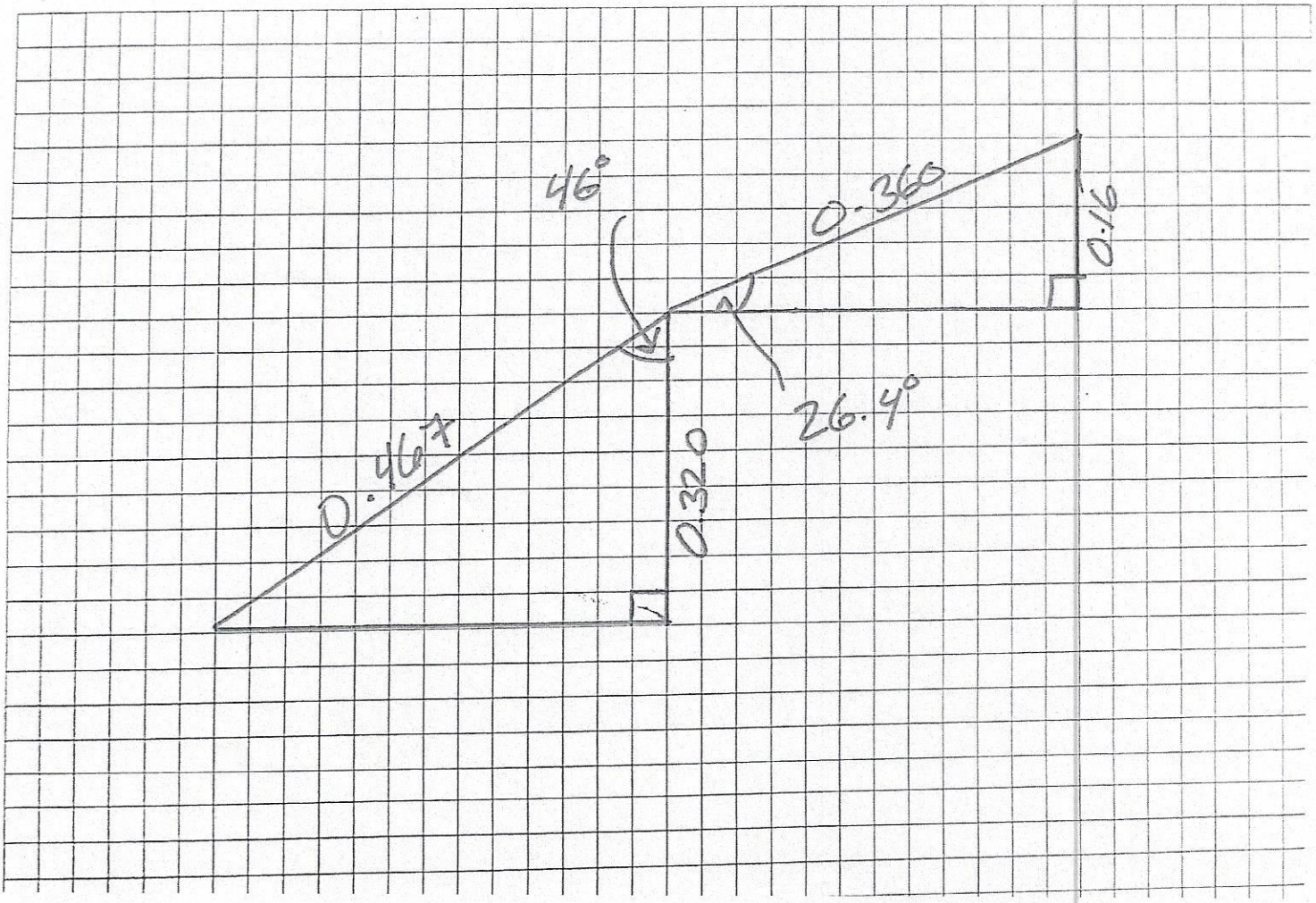

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TP1
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915.61
TP
8342151
915.41
TP

1.85 F.G.
1.85 F.G.

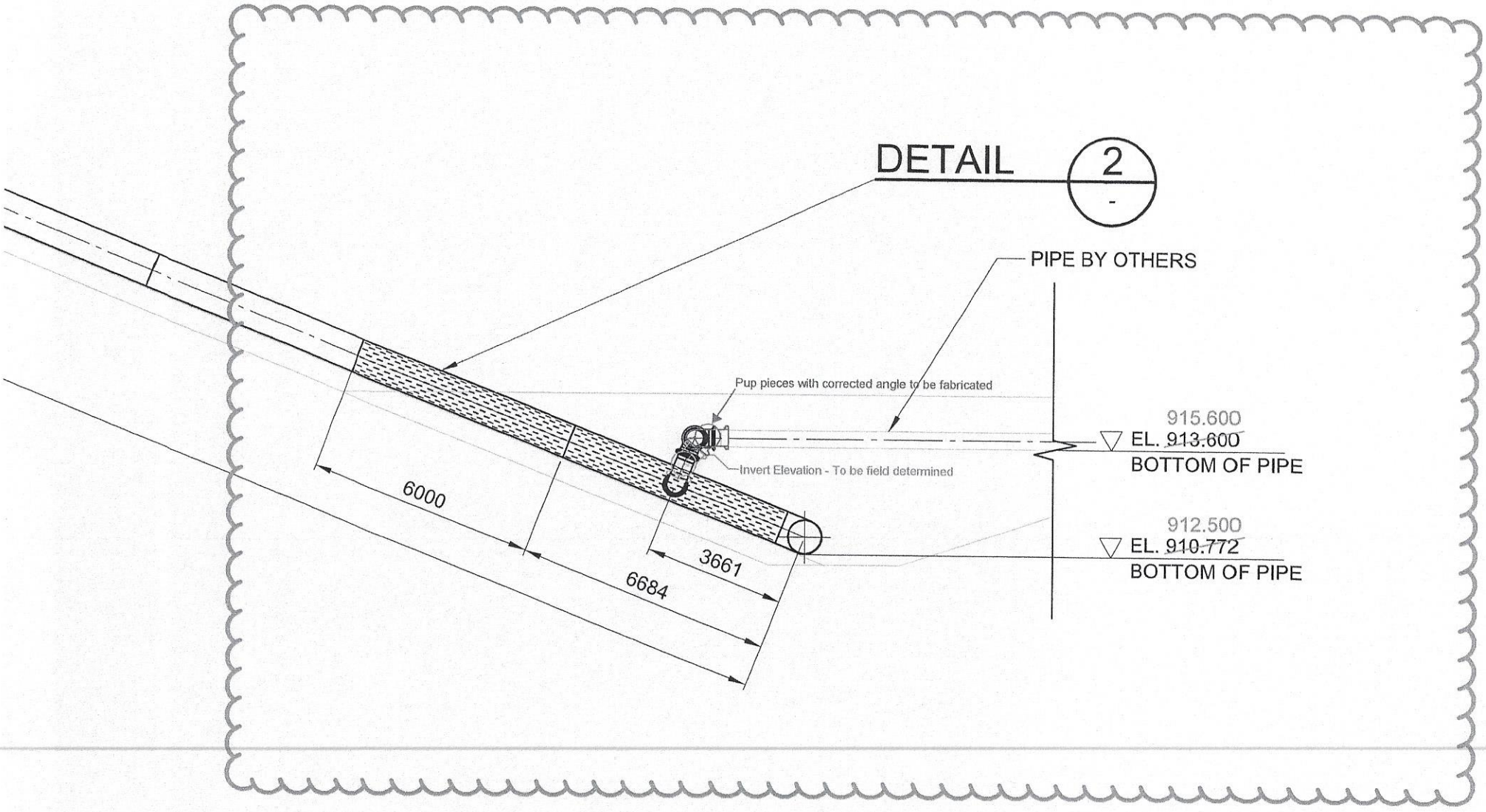
UNDERHILL GEOMATICS LTD.
Professional Land Surveyors and Geomatics Engineers

JOB NO / CLIENT : HEAVY NORTH DATE : 2018-12-09

PROJECT : HLF HAMMER HEAD BOOT UP



Scanned by CamScanner


DETAIL 2
-
PIPE BY OTHERS
Pup pieces with corrected angle to be fabricated
Invert Elevation - To be field determined
915.600
EL. 913.600
BOTTOM OF PIPE
912.500
EL. 910.772
BOTTOM OF PIPE
6000
6684
3661

REQUEST FOR INFORMATION

JDS RFI:	**EPCM-RFI-007**
Contractor RFI:	
Site Location: EAGLE GOLD	
Date Submitted: October 19 2017	

Subject: HLF – Monitoring Well Decommissioning	**Project Zone/Area:** Heap Leach Facility
Contractor: Pelly Construction	**Station/Location:** Embankment
Attention: Roy Morlan	**Discipline:** Civil

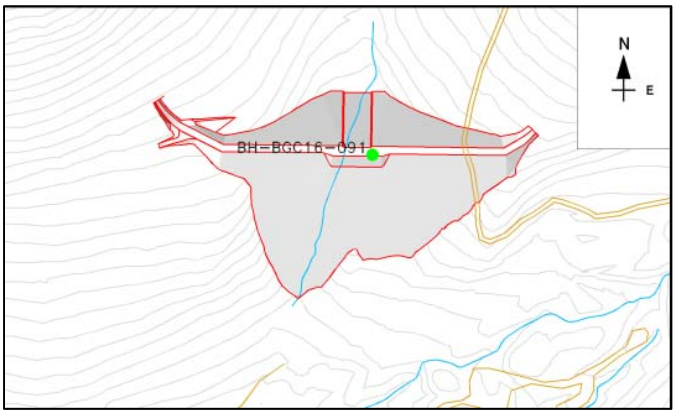
REQUEST

Related Drawings:	**Other Related Documents:**

Information Request/Description of Issue:

Requesting procedure to decommission the monitoring well located within the HLF embankment.

Monitoring Well #: BH-BGC16-091



Proposed Corrective Action

Propose to fill the Monitoring Well with bentonite chips and/or grout and cut the PVC pipe to current ground elevation.

Type of Change:	☐	Owner Change	☒	Clarification/Info	☒ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other
Cost Impact:					
Schedule Impact:					

Requested by: Matt Coverdale	Matt Coverdale	**October 19, 2017**
Name	Signature	Date

RESPONSE

☐ Approved ☐ Approved as noted ☐ Rejected as noted

Response:

Answered by:

Name	Signature	Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Contractor's risk and expense.

REQUEST FOR INFORMATION

EPCM RFI No.: EPCM-RFI-022	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: EPCM-RFI-022	**Date Submitted:** July 6, 2018
Subject: HLF liner testing method	**Project Zone/Area:** Heap Leach Facility
Sub-contractor: Layfield	**Station/Location:** Heap Leach Facility
Attention: BGC	**Discipline:** Civil

REQUEST

Type of Change:	☐ Owner Change	☐ Clarification/Info	☐ Field Change		
	☐ Vendor Change	☐ Design Change	☒ Other		

Related Drawings: EGHLF-XD-02-06	**Other Related Documents:**

Information Request/Description of Issue:

1. EPCM proposes to remove the requirement for a conductive backed liner.

Proposed Corrective Action

1. EPCM proposes remove conductive backed liner and use a valid-test (vacuum) to validate liner in the LDS layer

Cost Impact:			
Schedule Impact:			
Requested by:	**D'Arcy Comerford**		**July 6, 2018**
	Name	Signature	Date

RESPONSE

☒	Approved	☐	Approved as noted	☐	Rejected as noted

Response:

Answered by:	Troy Meyer, P.Eng.		11 July 2018
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

REQUEST FOR INFORMATION

JDS RFI:	**EPCM-RFI-001**
Contractor RFI:	
Site Location: EAGLEGOLD	
Date Submitted: SEPT 18 2017	

Subject: Clarification on SDF materials	**Project Zone/Area: Heap Leach Foundation**
Contractor: EPCM	**Station/Location:**
Attention: Tony Monasterio	**Discipline: Civil**

REQUEST

Related Drawings: **BGC Drawings EGHLF-XD-03-03 Rev 0 & 04 Rev 0**	**Other Related Documents:** **Specifications for Select Drain Fill**

Information Request/Description of Issue:

1: Request an increase in allowable fines content for Select Drain Fill (SDF) material used for underdrain pipe bedding between station 0+050 and 0+400.

2: Detail 14 of drawing #EGHLF-XD-03-04 shows Pipe Trench Backfill material between "Finished Grade" and SDF. Confirm depth of SFP material required under the embankment footprint. Bringing Pipe Trench Backfill Materials to "Finished Grade" is a large amount of material due to depth of excavation.

Proposed Corrective Action

Type of Change:	☐	Owner Change	☒	Clarification/Info	☒ Field Change
	☐	Vendor Change	☐	Design Change	☐ Other

Cost Impact:	
Schedule Impact:	

Requested by: CALVIN GOLDSCHMIDT **SEPTEMBER 18, 2017**

Name Signature Date

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

Response:
1: Maximum fines content for the Select Drain Fill placed between Sta 0+050 and 0+400 is increased to 7%. Additionally, the maximum size of Select Drain Fill has been modified to include slightly coarser material. See revised gradation below:

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
20 mm	100
12.5 mm	85-100
No. 200	0-7

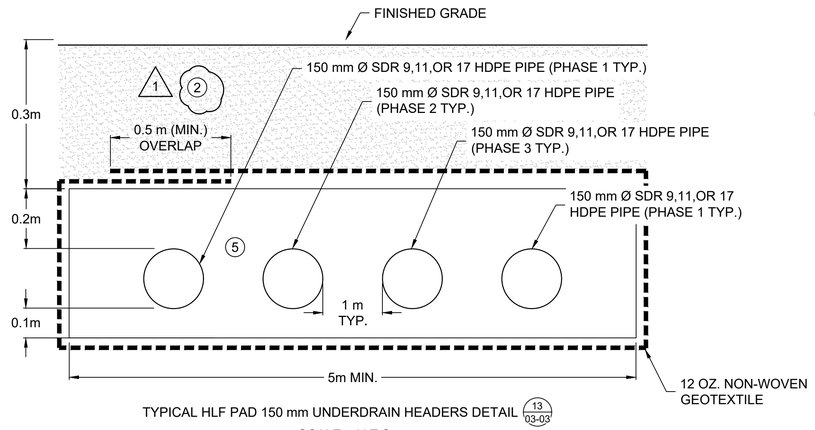
The pipe trench transition into the monitoring vault shall be modified to provide removal of fluids and fines as shown on Rev 1 of EGHLF-XD-05-06.

2: Drawings EGHLF-XD-03-04, EGHLF-XD-03-05, and EGHLF-XD-05-06 have been modified to clarify the design, see Rev 1 attached.

Answered by: Tony Monasterio **09/22/2017**

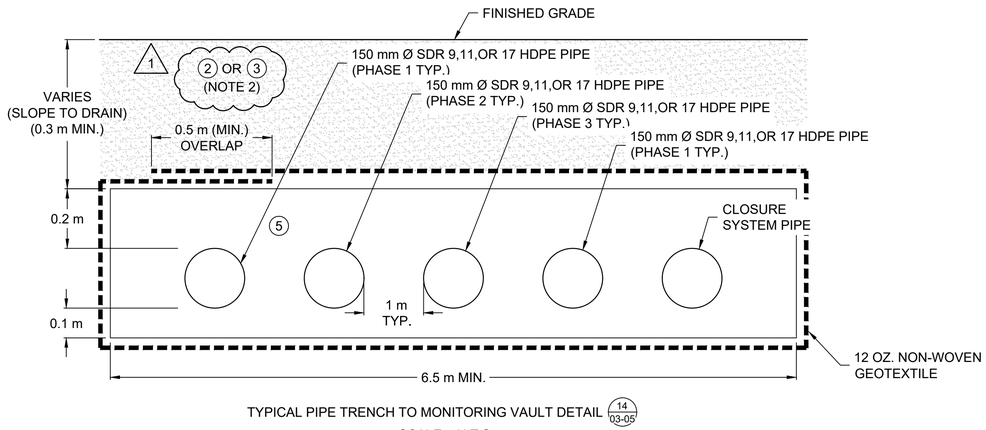
Name Signature Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Contractor's risk and expense.



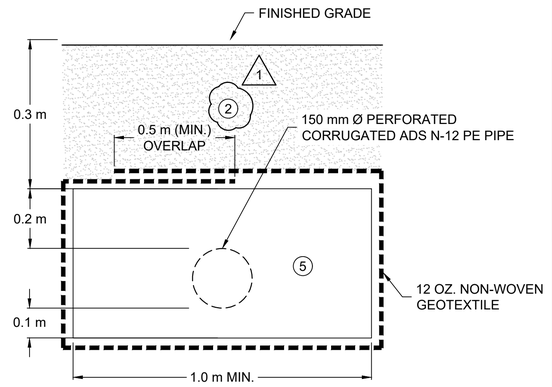
TYPICAL HLF PAD 150 mm UNDERDRAIN HEADERS DETAIL 13/03-03

SCALE = N.T.S.



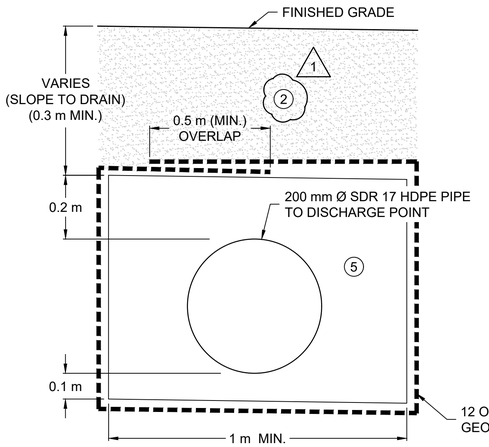
TYPICAL PIPE TRENCH TO MONITORING VAULT DETAIL 14/03-05

SCALE = N.T.S.



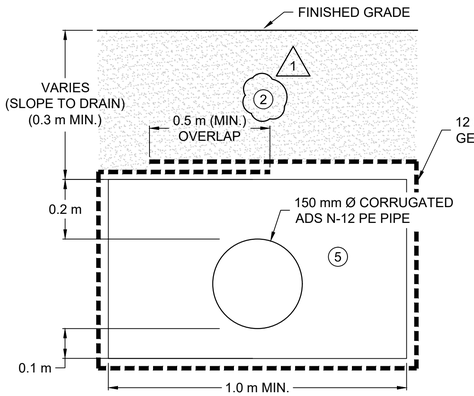
TYPICAL EVENT POND 150 mm UNDERDRAIN DETAIL 15/03-03

SCALE = N.T.S.



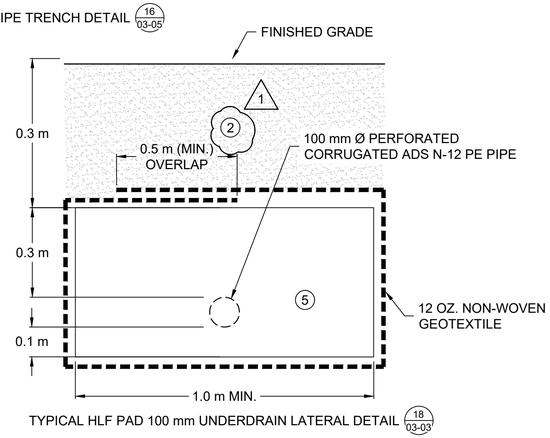
TYPICAL MONITORING VAULT DISCHARGE PIPE TRENCH DETAIL 16/03-05

SCALE = N.T.S.

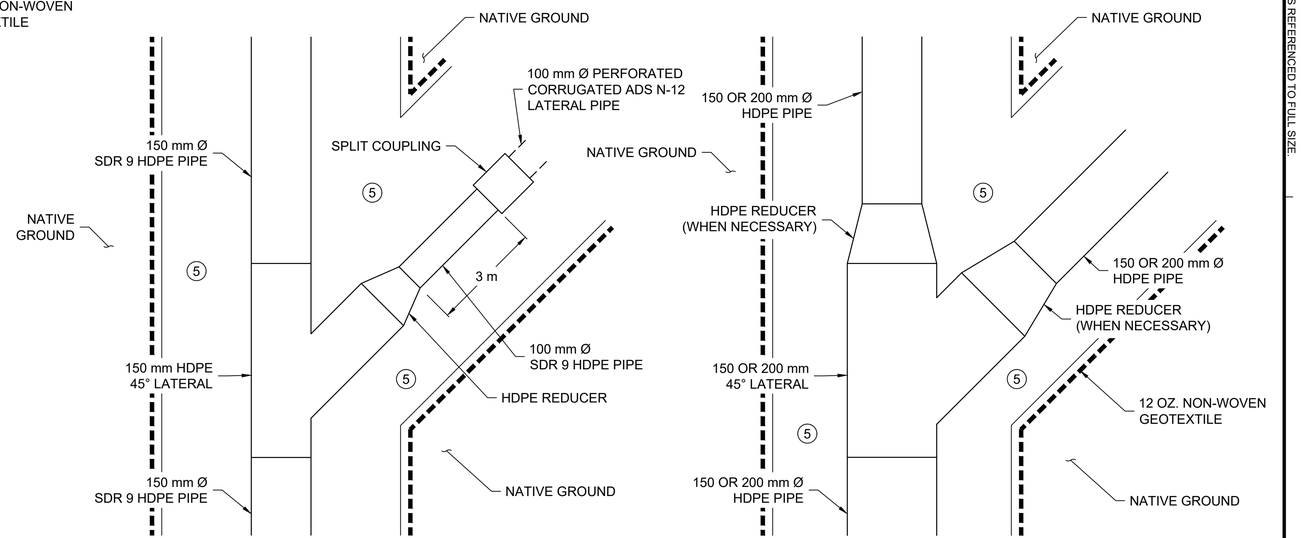


TYPICAL EVENT POND DISCHARGE PIPE TRENCH DETAIL 17/03-03

SCALE = N.T.S.



TYPICAL HLF PAD 100 mm UNDERDRAIN LATERAL DETAIL 18/03-03



LATERAL CONNECTION

TRANSITION TO LARGER PIPE

TYPICAL UNDERDRAIN PIPE CONNECTION DETAIL 19/03-05

SCALE = N.T.S.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SELECT FILL SHALL BE USED IN ALL TRENCH LOCATIONS OVERLAIN BY LINER. STRUCTURAL FILL MAY BE USED IN LOCATIONS UNDER THE EMBANKMENT PROVIDED NO ANGULAR PARTICLES OR PARTICLES LARGER THAN 75 mm ARE PLACED IN CONTACT WITH GEOTEXTILE.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND

1
2 SELECT FILL
3 STRUCTURAL FILL
5 SELECT DRAIN FILL

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

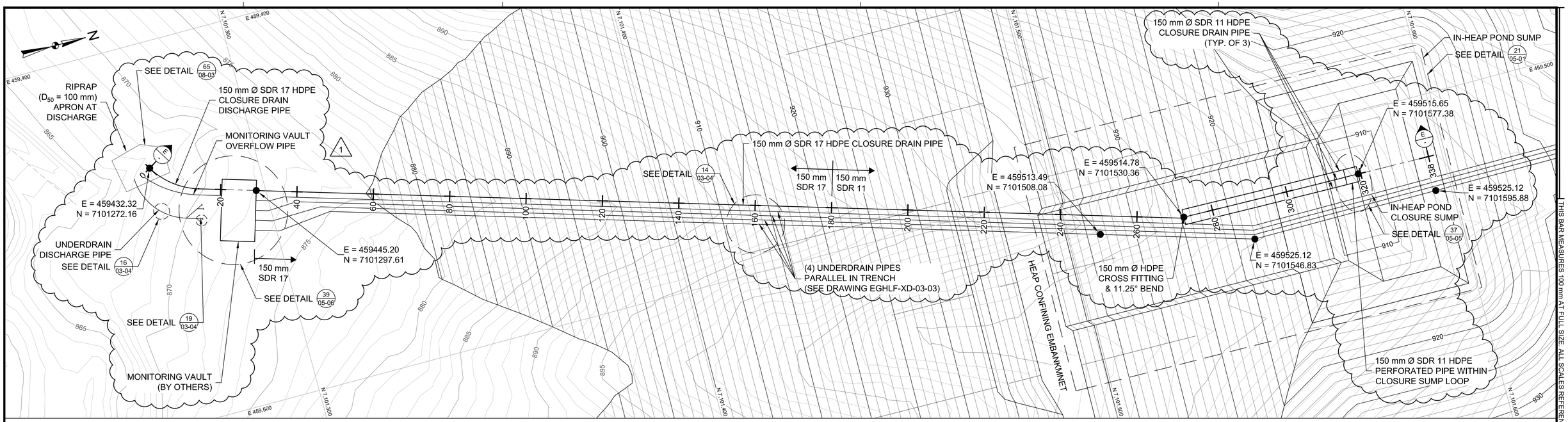
REVISION INFORMATION

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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	21	DAG	TLM	MEH	TLM	REVISE DETAILS

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

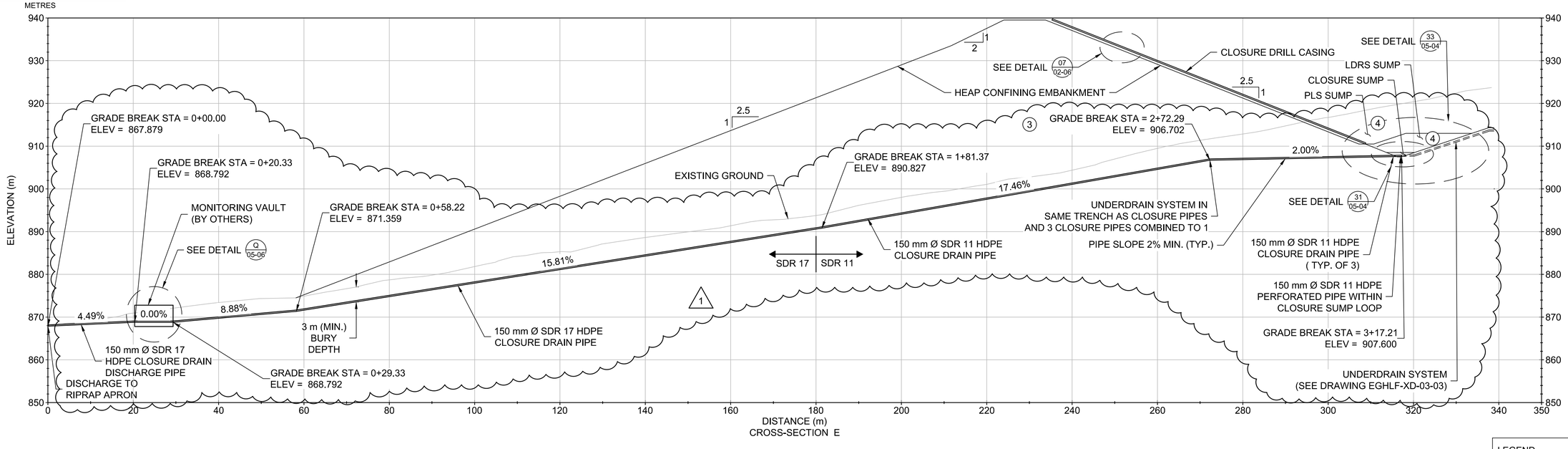
DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 UNDERDRAIN PIPING DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: -	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-03-04 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: -		

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SCALE 1:500

METRES



THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	13	DAG	TLM	MEH	TLM	CLOSURE AND UNDERDRAIN ALIGNMENT AND PROFILE REVISED

DRAWN BY:	CHECK DRAWING:
DAG	CJT
DESIGN BY:	CHECK DESIGN:
TLM	MEH
LEAD ENGINEER:	APPROVAL DATE:
DEH	-
PROJECT MANAGER:	APPROVAL DATE:
TLM	-

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

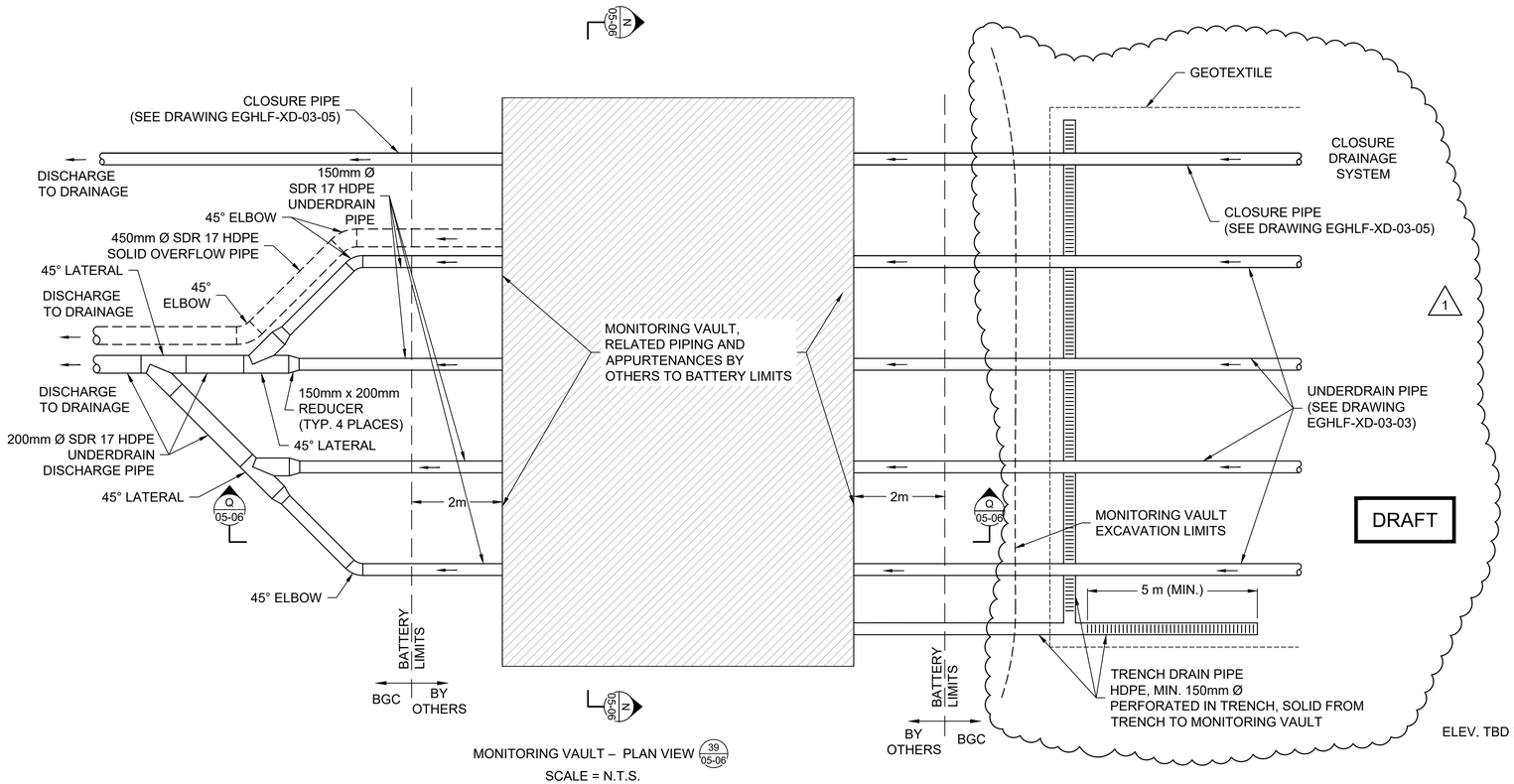
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CLOSURE PIPING PLAN AND PROFILE

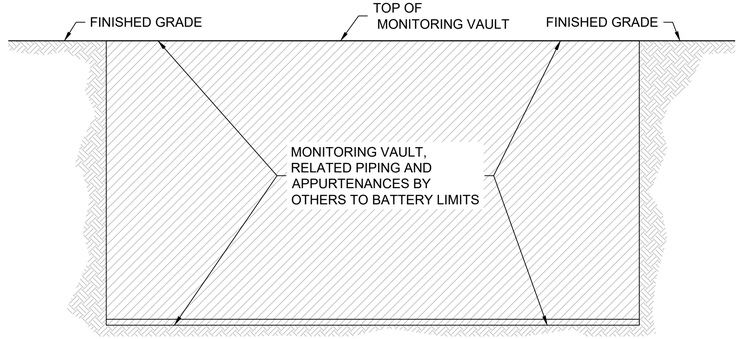
SCALE:	DWG No.:	REV.:
1:500	EGHLF-XD-03-05	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

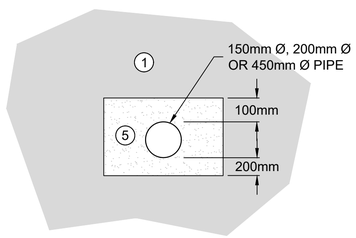
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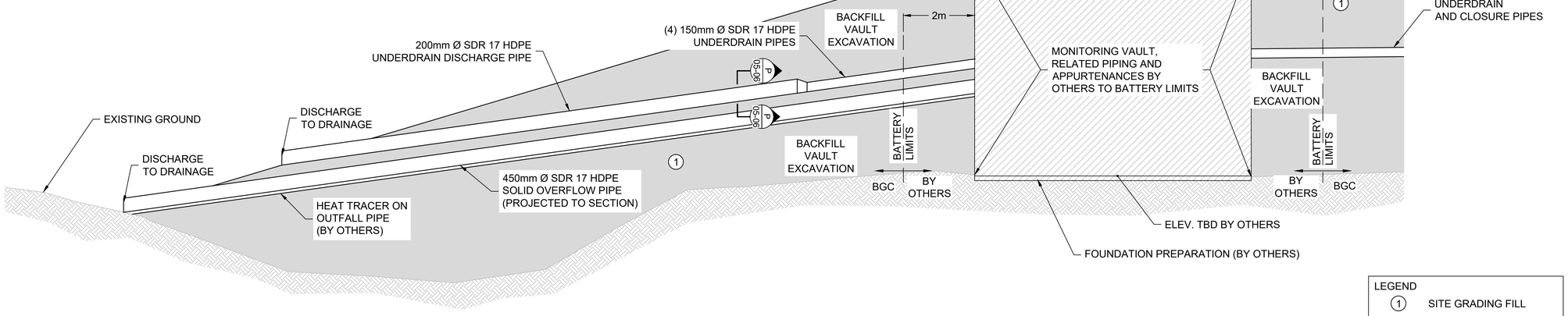
MONITORING VAULT – PLAN VIEW (39 05-06)
SCALE = N.T.S.



CLOSURE OUTLET VAULT SECTION (N 05-06)
SCALE = N.T.S.



TYPICAL PIPE TRENCH DETAIL (P 05-06)
SCALE = N.T.S.



MONITORING VAULT – PROFILE VIEW (Q 05-06)
SCALE = N.T.S.

LEGEND
1 SITE GRADING FILL
5 SELECT DRAIN FILL

NOT FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. MONITORING VAULT TO BE DESIGNED BY OTHERS AND SHOWN HERE FOR REFERENCE ONLY. BATTERY LIMITS FOR BGC DESIGN ARE 2 m FROM OUTSIDE OF MONITORING VAULT. DESIGN OUTSIDE TETRA TECH BATTERY LIMITS ARE FOR REFERENCE ONLY..

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	17	09	22	DAG	TLM	MEH	TLM	ADD TRENCH DRAIN PIPE

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: -
PROJECT MANAGER: TLM	APPROVAL DATE: -

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: MONITORING VAULT DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-05-06	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\FC\EAGLE GOLD - HEAP LEACH FACILITY\DAG Archive\EGHLF-XD-05-06-pipe Added.dwg Layout: EGHLF-XD-05-06 Plot Date Sep 22 17 Time: 10:55 AM

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No. **EPCM-RFI-002**	**Site Location:** Victoria Gold
Sub-Contractor RFI No.:	**Date Submitted:** 09/25/2017
Subject: Requesting structural fill clarification	Project Zone/Area: Heap Leach Foundation
Sub-contractor: Pelly Construction Ltd.	Station/Location: HLF Embankment
Attention: Tony Monasterio	Discipline: Civil

REQUEST

Related Drawings:	**Other Related Documents:**
EGHLF-XD-02-01-Phase 1 Pad Grading Plan EGHLF-XD-02-05- Corridor Typical Sections	BGC – 01047_EG07-002_Eagle Gold HLF Specification Summary

Information Request/Description of Issue:
1) While excavating the colluvium unsuitable material down to Type 3 bedrock from the west embankment, larger sized, blockier material has been encountered; falling out of the 150mm specified "structural fill".

Proposed Corrective Action
1) Requesting a variance for larger sized material exceeding the 150mm specified "structural fill"

Type of Change:	☐	Owner Change	☑	Clarification/Info	☐ Field Change
	☐	Vendor Change	☑	Design Change	☐ Other
Cost Impact:	No cost increase				
Schedule Impact:	Allows Pelly to use all unsuitable colluvium material excavated while reaching Type 3 bedrock in the Confining Embankment fill				

Requested by: **Matt Coverdale** **09/25/207**
Name Signature Date

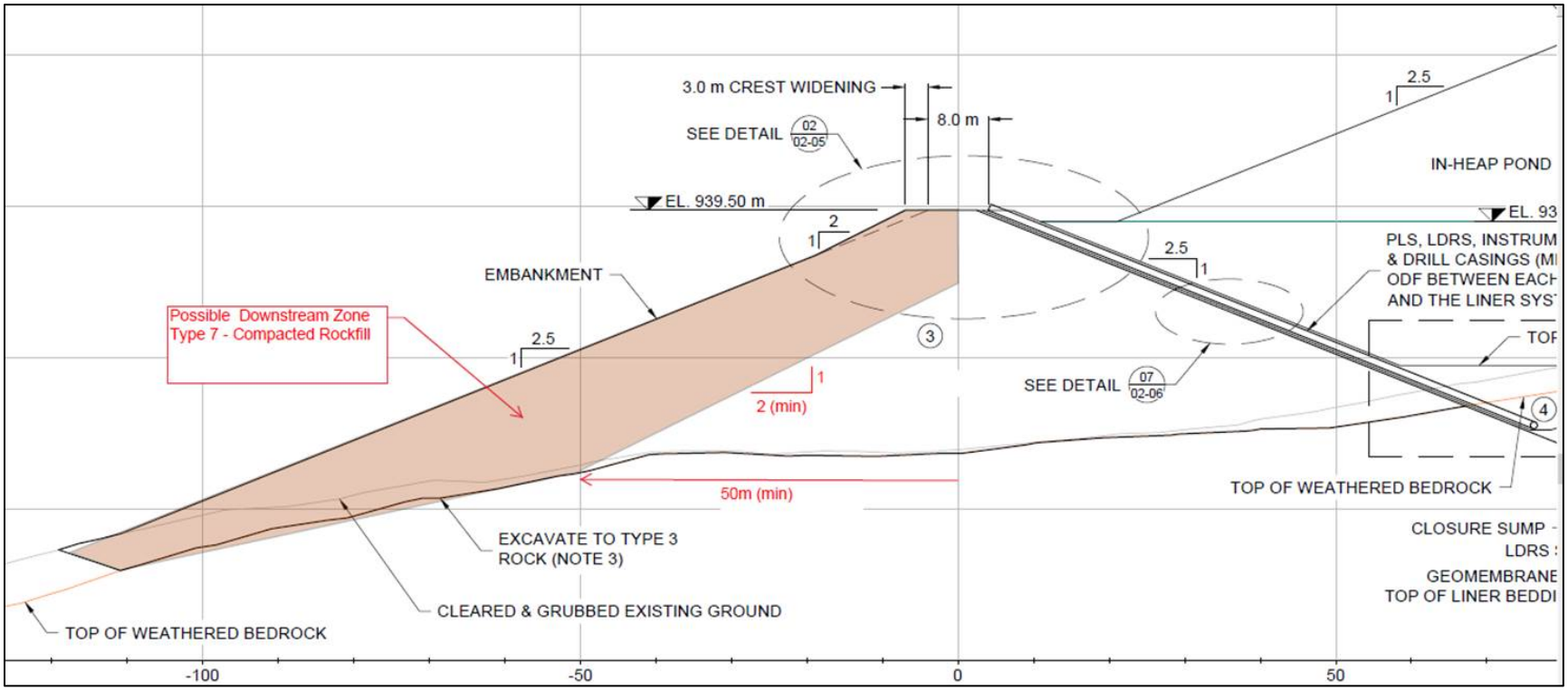
RESPONSE

☐ Approved ☑ Approved as noted ☐ Rejected as noted

Response:
The maximum particle size of Structural Fill is increased from 150 mm to 200 mm.
BGC will allow placement of oversize material, as described in the Compacted Rockfill specifications. Compacted Rockfill may be placed only in the downstream section of the embankment as shown in attached sketch, and shall not be in direct contact with any material other than Site Grading Fill, Select Fill and Structural Fill. Compacted Rockfill shall not be interlayered with other fill products. If the Compacted Rockfill is judged by the Engineer to not be filter compatible with surrounding material, additional transition material or geotextile will be required.

Answered by: **Tony Monasterio** **Sept. 28, 2017**
Name Signature Date

Note: Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.



Sketch illustrating acceptable area for placement of Compacted Rockfill, shown in red shade. Background drawing (black) is for reference only, not for construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Response to EPCM-RFI-012

To:	**D'Arcy Comerford**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**May 11, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**Response to EPCM-RFI-012**

Re: Response to EPCM-RFI-012:

The downstream to of the embankment can be keyed into the existing ground. Details for this connection are depicted in ***Figure 1***. These details apply to locations where the embankment toe abuts against natural colluvium as shown in Design Drawings EGHLF-XD-04-02 and EGHLF-XD-04-03. General requirements for this connection include the following:

- The contact slope between the natural ground and embankment fill should maintain a slope of 2H:1V, where possible. Final slope may be modified with the Engineer's approval based on actual ground conditions encountered.
- The natural ground surface should be composed of dense colluvium as approved by the Engineer. Natural ground surface should meet the requirements discussed in Technical Specifications – Heap Leach Facility, Section 3.2 – Subgrade Preparation and Section 3.4 – General Fill Placement Procedures.
- The portion of the toe in direct contact with the natural ground should be constructed using Material 3 - Structural Fill as shown in ***Figure 1***. Structural Fill should be placed as described in the Technical Specifications and subsequent RFI responses.
- If the embankment face is constructed with Material 8 – Rockfill as described in the response to EPCM-RFI-002 then the contact between the Structural Fill and Rockfill should maintain a near vertical face as shown in ***Figure 1***.

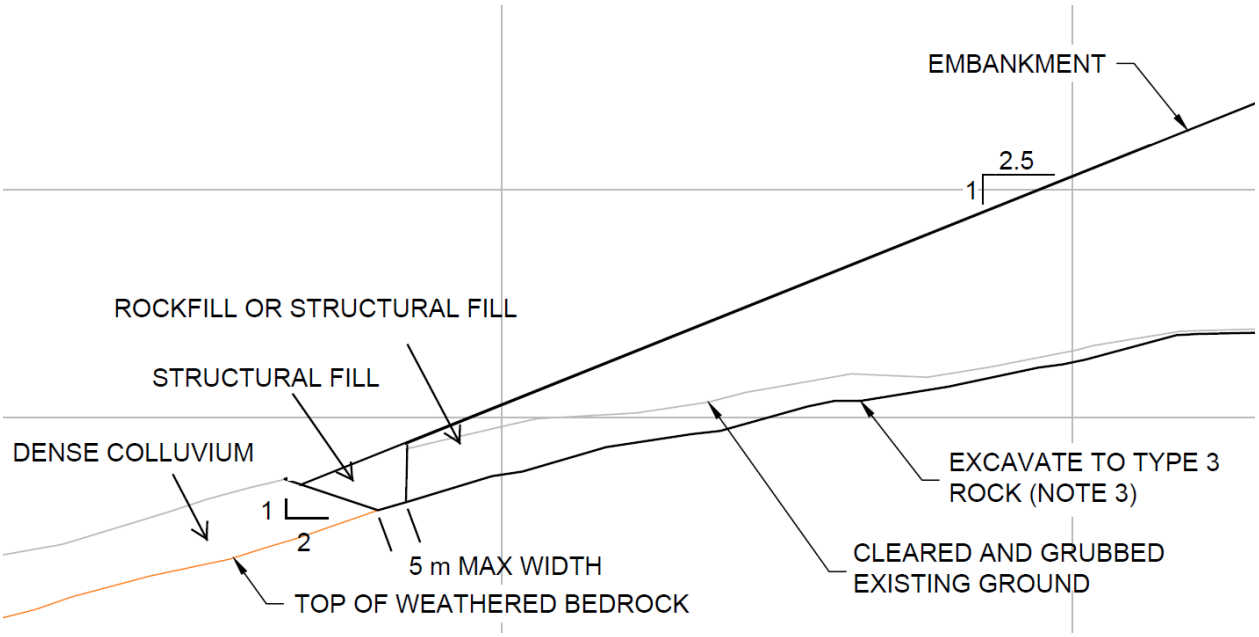


Figure 1: Details for the contact between the HLF Embankment and colluvium.

STRATAGOLD
EAGLE GOLD PROJECT

REQUEST FOR INFORMATION

EPCM RFI No.:	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: RFI-40	**Date Submitted:** Aug 1, 2018
Subject: HLF Embankment Construction	**Project Zone/Area:**
Sub-contractor:	**Station/Location: HLF Embankment**
Attention:	**Discipline:**

REQUEST

Type of Change: ☐ Owner Change ☐ Clarification/Info ☒ Field Change ☐ Vendor Change ☐ Design Change ☐ Other

Related Drawings: See attached 03-05	**Other Related Documents:**

Information Request/Description of Issue:
Pelly is requesting the confirmation of the new Embankment material geometry discussed in the field on July 27, 2018.

Cost Impact:	
Schedule Impact:	

Requested by:

Name	Signature	Date
Shipeng Zheng		**Aug 1, 2018**

RESPONSE

☐ Approved ☒ Approved as noted ☐ Rejected as noted

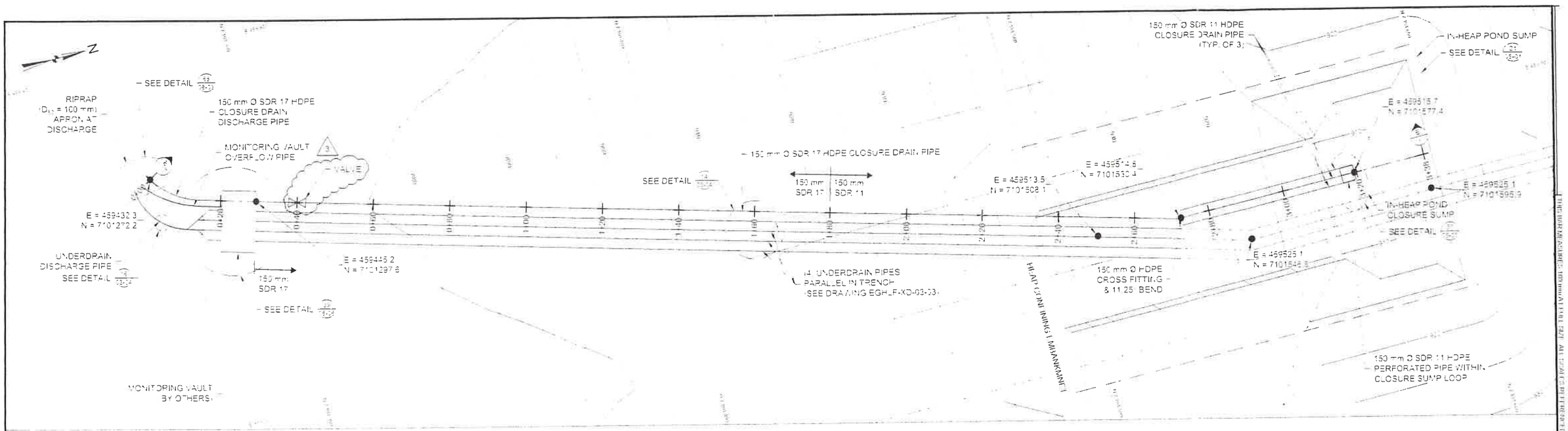
Response:

See attached drawing with zoning discussed in the field July 27, 2018. An answer to this RFI was informally provided the week of July 30 and work has proceeded forward in compliance with this change. This response is to formally close this RFI.

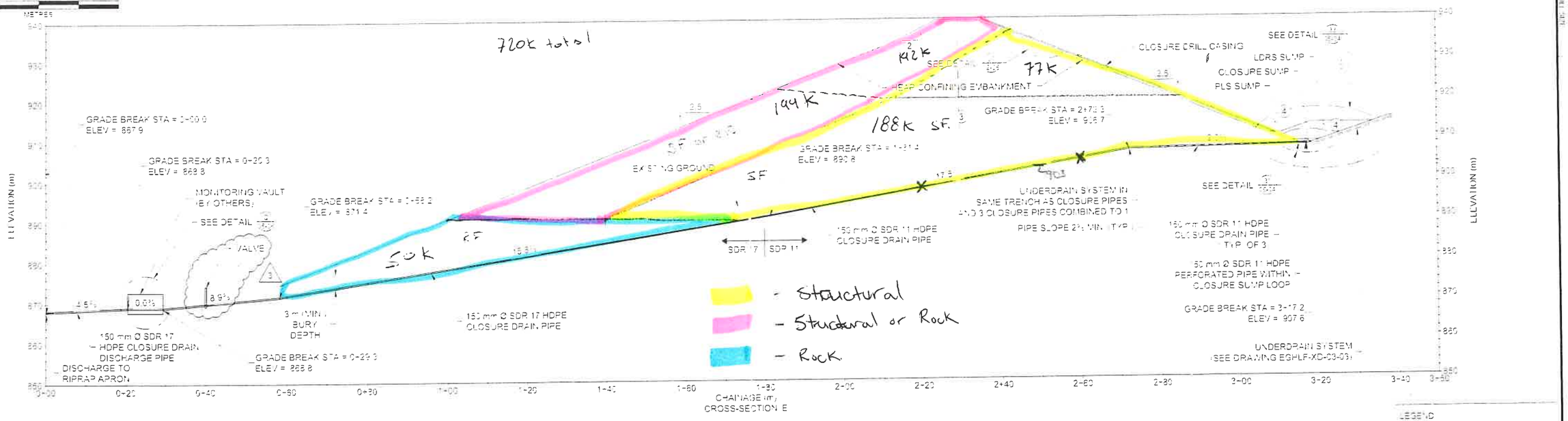
Answered by:

Name: Roy Morlan Signature: Roy Morlan Date: September 6, 2018

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*







THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL

NOTES
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV NO	YY MM DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
4	17 09 11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
3	17 09 08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17 09 22	DAG	TLM	MEH	TLM	CLOSURE AND UNDERDRAIN ALIGNMENT AND PROFILE REVISED
2	17 10 12	DAG	TLM	MEH	TLM	REVISED PIPE SDR
0	13 05 27	DAG	TLM	MEH	TLM	ADD VALVE AT STATION 0+40

REV NO	YY MM DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY	DAG	CHECK DRAWING	CJT
DESIGN BY	TLM	CHECK DESIGN	MEH
LEAD ENGINEER	DEH	APPROVAL DATE	09 03 17
PROJECT MANAGER	TLM	APPROVAL DATE	09 03 17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Eagle Gold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CLOSURE PIPING PLAN AND PROFILE

SCALE: 1:500

DWG No: EGHLF-XD-03-05

REV: 3

X:\Projects\0292\Victoria Gold\CAD\Production\PDF\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-03-05.mxd Layout: EGHLF-XD-03-05 Plot Date: Jan 26, 18 Time: 12:00 PM

APPENDIX 3
Technical Memorandums

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Construction Tracking Field Memorandum CTFM-01

Client:	**Victoria Gold Corp**	**Project:**	**Eagle Gold Construction Support**
EPCM:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**June 28, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**CTFM-01**

Re: Material 2 Test Fills 01 and 02

1.0 INTRODUCTION AND OBJECTIVE

On June 26, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of crusher reject sand for use as Material 2 – Select Fill and to determine if loose lift thickness could be increased from 0.15 m to 0.03 m using a 6 ton compactor. The test fills were intended to simulate placement and compaction of the material over the HLF embankment pipe trench drain fill and, therefore, no vibration was used while compacting.

2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill was performed on June 26, 2018. BGC's representative, Roy Morlan, developed the test fill and was present during the test fills execution. Two test fill pads were constructed. Material 2 – Test Fill 01 was placed in 0.3m loose lifts. Material 2 – Test Fill 02 was placed in 0.15 m loose lifts. The test fills were constructed and survey control was provided by Pelly Construction. Sampling and testing was performed by Tetra Tech. The following sections discuss the execution of the test fill.

2.1. Test Fill Materials

The material use in the test fill was waste product from the Neway crusher operation (referred to as reject sand). Gradation, moisture, and a standard proctor test was performed by Tetra Tech at their on-site field laboratory prior to placement of the material. The results from this testing are included in ***Attachment 1***. The material generally consists of a well graded sand with a maximum size of 10 mm and a fines content of approximately 10%. Standard proctor results reported a maximum dry density of 2,080 kg/m3 and an optimum moisture of 9.5 %.

2.2. Test Fill Foundation

An area on Eagle Pup Road formally used as an equipment parking yard was used as the test foundation. The foundation consisted of sandy, gravely soils which were well compacted by heavy equipment traffic. The foundation was flat and dry. The foundation was proof rolled using a loaded 400D Deere haul truck (***Photo 1***). No deflection was noted in the foundation.



Photograph 1: Loaded haul truck proof rolling test fill foundation surface.

2.3. Lift Placement

Lifts were placed by end dump material from the haul truck then spreading the material with a Link Belt track mounted excavator. Material 2 – Test Fill 1 was placed in one 0.3 m loose lift. Material 2 – Test Fill 02 was place in one 0.15 loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. Each test fill measured approximately 6m x 6m.

2.4. Moisture Conditioning

Moisture was not added to the material prior or during the test fill.

2.5. Compaction Testing and Settlement Surveying

To perform compaction tracking at the test fill a flat (approximately 2cm thick), hard rock was placed in the center of the lift and used as a monitoring point. Initial survey of the settlement monitoring points was collected using a GPS surveying rod. The entire test fill surface was then compacted with one cycle (2 pass) of a CAT CS54 B vibratory compactor with an effective drum weight of 5,760 kg. (***Photo 2***) No vibration was used while compacting. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 4 full compaction cycles.



***Photograph 2*:** Compaction of 0.30 m lift.

Settlement data collected is included in ***Table 1***.

	Pass 1 (mm)	Pass 2 (mm)	Pass 3 (mm)	Pass 4 (mm)
Test Fill 01	80	50	20	10
Test Fill 02	90	50	10	0

2.6. In-situ Density and Moisture Testing

In-situ density and moisture testing was performed by Tetra Tech using a nuclear density gauge. Density and moistures reported by Tetra Tech are included in ***Table 2***. Tetra Tech's data report for this testing is included in ***Attachment 1***.

	Comp % SPD	Moisture (%)
Test Fill 01	96.5	6.5
Test Fill 02	95.0	6.1

Table 1: Density Reported by SGSCM

2.7. Field Testing Observational

Little surface yield was observed in the lifts after the initial compaction pass. Excavations through the compacted material lifts revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. No material degradation or pulverization was observed. (***Photo 3***)



Photograph 3: Excavation through the compacted Test Fill 01 lift.

3.0 CONCLUSIONS

The results of the test fill indicate that the crusher reject sand can achieve sufficient densities for use as Material 2 – Select Fill with a minimum of 3 passes of a minimum 6,000 kg compactor, with or without vibration, and in lifts of up to 0.30m. As the material's stockpiled moisture was approximately 3% below optimum moisture the addition of water would likely result in compaction properties greater than 95% SPD when compacting without vibration. BGC recommends the addition of moisture to achieve - 1%/+ 3% optimum moisture when compacting without vibration over the drain pipe trenches. All other areas where the material is used can maintain a moisture of +/- 2% (per the Technical Specifications) and should be placed using vibratory roller compaction.

Attachments:

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – CAT CS54 B Specification Sheet.

ATTAHMENT 1

SIEVE ANALYSIS REPORT

ASTM C136 & C117

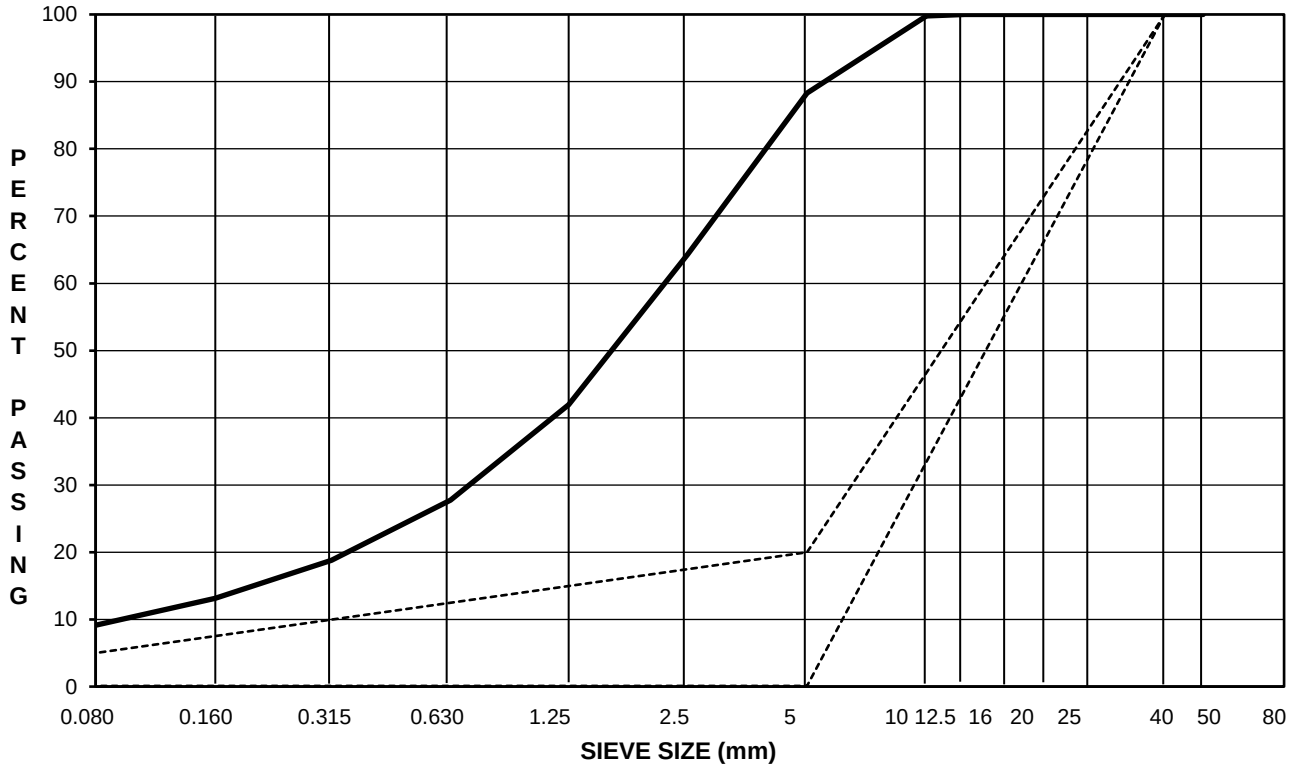
Project:	Eagle Gold Project	Sample Number:	SA01 - 17:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 9, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	Reject Sand from 38mm DRF	Fracture (2 faces):	N/A
Location:	Crusher Stacker Belt	Moisture Content:	6.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**88**	**64**	**42**	**28**	**19**	**13.1**	**9.1**

Remarks: REJECT SAND GRADATION

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA02 - 15:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 18, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	NA
Description:	Reject Sand from 38mm DRF	Fracture (2 faces):	N/A
Location:	Crusher Stacker Belt	Moisture Content:	5.0%

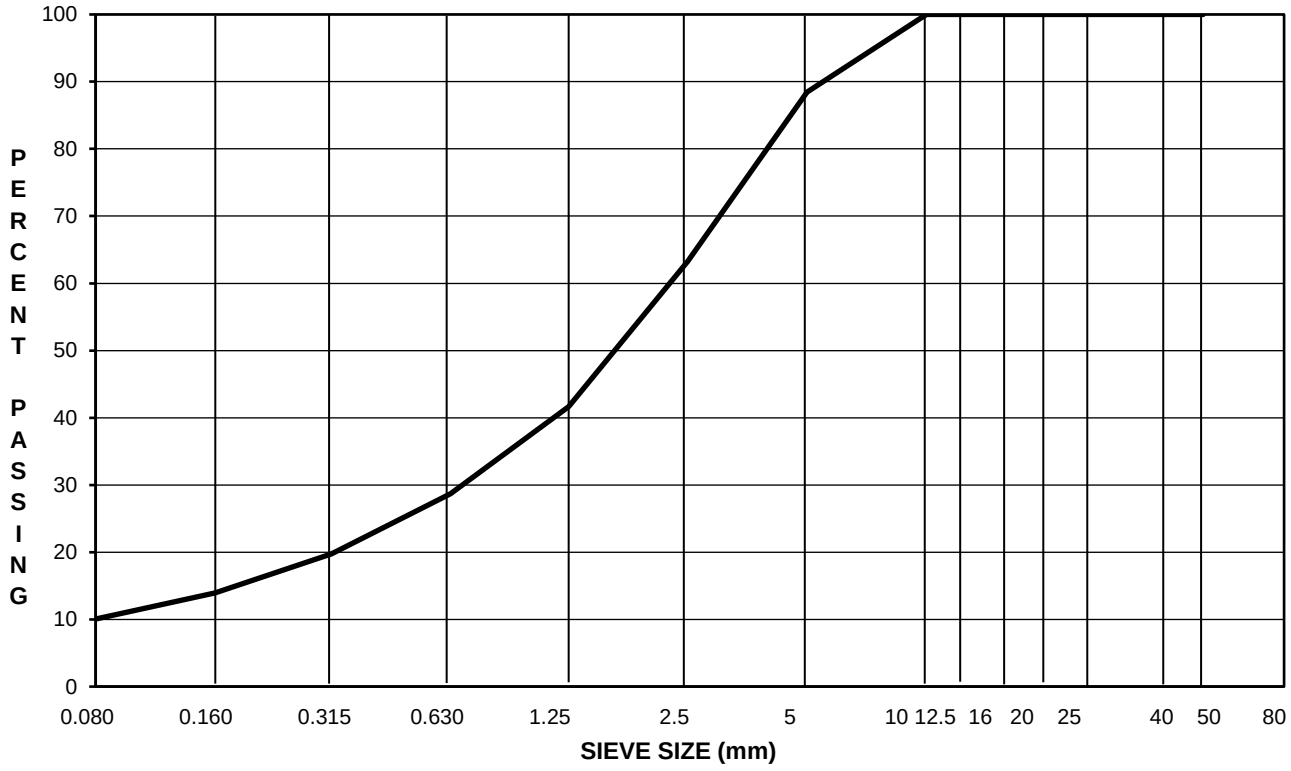
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**88**	**63**	**42**	**29**	**20**	**13.9**	**10.1**

Remarks: REJECT SAND GRADATION

Test 2

Reviewed By: _____ C.E.T.



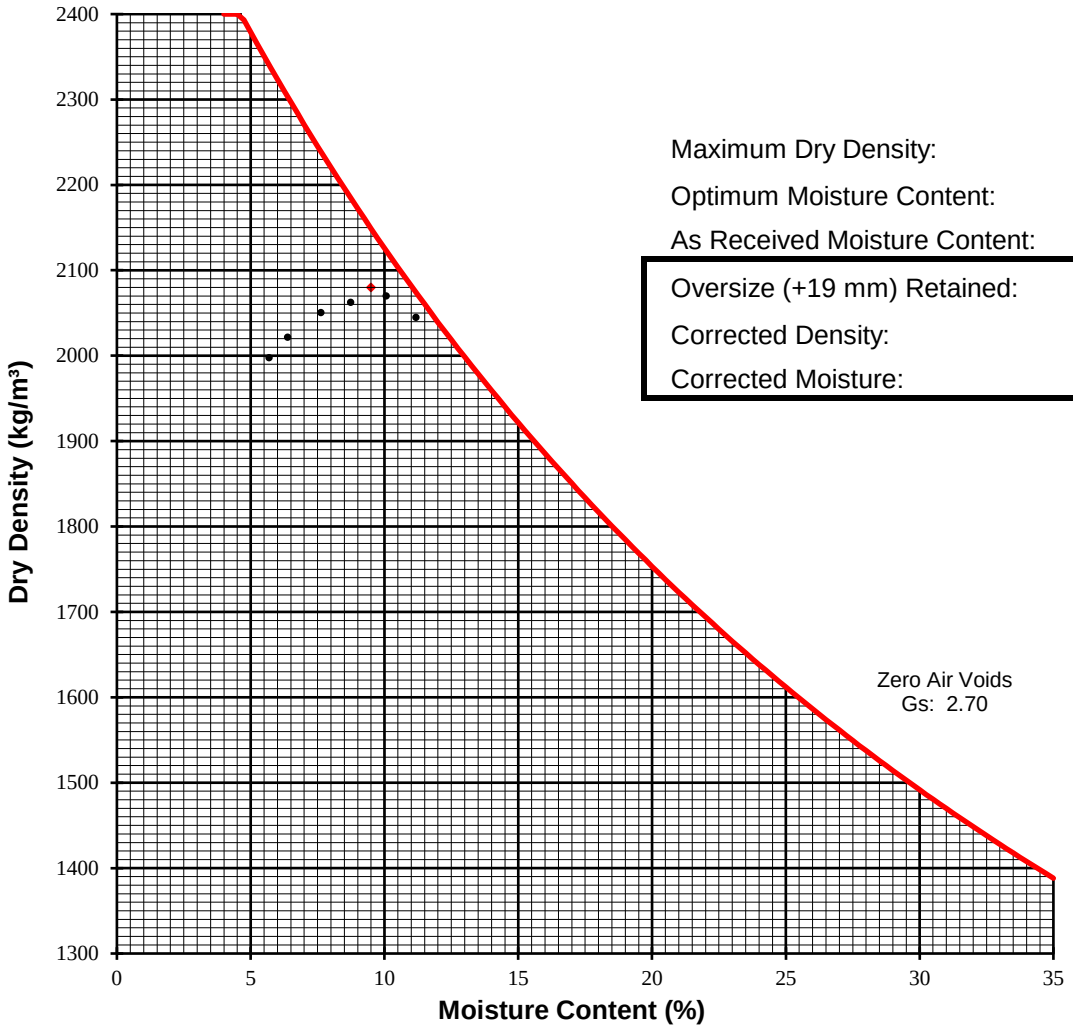
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TETRA TECH

MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	2018 Dublin Gulch Project	Sample No.:	Reject Sand PR1
Client:	JDS/BGC	Sampled By:	JMP
Attention:	Clint/Roy	Sample Date:	June 22 2018
Project No.:	WARC-03235-05	Test Date:	June 23 2018
Description:	Reject Sand, contains some gravel, some silt	Preparation:	Moist
Source:	NCL Dublin Gulch reject Stockpile	Compaction:	Manual



Maximum Dry Density:	**2080**	kg/m³
Optimum Moisture Content:	**9.5**	%
As Received Moisture Content:	**5.7**	%
Oversize (+19 mm) Retained:		%
Corrected Density:	**2080**	%
Corrected Moisture:	**9.5**	%

Remarks: Overliner drain fill reject sand 10mm minus

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 18 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-06-27 **By:** J.Buyck

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 2 Select Fill Material - SAND, trace silt (12.5 mm reject sand)

Material Usage/Zone: Proposed liner and pipe bedding

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % SPD
2018-06-27	**1** / 300	Method spec test of 150 mm of static rolled lift thickness	NA	1976	6.5	2080	9.5	**95.0**
2018-06-27	**2** / 300	Method spec test of 300 mm of static rolled lift thickness	NA	2007	6.1	2080	9.5	**96.5**

Remarks: Material placed and static rolled in two separate 150 mm and 300 mm lift thickness. Testing performed with R. Morlan present.

Copies:

Reviewed By: _____ C.E.T.

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ATTACHMENT 2

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CS54 Vibratory Soil Compactor

PHOTO **VIDEOS**








SPECIFICATIONS **BENEFITS & FEATURES** **COMPARE MODELS**

OVERVIEW

The CS54 Soil Compactor offers high compaction performance, speed and gradeability to maximize productivity while providing exceptional reliability and durability.

WEIGHTS

UNITS: **US** **METRIC**

Operating Weight - With Cab	10840.0 kg
Operating Weight - With ROPS/FOPS	10485.0 kg
Weight - Drum with Cab	5760.0 kg
Weight - Drum with ROPS/FOPS	5570.0 kg

OPERATING SPECIFICATIONS

Compaction Width	2134.0 mm
Ground Clearance	516.0 mm

Static Linear Load - With Cab	27.0 kg/cm
Static Linear Load - With ROPS/FOPS	26.1 kg/cm
Travel Speed - Maximum	11.1 km/h
Turning Radius - Inside Drum Edge	3.68 m

ENGINE

Gross Power	97.0 kW
Engine Model	Cat C4.4

DIMENSIONS

Drum Diameter	1534.0 mm
Drum Width	2134.0 mm
Height - With ROPS/FOPS or Cab	3.07 m
Overall Length	5.51 m
Overall Width	2.29 m
Wheel Base	2.9 m

VIBRATORY SYSTEM

Centrifugal Force - Maximum	234.0 kN
Centrifugal Force - Minimum	133.0 kN
Nominal Amplitude - High	1.8 mm
Nominal Amplitude - Low	0.85 mm

Variable Frequency Option Range	23.3-31 Hz (1,400-1,860 vpm)
Vibratory Frequency - Standard	31/34 Hz (1,860/2,040 vpm)

TIRES

Tires	23.1 × 26 8-ply flotation

SERVICE REFILL CAPACITIES

Fuel Tank Capacity	200.0 l

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Construction Tracking Field Memorandum CTFM-02

Client:	**Victoria Gold Corp**	**Project:**	**Eagle Gold Construction Support**
EPCM:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**June 30, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**CTFM-02**

Re: Material 7 Test Fill 01

1.0 INTRODUCTION AND OBJECTIVE

On June 30, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of Material 7 – Compacted Rockfill for use in the embankment construction. The rockfill was generated from the ADR excavation mostly from ripping and blasting bedrock.

2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill was performed on June 30, 2018. BGC's representative, Roy Morlan, developed the test fill and was present during the test fills execution. Material 7 – Rockfill was placed in 0.9m loose lifts. The test fills were constructed and survey control was provided by Pelly Construction. Material sampling and testing was performed by Tetra Tech. Water replacement density testing was overseen by BGC. The following sections discuss the execution of the test fill.

2.1. Test Fill Materials and Borrow Description

The rockfill used in the test fill was generated by Pelly construction as borrow from excavation of the ADR plant foundation. Gradation testing was performed on the finer (3" minus) fraction of the material by Tetra Tech. Mid-fraction material (3" to 8") was estimated by Tetra Tech by scalping this material from the 3" sample. Larger fraction (>8") was visually estimated. Moisture content for the finer fraction of material was analyzed by Tetra Tech. The results from this testing are included in ***Attachment 1***. The material generally consists of a well graded gravel and sand matrix with approximately 30% rocks greater than 8" and a maximum size of 23". Moisture content of the fine fraction was reported as 3.2 %.

The rock used in the test fill was derived from a mostly quartzite source, which is the predominant rock type at this borrow. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3).

Although not used in the test fill, zones of a weaker phyllitic rock (potentially phyllite or phyllonite) are also present within this borrow. This material is platy, very fine grained (aphantic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4). The general recommended approach will involve mixing the stronger quartzite rock with the weaker phyllitic rock to produce an acceptable material for embankment fill. Additional test fills will be necessary to evaluate rock fill with significant portions of phyllitic rock. Alternatively, the weaker phyllitic material could be sorted and used as Material 3 fill.

2.2. Test Fill Foundation

An area on top of the ADR Material 3 Stockpile was used as the test location because it was close to the source material and relatively traffic free (***Figure 1***). The test location was hard, dry and previously compacted by heavy equipment traffic. However, the location was not flat so a leveling pad was constructed for the test fill. The leveling pad was constructed with Material 7 rockfill placed in an approximately 0.5m lift and compacted using a CAT CS68 B vibratory compactor and 4 passes. (***Photo 1***). The final foundation was flat, dry, and dense. No deflection from roller passes was noted in the foundation after compaction.

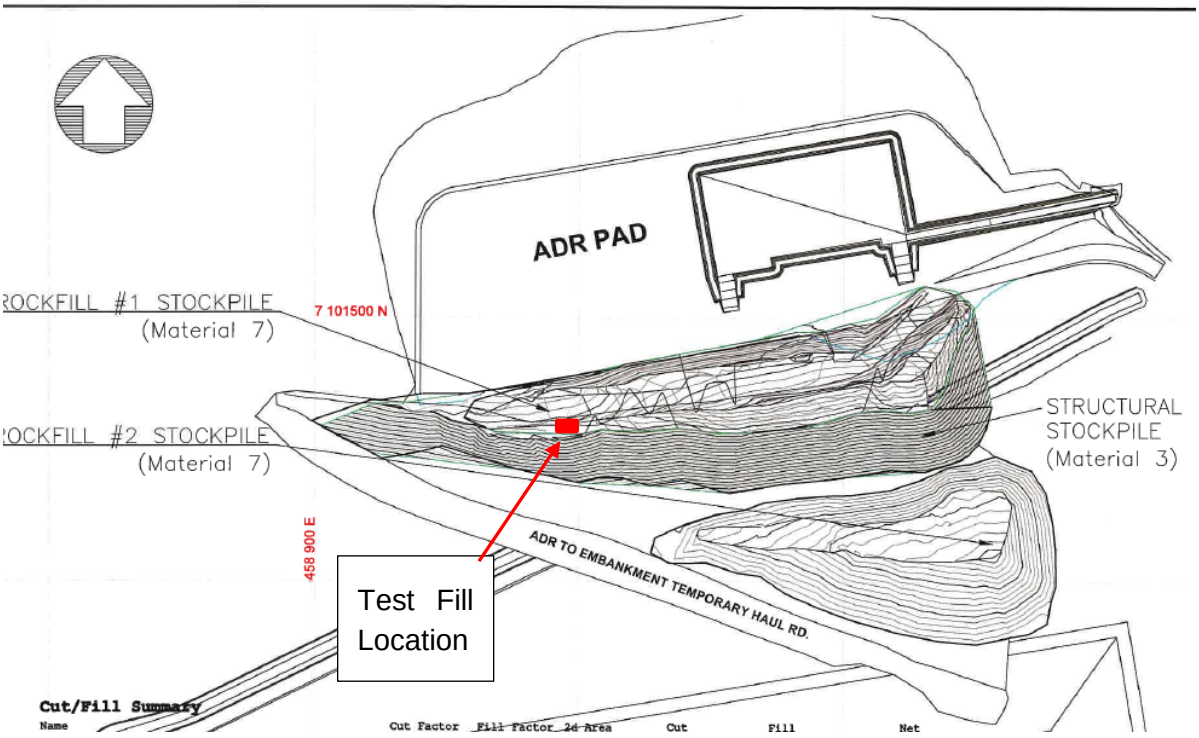


Figure 1: Test Fill Location



Photo 1: Construction of the test fill foundation leveling lift.

2.3. Test Fill Lift Placement

The test fill lift was placed by a Link Belt track mounted excavator directly from the stockpile. Material 7 – Test Fill 1 was placed in one 0.9 m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 8m x 6m.

2.4. Moisture Conditioning

Moisture was not added to the material prior or during the test fill. However, moisture conditioning is generally encouraged during rock fill placement to facilitate compaction and will likely be necessary.

2.5. Compaction Testing and Settlement Surveying

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. The entire test fill surface was then compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS68 B vibratory compactor with an effective

drum weight of 8,920 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 4 full compaction cycles.

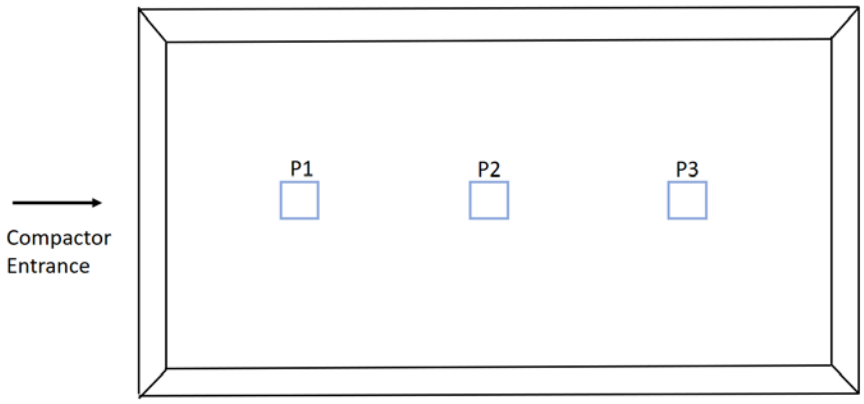


***Figure 1*:** Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. A settlement graph is shown in ***Figure 3***.

	Pre-Compaction	Pass 1	Pass 2	Pass 3	Pass 4
Survey Point 1 (P1)	950.40 m	950.37 m	950.35 m	950.33 m	950.32 m
Survey Point 2 (P2)	950.55 m	950.46 m	950.46 m	950.43 m	950.43 m
Survey Point 3 (P3)	950.59 m	950.49 m	950.47 m	950.46 m	950.45 m

Table 1: Survey elevation data collected during settlement tracking.

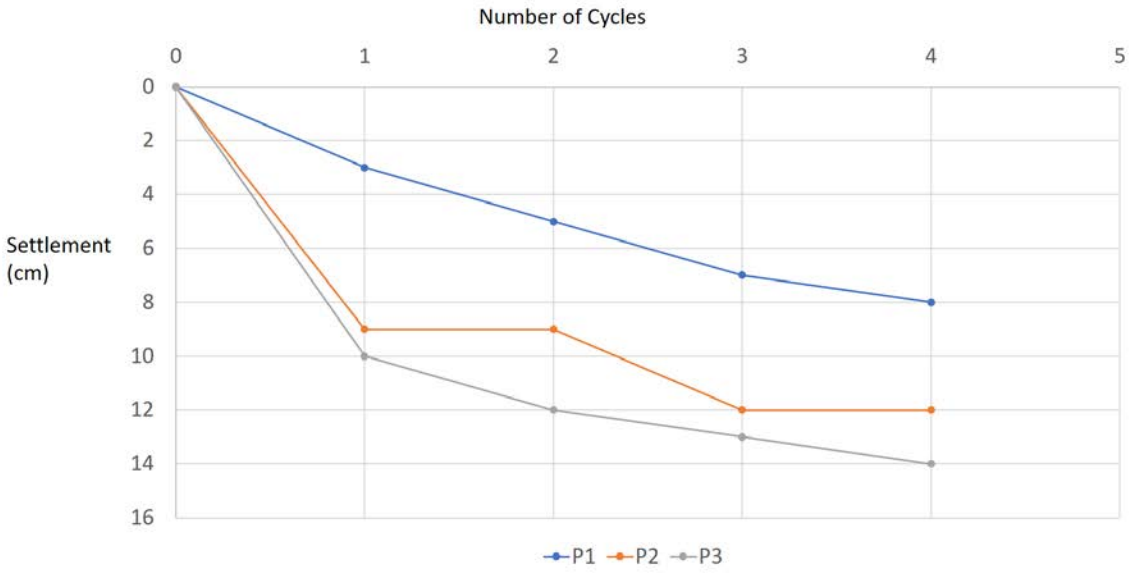


***Figure 3*:** Settlement recorded for each cycle.

2.6. In-situ Density and Moisture Testing

In-situ density and moisture collected by Tetra Tech

In-situ density and moisture testing was collected for reference by Tetra Tech using a nuclear density gauge. Results from nuclear density gauge testing on rockfill are known to be unreliable due to the presence of large, dense rocks and void spaces caused by displacement of rocks when hammering the steel rod. Therefore, these tests were performed for reference only. Water content was also analyzed by Tetra Tech in their field laboratory from a sample of the rockfill's finer material fraction (>3"). Density and moistures reported by Tetra Tech are included in ***Table 2***. Tetra Tech's data report for this testing is included in ***Attachment 1***.

	Dry Density (kg/m^3)	Moisture (%)
Nuclear Gage Test 1	2224	4.6
Nuclear Gage Test 2	2137	5.0
Standard Lab Testing	NA	3.2%

Table 2: Tetra Tech testing results

Water Replacement Test

A water replacement test was performed to determine the density of the compacted soil (***Photo 2 and 3***). A test pit was dug in the compacted lift. Material excavated from the pit was placed in three super sacks and weighed using Pelly's Terex Crane RT780 crane. The test pit was lined with 60 mil poly urethane liner and filled with water. The volume of water used was recorded and the density determined using the weight of the material excavated and the volume of the test pit.

The weight of the material was reported as 2,676 kg and volume of the test pit was determined to be 1.33 cubic meters. The density of the compacted rockfill was determined to be 2,012 kg/m^3 wet density and an estimated 1,965 kg/m^3 dry density assuming 70% rock smaller than 8".



Photo 2: Volume determination using water.



Photo 3: Super sacks with material excavated for the water replacement test.

2.7. Field Testing Observational

Little surface yield was observed in the lifts after the initial compaction pass. Excavations through the compacted material lifts revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. Rock was predominantly supported by the sandy gravel matrix. No material degradation or pulverization was observed. (***Photo 4***)



Photo 4: Compacted rockfill observed in the test fill trench cut.

3.0 CONCLUSIONS

The results of the test fill indicate that the rockfill produced from a mostly quartzite source at the ADR borrow can achieve sufficient compaction with a minimum of 4 cycles (1 forward and 1 reverse pass per cycle) of a minimum 9,000 kg compactor with vibration, and in lifts of up to 0.90m. These results were obtained with a stockpile moisture of 3.2% within the fill's fine fraction matrix.

BGC recommends that this criteria be used for placement and compaction of the rockfill within the embankment. If rock size and/or rock type, or general gradation varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is below 3.2 % the Engineer may require additional moisture to be added before placement. Overly wet material may require the removal of moisture before placement. The Engineer will inspect the rockfill material during borrowing or placement to make these determinations.

As the rockfill generated from the ADR borrow area is variable due to the presence of weaker zones of phyllitic material, BGC recommends that the above criteria be used on rockfill produced from the zones of harder quartzite formations, which are more predominant at this borrow. Small zones of phyllitic material should be blended within the quartzite rockfill before use. Phyllitic material should not be allowed to be placed in a manner that would create lifts or zones within a lift composed of predominately weaker phyllitic material. Since these zones are more prone to material breakdown and develop a finer matrix they may be sorted and re-stockpiled for use as Material 3 – Structural Fill. A sperate test fill should be performed to determine if these phyllitic materials can be used as the predominant component of a Material 7 lift.

Attachments:

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – CAT CS64 B Specification Sheet.

ATTACHMENT 1

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Eagle Gold Project	Sample No.:	SA1
Project No.:	704-WARC03235-01	Date Tested:	June 29, 2018
Client:	JDS/BGC	Tested By:	JB
Address:	Roy Morlan	Page:	1 of 1

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
N/A	SA1	3.2	Blasted Quartz Bedrock

Reviewed By: _____ C.E.T.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 98 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-06-29 **By:** J. Buyck

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Test Pad - Rock Fill Type 7 (Blasted Quartz)

Material Usage/Zone: Method Spec Test Pad near ADR Plant

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % SPD
2018-06-29	**1** 300	Method Spec Test 1 - surface of test fill	Gr	2224	4.6	See remarks		
2018-06-29	**2** 300	Method Spec Test 2 - surface of test fill rotated 180 degrees	Gr	2045	6.3			
1900-01-00	**3** 300	Method Spec Test 1 - surface of test fill	0.5	2137	5.0			
1900-01-00	**4** 300	Method Spec Test 2 - surface of test fill rotated 180 degrees	0.5	2138	4.5			

Remarks: Densities provided under supervision of Roy Morlan. The results were found to be inconsistent due to coarseness of the Type 7 rock fill material.

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Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

ATTACHMENT 2

B-Series
CS

Smooth Drum
Vibratory Soil Compactors



Comfort to Operate with Confidence

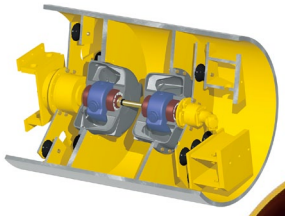
- NEW • *Comfortable redesigned cab with best-in-class climate control, multi-position windows*
- NEW • *Control console and display are integrated with pivoting seat* (optional deluxe cloth seat available)*
- NEW • *Display provides instrumentation data and diagnostics at a glance**
- • *Exceptional visibility to tires and drum edge*
- NEW – *Larger mirrors for enhanced rear visibility*
- NEW – *Narrower rear frame*
- NEW • *Optional light package upgrade provides four additional lights for excellent low light visibility*

Do More

- NEW • *Exclusive Cat® dual pump propel system with electronic control† provides:*
  - *– Exceptional traction and gradeability*
  - *– Plenty of power for leveling blade*
- *Optional equipment:*
  - *– Leveling blade*
  - *– Oval pad or square pad shell kit*

Work Smarter with Optional Compaction Measurement Technology

- NEW • *Cat Compaction Control*
  - *– Factory installed, dealer supported; integrated with machine for better protection from theft, vandalism*
  - *– Two sensor options available:*
    - NEW *- Machine Drive Power (MDP): exclusive Cat technology, rolling resistance-based*
    - *- Compaction Meter Value (CMV), accelerometer-based*
  - *– Mapping/Positioning option*
    - *- SBAS GNSS; upgradeable to RTK*
    - *- Includes seperate display, GNSS antenna*



Cat® Pod-style Vibratory System



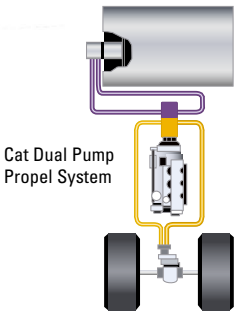
Cat Compaction Control with GNSS Mapping (SBAS)

Achieve Quality Compaction Faster

- • *Enhanced compaction force*
- NEW – *More weight at the drum*
- NEW – *Best-in-class amplitude*
- NEW • *Enhanced propel system with electronic control for better performance†*
- NEW • *Standard technology automates functions that enable high quality and uniformity:*
  - *– Automatic Speed Control†*
  - *– Auto-vibe*

Best Value Available

- • *Designed for easy maintenance, long service intervals*
- • *High reliablity due to robust design*
- • *Powerful and efficient engine*
  - *– Meets emissions standards where applicable*
  - NEW *– Reduces fuel burn when Eco-mode is used*
  - *– Self-monitors and alerts operator to abnormal engine performance*
- • *Highest resale value in the industry*



Cat Dual Pump Propel System

* In some markets, this feature available as an option on the CS54B.
† In some markets, this feature not available on the CS54B.

B-Series: CS Vibratory Soil Compactor Specifications

Model*	Operating Weight**	Weight at Drum	Drum Width	Engine†	Rated Power†
CS54B	10 555 kg (23,265 lb)	5880 kg (12,959 lb)	2130 mm (84")	C4.4 with ACERT	98 kW (131 hp)
CS56B	11 500 kg (25,346 lb)	6350 kg (13,990 lb)	2130 mm (84")	C4.4 with ACERT	117 kW (157 hp)
CS64B	12 055 kg (26,569 lb)	7120 kg (15,690 lb)	2130 mm (84")	C4.4 with ACERT	98 kW (131 hp))
CS66B	12 360 kg (27,245 lb)	7355 kg (16,214 lb)	2130 mm (84")	C4.4 with ACERT	117 kW (157 hp)
CS68B	14 325 kg (31,572 lb)	9150 kg (20,164 lb)	2130 mm (84")	C4.4 with ACERT	117 kW (157 hp)
CS74B	16 000 kg (35,264 lb)	10 620 kg (23,410 lb)	2130 mm (84")	C4.4 with ACERT	129.5 kW (173.7 hp)
CS76B	17 445 kg (38,450 lb)	12 190 kg (26,868 lb)	2130 mm (84")	C4.4 with ACERT	129.5 kW (173.7 hp)
CS78B	18 700 kg (41,214 lb)	13 440 kg (29,626 lb)	2130 mm (84")	C4.4 with ACERT	129.5 kW (173.7 hp)

Vibratory System

Frequency	*Standard High Amp*	*Eco-mode High Amp*	*Optional Variable Frequency*
CS54B, 56B, 64B, 66B, 68B	30.5 Hz (1830 vpm)	27.7 Hz (1664 vpm)	23.3 – 30.5 Hz (1400 – 1830 vpm)
CS74B, 76B, 78B	28 Hz (1680 vpm)	25.45 Hz (1527 vpm)	23.3 – 28 Hz (1400 – 1800 vpm)

Nominal Amplitude	*High*	*Low*
CS54B, 64B	1.9 mm (0.075")	0.95 mm (0.037")
CS56B, 66B, 68B, 74B, 76B, 78B	2.1 mm (0.083")	0.98 mm (0.039")

* Not all models are available in all markets.
** Operating Weights are approximate and include ROPS/FOPS cab, AC, coolant, lubricants, full fuel tank and 80 kg (175 lb) operator.
† In some markets certain models are equipped with C6.6 engine with ACERT. Rated Power can vary slightly by market.

Cat® Compaction Control Comparison - MDP and CMV

Feature	Machine Drive Power (MDP)	Compaction Meter Value (CMV)	Comment
Measurement Depth	30 - 60 cm (12 - 24 in)	1 - 1.2 m (3.3 - 4 ft)	Systems measure different depths, volumes
Correlates w/portable measurement devices	✔		Gives you confidence to move on
Usable on smooth drum or padfoot shell	✔		MDP is only technology for padfoot
Usable on granular or cohesive material	✔		CMV does not work on cohesive
Measures with or without vibration	✔		CMV disturbs soil as it is measuring
Exclusive Cat technology	✔		MDP only available from Caterpillar

The Cat® Advantage - Single Source Provider

	Cat Dealer	Competitive Dealer	Comment
Convenient worldwide dealer locations	✔		More than our 5 largest competitors combined
Engine service	✔		Cat machines feature Cat engines
Machine service	✔	✔	
Service technician trained for paving equipment	✔		Cat technicians trained on Cat machines
24/7/365 parts availability on most service parts	✔		Long lead times for competitive OEM parts
New OEM parts	✔		Competition offers inferior aftermarket parts
Reconditioned OEM parts	✔		Rebuilt to OEM spec by Cat Reman
Available financing options	✔		Available through Cat Financial
Application expertise	✔		Personnel understand the paving business
Machine rental	✔		Keeps your capital expense low
Products with high resale value	✔		Durable Cat machines built to last

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com/paving

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Construction Tracking Field Memorandum CTFM-03

Client:	**Victoria Gold Corp**	**Project:**	**Eagle Gold Construction Support**
EPCM:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**August 5, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**CTFM-03**

Re: Material 3 Test Fill 01 and 02

1.0 INTRODUCTION AND OBJECTIVE

On July 27, 2018 BGC developed and oversaw two test fills to evaluate the engineering properties of Material 3 – Structural Fill for use in the embankment construction. The material was generated from the ADR excavation.

2.0 TEST FILL CONSTRUCTION AND EXECUTION

BGC's representative, Roy Morlan, developed the test fills and was present during the execution. Two tests were conducted using Material 3 – Structural Fill. The test fills were constructed and surveyed by Pelly Construction. Material sampling and testing was performed by Tetra Tech. The following sections discuss the execution of the test fill.

2.1. Test Fill Materials and Borrow Description

The material used in the test fills was generated by Pelly as borrow from excavation of the ADR plant foundation and the area labeled as ADR West. Gradation testing was performed on the finer (3" minus) fraction of the material by Tetra Tech. Mid-fraction material (3" to 8") was estimated by Tetra Tech by scalping this material from the 3" sample. Moisture content for the finer fraction of material was analyzed by Tetra Tech. The results from this testing are included in ***Attachment 1***. The material generally consists of a well graded gravel and sand matrix with approximately 15% rock between 3" and 8". Moisture content was measured at approximately 5%. (***Photograph 1***)



Photograph 1: Photograph of loose material used in both test fills.

The 3” to 8” rocks in the test fill material were mostly quartzite, which is the predominant rock type at this borrow. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3). Rocks were resistant to scratching and broke after several blows with a hammer (***Photograph 2***).



Photograph 2: Example of material between 3” and 8”.

Phyllitic material is present in the Material 3 mixture. The phyllitic material content is approximately 20 to 30% and mostly present in particle sizes less than 0.5”. This material is platy, very fine grained (aphanitic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4).

2.2. Test Fill Foundation

An area on top of the ADR Material 3 Stockpile was used as the test location because it was close to the source material and relatively traffic free (***Figure 1***). The test location was hard, dry and previously compacted by heavy equipment traffic. No deflection from roller passes was noted in the foundation.

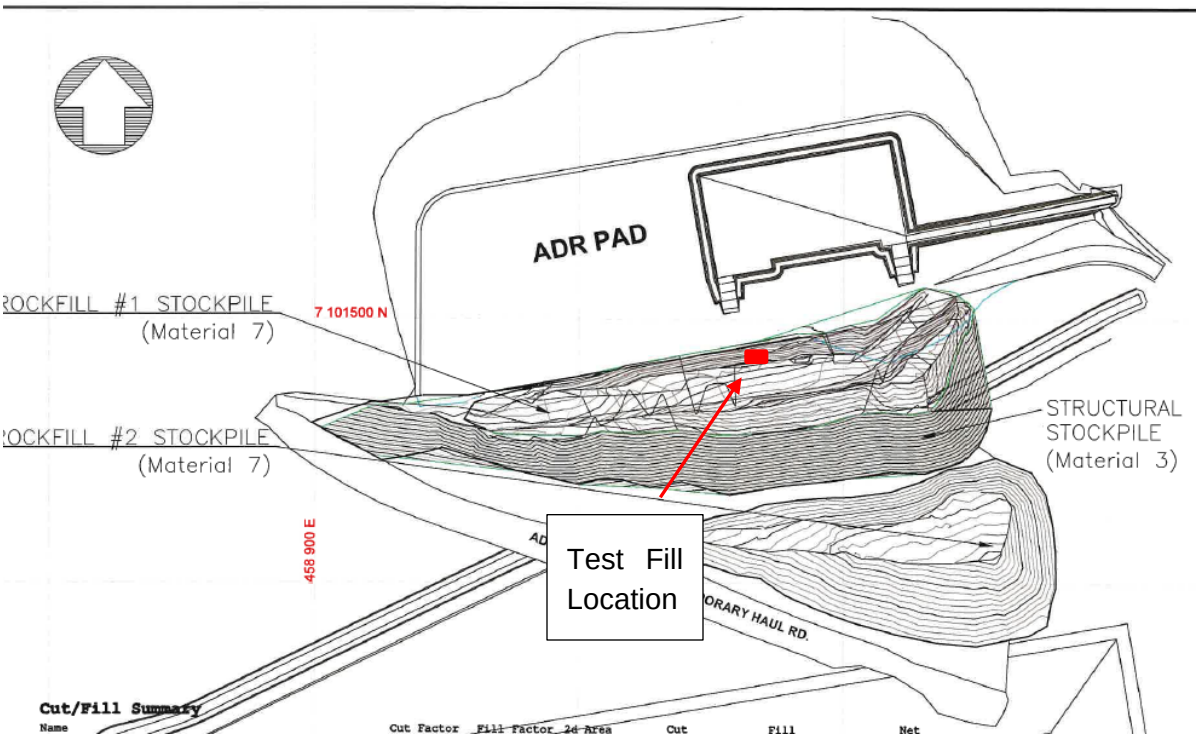


Figure 1: Test Fill Location

2.3. Test Fill Lift Placement and Compaction

Both test fills were constructed by pushing the material from the stockpile to the prepared foundation using a CAT D7 track mounted dozer. For Test Fill 01 material was placed in a 0.5m loose lifts. For Test Fill 02 material was placed in a 0.75 m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 8m x 6m.

2.4. Moisture Conditioning

Moisture was not added to Test Fill 01 or Test Fill 02.

2.5. Test Fill 01 Compaction and Settlement Measurements

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. Test fill surfaces were compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS78 B vibratory compactor with an effective drum weight of 13,440 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 3 full compaction cycles for Test Fill 01 and 4 full cycles for Test Fill 2. Specifications for the CAT CS78 B compactor are included in ***Attachment 1***.

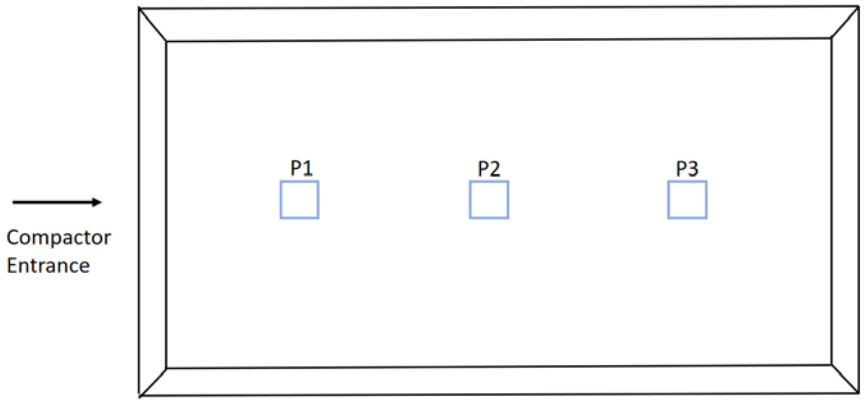


Figure 2**:** Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. Settlement graphs are shown in ***Figure 3 and 4***.

	Pre-Compaction (m)	Pass 1 (m)	Pass 2 (m)	Pass 3 (m)	Pass 4 (m)
Test Fill 01					
Survey Point 1 (P1)	948.80	948.79	948.76	948.75	NA
Survey Point 2 (P2)	948.80	948.79	948.75	948.74	NA
Survey Point 3 (P3)	948.79	948.76	948.75	948.74	NA
Test Fill 02					
Survey Point 1 (P1)	949.10	949.07	949.07	949.05	949.05
Survey Point 2 (P2)	949.08	949.03	949.03	949.00	949.01
Survey Point 3 (P3)	949.02	948.97	948.96	948.94	948.94

Table 1: Survey elevation data collected during settlement tracking.

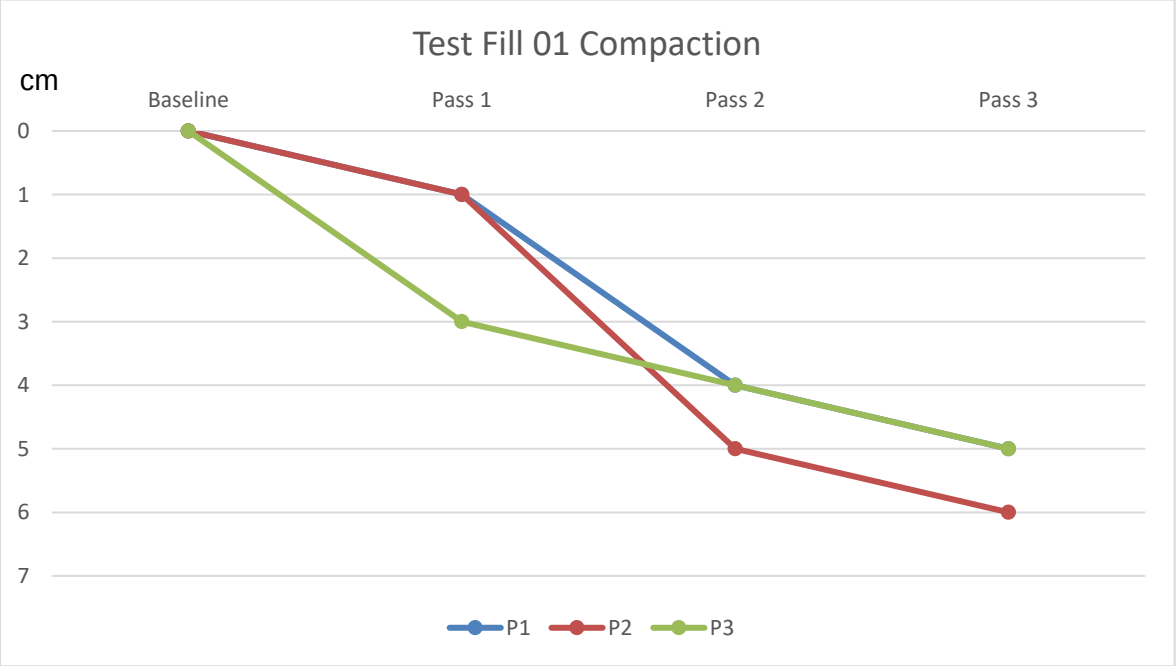


Figure 3: Test Fill 01 settlement recorded for each cycle.

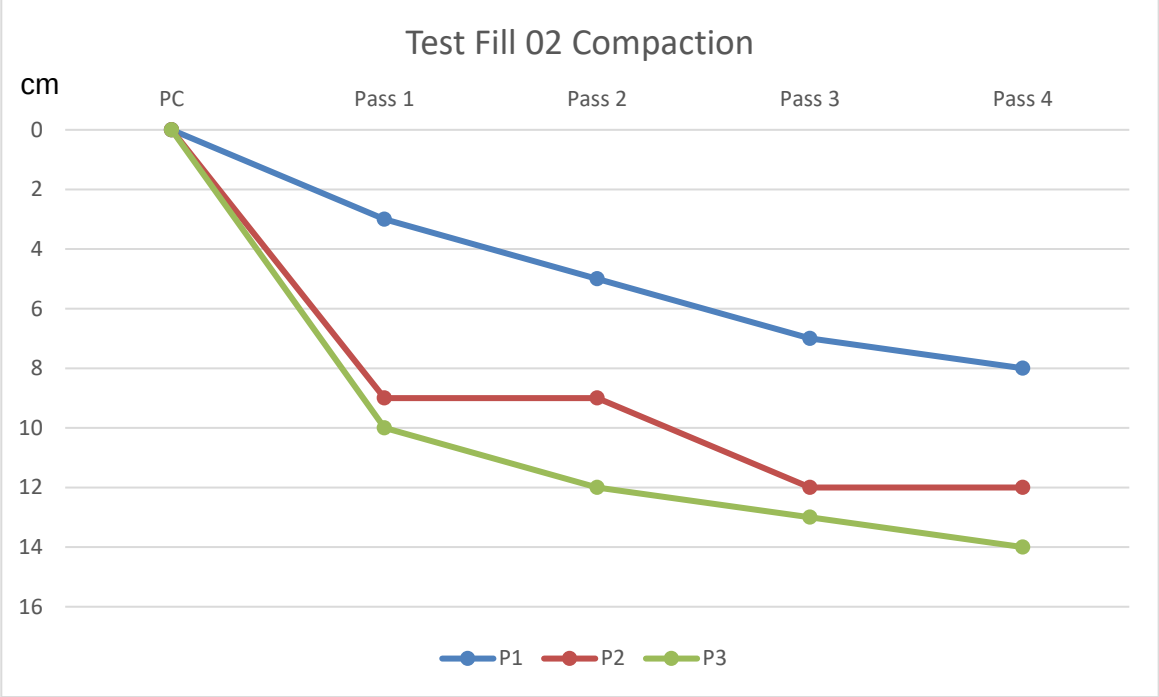


Figure 4: Test Fill 02 settlement recorded for each cycle.

2.5.1. In-situ Density and Moisture Testing

In-situ density and moisture testing was collected by Tetra Tech using a nuclear density gauge. Results were compared to the proctor for this material performed by Tetra Tech. The sample was scalped at material greater than 3". A rock correction was applied to the results by Tetra Tech. Optimum moisture was reported as 6.5% and density at this moisture was reported as 2,270 kg/m^3. Density and moistures reported by Tetra Tech are included in ***Table 2***. Tetra Tech's data report for this testing is included in ***Attachment 1***.

	Depth (cm)	Dry Density (kg/m^3)	Moisture (%)
Test Fill 01			
Test 1 (uncompacted)	30	2037	5.3
Test 2 (1 pass cycle)	30	2235	6.0
Test 3 (2 pass cycles)	30	2286	5.6
Test 4 (3 pass cycles)	30	2281	5.9
Test Fill 02			
Test 1 (uncompacted)	30	2,015	5.0
Test 2 (1 pass cycle)	30	2,160	5.4
Test 3 (2 pass cycles)	30	2,272	5.4
Test 4 (3 pass cycles)	30	2,271	5.2
Test 5 (4 pass cycles)	30	2,236	5.1
Test 6 (4 pass cycles)	70	1,812	5.3

Table 2: Tetra Tech nuclear density gauge testing results

2.5.2. Field Testing Observations

Some surface yield was observed in both test fills after the initial compaction pass. Excavations through each compacted test fill revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. Rock was predominantly supported by the sandy gravel matrix. No material degradation or pulverization was observed. A trench was photograph of Test Fill 01 is included as ***Photo 3***. A trench wall photograph of Test Fill 02 is included as ***Photo 4***.



Photo 3: Trench wall photograph from Test Fill 01.



Photo 04: Trench wall photograph from Test Fill 02.

3.0 CONCLUSIONS

The results of the test fills indicate that the Material 3 tested can achieve sufficient densities with a minimum of 2 passes of a minimum 13,000 kg compactor with vibration, and in lifts of up to 0.50m. These results were obtained with an average moisture of approximately 5.7%. Test Fill 02 did not achieve sufficient compaction below 0.5m even after 4 passes.

BGC recommends that the following criteria be used for placement and compaction of the Material 3 within the embankment:

- A maximum loose lift thickness of 0.45m should be used.
- Moisture content should be maintained between 5% and 7%. This will likely require moisture conditioning at the stockpile during loading for placement.
- Gradation of the material should not vary significantly from the material used in this test fill. If gradation varies significantly additional testing may be required.

- A minimum of two pass cycles (1 forward pass and 1 back pass per cycle) using a 13,000 kg vibrating compactor should be used. Use of lighter compactors should be approved by the Engineer and may require additional testing.
- Material should be sourced from a stockpile approved by the Engineer.
- QC should be performed by tracking and reporting the above. In-situ QC testing using a nuclear density gauge should also be performed. Testing should report density and moisture. A minimum of 6 tests per compacted lift should be performed. The amount of test can be reduced by the engineer after observing placement and compaction of the first several lifts and all criteria appear consistent. The average of the tests should determine to either pass or fail: 95% of 2,270 kg/m^3; moisture between 5% and 7%.

If general gradation or material composition (quartzite content) varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is below 5 % the Engineer may reject the material until it is moisture conditioned. Overly wet samples may require the removal of moisture before placement. The Engineer will inspect the material during borrowing or placement and review QC reports to make these determinations.

BGC recommends that the above criteria be used on material produced from the zones of harder quartzite formations, which are more predominant at this borrow. Small zones of phyllitic material should be blended within the quartzite before use. Phyllitic rich material (25% to 100% phyllitic material) should be used on the upstream side of the lift. Phyllitic rich material should not constitute an entire lift or along the downstream face of the embankment.

Attachments:

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – CAT CS64 B Specification Sheet.

ATTAHMENT 1

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/27/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Test Pad - Type 3 Structural Fill

Material Usage/Zone: Method Spec Test Pad near ADR Plant

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
7/27/2018	**1** / 300	Method Spec Test Fill 1 - Uncompacted	Gr	2037	5.3	2270	6.7	**89.7**
7/27/2018	**2** / 300	Method Spec Test Fill 1 - 1 pass cycle	Gr	2235	6.0	2270	6.7	**98.5**
7/27/2018	**3** / 300	Method Spec Test Fill 1 - 2 pass cycles	Gr	2286	5.6	2270	6.7	**100.7**
7/27/2018	**4** / 300	Method Spec Test Fill 1 - 3 pass cycles	Gr	2281	5.9	2270	6.7	**100.5**
7/27/2018	**5** / 300	Method Spec Test Fill 2 - Uncompacted	Gr	2015	5.0	2270	6.7	**88.8**
7/27/2018	**6** / 300	Method Spec Test Fill 2 - 1 pass cycle	Gr	2160	5.4	2270	6.7	**95.2**
7/27/2018	**7** / 300	Method Spec Test Fill 2 - 2 pass cycles	Gr	2272	5.4	2270	6.7	**100.1**
7/27/2018	**8** / 300	Method Spec Test Fill 2 - 3 pass cycles	Gr	2271	5.2	2270	6.7	**100.0**
7/27/2018	**9** / 300	Method Spec Test Fill 2 - 4 pass cycles	Gr	2236	5.1	2270	6.7	**98.5**
7/27/2018	**10** / 300	Method Spec Test Fill 2 - 4 pass cycles	0.4	1812	5.3	2270	6.7	**79.8**

Remarks: Densities provided under supervision of Roy Morlan.

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Reviewed By: _____ C.E.T.

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TETRA TECH

ATTACHMENT 2

WHY BUY, RENT OR LEASE CAT® VIBRATORY SOIL COMPACTORS?
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CS78B

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CS78B Vibratory Soil Compactor

PHOTO VIDEOS








SPECIFICATIONS BENEFITS & FEATURES RELATED PRODUCTS COMPARE MODELS

OVERVIEW

The CS78B Vibratory Soil Compactor combines world-class productivity with outstanding operator comfort while continuing the legacy of durability, reliability and ease-of-service that contractors worldwide have come to expect from Cat® machines.

WEIGHTS

UNITS: US METRIC

Operating Weight - With Cab	18700.0 kg
Weight - Drum with Cab	13440.0 kg

OPERATING SPECIFICATIONS

Compaction Width	2134.0 mm
Ground Clearance	437.0 mm
Static Linear Load - With Cab	63.0 kg/cm
Travel Speed - Maximum	11.4 km/h
Turning Radius - Inside Drum Edge	3.68 m

ENGINE

Gross Power	129.5 kW
Engine Model	Cat C4.4 with ACERT

DIMENSIONS

Drum Diameter	1534.0 mm
Drum Width	2134.0 mm
Height - With ROPS/FOPS or Cab	3.11 m
Overall Length	6.13 m
Overall Width	2.36 m
Wheel Base	2.9 m

VIBRATORY SYSTEM

Centrifugal Force - Maximum	332.0 kN
Centrifugal Force - Minimum	166.0 kN
Nominal Amplitude - High	2.1 mm
Nominal Amplitude - Low	0.98 mm
Variable Frequency Option Range	23.3 - 28 Hz (1400-1680 vpm)
Vibratory Frequency - Standard	28 Hz (1680 vpm)

TIRES

Tires	23.1 x 26

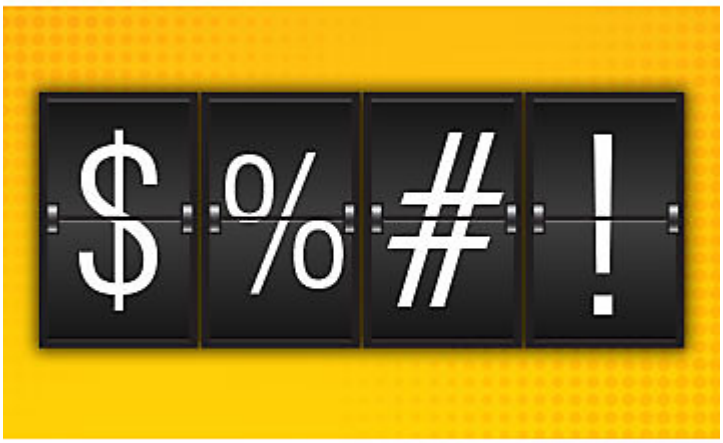
SERVICE REFILL CAPACITIES

Fuel Tank Capacity	332.0 l

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SEE HOW



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Construction Tracking Field Memorandum CTFM-04

Client:	**Victoria Gold Corp**	**Project:**	**Eagle Gold Construction Support**
EPCM:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer, P.Eng.**	**Date:**	**August 31, 2018**
Copied:	**Roy Morlan; Dan Granda**	**Record:**	**CTFM-04**

Re: Material 3 Test Fill 03

1.0 INTRODUCTION AND OBJECTIVE

On August 21, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of Material 3 – Structural Fill generated from the Event Pond excavation.

2.0 TEST FILL CONSTRUCTION AND EXECUTION

BGC's representative, Troy Meyer, developed the test fills and was present during the execution. The test fill was constructed and surveyed by Pelly Construction. Material sampling and testing was performed by Tetra Tech. The following sections discuss the execution of the test fill.

2.1. Test Fill Materials and Borrow Description

The material used in the test fills was generated by Pelly as borrow from excavation of the Event Pond and Spillway. This material has been designated as Material 3 Structural Fill. Gradation, moisture, and proctor testing was performed by Tetra Tech. The results from this testing are included in ***Attachment 1***. Material 3 was generated from a portion of the stratigraphy below the organic rich topsoil and the colluvial overburden in an area where bedrock is becoming more competent with depth. The material generally consists of broken weak rock in a matrix of gravel and sand with few fines (***Photograph 1***).



Photograph 1: Photograph of loose material used in the test fill.

2.2. Test Fill Foundation

A cleared area at the Event Pond excavation was used as the test location because it was close to the source material and relatively traffic free (***Figure 1***). The test foundation was compacted with 5 forward and 5 backwards passes with a vibratory compactor. The resulting foundation was hard and dry (***Photograph 2***). No significant deflection from roller passes was noted in the foundation.

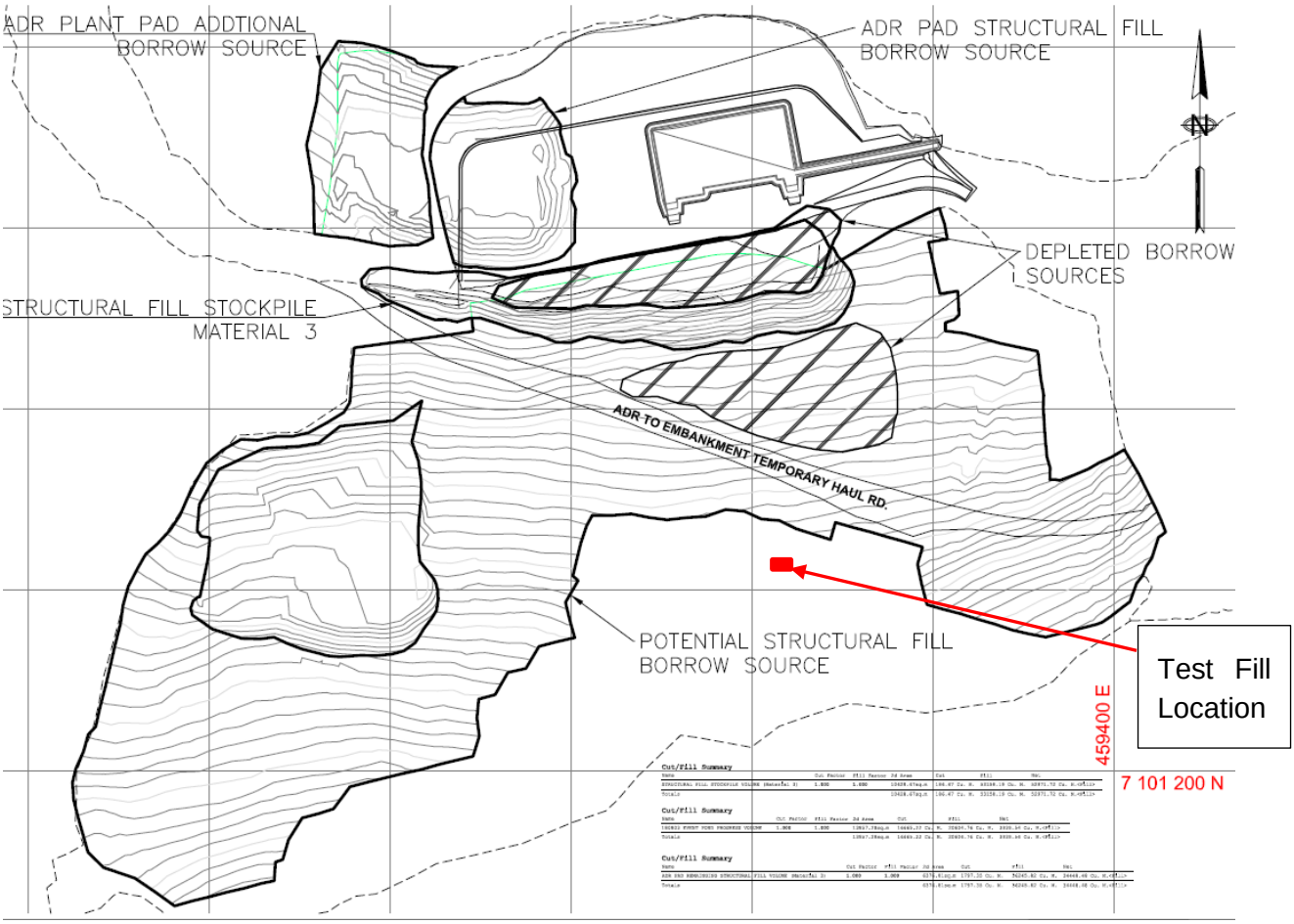


Figure 1: Test Fill Location



Photograph 2: Compaction of the test fill foundation.

2.3. Test Fill Lift Placement and Compaction

The test fill was constructed by a CAT 3751 track mounted excavator as a 0.5m loose lift. Lift thickness was measured by Pelly's surveyor using a mobile station. The test fill measured approximately 8m x 6m.

2.4. Moisture Conditioning

Moisture was not added to the test fill material.

2.5. Test Fill Compaction and Settlement Measurements

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. Test fill surface was compacted with one cycle (1 forward pass and 1 reverse pass) of a Volvo CS68B vibratory compactor with an effective drum weight of 9,150 kg. After completion of one compaction cycle, settlement was measured at the settlement

points. This compaction/survey procedure was repeated for 4 full compaction cycles. Specifications for the Volvo CS68B compactor are included in ***Attachment 1***.

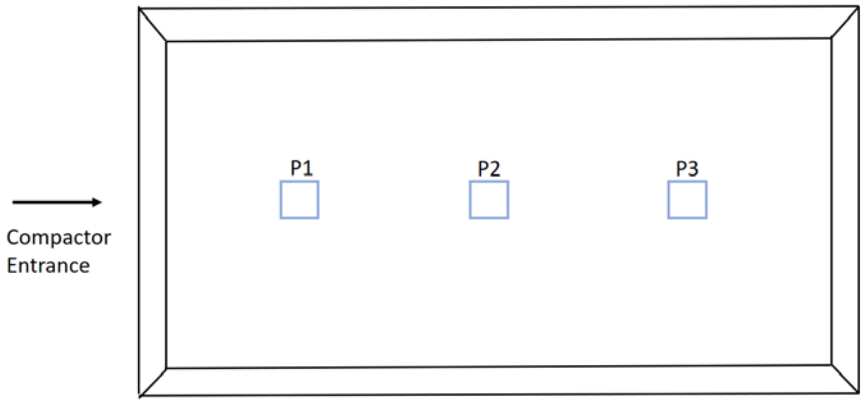


Figure 2**:** Approximation of test fill pad and survey points

Settlement data collected is included in ***Table 1***. A settlement graph is shown in ***Figure 3***.

	Pre-Compaction (m)	Pass 1 (m)	Pass 2 (m)	Pass 3 (m)	Pass 4 (m)
Survey Point 1 (P1)	905.884	905.834	905.819	905.814	905.812
Survey Point 2 (P2)	905.903	905.854	905.836	905.826	905.825
Survey Point 3 (P3)	905.956	905.881	905.867	905.853	905.852

Table 1: Survey elevation data collected during settlement tracking.

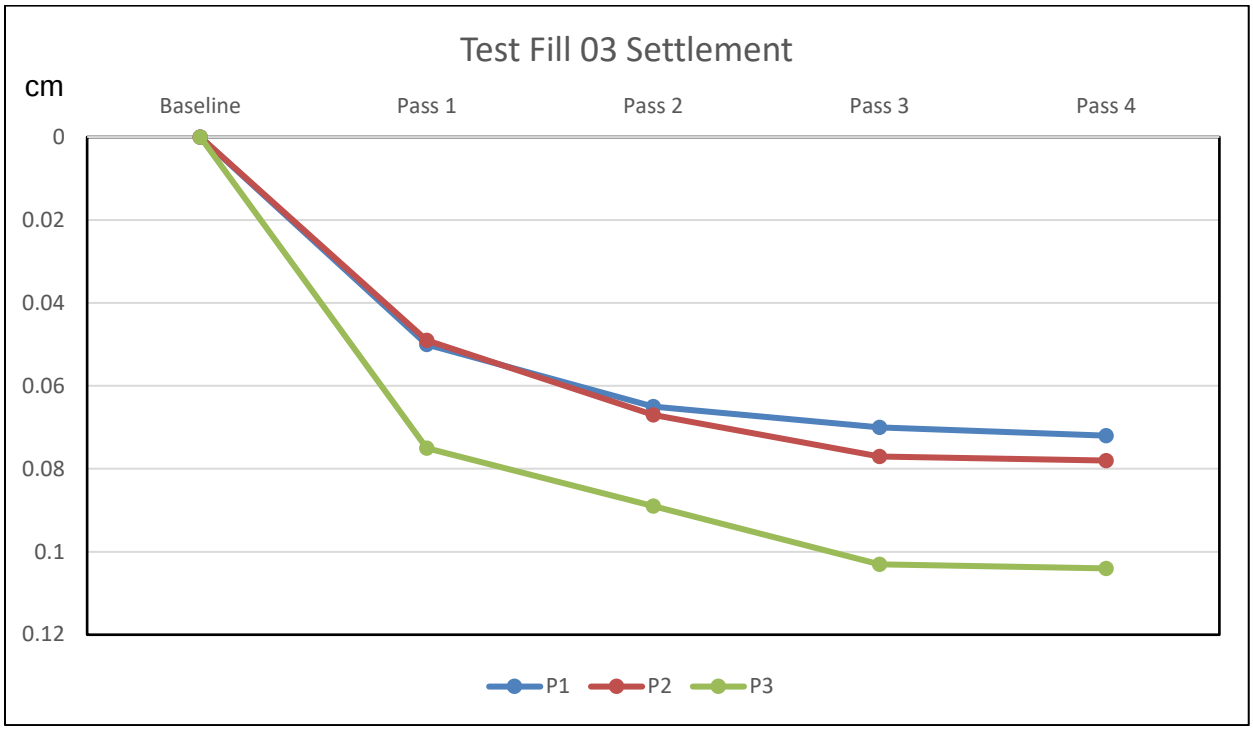


***Figure 3*:** Test Fill 03 settlement recorded for each cycle.

2.5.1. In-situ Density and Moisture Testing

In-situ density and moisture testing was collected by Tetra Tech using a nuclear density gauge. Results were compared to the proctor for this material performed by Tetra Tech. The standard proctor performed on the material reported a maximum dry density of 2,185 kg/m^3 at an optimum moisture of 8.7%. Density and moistures reported by Tetra Tech are included in ***Table 2***. The values represent over 96% of maximum dry density. Tetra Tech's data report for this testing is included in ***Attachment 1***.

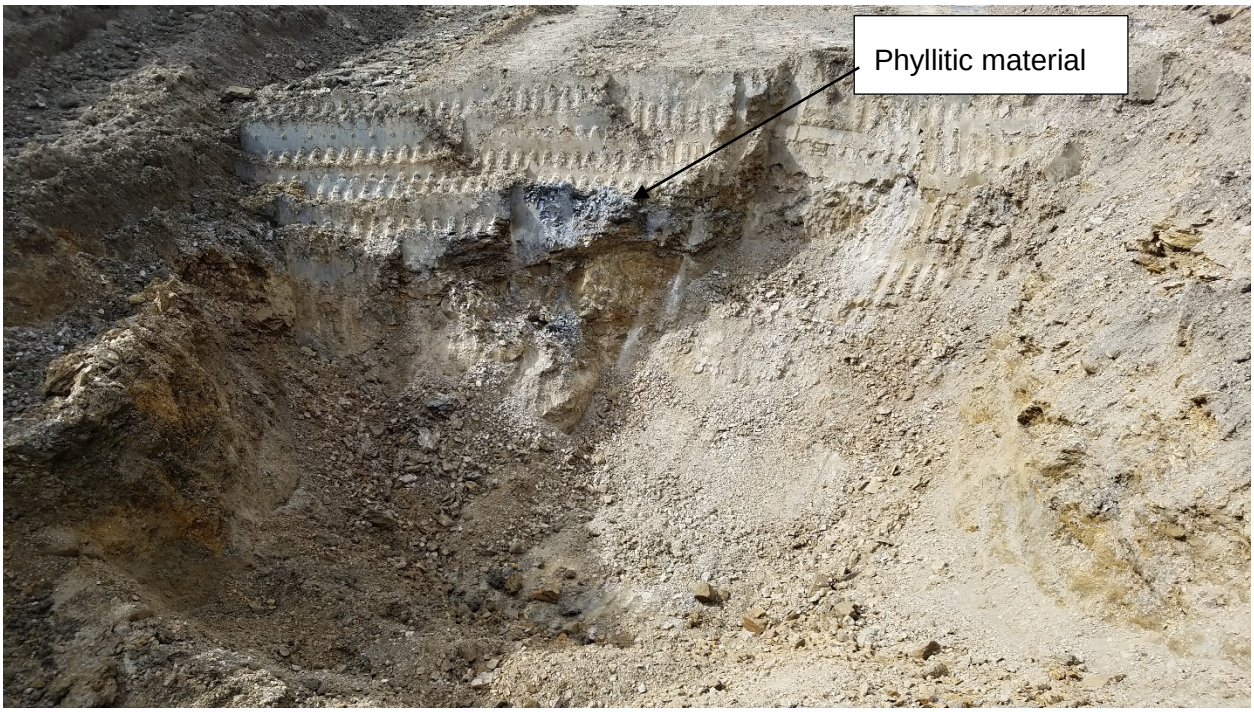
	Depth (cm)	Dry Density (kg/m^3)	Moisture (%)
Test 1 (4 pass cycles)	30	2126	5.1
Test 2 (4 pass cycles)	30	2116	6.2

Table 2: Tetra Tech nuclear density gauge testing results

2.5.2. Field Testing Observations

Some surface yield was observed in the compaction pass. Excavations through the compacted test fill revealed a well compacted, well graded matrix with little void space. Moisture within the lift was spread evenly. No material degradation or pulverization was observed.

A lens of phyllitic material was observed in the shallow excavation made to produce the test fill material **Photograph 3**. A deeper excavation was later made, and the material was observed to become more competent and rocky with depth **Photograph 4**.



Photograph 3: Shallow excavation made for test fill material.



Photograph 4: Deeper excavation into Event Pond borrow material.

3.0 CONCLUSIONS

The results of the test fill indicates that Material 3 excavated from the Event Pond area can achieve sufficient densities with a minimum of 3 passes of a minimum 9,000 kg compactor with vibration, and in lifts of up to 0.50m.

BGC recommends that the following criteria be used for placement and compaction of the Material 3-4 within the embankment:

- A maximum loose lift thickness of 0.50m should be used.
- Moisture content should be maintained between 3% and 8%. This is not expected to require moisture conditioning at the active face of the borrow excavation if direct loading is performed. If the material is stockpiled, moisture conditioning may be needed upon loading. Moisture conditioning should be avoided in freezing air temperatures.
- Gradation of the material may vary significantly from the material used in this test fill. The rock is expected to become gradually more competent with depth. Based on experience

with material from the ADR cut and ADR West borrow located above the event pond, the rock is expected to be moderately weathered at depth and will and will produce a coarser structural fill. Additional testing is not anticipated since previous test fills on this type of material have been completed. Approved finer grained Material 3 from the Event Pond should be placed and spread at the HLF embankment in such a manner to blend with the ADR Material 3. This can be accomplished by dumping piles of each material and pushing together with a dozer during spreading. As the material at the Event Pond becomes more competent and coarser with depth, blending may not be needed.

- A minimum of three (3) pass cycles (1 forward pass and 1 back pass per cycle) using a minimum 9,000 kg vibrating compactor should be used. Use of heavier compactors should follow the recommendations from previous test fills on structural fill (generally 2 passes for vibrating compactors heavier than 11,000 kg).
- Material 3 excavated from the Event Pond should be free of soft phyllitic material. Localized lenses of this material may be encountered in the excavation. This material is weak and unsuitable as structural fill.
- Stockpiles of topsoil and overburden material are being generated at the Event Pond area. Segregation of usable material from unsuitable material should be carefully managed to avoid cross-contamination. The colluvial overburden and highly weathered (soil-like) rock has been tested in a separate test fill and found to be suitable as Material 1 (Site Grading Fill). This material can be used for general fills but shall not be used in construction of the HLF or Event Pond embankments.
- QC should be performed by tracking and reporting the above. In-situ QC testing using a nuclear density gauge should also be performed. Testing should report density and moisture. A minimum of 1 tests per compacted lift should be performed. The number of tests can be reduced by the engineer after observing placement and compaction of the first several lifts and all criteria appear consistent. The average of the tests should determine to either pass or fail. The rock-corrected values from the Proctor test should be used: 95% of 2,236 kg/m^3; moisture between 4% and 8%.

Attachments:

Attachment 1 – Tetra Tech Test Reports

Attachment 2 – Volvo Compactor Specification Sheet.

ATTAHMENT 1

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	Event Pond SA01
Project No.:	704-ENG.WARC03532-01	Date Sampled:	August 20 2018
Client:	JDS/BGC	Sampled By:	BGC Tested By: JP
Attention:	D. Granda/R.Bilbrowka	Specification:	Structural Fill
Description:	SAND and GRAVEL, some silt	Fracture (2 faces):	N/A
Location:	Event Pond grab sample	Moisture Content:	2.2%

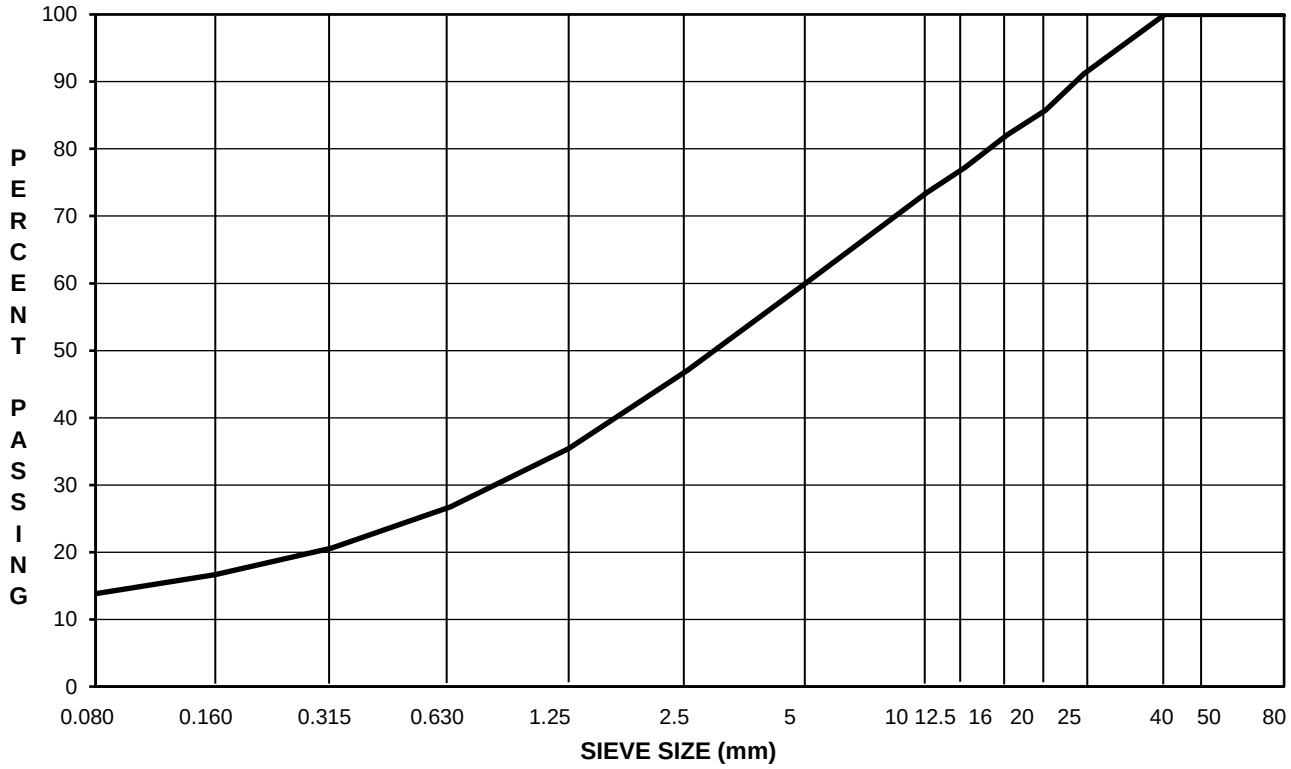
Aggregate Gradation (% Passing)

Size (um)	80k	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
U. Limit	100														
L. Limit	100														
Result	100	100	100	91	86	82	77	73	60	47	35	27	21	16.6	13.8

Remarks: Moisture content near 6% as sampled.

Sample stored in doors for 9 days prior to testing.

Reviewed By: _____ C.E.T.



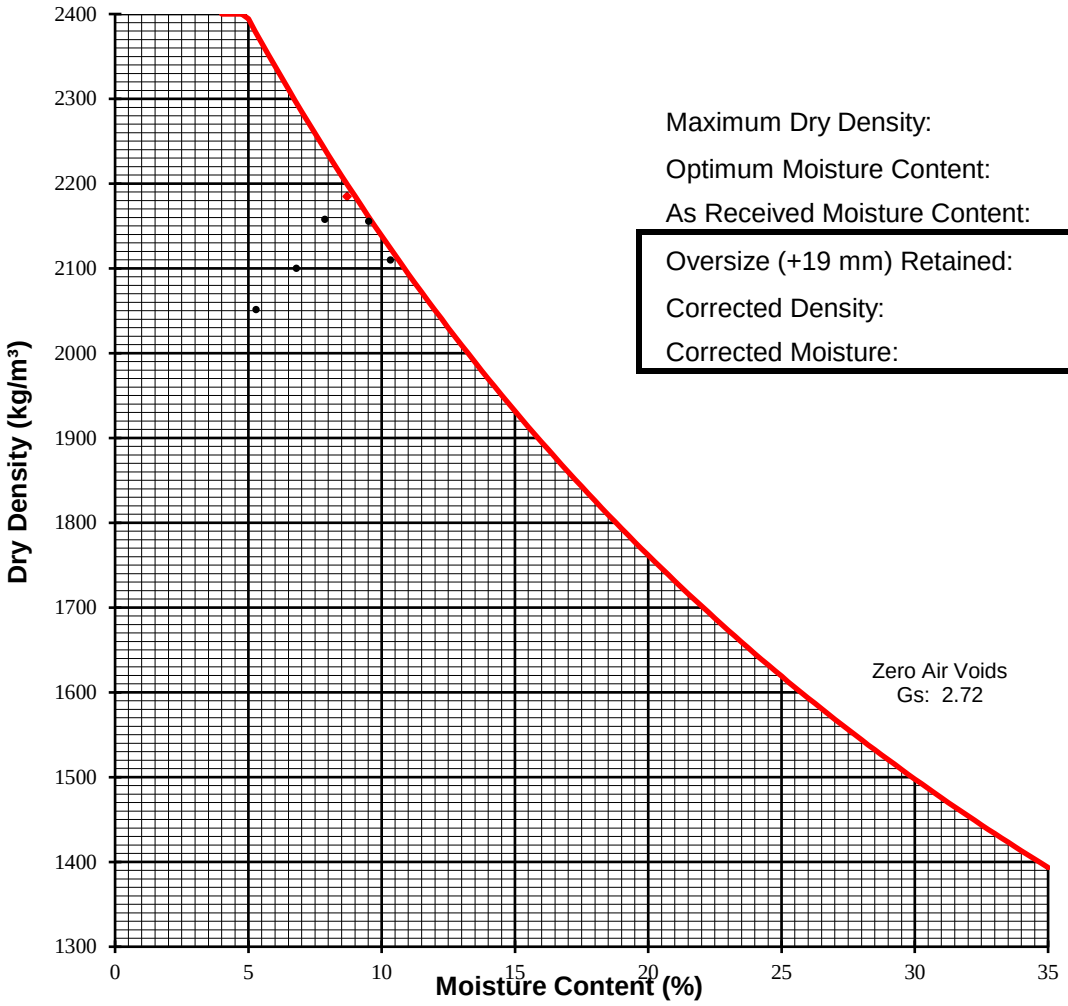
Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	2018 Dublin Gulch Eagle Gold Project	Sample No.:	Event Pond PR1
Client:	JDS/BGC	Sampled By:	TM/RM
Attention:	Clint/Dan	Sample Date:	August 20 2018
Project No.:	WARC-03235-03	Test Date:	August 29 2018
Description:	SAND and GRAVEL, some silt	Preparation:	Moist
Source:	Event Pond Excavation	Compaction:	Manual



Maximum Dry Density:	**2185**	kg/m³
Optimum Moisture Content:	**8.7**	%
As Received Moisture Content:	**5.5**	%
Oversize (+19 mm) Retained:	**13**	%
Corrected Density:	**2236**	kg/m³
Corrected Moisture:	**7.7**	%

Remarks: Material contains oversize (50-300mm plus rock)

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

ATTACHMENT 2



Cat® CS68B

Smooth Drum Vibratory Soil Compactor

Features:

The Cat® CS68B features a smooth drum and is ideally suited for granular soil applications:

- **Comfortable and ergonomic operator station** features pivoting seat with integrated multifunction LCD display and control console, outstanding visibility to the front and rear of machine, low sound levels and vibration for greater operator comfort and productivity.
- **World-class propel system** built around the exclusive Cat dual pump propel system, two pumps provide separate dedicated flow to drum drive motor and rear axle motor for exceptional gradeability and traction in forward and reverse. New electronic propel control enables more precise machine control.
- **Virtually maintenance free** due to maintenance-free hitch bearings and extended maintenance intervals for vibratory system and hydraulic system, providing more uptime and lower maintenance costs.
- **Enhanced compaction performance** due to more weight at the drum and greater amplitude. Automated propel and vibratory system functions make it easy to ensure consistent, high quality.
- **Optional Cat® Compaction Control** helps the operator determine when compaction has been completed to specification for greater productivity and uniform compaction quality.

Specifications

Engine - Power Train

Engine Model	Cat® C4.4 with ACERT™	
Global Emissions	US EPA Tier 4i/EU Stage IIIB	
Gross Power ISO 14396	117 kW	157 hp
Displacement	4.4 L	268.5 in³
Stroke	127 mm	5 in
Bore	105 mm	4.1 in
Max. Travel Speed (Forward or Reverse)	11.4 km/h	7 mph

Weights

Operating Weight w/ ROPS/FOPS cab	14 325 kg	31,572 lb
w/ padfoot shell kit	15 730 kg	34,662 lb
w/ leveling blade	14 980 kg	33,011 lb
w/ padfoot shell kit and leveling blade	16 380 kg	36,101 lb
Weight at Drum w/ ROPS/FOPS cab	9150 kg	20,164 lb
w/ padfoot shell kit	10 550 kg	23,247 lb
w/ leveling blade	10 105 kg	22,271 lb
w/ padfoot shell kit and leveling blade	11 505 kg	25,354 lb

Vibratory System Specifications

Frequency		
Standard	30.5 Hz	1830 vpm
During Eco-mode Operation	27.7 Hz	1664 vpm
Optional Variable Frequency	23.3-30.5 Hz	1400-1830 vpm
Nominal Amplitude @30.5 Hz (1830 vpm)		
High	2.1 mm	0.083 in
Low	0.98 mm	0.039 in
Centrifugal Force @ 30.5 Hz (1830 vpm)		
Maximum	301 kN	67,600 lb
Minimum	141 kN	31,670 lb
Static Linear Load		
w/ ROPS/FOPS Cab	42.9 kg/cm	240 lbs/in

Service Refill Capacities

Fuel Tank, total capacity	242 L	64 gal
Cooling System	27.8 L	7.3 gal
Engine Oil w/ Filter	11.6 L	3.1 gal
Eccentric Weight Housings	26 L	6.9 gal
Axle and Final Drives	18 L	4.8 gal
Hydraulic Tank (service refill)	50 L	13.2 gal

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Construction Tracking Field Memorandum CTFM-05

Client:	**Victoria Gold Corp**	**Project:**	**Eagle Gold Construction Support**
EPCM:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer**	**Date:**	**Nov 8, 2018**
Copied:	**Roy Morlan**	**Record:**	**CTFM-05**

Re: Material 7 Test Fill 02

1.0 INTRODUCTION AND OBJECTIVE

On November 5, 2018 BGC developed and oversaw a test fill to evaluate the engineering properties of Material 7 – Compacted Rockfill for use in the embankment construction. The rockfill was generated from the required excavation of the Event Pond and from blasted rock at the ADR West borrow.

2.0 TEST FILL CONSTRUCTION AND EXECUTION

The test fill was performed on November 5, 2018. BGC's representative, Troy Meyer developed the test fill and was present during the test fills execution. Material 7 – Rockfill was placed in a 0.9m loose lifts. The test fills were constructed and survey control was provided by Pelly Construction. Material sampling and testing was performed by Tetra Tech. Field density testing was overseen by BGC. The following sections discuss the execution of the test fill.

2.1. Test Fill Materials and Borrow Description

Two separate sources of rockfill were used in two separate test fills. The material referred to as "ADR Blast Rock" was generated by Pelly construction as borrow from blasting and excavation at the borrow located west of the ADR plant. he material referred to as "Event Pond Cut" was generated by Pelly construction from required excavations at the eastern end of the event pond.

The material generally consists of quartzite rock with low to moderate strength and a maximum size of 60 cm. The quartzite material properties are mostly fine grained, orange brown, some banding present, slightly weathered (W2), strong to very strong (R4 to R5), and hard (H3).

The ADR Blast Rock contains a higher percentage of large rock than the Event Pond Cut material, which is more well-graded with a gravel and sand matrix. Both materials classify as Material 7 – Rockfill having more than 30 percent particles larger than 19. Moisture content of the minus 6-inch fraction was reported as 3.2 % for ADR Blast Rock and 4.6 % for Event Pond Cut.

Although not used in the test fill, zones of a weaker phyllitic rock (potentially phyllite or phyllonite) are also present within each source area. This material is platy, very fine grained (aphantic), micaceous, has a significant amount of graphite, is gray, slightly weathered (W2), with rock quality ranging from (R1 to R3), and varies from soft (H6) to moderate hard (H4).

2.2. Test Fill Foundation

An area on top of the south Event Pond embankment crest was used as the test location. ***Figure 1*** shows the locations of the test pad and the borrow areas. The test location was frozen, hard and previously compacted by heavy equipment traffic. ***Photo 1*** shows initial placement of fill on the test pad.



Photograph 1: ADR Blast Rock Test fill construction.



Figure 1: Test Fill and Borrow Locations



Photograph 3: Event Pond Cut material as delivered.

2.3. Test Fill Lift Placement

The test fill lift was placed by dumping and spreading with a GPS enabled D6 dozer. Both test fills were placed in one 0.9 m loose lift. Lift thickness was controlled by the Dozer and spot checked by Pelly's surveyor using a mobile station. Each test fill measured approximately 8m x 10m.

2.4. Moisture Conditioning and Temperature

Moisture was not added to the material prior or during the test fill. The ambient air temperature was -19 deg C. The delivered material temperature was measured with a thermal gun:

- ADR Blast Rock +10 deg C
- Event Pond Cut +4 deg C

The temperature of both materials reduced to -5 to -10 deg C at the time of compaction.

2.5. Compaction Testing and Settlement Surveying

To perform compaction tracking three steel plates were placed in a row down the center of the lift and used as a monitoring points (***Figure 2***). Initial survey of the settlement monitoring points was collected using a GPS surveying rod. The entire test fill surface was then compacted with one cycle (1 forward pass and 1 reverse pass) of a CAT CS68 B vibratory compactor with an effective drum weight of 9,150 kg. After completion of one compaction cycle, settlement was measured at the settlement points. This compaction/survey procedure was repeated for 4 full compaction cycles.

A loaded CAT777 haul truck was also used for compaction on adjacent sections of the test pads. The truck was trafficked at a slow speed over the plates and settlement measure by survey after each single pass.

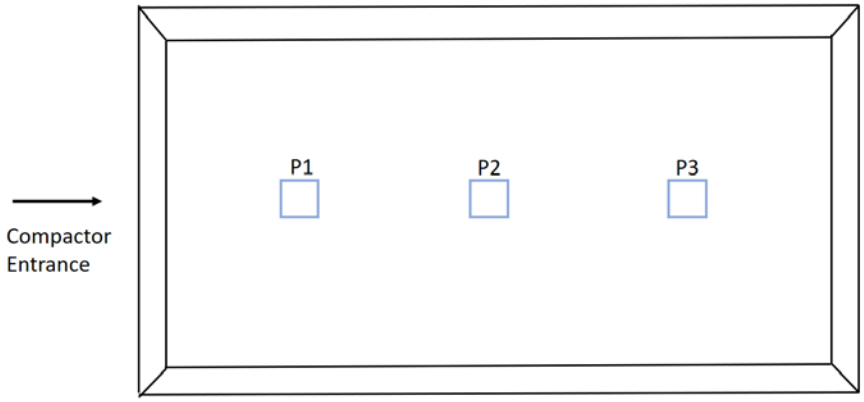


***Figure 2*:** Approximation of test fill pad and survey points

Settlement data collected is included in Table 1 through 4 and settlement graphs are shown as Figures 3 through 6.



Photograph 4: Compaction with Loaded CAT777 Haul Truck.

	Pre-Compaction	Cycle 1	Cycle 2	Cycle 3	Cycle 4
Survey Point 1 (P1)	877.058	877.04	877.028	877.027	877.022
Survey Point 2 (P2)	877.027	877.022	877.02	877.006	877.006
Survey Point 3 (P3)	877.074	877.033	877.017	877.011	877.008

Table 1: Survey Data for ADR Blast Rock with Compactor.

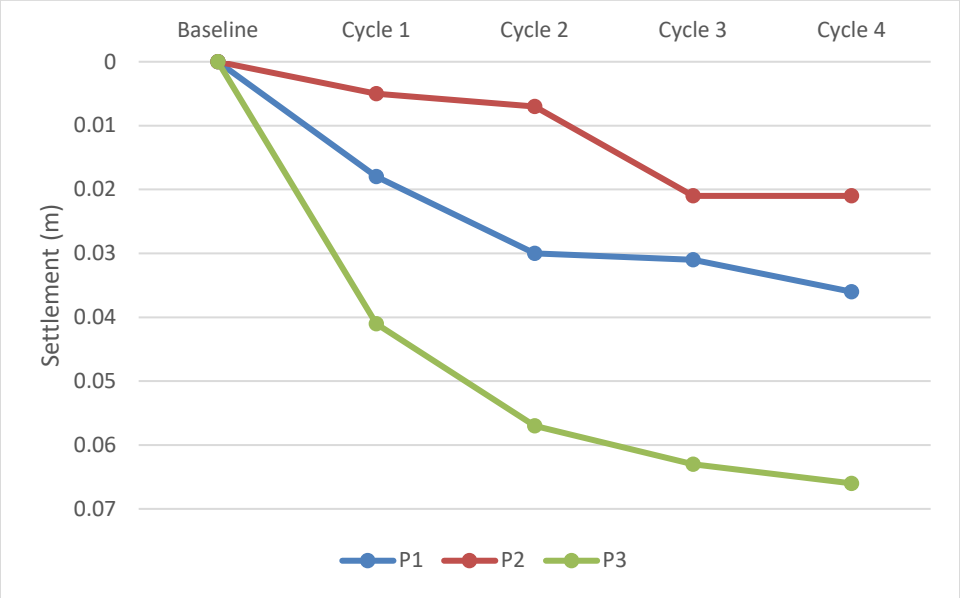


***Figure 3*:** Settlement for ADR Blast Rock with Compactor.

	Pre-Compaction	Pass 1	Pass 2	Pass 3
Survey Point 1 (P1)	877.114	877.096	877.095	877.096
Survey Point 2 (P2)	877.096	877.07	877.065	877.065
Survey Point 3 (P3)	877.034	876.995	876.994	876.991

Table 2: Survey Data for ADR Blast Rock with Loaded Haul Truck.

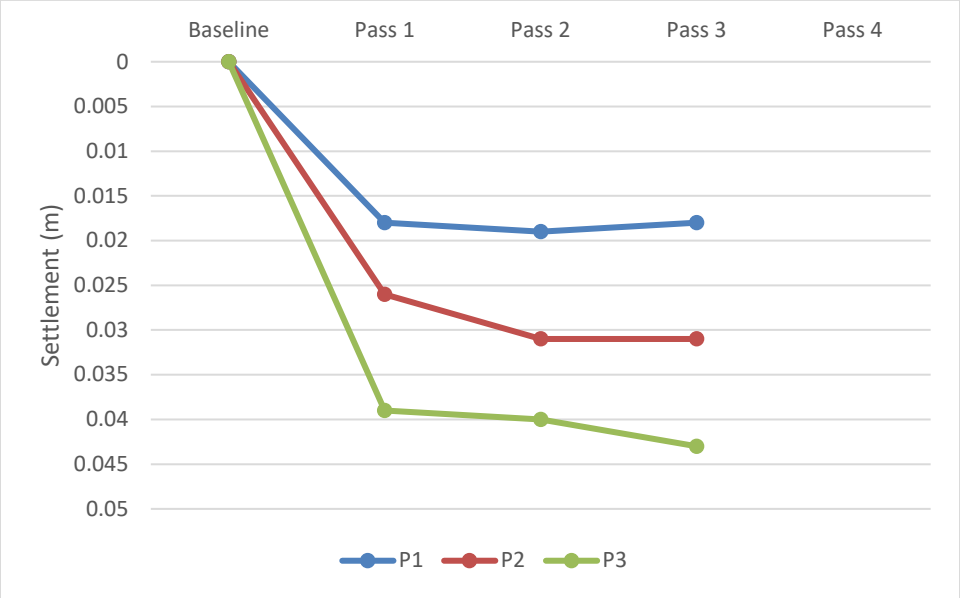


***Figure 4*:** Settlement for ADR Blast Rock with Loaded Haul Truck.

	Pre-Compaction	Cycle 1	Cycle 2	Cycle 3	Cycle 4
Survey Point 1 (P1)	877.137	877.086	877.073	877.057	877.059
Survey Point 2 (P2)	877.066	877.034	877.015	877.006	877.005
Survey Point 3 (P3)	877.105	877.073	877.058	877.052	877.049

Table 3: Survey Data for Event Pond Cut with Compactor.

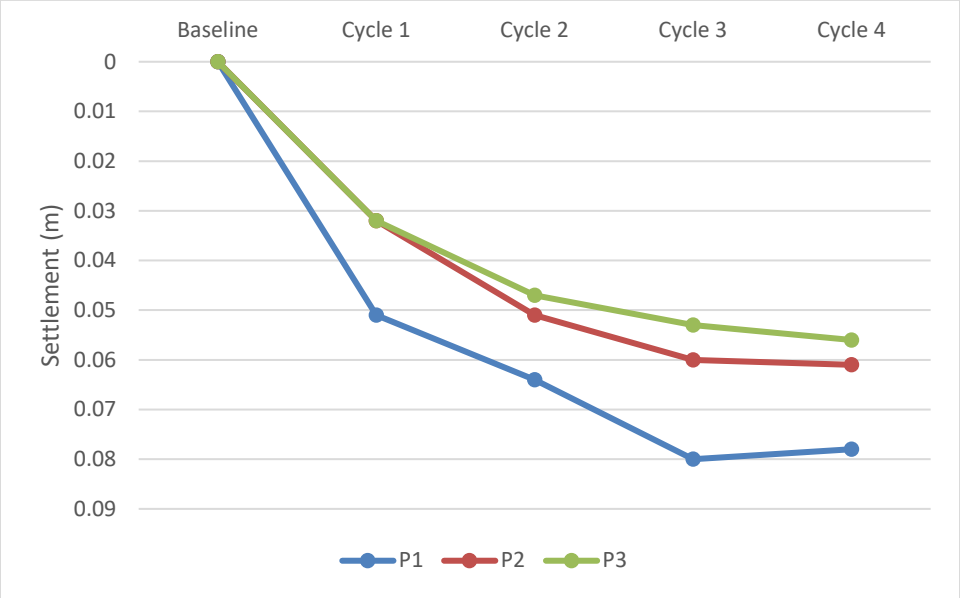


***Figure 5*:** Settlement for Event Pond Cut with Compactor.

	Pre-Compaction	Pass 1	Pass 2	Pass 3
Survey Point 1 (P1)	877.125	877.098	877.082	877.078
Survey Point 2 (P2)	877.102	877.055	877.041	877.039
Survey Point 3 (P3)	877.121	877.091	877.074	877.074

Table 4: Survey Data for Event Pond Cut with Loaded Haul Truck.

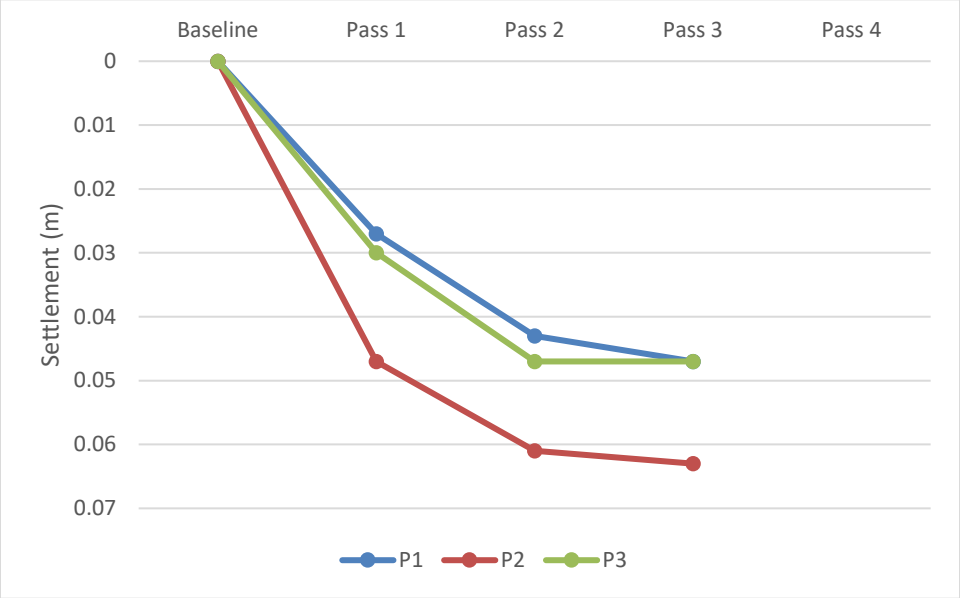


***Figure 6*:** Settlement for Event Pond Cut with Loaded Haul Truck.

2.6. In-situ Density and Moisture Testing

A volumetric test was performed to determine the density of the compacted soil (***Photo 4***). A test pit was dug in the compacted lift. Material excavated from the pit was placed in three super sacks and weighed using a digital scale suspended by a forklift. The test pit volume was determined from drone surveys by Underhill Surveyors.

Test Fill	Weight (kg)	Volume (m3)	Calculated Wet Density (kg/m3)	Estimated Moisture Content (%)	Calculated Dry Density (kg/m3)
ADR Blast Rock	2485	0.96	2588	3.2%	2508
Event Pond Cut	2766	1.1	2515	4.6%	2404

Table 5: Density data.

The dry density of the compacted rockfill was determined to be 2,508 kg/m^3 and 2,404 kg/m^3 for the ADR Blast Rock and Event Pond Cut material, respectively.



Photograph 5: Filling sacks for weighing.

3.0 CONCLUSIONS

The results of the test fill indicate that the rockfill produced from a mostly quartzite source at the ADR borrow and Event Pond cut can achieve sufficient densities with a minimum of 3 passes of a minimum 9,000 kg compactor with vibration, and in lifts of up to 0.90m. Alternatively, one pass with a loaded haul truck will provide adequate compaction. These results were obtained with a material moisture of under 6% within the fill's fine fraction matrix.

BGC recommends these criteria be used for placement and compaction of the rockfill within the Event Pond embankment. If rock size or general gradation varies significantly within this material an additional test fill will be required. If moisture content of the rockfill is above 6% the compaction may be inhibited by frost. Recommendations for placement of winter fills is provided in FM18-020 issued by BGC and dated October 27, 2018.

As the rockfill generated from both the ADR borrow area and Event Pond cut is variable due to the presence of weaker zones of phyllitic material, BGC recommends that the above criteria be used on rockfill produced from the zones of harder quartzite formations. Small zones of phyllitic material should be blended within the quartzite rockfill before use since these zones are more prone to material breakdown and frost. Phyllitic material should not be allowed to be placed in a manner that would create lifts or zones within a lift composed of predominately this material.

The Engineer will inspect the rockfill material during borrowing or placement to make these determinations. Quality control and assurance will be performed by BGC and Tetra Tech based on visual observations of material characteristics and proof rolling with loaded CAT777 trucks. Modifications to lift thickness may be recommended based on observations and additional field density tests may be required by the Engineer to verify compaction, as needed.

Attachments:

Attachment 1 – Tetra Tech Lab Test Report

Attachment 2 – Underhill Survey Data

Attachment 3 – CAT CS68B Specification Sheet.

ATTAHMENT 1

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	704-ENG.WARC3235-01	Sample No.:	SA1 (x2)
Project No.:	Eagle Gold Project - Event Pond Embankment Fi	Date Tested:	November 6, 2018
Client:	JDS Energy & Mining	Tested By:	ELN
Address:		Page:	1 of 1

Source	Sample Number	Moisture Content (%)	Visual Description of Soil
ADR Blast Rock	SA1	3.2	Embankment Rock Fill - Larger particles, orange colored
Event Pond	SA1	4.6	Embankment Rock Fill - smaller particles, brownish

Reviewed By: **ISSUED FOR REVIEW** C.E.T.

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TETRA TECH

ATTACHMENT 2

Underhill Geomatics

Eagle Gold Project

Volume Report – North Pad Volume

Client: JDS

Project Name: F:\6 Miscellaneous\2018-11-06 Pelly Compaction Test After\2018-11-06 Pelly Compaction Hole Volume.dwg

Project Description:

Report Date: 06/11/2018 11:46:41 AM

Prepared by: DB

Linear Units: meter	**Area Units:** squareMeter	**Volume Units:** cubicMeter

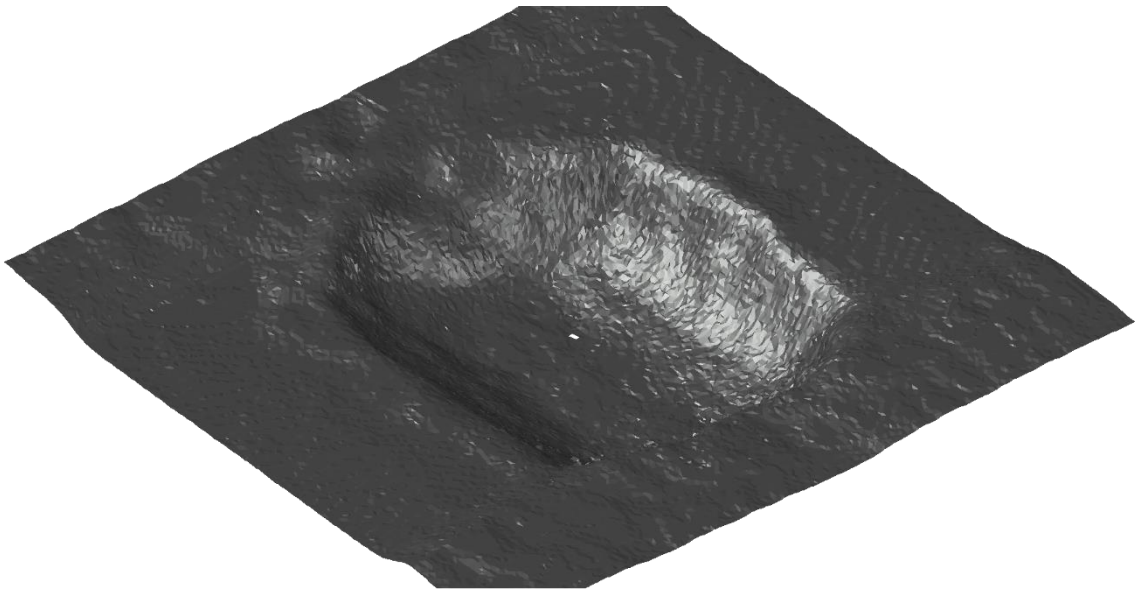
Surface: North Pad Volume

Area 2D: 13.477	Area 3D: 15.294
Elevation Max: 0.106	Elevation Min: -0.512
Number of Points: 560063	Number of Triangles: 1115130

Volume Surface: North Pad Volume

Volume Total: -1.10m³

Compare Surface: 2018-11-06 North Pad After
Base Surface: 2018-11-05 North Pad Before



Underhill Geomatics

Eagle Gold Project

Volume Report – South Pad Volume

Client: JDS

Project Name: F:\6 Miscellaneous\2018-11-06 Pelly Compaction Test After\2018-11-06 Pelly Compaction Hole Volume.dwg

Project Description:

Report Date: 06/11/2018 11:50:20 AM

Prepared by: DB

Linear Units: meter	**Area Units:** squareMeter	**Volume Units:** cubicMeter

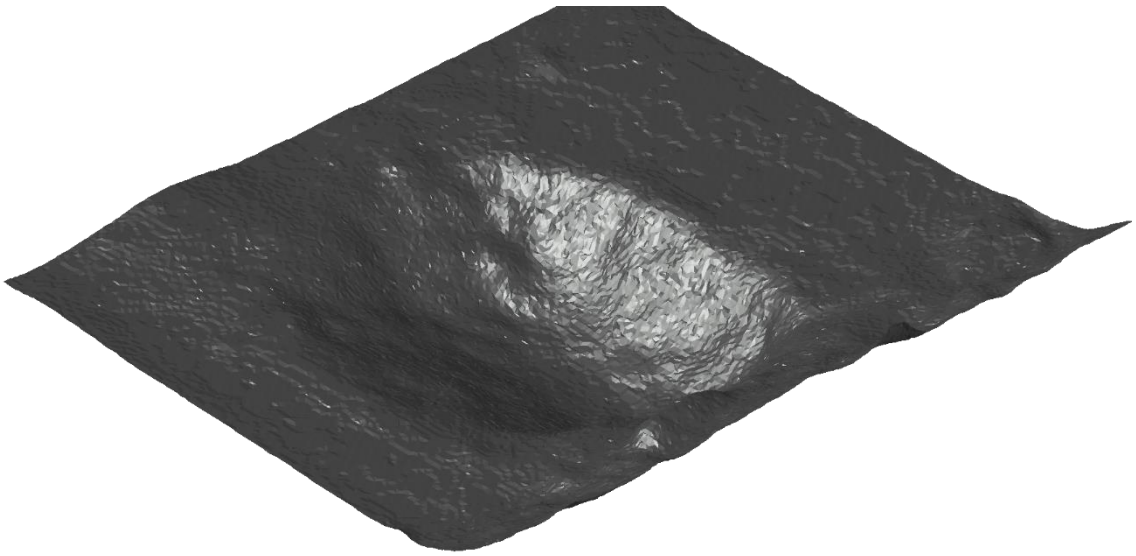
Surface: South Pad Volume

Area 2D: 14.723	Area 3D: 16.070
Elevation Max: 0.114	Elevation Min: -0.500
Number of Points: 618270	Number of Triangles: 1230239

Volume Surface: South Pad Volume

Volume Total: -0.96m³

Compare Surface: 2018-11-06 South Pad After
Base Surface: 2018-11-05 South Pad Before



ATTACHMENT 3



Cat®
CS68B

Smooth Drum
Vibratory Soil Compactor

Features:
The Cat® CS68B features a smooth drum and is ideally suited for granular soil applications:

- **Comfortable and ergonomic operator station** features pivoting seat with integrated multifunction LCD display and control console, outstanding visibility to the front and rear of machine, low sound levels and vibration for greater operator comfort and productivity.
- **World-class propel system** built around the exclusive Cat dual pump propel system, two pumps provide separate dedicated flow to drum drive motor and rear axle motor for exceptional gradeability and traction in forward and reverse. New electronic propel control enables more precise machine control.
- **Virtually maintenance free** due to maintenance-free hitch bearings and extended maintenance intervals for vibratory system and hydraulic system, providing more uptime and lower maintenance costs.
- **Enhanced compaction performance** due to more weight at the drum and greater amplitude. Automated propel and vibratory system functions make it easy to ensure consistent, high quality.
- **Optional Cat® Compaction Control** helps the operator determine when compaction has been completed to specification for greater productivity and uniform compaction quality.

Specifications

Engine - Power Train

Engine Model	Cat® C4.4 with ACERT™	
Global Emissions	US EPA Tier 4i/EU Stage IIIB	
Gross Power ISO 14396	117 kW	157 hp
Displacement	4.4 L	268.5 in³
Stroke	127 mm	5 in
Bore	105 mm	4.1 in
Max. Travel Speed (Forward or Reverse)	11.4 km/h	7 mph

Weights

Operating Weight w/ ROPS/FOPS cab	14 325 kg	31,572 lb
w/ padfoot shell kit	15 730 kg	34,662 lb
w/ leveling blade	14 980 kg	33,011 lb
w/ padfoot shell kit and leveling blade	16 380 kg	36,101 lb
Weight at Drum w/ ROPS/FOPS cab	9150 kg	20,164 lb
w/ padfoot shell kit	10 550 kg	23,247 lb
w/ leveling blade	10 105 kg	22,271 lb
w/ padfoot shell kit and leveling blade	11 505 kg	25,354 lb

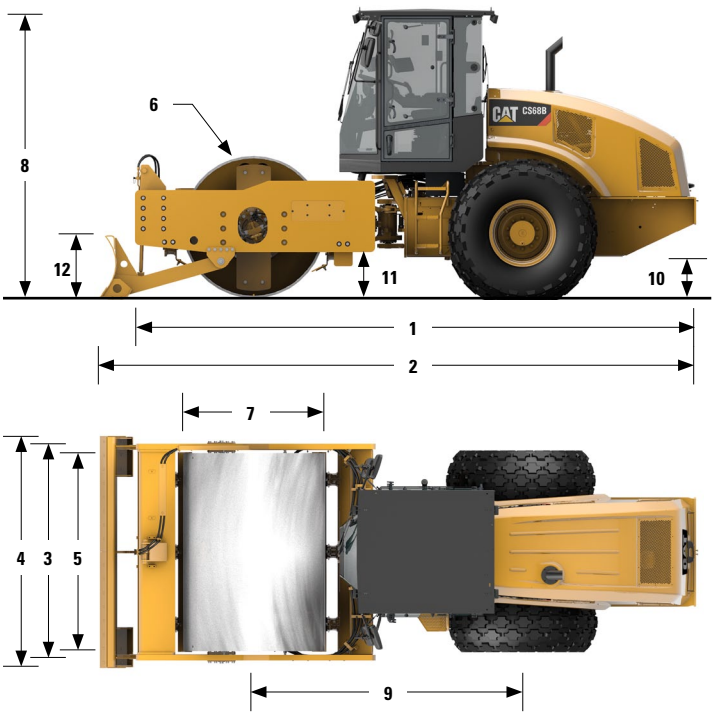
Vibratory System Specifications

Frequency		
Standard	30.5 Hz	1830 vpm
During Eco-mode Operation	27.7 Hz	1664 vpm
Optional Variable Frequency	23.3-30.5 Hz	1400-1830 vpm
Nominal Amplitude @30.5 Hz (1830 vpm)		
High	2.1 mm	0.083 in
Low	0.98 mm	0.039 in
Centrifugal Force @ 30.5 Hz (1830 vpm)		
Maximum	301 kN	67,600 lb
Minimum	141 kN	31,670 lb
Static Linear Load		
w/ ROPS/FOPS Cab	42.9 kg/cm	240 lbs/in

Service Refill Capacities

Fuel Tank, total capacity	242 L	64 gal
Cooling System	27.8 L	7.3 gal
Engine Oil w/ Filter	11.6 L	3.1 gal
Eccentric Weight Housings	26 L	6.9 gal
Axle and Final Drives	18 L	4.8 gal
Hydraulic Tank (service refill)	50 L	13.2 gal

CS68B Vibratory Soil Compactor



Dimensions

1	Overall Length	6.05 m	19.8 ft
2	Overall Length w/ Optional Leveling Blade	6.55 m	21.5 ft
3	Overall Width	2.33 m	7.64 ft
4	Overall Width w/ Optional Leveling Blade	2.50 m	8.25 ft
5	Drum Width	2134 mm	84 in
6	Drum Shell Thickness	30 mm	1.18 in
7	Drum Diameter	1434 mm	56.5 in
8	Overall Height	3.11 m	10.2 ft
9	Wheelbase	2.9 m	9.5 ft
10	Ground Clearance	437 mm	17.2 in
11	Curb Clearance	489 mm	19.3 in
12	Optional Leveling Blade Height	688 mm	27.1 in
	Inside Turning Radius	3.68 m	12.07 ft
	Hitch Articulation Angle	34°	
	Hitch Oscillation Angle	15°	
	Optional Leveling Blade Height	688 mm	27.1 in

STANDARD EQUIPMENT *Varies by market- contact your Dealer for specifics.*

ELECTRICAL
- 24 volt Electrical System
- 100 ampere Alternator
- 750 Cold-cranking Amps Battery Capacity

OPERATOR ENVIRONMENT
- ROPS/FOPS Cab with Climate Control (Heat, Air Conditioning)
- Cloth Adjustable Pivoting Seat with Integrated Console and LCD Display, Seat Belt
- Multifunction LCD Display with gauges and/or audible warning alarm for: *Hydraulic oil temperature, Engine oil pressure, Engine coolant temperature, Alternator charge, Fuel level, Service hour meter, Engine RPM, Ground speed, Vibe frequency, Fuel rate, Air filter constriction, Engine load and Optional Cat Compaction Control*
- Adjustable Tilting Steering Column with Integrated Cup Holders
- 12-volt Power Outlet
- Floor Mat
- Interior Rear View Mirror
- Horn, Backup Alarm
- Radio-ready

POWER TRAIN
- Cat® C4.4 Diesel Engine
- Air Cleaner, Dual Element
- Three-speed Throttle Switch w/ Eco-mode, Automatic Speed Control
- Dual Propel Pumps; One for Drum Drive, One for Rear Axle
- Fuel Filter, Water Separator, Electronic Priming Pump, Water Indicator
- Tilting Radiator/Hydraulic Oil Cooler
- Dual Braking System
- Two-speed Hydrostatic Transmission

VIBRATORY SYSTEM
- Smooth Drum
- Dual Amplitude, Single Frequency
- Dual Pod-Style Eccentric Weight Housings
- Auto-vibe Function
- Front Adjustable Steel Scraper

OTHER
- Hydraulic Oil Level Sight Gauge
- Radiator Coolant Level Sight Gauge
- Cat® ToughGuard™ Hose
- S·O·S℠ Sampling Valves, Engine Oil and Hydraulic Oil

OPTIONAL EQUIPMENT
- Padfoot Shell Kit
- Leveling Blade
- Variable Vibration Frequency
- Beacon, Rotating
- Polyurethane Drum Scrapers
- Steel Rear-side Drum Scraper
- Bio-oil Factory Fill
- Sun Visor
- Deluxe High-back Air-ride Pivoting Seat
- Cat Compaction Control, Machine Drive Power or CMV
- SBAS GNSS Mapping for Cat Compaction Control (RTK available)
- Upgraded Halogen Light Package
- Cab Internal Rear View Mirrors
- Cab Internal Roll-down Sun Screen
- Product Link
- Additional Rear View Mirrors

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To:	**Roman Bilobrowka**	**Project:**	**Eagle Gold Construction Support**
Company:	**JDS**	**Project No.**	**1406-006**
From:	**Roy Morlan**	**Date:**	**2017-09-12**
Copied:	**Troy Meyer**	**Record:**	**FM-001**

Re: Excavation of HLF Foundation to Type 3 Rock

1.0 INTRODUCTION

The purpose of this memorandum is to provide guidance on excavation to Type 3 rock within the foundation of the Heap Leach Facility footprint to ensure that the final foundation meets the requirements of the design.

2.0 DESCRIPTION AND IDENTIFICATION OF TYPE 3 ROCK

The “Type 3” rock is the first “rock-like” material underlying the overburden materials, and is defined as being rock that is highly or less weathered metasedimentary rock (i.e. W4 or better), and has intact strength greater than R0 (minimum UCS strength 1 MPa and up to 5 MPa). Type 3 bedrock is the lowest quality rock mass that is considered to behave as rock (rather than as a soil) and can be recognized on the basis of evident preserved fabric of the parent rock within the highly-weathered rock mass. It is expected that Type 3 rock can be excavated with normal excavating equipment with a moderate level of effort but may require up to 40 percent ripping.

Type 3 rock is described as dark brown, reddish-brown, to reddish or dark grey color. Weathering is typically observed in foliated, horizontal to subhorizontal layers, with blocky intact metasedimentary rock common which would follow the orientation of a joint set. Therefore, in-situ blocks would be oriented similarly when encountered. Oxidization and seepage is common which would occur along the rock foliations and joint sets. Localized (ie spotty) silicification was observed in some of core recovered from drilling into the intact Type 3 rock. Fracture/joint infilling in the Type 3 rock may appear as sand and gravel and will have the similar color and composition as the parent rock. These sands and gravel will typically be homogenous, weakly cemented, well graded gravel and sand. Portions of the rock will also breakdown into sand and gravel while being excavated which will be evident in the excavation spoils.

HLF foundation should be excavated to the top of Type 3 rock or better (ie Type 2, Type 1). The top of Type 3 rock can be identified by the increased effort needed to excavate, including some ripping. Spoils from the top of Type 3 rock would contain platy, foliated rock fragments and sometimes blocky segments of rock mixed with sand and gravel of the same composition as the parent rock (ie quartz and mica sand; metasedimentary gravel; similar oxidation and color as parent rock). The photographs that follow provide examples of and further description of how Type 3 rock previously encountered at the project site.

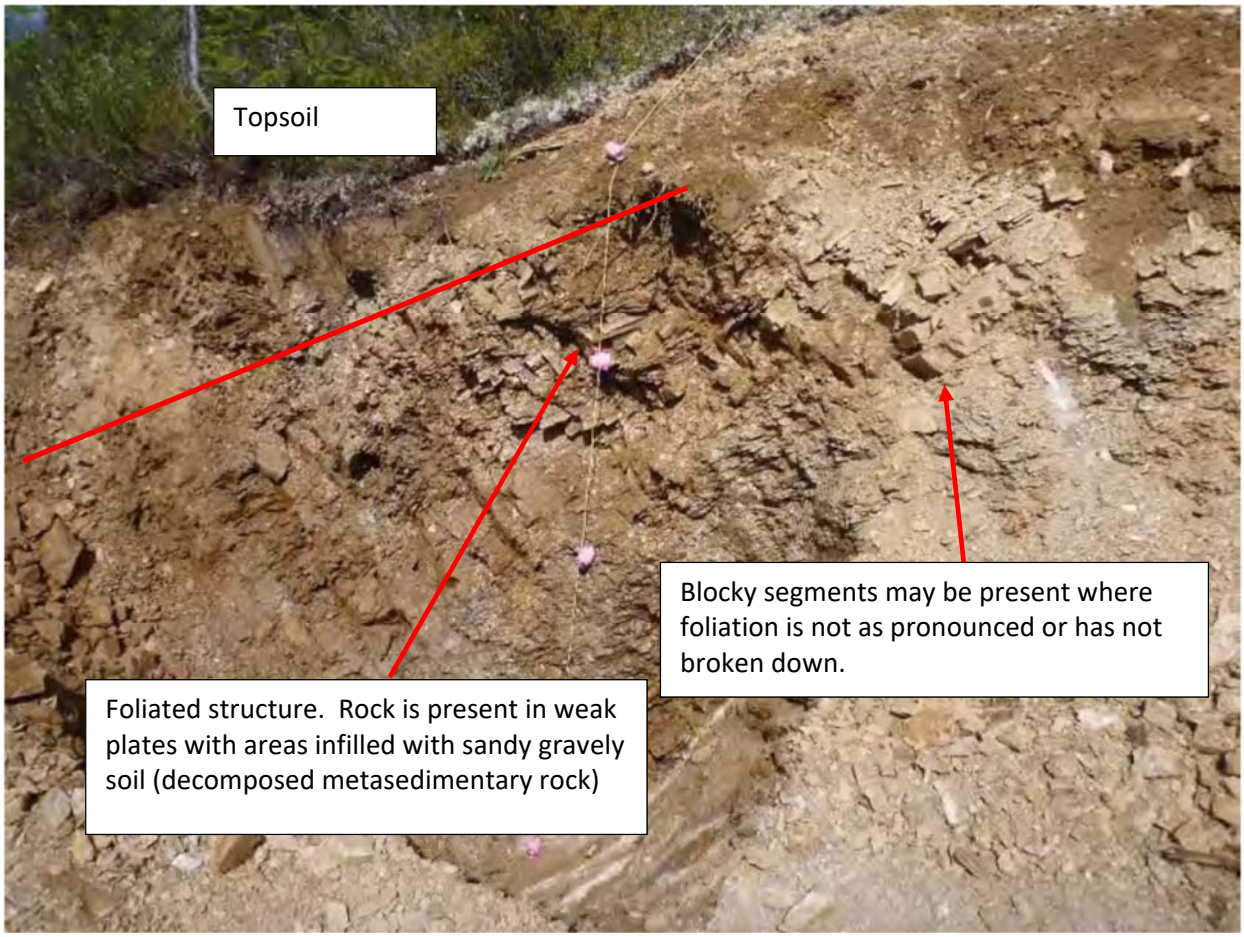


Photo 1: Test pit wall showing blocky and foliated Type 3 metasedimentary bedrock.

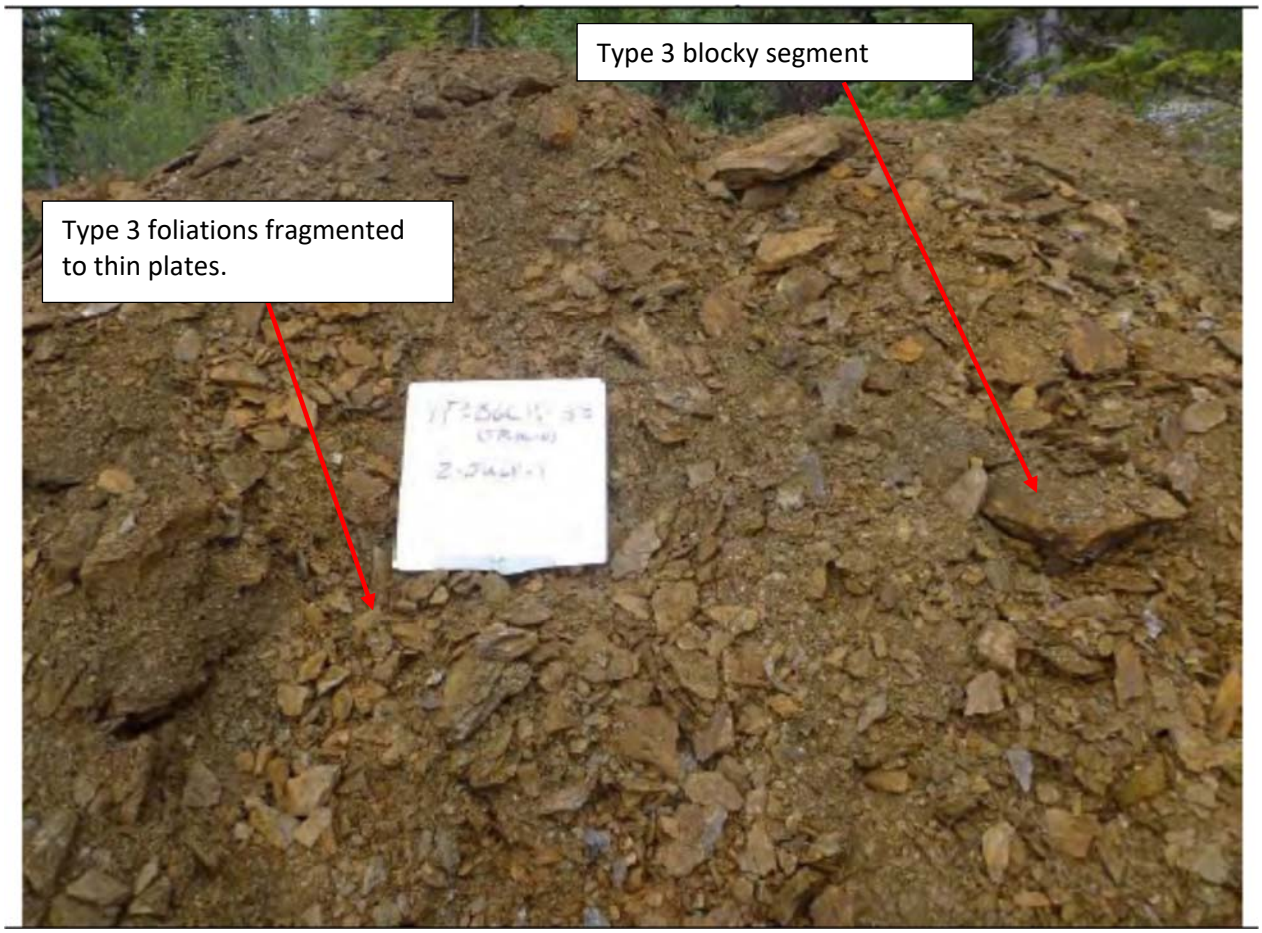


Photo 2: Excavation spoils will contain a high amount of platy, weathered rock fragments from separation at the foliations. Larger, stronger segments of rock will excavate as more blocky pieces. Excavation spoils will also contain gravelly, sandy material that results from weathering of the bedrock and breakdown from ripping. Gravels and sand will be similar to parent rock (color, composition)



Photo 3: Example of Type 3 metasedimentary rock with less platy, more blocky structure. Orange oxidation present through most of the exposed area. Type 3 material encountered was distinguishable from the colluvium/ decomposed bedrock as it was harder to excavate and was more homogenous.

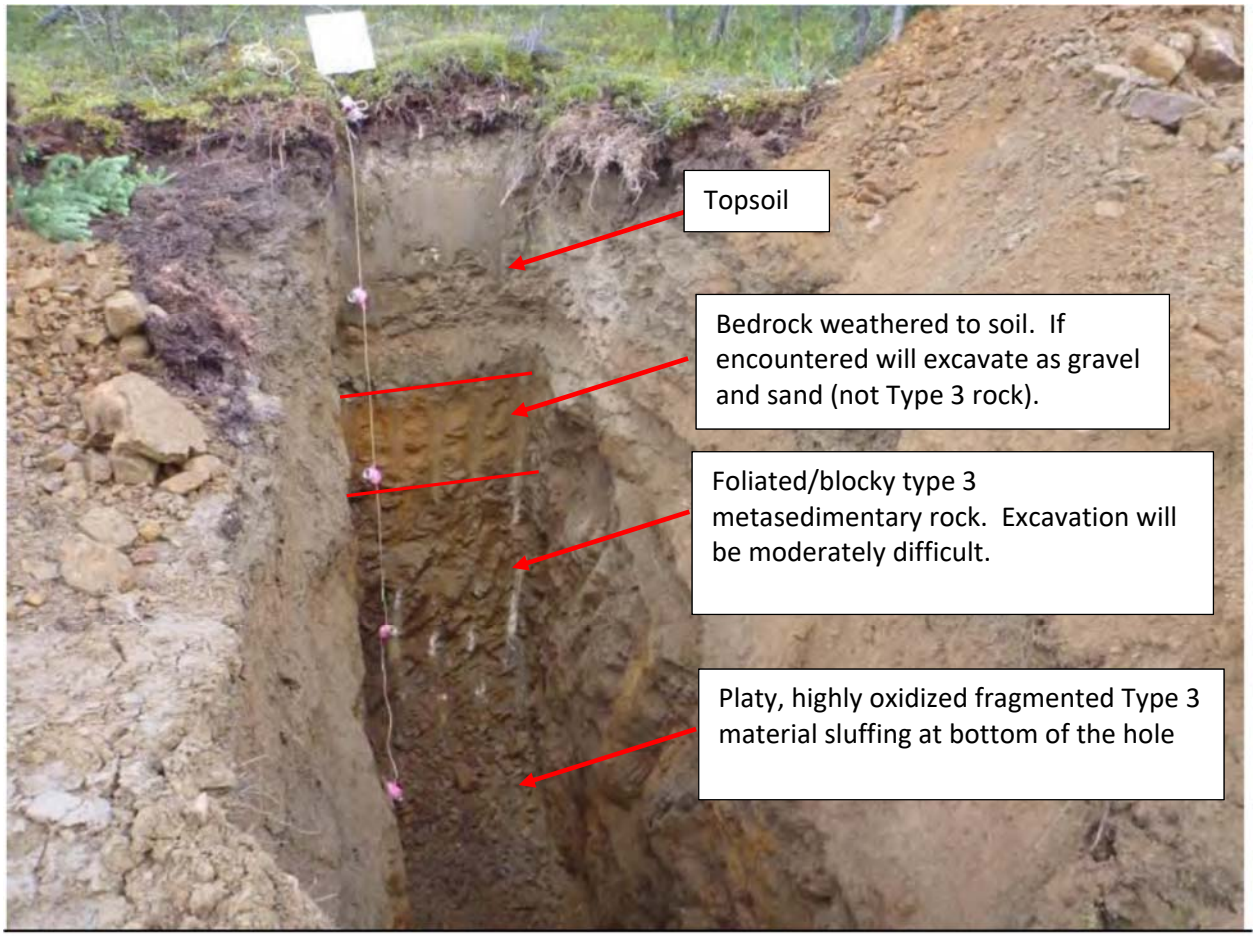


Photo 4: This photo shows a defined strata leading to Type 3 bedrock. Topsoil is high in organics and generally reduced to a gray/brown color. Zone above the Type 3 bedrock has been weathered to soil and was excavated as sandy and gravel with the same composition as the bedrock (ie quartz and mica sand; metasedimentary gravels). Type 3 material is apparent by platy foliations with some blocky zones. Some light ripping was needed to excavate the Type 3 material as can be seen in the white gouge marks.



Photo 5: Excavation of a slope to Type 3 bedrock.

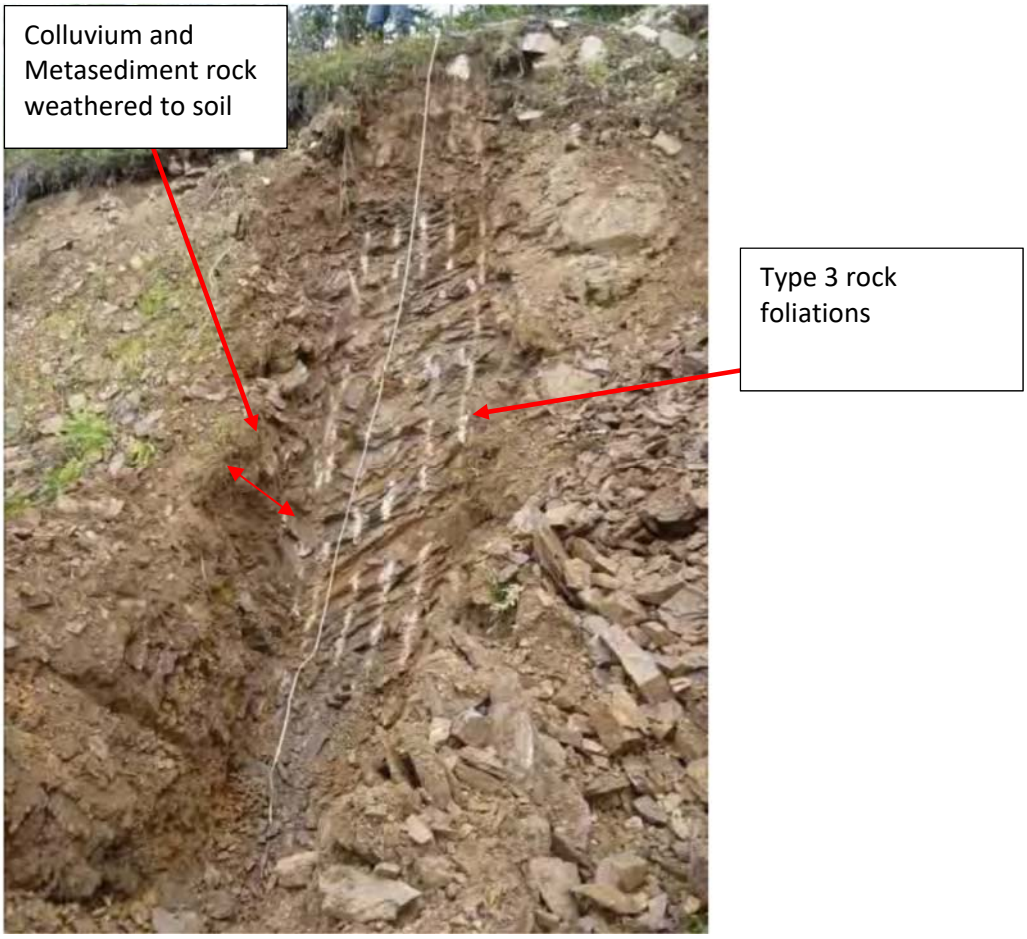


Photo 6: Photograph of surface from Photo 5 excavated to Type 3 rock, parallel to foliations.



Photo 7: Spoils from test excavation in Photo 6. Mix of platy and blocky dark colored metasedimentary rock visible in the forefront of the spoils.

3.0 FROZEN GROUND CONSIDERATIONS

If frozen ground is encountered the engineer should be made aware right away and should be present for the supervision of its removal. Frozen soils will be removed to competent bedrock. This may be Type 3 bedrock. However, since some zones of Type 3 bedrock are weathered to friable layers that can be susceptible to loss of internal strength during freeze/thaw events additional diligence is needed to ensure they are removed. The engineer will make the determination where to end the excavation (typically in a more competent zone still within the Type 3 rock type).



Photo 8: Example of Type 3 material that may be susceptible to loss of internal strength.

4.0 USE OF SPOILS AS MATERIAL 3 STRUCTURUAL FILL

The description of the Material 3 – Structural Fill from the project technical specifications are:

“Structural Fill shall consist of glacial till, alluvium, colluvium, and residual highly weathered bedrock obtained from required excavations and site grading or other approved sources. Structural Fill shall consist of material with a minimum of 10 percent passing the No. 200 ASTM sieve size, have less than 30 percent rock particles retained on the 19 mm (3/4 in.) ASTM sieve size and a maximum 150 mm rock size. No gap graded material as determined by the Engineer, shall be acceptable. The structural fill material shall be moisture conditioned to +2/-2 percent of optimum moisture content, placed in 0.3 m maximum loose lifts and compacted to a minimum 95 percent of the Standard Proctor maximum dry density (ASTM D-698).”

Material 3 will be used in the construction of the dam embankment which would be classified as an earthfill dam (as opposed to a rockfill dam) due to material particle size and resulting permeability. A QC sample should be collected from the first stockpiled/blended soils generated to ensure it meets these criteria. The main design criteria for Material 3 are:

- Greater than 10% fine material.

- Greater than 30% material larger than 19mm (3/4”).
- A maximum size of 150mm (6”).
- No gap grading. This means that material should be well graded so to allow space between larger particles to be supported by varying sizes of smaller particles (ie is well graded). Gap grading can result in unstable construction. Care should be taken to ensure that gap grading is not occurring when mixing soils types. Gradation will be confirmed per the QC testing program.
- Free of organics.
- Relatively uniform in gradation and composition. This would mean that the material being used to construct all portions of the dam have a relatively similar gradation, compatibility, and water draining properties. This is typically achieved by producing from the same borrow source or a borrow source of similar origin.

A gradation band for Material 3 is provided below. It should be noted that the gradation band is wide. However, the requirements of having a well graded and uniform material is still necessary, even though gap graded and variable material gradations would still fall within this band.

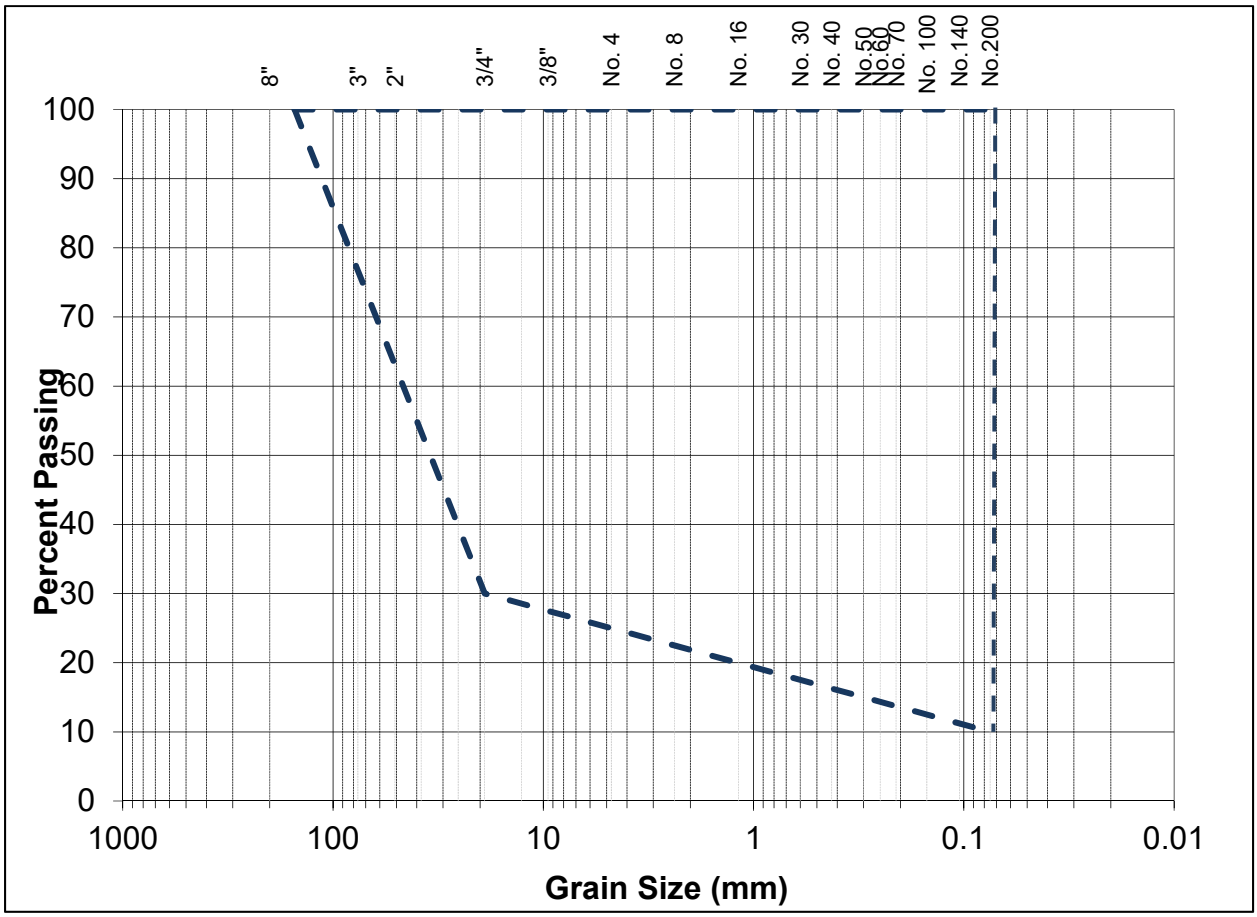


Figure 1: Material 3 Gradation Band

5.0 CLOSURE

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Yours sincerely,

BGC ENGINEERING INC.
per:

Roy Morlan, PG, PMP

Senior Engineering Geologist

To:	**JDS**	**Project:**	**Eagle Gold Construction Support**
Company:	**BGC**	**Project No.**	**1406-006**
From:	**Daniel Granda, P.E./Roy Morlan, P.G.**	**Date:**	**2018-06-13**
Copied:	**Elliot Matthew EIT; Troy Meyer**	**Record:**	**FM-003**

Re: Seeps and Finger Drains

1.0 INTRODUCTION

The purpose of this memorandum is to discuss the field observations made along the exposed right abutment and artesian well identified upstream of the partially excavated undrain pipe trench.

Field observations included daily monitoring of potential seeps during no precipitation days, photo records to document observations, and visual confirmation of water flow. The intend of this document is to classify areas that may interfere with moisture conditioning of lifts during construction, damage approved fill placement through water flow and present solutions to be implemented in the field during construction.

2.0 WATER MANAGEMENT FIELD OBSERVATION

On May 26th, 2018, representatives from Pelly and JDS, accompanied BGC Resident Engineer (Daniel Granda) to walk the site (**Figure 1**). This meeting took place a day after significant rainfall and the ground was fairly moist. This was used a baseline for identifying seeps occurring during drier conditions.



Figure 1: Pelly and JDS representatives present for water management field observation visit.

During the visit, the ground was found to be moist. Sediments had been transported on exposed Type 3 foundation in underdrain pipe trench and moisture from the abutments seemed to be rainfall moisture (**Figure 2**).



Figure 2: Seeps were difficult to see after significant rainfall events.

3.0 OBSERVATIONS

During a course of 5 days, and in consistent drier weather, moisture spots remained concentrated in areas identified. **Figure 3** presents observations from June 1st, 2018 inspection. **Figure 4** presents field interpretation and seep identification.



Figure 3: Upstream view from proposed embankment toe looking upstream



Figure 4: Field Interpretation of seeps with identifications for descriptions.

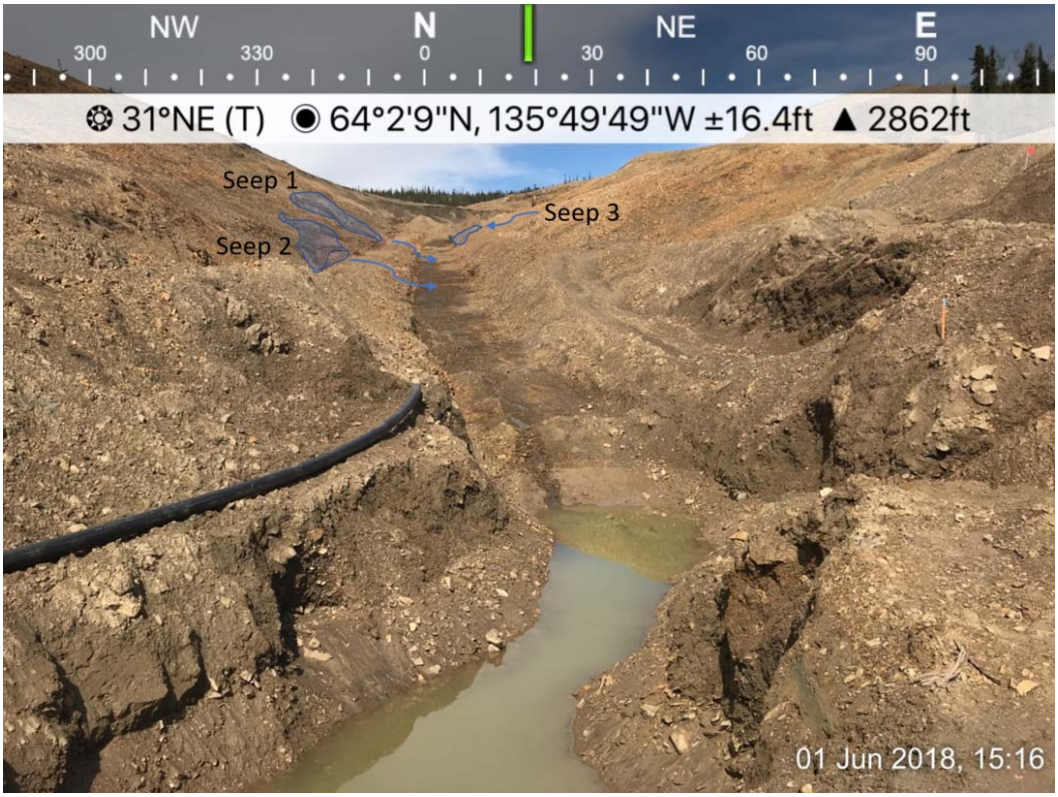


Figure 4: Field Interpretation of seeps with identifications for descriptions.

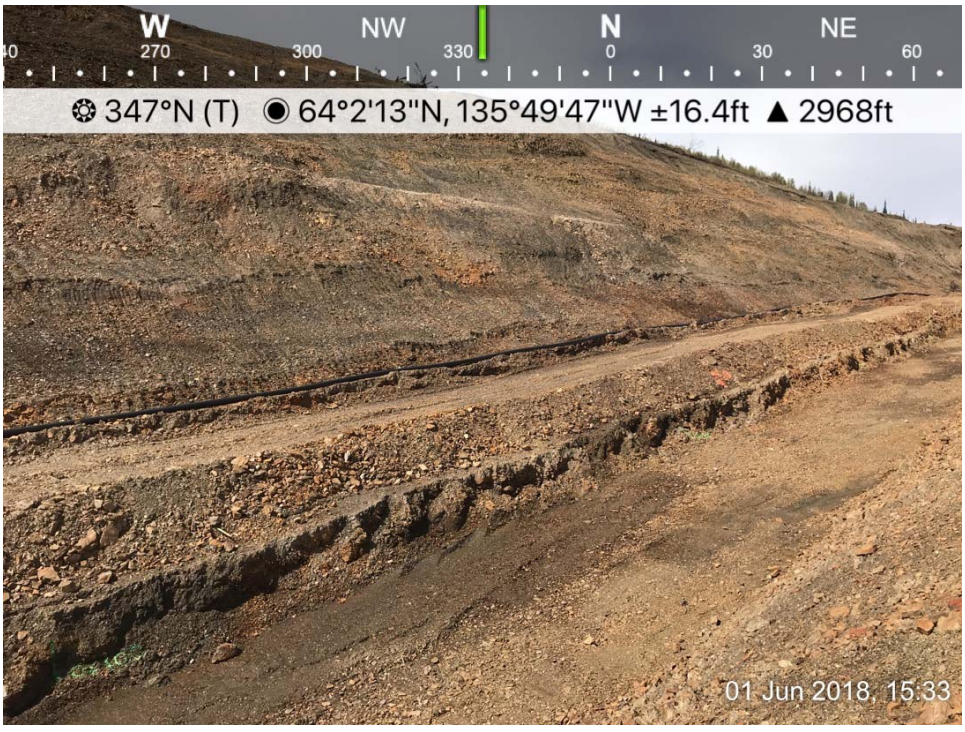


Figure 5: Seep 1 view from left abutment.

Both Seep 1 and 2 have been occurring for the past 5 days. Weak, very moist and low resistance to puncture zones were identified by applying finger pressure on wet areas. **Figure 6** presents the interpretation that may be confirmed during abutment foundation preparation for seep 1.

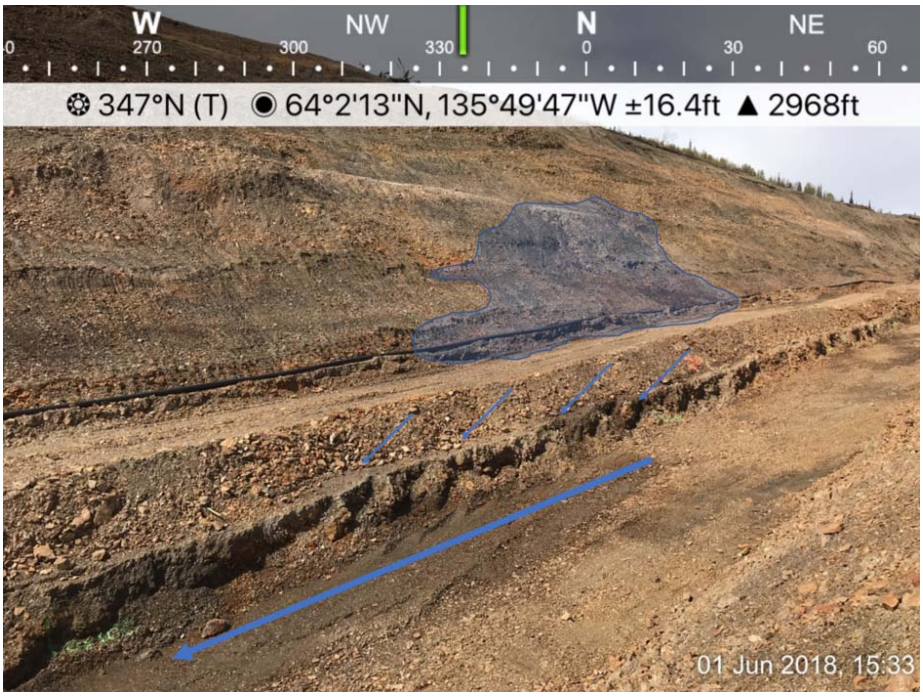


Figure 6: Seep 1 interpretation of potential flow path.

The specific source zone point is unknown as the materials on the abutment have high moisture absorption and fine lenses exhibit matric suction properties. In seep 1, the moisture is visible at the close sight on the abutment, liquid is transported downstream of the abutment and reconnects to the underdrain trench sides.



Figure 7: Seep 2 view from left abutment.

Seep 2 exhibits the same characteristics as seep 1, with ponded water on surface on bench between abutment and bottom of underdrain trench.



Figure 8: Seep 2 interpretation of potential flow path.



Figure 9: Seep 3 view from upstream underdrain trench

Seep 3 is believed to be coming from the artesian source identified during inspections. There is a clear connection of moisture oriented from the assumed source to the underdrain trench.

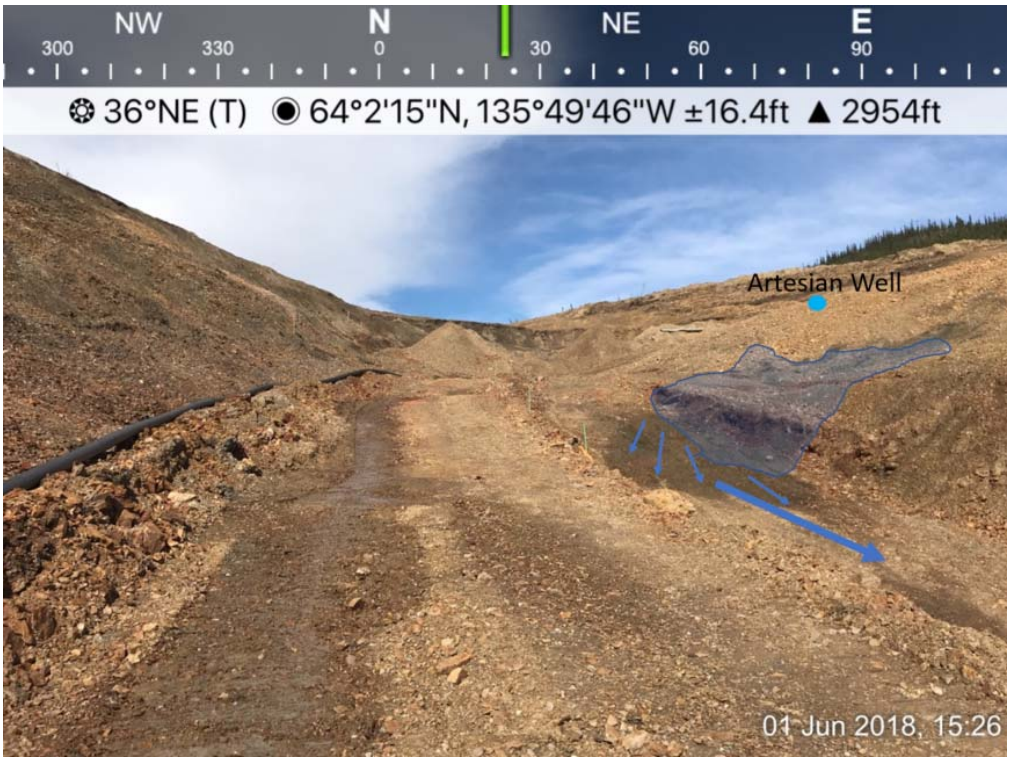


Figure 10: Seep 3 interpretation of potential flow path.

4.0 SUGGESTED MITIGATION

A field design to help the contractor to dissipate seepage and surface runoff from the abutments during construction seems to be the best approach. The goal of this mitigation is to provide a way of transporting excess water during construction (lift placements and compaction) to meet compaction specifications, transport and reduce pore water pressures inside the constructed embankment for long term stability.

5.0 FINGER DRAIN

A total of 3 finger drains are proposed (one finger drain at Seep 1, one finger drains at Seep 2, and one finger drain at Seep 3). The centerline location of each finger drain was surveyed by Pelly's survey team. A figure showing the location was not provided to BGC before completion of this memorandum. However, each drain will be an estimated 10 m in length. Although it is not currently anticipated, these finger drains can be extended in length if moisture along the abutments appear to be an issue during construction.

The finger drain trenches should be a minimum of 2 m wide, by a minimum of 0.75 m high, with a 2:1 slope on each side. The drain trench should be excavated in Type 3 Bedrock or better. Similar requirements to the underdrain will be used to construct it (e.g. geotextile overlap, select throughout). The final drain will be field fitted and the final length and construction details will be dependent on the ground conditions and its ability to tie into the Pipe Trench. However, the drain should meet the minimum dimensions discussed here. The detail for the minimum requirements is presented as **Figure 11**.

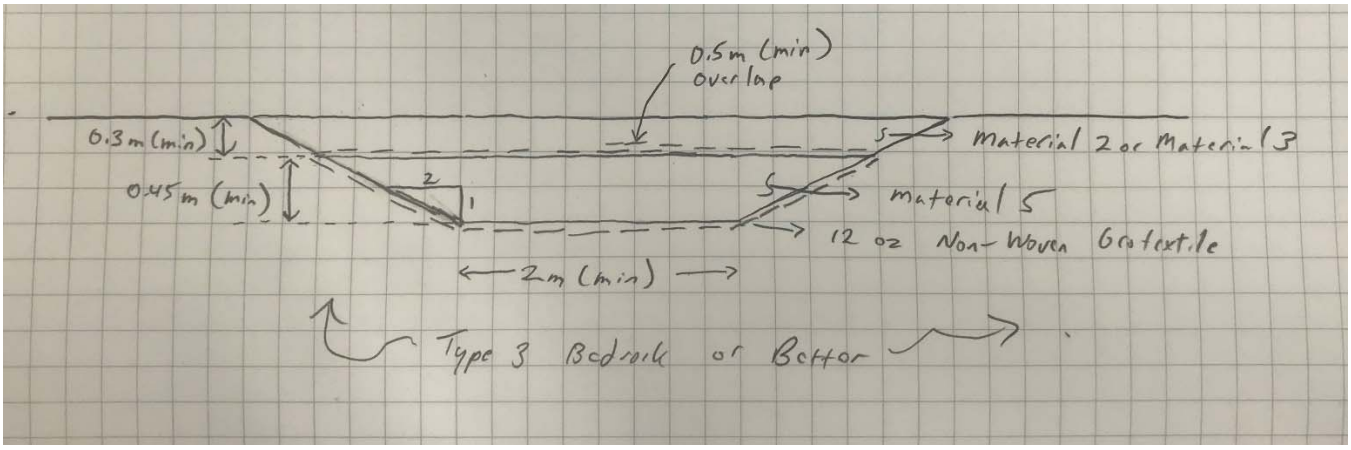


Figure 11: Typical section for finger drain.

Finger drains will tie into the drain rock at the pipe trench. Geotextile in the finger drains should overlap with the pipe trench by a minimum of 0.5 m. The Constructor should propose a method to overlap the geotextile at this connection based on constructability. BGC should review this connection prior to construction. The following sketch is a plan view of the finger drains in relation to the pipe trench (**Figure 12**).

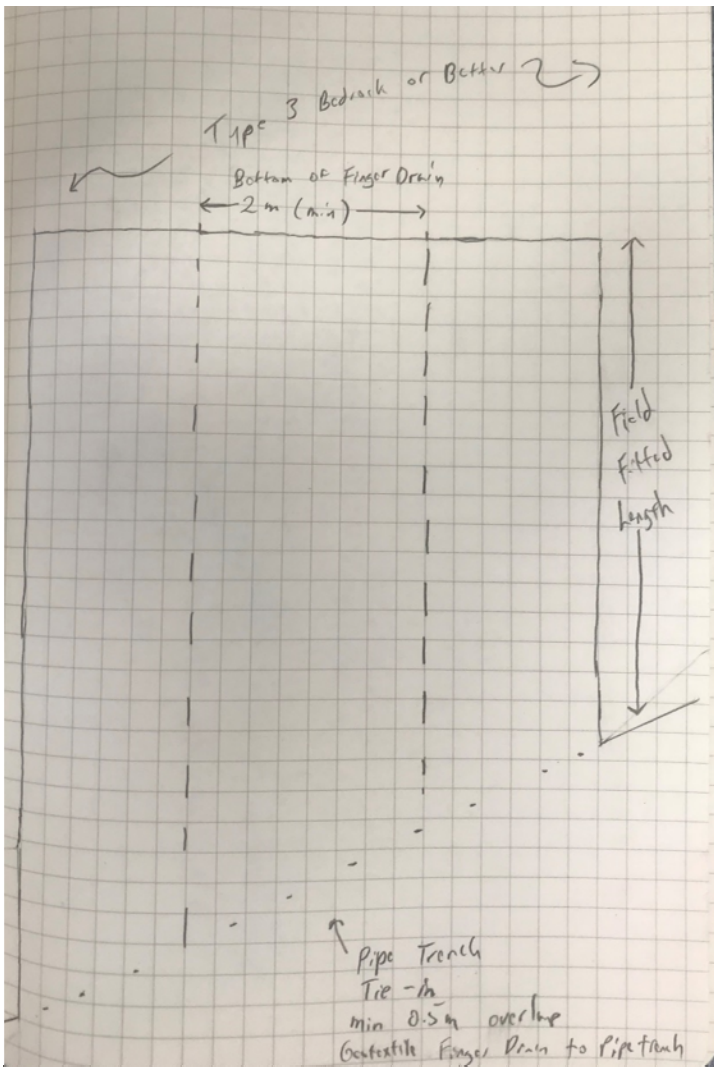


Figure 12: Plan view for finger drain layout.

6.0 SUMMARY AND RECOMMENDATIONS

A finger drain will be needed to reduce porewater pressures during construction through operations. The design presented could help drain slopes and maintain control of water during material lift placements prior to compaction.

This drain design is not intended for the control of the water on the east side of the embankment where the artesian hole was discovered. A separate design will be developed for the drain on that side of the embankment.

7.0 CLOSURE

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Yours sincerely,

BGC ENGINEERING INC.
per:

Roy Morlan, PG.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Field Memo
FM-004

To:	**JDS**	**Project:**	**Eagle Gold HLF**
Company:	**BGC Engineering**	**Project No.**	**0792021**
From:	**Elliot R. Matthews**	**Date:**	**June 21, 2018**
Copied:	**Troy Meyer, Daniel Granda, Roy Morlan**	**Record:**	**FM-004**

Re: HDPE Pipe Leak Test

1.0 INTRODUCTION

The purpose of this memo is to provide a summary of the pipe testing observations made by BGC Engineering (BGC) during Pelly Constructions (Pelly) testing of the HDPE SDR 17 portion of the Closure Pipe to be used between stations 0+29.3 to 1+81.4. Pelly performed pressure testing on June 16th, 2018 between 11:30 HRS and 17:35 HRS based on ASTM F2164-13.

2.0 OBSERVATIONS AND RESULTS

Pelly provided a description of the test procedure and testing equipment components, which can be viewed in the attached memo from Pelly (Attachment 1).

BGC observed the HDPE pipe test throughout the time of testing. Pressure was checked by Pelly using a regulator attached to one end of the pipe. Photos were taken by BGC of each of the 9 butt-fused pipe joints at regular intervals in addition to the flange-pipe connections at the ends of the pipe (Attachment 2).

The test was started early in the morning following a night of light rain. The pipe at the start of the test was wet on the outside from the overnight rain. The pipe gradually dried during the test, assisting in potential leak detection. BGC observed that pressure within the pipe was stable through the duration of the test with fluctuations ranging between 0 and 5 psi. A summary of BGC's observations for each regular check interval can be viewed in the attachments (Attachment 3).

3.0 CONCLUSIONS

Pelly reported that the pipe passed the pressure test. BGC's observations confirm this. BGC's observations also confirm that Pelly followed the ASTM standard being used for the pipe test. Visual inspection of the pipe did not indicate the presence of air or water leaks. BGC attributed

the slight fluctuation in psi to compressor variation and regulator performance, not to a leak along butt-fused pipe joints.

4.0 CLOSURE

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Yours sincerely,

BGC ENGINEERING INC.
per:

Elliot Matthews, E.I.T.(BC)

Geotechnical Engineer

Attachment 1

Work Plan:	HLF Embankment Underdrain Pipe Leak Test	**Revision:**	0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:**	2018-06-20

OBJECTIVE

The objective of this CWP is to outline the procedure and provide results of a leak test to be completed on the underdrain pipe(s) to be installed within the HLF Embankment in Response to BGC RFI-004.

SUMMARY

The scope of work includes:

1. Test pipe for leaks following guidelines outlined in ASTM F2164-13
2. Monitor and record test results
3. Approval of tested pipe

SAFETY

Potential Hazard	Precautions and Actions
Outlined in attached JHA	Job Hazard assessment completed for work to be done

SCOPE OF WORK

Description	
1. <u>Test pipe for leaks</u> **Test Pipe:** The test pipe will consist of approx. 150m length of HDPE SDR 17 pipe to be used as the closure pipe between station 0+29.3 (upstream vault contact) and 1+81.4 SDR 17 to SDR 11 connection as per drawing EGHLF-XD-03-05. • Pipe leak test will be completed guided by procedures and safety precautions included in ASTM F2164-13 (attached). Most recently fused pipe will be selected as a spot test to prove quality of welds and free of any leaks. In the event that the selected pipe fails the procedure, all pipes will then have to be tested as quality assurance. **Procedure:** • Flanges will be fused onto the selected pipe consisting of a cap and gasket to seal pressure at one end and introduce water and pressure into the other end. • The pipe will be placed into a confining ditch where all welds in question are visible. Pipe will be placed in a constant graded position to minimize undulations and air pockets. • The pipe will be filled with water to capacity. • Pneumatic pressure will be introduced into the pipe in stages of 20 – 30 psi up 100 psi agreed upon by BGC representative. Each stage must sustain constant pressure for 15 minutes while remaining free of any leaks. • The pipe will be required to sustain 100 psi of constant pressure and be	

Work Plan:	HLF Embankment Underdrain Pipe Leak Test	**Revision:** 0
Location:	HLF Embankment approx. 1.5km Dublin Road	**Date:** 2018-06-20

Description	
free of any leaks for a period of 4 hours. • Pressure will be reduced to a constant pressure of 90 psi for 1 hour while remaining free of any leaks. • Pipe to be drained of water and marked as the tested pipe to be used as the closure pipe during construction.	
2. **Monitor and record test results:** • Pressure was introduced into pipe in stages up 100 psi remaining free of any leaks • Pipe sustained 100 psi of constant pressure for 4 hours while remaining free of any leaks • Pressure was reduced and pipe sustained 90 psi of constant pressure for 1 hour while remaining free of any leaks	Pelly BGC D.S. _____ D.S. _____ D.S. _____
3. **Approval of tested pipe:** • Approved tested pipe has been flagged to be used as the closure pipe during HLF Embankment Underdrain Construction **Signatures of Approval:** Roy Morlan Senior Engineering Geologist/Geotechnical Engineer BGC	**Date** _____ **Signature** _____

Pelly Construction Ltd.

JOB HAZARD ASSESSMENT # 013

Project #2017-1 Victoria Gold

Work to be completed: Pressure Testing **Date: June 16 2018**

Task Location: Event Pond Road **Emergency Meeting Location:**

Required Personal Protective Equipment: Standard; Steel-toed boots, high vis vest, safety glasses, gloves, long sleeves

STEP	TASK DESCRIPTION	HAZARD	CONTROLS
1:	Fill pipe with water then pressurize with compressed air to 100psi	Possible chance of blowing water seal gaskets, black pipe fittings, air regulator components	Visual Inspections while slowly pressurizing pipe. Keeping a safe distance away from areas described as hazards. Wear all appropriate PPE. 2 people doing visual inspections at either end of the pipe while being pressurized. 2 way radios for guys doing the inspections as well as the person pressurizing the pipe. No one should have contact with the pipe as its being pressurized.
2:			
3:			
4:			
5:			

WORKERS HAVE THE RIGHT TO REFUSE UNSAFE WORK

Pelly Construction Ltd.

WORKERS HAVE THE RIGHT TO REFUSE UNSAFE WORK

Please print and sign below (*all members of the crew*) prior to commencing work

Workers Name and Signature (below)

Foreman's Name and Signature: GREG COPP

DEAN SEEELD

Jordan Jordan (Pelly Safety)

Elliot Mathews Elliot Matthews

Raymond Bergsma Raymond Bergsma

Clayton Johnny

Albert Spyglass

Dominic Kon

Roy Marlow

Job Completion

Was this area cleaned up at the end of the job/shift? Yes ✓ No ___

Were there any incidents/injuries? Yes ___ No ✓ If yes, please explain: ___

Reviewed by: T Sewell Signature: T Sewell Date: ___

This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: F2164 – 13

Standard Practice for Field Leak Testing of Polyethylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure[1]

This standard is issued under the fixed designation F2164; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice provides information on apparatus, safety, pre-test preparation, and procedures for conducting field tests of polyethylene and crosslinked polyethylene pressure piping systems by filling with a liquid and applying pressure to determine if leaks exist in the system.

1.2 This practice does not address leak testing using a pressurized gas (pneumatic testing). For safety reasons, some manufacturers prohibit or restrict pneumatic pressure testing of their products. Failure during a pressure leak test can be explosive, violent, and dangerous, especially if a compressed gas is used. In a compressed gas test, both the pressure stress on the system and the energy used to compress the gas are released at a failure. Contact component manufacturers for information about testing with gas under pressure.

1.3 This practice does not apply to leak testing of non-pressure, gravity-flow, negative pressure (vacuum), or non-thermoplastic piping systems. For field-testing of plastic gravity flow sewer lines, see Test Method F1417.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Additional safety information is presented in Section 7 and throughout this standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1600 Terminology for Abbreviated Terms Relating to Plastics

F412 Terminology Relating to Plastic Piping Systems

F1417 Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air

2.2 *Other Documents:*

PPI TR-4-PPI Listing of Hydrostatic Design Basis (HDB), Pressure Design Bases (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials[3]

3. Terminology

3.1 Abbreviations and terms are in accordance with Terminology D1600 and Terminology F412 unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *authority having jurisdiction, n*—the organization, office, or individual responsible for "approving" equipment and installation, or a procedure.

3.2.1.1 *Discussion*—The term "authority having jurisdiction" is used in this practice in a broad manner since jurisdictions and "approval" agencies vary, as do their responsibilities. Where public safety is concerned, the "authority having jurisdiction" may be a federal, state, local, or other regional department or individual such as a Fire Chief, Fire Marshall, chief of a fire prevention bureau, labor department, building official, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority

[1] This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.40 on Test Methods.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from Plastics Pipe Institute (PPI), 105 Decker Court, Suite 825, Irving, TX 75062, http://www.plasticpipe.org.

***A Summary of Changes section appears at the end of this standard**

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having jurisdiction." In many circumstances, the property owner or his authorized engineer or agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

3.2.2 *approved, vt*—acceptable to the authority having jurisdiction.

3.2.3 *pressure piping system, n*—a piping system where all components in the system are pressure rated and intended for conveying a fluid under continuous internal pressure. (See also Terminology F412, *pressure pipe* and *non-pressure pipe*.) To verify suitability for pressure service, consult the component manufacturer.

NOTE 1—PPI TR-4 provides information about stress ratings for some plastic materials and products.

3.2.4 *restraint, n*—temporary or permanent structural measures or devices which restrict, guide, prevent, or safely limit disjoining or movement of piping system components while the system is under pressure during testing or service conditions. Restraint may include backfill, anchors, thrust blocks, external clamps and tie rods (joint restraints), pipe guides, and so forth. Restraint means that if violent separation or failure occurs during the test, any movement of components or parts is sufficiently constrained such that damage or injury is prevented.

3.2.5 *system design pressure, n*—the limiting continuous internal pressure specified by the piping system designer. System design pressure may be less than the pressure ratings of components in the system. System design pressure may be limited by component pressure ratings, by code or application requirements, or by other restrictions.

3.2.6 *visible leakage, n*—the visible escape (drip, spray, stream, flow, and so forth.) of test liquid from the test section through components, joints, connections, appurtenances, and the like in the test section.

4. Summary of Practice

4.1 The section of the piping system to be tested is isolated from other parts of the system and restrained against movement to prevent catastrophic failure. Components that are not to be subjected to test pressure or could be damaged by test pressure are isolated or removed as necessary. Isolated components are vented to atmosphere. The test section is filled with the testing liquid, raised to the test pressure, and allowed to stabilize. The system is inspected or monitored for leakage, and then test pressure is relieved. If repairs or corrections are necessary, they are performed only when the test section is depressurized. If necessary, a retest is performed after a relaxation period. At the conclusion of an acceptable test, the test section may be placed in service. Purging and disposal of the test liquid from the test section may be necessary.

4.2 Acceptance is determined by the approval of the authority having jurisdiction.

4.3 The authority having jurisdiction may specify procedures or requirements for test liquid disposal or erosion control.

5. Significance and Use

5.1 If required by the authority having jurisdiction, hydrostatic pressure leak testing may be conducted to discover and correct leaks or faults in a newly constructed or modified polyethylene or crosslinked polyethylene pressure piping system before placing the system in service. Leakage or faults usually occur at connections, joints, and mechanical seals where sealing under pressure is required. (**Warning**—Safety is of paramount importance when conducting hydrostatic pressure leak tests because testing under pressure may cause sudden violent rupture or failure.)

5.2 This practice uses a pressurized liquid to test for leaks. It does not verify if a piping material or a piping system design is suitable for pressure service. The suitability of a piping system for pressure service and its pressure rating or operating pressure is determined solely by its design and its installed components.

5.3 Systems that are not suitable for pressure testing should not be pressure tested. Such systems may contain lower pressure rated or non-pressure rated components that cannot be isolated from test pressure, or temporary caps or closures may not be practical. In these systems, leak inspections should be conducted during and after installation. Inspections typically include visual examination of joint appearance, mechanical checks of bolt or joint tightness, and other relevant examinations. See also Test Method F1417.

5.4 *Leakage Allowance*—There is no leakage allowance for a section of heat-fusion joined polyethylene piping, because properly made heat fusion joints do not leak. See 7.6.1.

5.4.1 Other types of joints or connections in the system may have a leakage allowance. Contact the joint or connection manufacturer for information.

5.5 *Expansion Allowance*—When test pressure is applied, polyethylene or crosslinked polyethylene pipe will expand slightly due to elasticity and Poisson effects. To compensate for expansion, make-up water is added during the initial expansion phase. The amount of make-up water (expansion allowance) will vary because expansion is not linear. This procedure compensates for expansion with an initial expansion phase, followed by a test phase. In the test phase, expansion is suspended by slightly reducing test pressure. See 9.6.

5.6 *Poisson Effect*—When test pressure is applied to plastic piping systems that have fully restrained joints (joints such as heat fusion, electrofusion, bolted flanges, and so forth.), diametrical expansion of the pipe may reduce the overall length of the fully restrained section. Poisson-effect length reduction may affect or cause disjoining in other contiguous sections that have partially restrained or non-restrained joints, such as bell-and-spigot joints, when such joints are in-line with the test section. To prevent Poisson-effect disjoining, take measures such as the installation of external joint restraints (diametrical clamps and tie-rods) on in-line non-restrained joints, installing in-line thrust anchors at the ends of the fully restrained section, or isolating the fully restrained test section from piping with non-restrained or partially restrained joints.

NOTE 2—When a tensile stress is applied to a material, it will elongate

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in the direction of the applied stress, and will decrease in dimension at right angles to the direction of the applied stress. The ratio of decrease to elongation is the Poisson ratio. Under test pressure, piping materials will expand slightly in diameter and contract in length slightly according to the Poisson ratio of the material.

6. Apparatus and Equipment for Hydrostatic Procedures

6.1 *General*—Components such as caps, valves, blind flanges, manual or automatic air release devices, vents, and other devices that are used to isolate the test section from other parts of the system, to purge air from the system, and to isolate components that are not to be subjected to test pressure are generally needed.

6.1.1 Test section isolation and closure components are to be rated for pressures equal to or greater than the test pressure applied to the test section.

6.1.2 Although section isolation and closure components may only be connected to the test section for the duration of the test, the joint between the test section and a closure or isolation component should be at least as strong as joints in the test section. Additional restraint may be required.

6.1.3 Air release devices should be located at all high points along the test section.

6.1.4 Excessively worn or deteriorated equipment is unsuitable and is not to be used.

6.2 *Test Liquid*—An adequate supply of a safe test liquid, such as water, is necessary. The test liquid should be of appropriate safety and quality so that the environment, system, test equipment, and disposal (if necessary) are not adversely affected.

6.2.1 Where an existing water supply is used to supply test water, protect the existing water supply from backflow contamination in accordance with local codes or as required by the authority having jurisdiction. Remove backflow protection and isolate the test section from the existing water supply before testing.

6.2.2 Excluding retesting (if necessary), the quantity of liquid needed to fill the internal volume of the pipe test section and accommodate test section expansion and possible leakage at non-fusion joints and seals is estimated using:

$$V_{gal} = 1.015 \times 0.04 \times (ID_{in.})^2 \times L_{ft} \quad (1)$$

$$V_{m^3} = 1.015 \times 0.785 \times 10^{-6} \times (ID_{mm})^2 \times L_m$$

where:

V_{gal} = pipe section volume, U.S. gal,
$ID_{in.}$ = pipe inside diameter, in.,
L_{ft} = test section length, ft,
V_{m^3} = pipe section volume, m^3,
ID_{mm} = pipe inside diameter, mm, and
L_m = test section length, m.

6.3 *Filling and Pressurizing Equipment*—Liquid filling and pressurizing equipment such as pumps, and pressure regulating devices will usually be necessary. Filling equipment should be capable of filling the test section in a reasonable time against any elevation head pressure that may be present. Pressurizing equipment should be able to maintain the necessary test pressure in the test section and provide sufficient quantities of make-up test liquid for the duration of the test. Pressure regulating equipment should be capable of maintaining test pressure for the duration of the test.

6.3.1 Filling equipment and pressurizing equipment do not need to be the same equipment.

6.4 *Pressure Monitoring*—Use at least one calibrated pressure gage or sensor accurate to within two percent (2 %) of full scale. It is preferred that the gage or sensor full scale value not be more than twice the test pressure, and that scale graduations be no greater than two percent (2 %) of the full scale value. Using a valved tee, a gage cock for bleeding, a pressure snubber, and a duplicate, back-up pressure gage are recommended. A continuous pressure-recording device may be required.

6.4.1 Locate the test pressure gage or sensor to monitor test pressure at the lowest point in the test section. Pressure may be monitored at other points in the test section as well.

NOTE 3—Test pressure is a combination of pump pressure and the height (head) of liquid in the pipeline. Therefore, test pressure is always monitored at the lowest elevation point in the section where pressure is highest. Test pressure will be lower at higher points in the section. If a minimum test pressure at higher elevations must also be met, select test sections so that the minimum test pressure is met at the higher elevation, but do not increase test pressure at the lowest point. Excessive test pressure can cause damage or pipeline failure.

6.5 Other equipment to connect the pump(s) to the test section and the test liquid supply, control the flow of test liquid, power the pump(s), connect the pressure gage(s) or sensor(s) to the test section, monitor pressure, and drain or purge the test liquid from the test section may also be necessary.

7. Specific Safety Precautions

7.1 This specific safety information is in addition to the safety information in other sections of this practice.

7.2 Always take precautions to eliminate hazards to persons near lines being tested. For the entire duration of the procedure, including filling, initial pressurization, time at test pressure, and depressurization, only persons conducting the test or inspecting the system being tested should be allowed near the section under test. These persons should be fully informed of the hazards of field pressure testing. All other persons should be kept a safe distance away.

7.3 The test section is to be supervised at all times during pressure testing.

7.4 Failure may result in sudden, violent, uncontrolled, and dangerous movement of system piping, or components, or parts of components.

7.5 *Restraint Against Movement*—Take measures to ensure that all parts of the section under test are restrained against movement if failure occurs. Such measures may include backfilling, anchoring, or other appropriate means.

7.5.1 *Partial Backfilling During Testing*—When underground connections, joints, and seals are to be exposed for observation during the test, use sufficient backfill material placed between the joints, and over the pipe to prevent movement, giving due consideration to restraining thrust forces. In particular, pipes connected to restrained joints that

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derive their stability from the interaction of the pipe and soil are to be backfilled prior to testing.

7.6 Leakage usually occurs at a connection, joint, or seal in the system. Depending upon the type of connection, joint, or seal, leakage may be seepage, spray, or a stream of internal test liquid.

7.6.1 When properly made, heat fusion joints in polyethylene pipe are as strong as the pipe and do not leak. Leakage at a fusion joint indicates a faulty joint that may rupture completely at any time. If leakage is observed at a fusion joint, move away immediately, and depressurize the test section.

8. Pre-Test Preparation and Set-Up

8.1 *General:*

8.1.1 Before testing, heat fusion joints are to be completely cooled. Mechanical joints are to be completely assembled with all necessary seals and all fasteners installed and tightened.

8.1.2 Flushing, pigging, or other means of cleaning the system to remove dirt and debris that may damage valves, regulators, and so forth, may be required before testing.

8.1.3 Allow concrete supports and anchors in the test section to cure until they have developed sufficient strength to withstand test pressure thrust forces.

8.1.4 Restrain all parts of the test section against movement in the event of failure. Temporarily remove, restrain, or isolate expansion joints and expansion compensators before starting.

8.2 *Test Section*—Testing may be conducted on the entire system, or on sections of the system. Test section size is determined by the capacity of the filling and pressurizing equipment. It is necessary to fill, pressurize, and test the section within the allotted overall time for the test. Equipment that has inadequate capacity may not be able to complete the test within allowable testing time limits. If so, use higher capacity test equipment, or test a smaller (shorter) section of the system.

8.3 *Test Temperature*—Polyethylene and crosslinked polyethylene piping materials are typically pressure rated at 73°F (23°C). At higher temperatures, reduced pressure ratings and test pressures may be required. Contact pipe, fitting, or component manufacturers for assistance with elevated temperature pressure ratings.

8.4 *Maximum Test Pressure*—Maximum test pressure is designated by the authority having jurisdiction in accordance with 8.4.1 – 8.4.4.

8.4.1 The maximum test pressure for pressure-rated polyethylene or crosslinked polyethylene piping is not to exceed 1.5 × the system design pressure where lower pressure-rated components or devices are not present, or have been removed or isolated from the test section.

8.4.2 The maximum test pressure is not to exceed the pressure rating of the lowest pressure-rated component in the test section, where lower pressure-rated components or devices cannot be removed or isolated from the test section. Consult the component manufacturer for pressure ratings.

NOTE 4—Lower pressure-rated components or devices may include components or devices such as pipe or fittings made from other plastics or metals, or appurtenances such as valves, hydrants, regulators, pressure relief devices, or the like, or some types of mechanical connections such as lower pressure-rated compression couplings or flanges with lower pressure-rated back-up rings.

8.4.3 Do not use higher test pressure even though some components in the test section may have a higher pressure rating.

8.4.4 To determine the maximum test pressure at elevated temperature, apply an elevated temperature system design pressure reduction per 8.3.

8.5 *Test Duration*—Test duration is limited for safety reasons and to prevent damage to the system. Per 7.2 and 7.3, access to systems under test is controlled for the duration of the test.

8.5.1 When the maximum test pressure is between system design pressure and 1.5 × the system design pressure or at 1.5 × the system design pressure, total testing time including the time required to pressurize, stabilize, hold test pressure, and depressurize should not exceed 8 h.

8.5.1.1 If retesting is necessary, the test section should be depressurized for 8 h prior to retesting.

8.5.2 When the maximum test pressure is the system design pressure or less, the total test time including time required to pressurize, stabilize, hold test pressure, and depressurize should be limited to a practical time period. See 7.2 and 7.3. (A test time of about 72 h or less is suggested.)

8.5.3 Before pressure is applied, examine test equipment and all connections to and in the test section to ensure that all are in proper operating condition and tightly connected.

8.5.4 Before pressure is applied, isolated components or devices are to be vented to atmosphere.

8.5.5 Before pressure is applied, disconnect or isolate and vent all low pressure filling lines and other low pressure items.

9. Hydrostatic Test Procedure

9.1 Use appropriate apparatus per Section 6, and water or an appropriate test liquid per 6.2.

9.2 Observe all safety precautions and specific safety precautions per Section 7.

9.3 Prepare and set-up the test section for hydrostatic pressure leak testing per Section 8.

9.4 *Filling*—Fill the test section slowly. Purge all air. Take all appropriate precautions to ensure that no air is trapped in the test section. (**Warning**—Entrapped air can result in an explosive, violent, and dangerous catastrophic failure because both the pressure stress on piping and the energy used to compress the entrapped air are released.)

9.4.1 To allow air to escape from the test section, flow velocities during filling should not exceed the capacities of air release devices or other openings used to release entrapped air. To avoid or limit transient pressure surges, the filling flow velocity should not exceed the design velocity of the piping system.

9.5 *Temperature Equalization*—Allow the test section and the test liquid to equalize to a common temperature.

9.6 *Pressurizing—Initial Expansion Phase*—When the test section is completely filled and purged of air, gradually increase pressure in the test section to the required test pressure.

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9.6.1 If the test pressure cannot be attained, or if it takes an unreasonably long time to reach test pressure, there may be faults such as excessive leakage, entrapped air, or open valving, or the pressurizing equipment may be inadequate for the size of the test section. If such faults exist, discontinue pressurizing, and correct them before continuing.

9.6.2 Add make-up water as necessary to maintain maximum test pressure for 4 h.

9.7 *Test Phase*—Reduce test pressure by 10 psi (69.0 kPa) and monitor pressure for 1 h. Do not increase pressure or add make-up water.

9.8 *Pass/Fail Criteria*—If no visual leakage is observed, and pressure during the test phase remains steady (within 5 % of the test phase pressure) for the 1 h test phase period, a passing test is indicated.

9.9 *Retesting*—If retesting is necessary, depressurize the test section per 9.10 and correct any faults or leaks in the test section. Do not attempt to correct faults or fix leaks while the test section is under pressure.

9.9.1 When maximum test pressure is between system design pressure and 1.5 × system design pressure or at 1.5 × the system design pressure, allow the test section to "relax" for at least 8 h before re-pressurizing. After the relaxation period, repeat the initial expansion and test phases per 9.6 and 9.7.

9.10 *Depressurization*—Depressurize the test section by reducing pressure or releasing test liquid at a controlled rate. Sudden depressurization can cause water hammer.

9.11 *After the Test*—Remove temporary closure and isolation devices from the test section. Depending upon the application, flushing, disinfecting, or draining may be necessary. Regulations and codes may restrict or require specific procedures for some post-test procedures such as test liquid draining and disposal.

10. Test Records

10.1 Information about the leak test may need to be recorded if required by the authority having jurisdiction. Documentation may include the following information:

10.1.1 The test liquid.

10.1.1.1 Backflow prevention devices, if used.

10.1.2 The weather conditions and ambient temperature at the site during the test.

10.1.3 The test pressure.

10.1.3.1 The type of test gages in the test section.

10.1.3.2 The placement of test gages in the test section, such as test gage location distances and elevations from the beginning of the section.

10.1.3.3 Test gage calibration records.

10.1.3.4 Test pressures recorded during the test.

10.1.3.5 Any adjustments made to test pressure for elevated temperature.

10.1.4 The test duration.

10.1.5 A description of the test section length, elevations, and site location.

10.1.6 A description of the test section components.

10.1.7 Description of any leaks or failures and the corrective actions taken.

10.1.8 The date and time of day of the test.

10.1.9 The identification of the party conducting the test.

11. Keywords

11.1 crosslinked polyethylene; field leak test; hydrostatic leak test; leak test; polyethylene pipe

SUMMARY OF CHANGES

Committee F17 has identified the location of selected changes to this standard since the last issue (F2164–10$^{\varepsilon 1}$) that may impact the use of this standard.

(1) Title was revised.
(2) 1.1 was revised.
(3) 5.1 was revised.
(4) 5.5 was revised.
(5) 8.3 was revised.
(6) 8.4.1 was revised.
(7) Section 11 was revised.

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Attachment 2



Photo 1.
Flange Close-up

Close-up of uphill end-flange with capped valve and regulator.



Photo 2.
Regulator Pressure Gauge Close-up

Close-up of the regulator dial indicating the various units of pressure and measurement ticks.



Photo 3.
Pelly Monitors Pressure

Photo fo Pelly laborer adjusting the pressure regulator and monitoring the pressure gauge during pipe leak tests.



Photo 4.
Uphill Looking Downhill Along Pipe

Photo taken looking downhill from the uphilll (monitoring location) end of the pipe.



Photo 5.
BGC QA Inspection

Photo of Roy inspecting the pipe during the pre-test portion of pipe leak testing.



Photo 6.
Joint 1- Beginning of Test

Photo taken of Joint 1 (numbered from the uphill end) during the first regular check of the pipe leak test.



Photo 7.
Joint 1- End of Test

Photo taken of Joint 1 (numbered from the uphill end) during the last regular check of the pipe leak test.



Photo 8.
Pipe End Flange

Downhill end flange of the pipe test system. Photo taken at end the end of the pipe leak test.



Photo 9.
Pelly Monitors Pipe Leak Test

Looking downslope from the regulator (uphill) end of the pipe.

Attachment 3

Day 9 | 1 | Saturday 6/16/2018

Uphill Pressure Tests

① 100%	② 90%	Observations
1		Correct Pressure Y/N
✓	✓	Correct Time ... 4 hr, 1 hr Y/N
2		Leaks? Y/N @ 125% - 10 PSI
✓	✓	74 m = 105 PSI (4 hrs) + 25% = 132
3		-10 PSI = (122 PSI (1 hr) :
✓	✓	
4		
✓		
5		
✓		
6		
✓		
7		
✓		
8		
✓		
9		
✓		
10		
✓		

Notes

Downhill

Steps	Time
✓ ① 30 PSI, 15 minutes	11:30
② 50 PSI, 15	11:55
✓ ③ 80 PSI, 15	12:10
④ 100 PSI, 4 hrs	12:25
✓ ⑤ 90 PSI, 1 hrs	16:30

Results	Pass	Photos
① Start PSI - 30	✓	(Y)
✓ End PSI - 30		
② Start PSI - 50	✓	(N)
✓ End PSI - 52		
③ Start PSI - 80	✓	(Y)
✓ END PSI - 75		
④ Start PSI - 100	✓	(Y)
END PSI - 100		
⑤ Start PSI - 90	✓	(Y)
End PSI - 90		

FIELD

R. D. PENHALL LTD. MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

Scanned by CamScanner

Day 9 | 1 | Saturday 6/16/2018

7:00 – start in office

8:20 – arrive @ site prep for pipe test

8:30 start stage 1, water valve is starting to leak,
↳ Put on hold until cap added @ 8:45
↳ 9:20 new valve failed, on hold again

10:40 → Troy arrives, walk trench, point out seeps

11:30 → called to test pipe

11:30 Start Test,

4hr Test	PSI	Photos
1 hr	100	✓
2 hr	101	✓
3 hr	101	✓
4 hr	100	X

¶ hr Test		
1 hr	90	✓

17:35 End Test

17:40 Move to embankment toe, prep for leveling & side compaction

18:10 begin

19:00 return to office, area partly placed & compacted

Scanned by CamScanner

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Artesian Finger Drain

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Daniel Granda**	**Date:**	**July 6, 2018**
Copied:	**Troy Meyer; Roy Morlan**	**Record:**	**Artesian Finger Drain Design**

Re: Artesian Finger Drain:

1.0 PURPOSE

To drain artesian source to the underdrain trench by constructing a finger drain trench.

2.0 EXCAVATION DESIGN

The design of the drain starts at the artesian source where a minimum 3 metre (m) by 4 m and 1 m (deep) excavation will take place to expose the artesian area for a perforated ring pipe installation.

The initial excavation will be monitored by Engineer to confirm the source is being targeted to confirm artesian source before ring pipe installation.

Once excavation is approved by Engineer, the bottom surface should have a minimum grade of 1% (toward the finger drain trench connecting to the underdrain trench). A 1 m by 3 m and 1 m (depth) excavation (minimum 2% grade) should be included as a finger drain extension. The finger drain extension will allow this drain to be used in case further seep sources are located during foundation preparation upstream of the artesian source.

The excavation then moves to the finger drain which connects the artesian source to the underdrain trench. This trench will be 3 m in width by 1 m in depth with a minimum grade of 2%. All excavations should be surveyed controlled and approved by Engineer before proceeding.

3.0 CONSTRUCTION DESIGN

The finger drain will have a perforated HDPE pipe connecting to the underdrain pipe through a Y connection. A solid HDPE pipe will connect the Y, though a 2 to 3 m bentonite/concrete plug zone to the finger drain. The plug zone will help mitigate potential backpressures coming up the drain during operations and help concentrate the flow of through the select drain fill to the perforated pipes coming from the artesian source.

After the plug zone, the finger drain is constructed with a geotextile wrap with a minimum 0.5 m overlap and select drain fill. A perforated HDPE pipe with a minimum of 0.3 m bedding will be placed throughout and will be connected to the artesian well source upstream.

The artesian well zone will have perforated pipes aligned in a ring system or approximately 2 m by 2 m, connected through a T connection to the finger drain and a T connection to the finger drain extension zone.

4.0 CONSTRUCTION CONSIDERATIONS

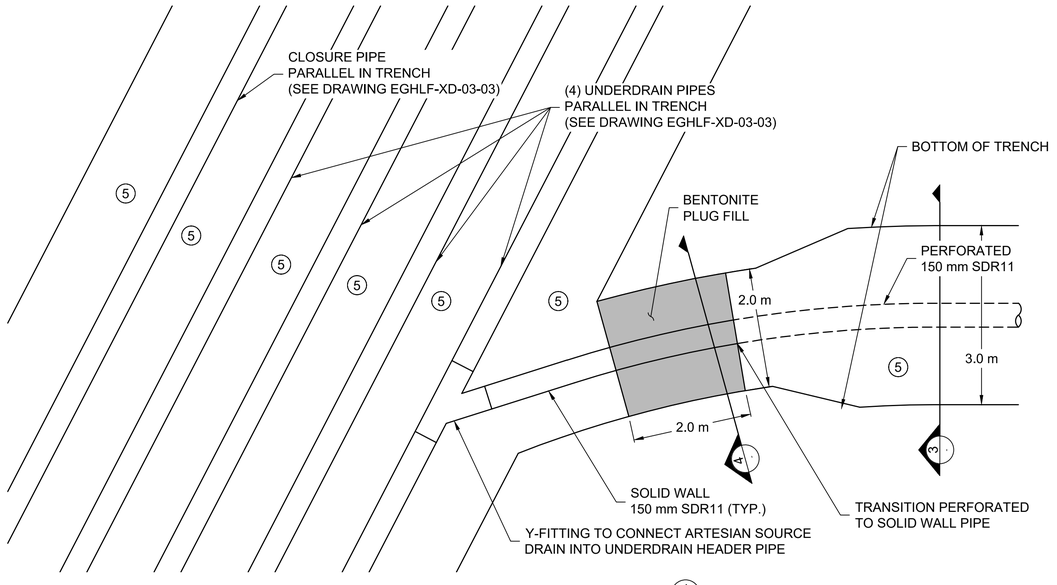
During excavation of artesian source, water management controls should be considered to properly install drains and geotextile fabric. After construction of finger drain is completed, consideration of equipment potentially damaging finger drain should be considered during the rest of the embankment construction process. All dimensions in this design may change depending on the final dimensions of the artesian source exposure excavation, this design is intended to provide typical details of this type of finger drain.



SCALE 1:500

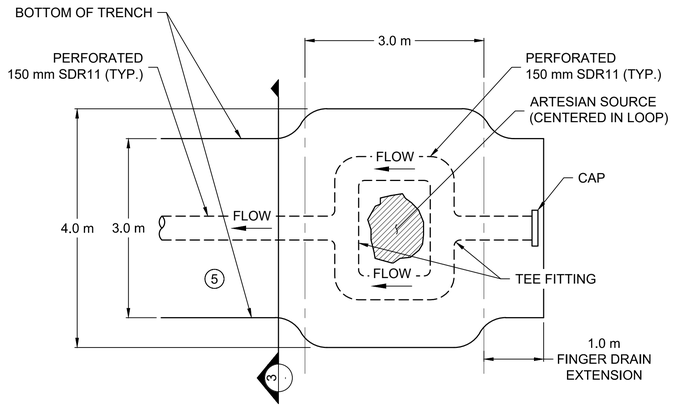
10 0 10 20 30

METRES



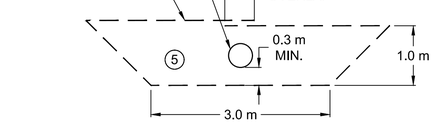
FINGER DRAIN TRANSITION PLAN VIEW 1

SCALE = N.T.S.



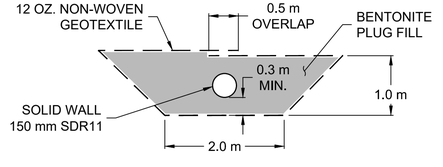
FINGER DRAIN UNDER DRAIN PLAN DETAILS 2

SCALE = N.T.S.



TYPICAL DRAIN SECTION 3

SCALE = 1:50



PLUG- TRANSITION TO UNDERDRAIN SECTION 4

SCALE = 1:50

LEGEND

5 SELECT DRAIN FILL

DRAFT

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

SCALE:	AS NOTED
DATE:	06/26/18
DRAWN:	DAG
CHECKED:	DG
APPROVED:	-

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: ARTESIAN SOURCE DRAIN

PROJECT No.: 0792021

FIG No.: 01

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\Construction Figures\FIG 3- ARTESIAN SOURCE DRAIN.dwg Layout: Finger Drain Figure Plot Date: Jun 26 18 Time: 4:52 PM

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Field Memorandum
FM-007

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0972021**
From:	**Troy Meyer**	**Date:**	**August 19, 2018**
Copied:	**Scott Dimitroff (Tetra Tech)** **Roy Morlan; Dan Granda (BGC)**	**Record:**	**FM-007**

Re: Liner Test Pad Procedure

1.0 INTRODUCTION AND OBJECTIVE

A test pad was constructed to define acceptable haulage, placement and spreading procedures for overliner drain fill (ODF) over the Heap Leach Facility (HLF) liner system using the proposed equipment. The HLF design incorporates two separate liner systems. The test pad was constructed over two days (August 18th and 19th) and supervised by Troy Meyer, P.Eng. of BC. The lining system for the In-Heap Pond areas are comprised of the following, from top to bottom:

- A min. 1m thick layer of overliner drain fill (ODF) with imbedded perforated drainage piping
- A 2.0mm (80-mil) LLDPE double-textured primary liner
- A geonet that is part of the LDRS and located between the primary and secondary liners
- A 1.5mm (60-mil) low-linear density polyethylene (LLDPE) secondary liner
- A geosynthetic clay liner (GCL)
- Prepared subgrade beneath the GCL.

The lining system for the HLF pad (up-gradient of the In-Heap Pond) are comprised of the following, from top to bottom:

- A min. 0.6m thick layer of overliner drain fill (ODF with imbedded perforated drainage piping
- A 2.0mm (80-mil) LLDPE double-textured liner
- A geosynthetic clay liner (GCL)
- Prepared subgrade beneath the GCL.

A dedicated access/haul road on the liner is planned to allow construction of the sump components and ODF behind the dam. It is envisioned that this road will be constructed of a thickened section of ODF with a geotextile cushion placed between the ODF and liner. To best simulate the construction of the ODF layer, three test pad sections were constructed:

- Section A - 1.5m layer of ODF over 2 layers of geotextile
- Section B – 1.0m layer of ODF over 2.0mm liner over GCL
- Section C - 0.6m layer of ODF over 2.0mm liner over GCL

The Sections B and C pads allows evaluation of both the single and double liner systems to be constructed at the HLF, while the Section A pad allows evaluation of the planned ODF haul road over the liner.

2.0 TEST PAD MATERIALS AND EQUIPMENT

2.1. Material 4 – ODF

The Overliner Drain Fill (ODF) for the leach pad liner cover fill shall consist of free-draining granular material with 38-mm maximum particle size and a maximum of 5 percent fines passing the No. 200 ASTM sieve size (0.075-mm). No moisture conditioning or compaction is required. The ODF material shall be placed in such a manner as to reduce segregation and protect the liner from damage and keep compaction of the ODF material to a minimum. The ODF above the geomembrane will be placed in a single lift by suitable dozer and truck equipment, as approved by the Engineer.

2.2. Geosynthetics

The geomembrane for the test pad was Solmax (RT) 2.0mm LLDPE. The GCL was GSE NWL 60. The geotextile was 12 oz non-woven. Data sheets for the material used in the test pad are included in Attachment A.

2.3. Equipment

JDS indicated the primary equipment planned for ODF construction is 40T rock trucks and D6 dozers. Data sheets for the equipment used in the test pad are included in Attachment A. The test pad was also trafficked with a CAT 3250 trackhoe excavator and a 30T dump truck during construction.

3.0 TEST PAD CONSTRUCTION AND EXECUTION

The constructed test fill configuration with liner sample locations is depicted in Figure 1. The configuration was developed to simulate haul traffic operations with stopping and turning on the haul road portion (Section A).

The surface was prepared by spreading subgrade material with a dozer and packing and smoothing with the excavator bucket. The material was imported from the ADR borrow area and was broken and weathered rock fragments in a matrix of sand and silt (**Photos 1 and 2 in Attachment B**).

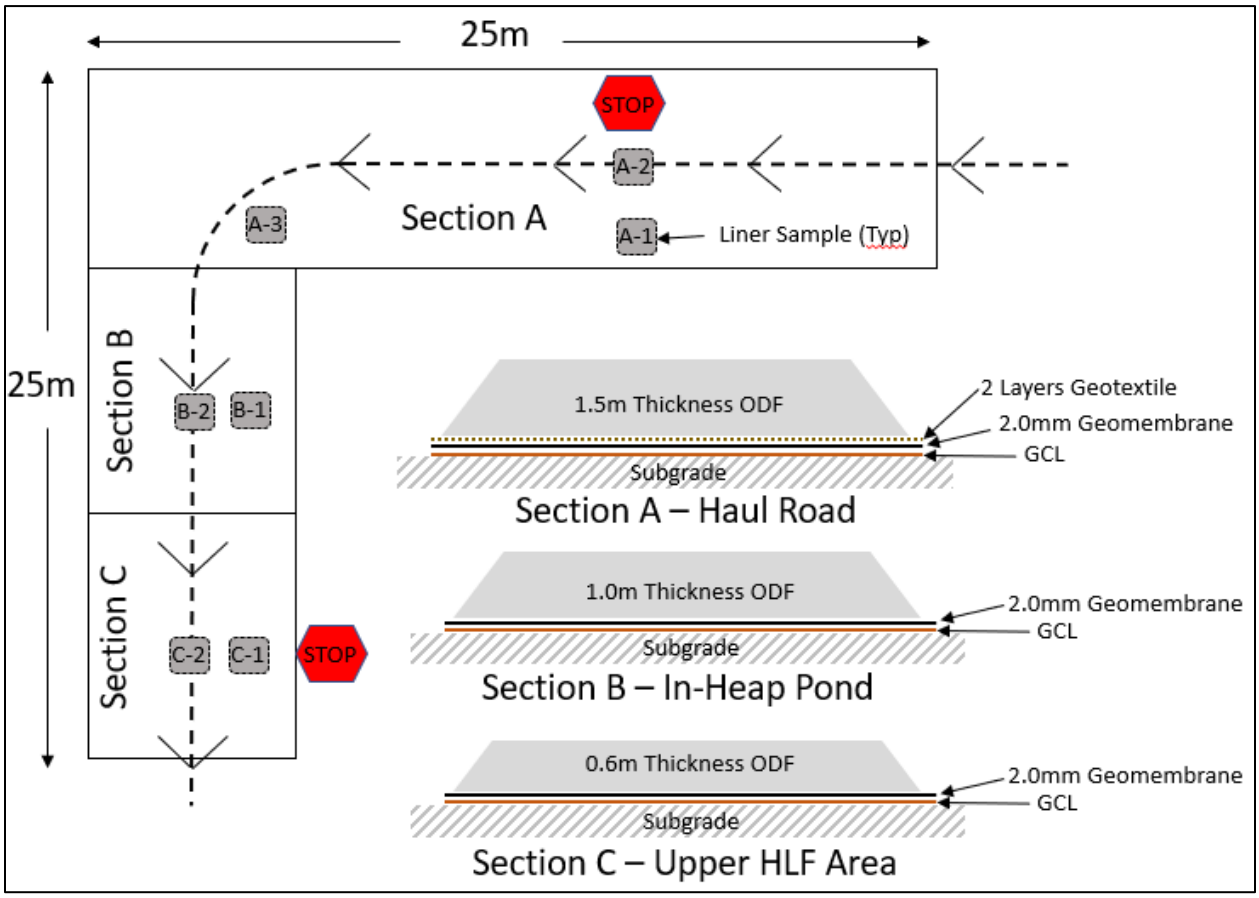


Figure 1: Liner test pad configuration and sampling locations.

Deployment of the geosynthetics was then performed (**Photos 3 through 9**), and the ODF thickness was checked by survey (**Photo 10**).

A loaded haul truck were then trafficked over the pad as shown in Figure 1 with speeds envisioned for actual construction (**Photo 12**). Two full stops and a turn with the loaded haul truck was incorporated in the Section A pad to simulate operations along the access road. A total of 10 passes were made over the pad with the loaded haul truck.

4.0 POST CONSTRUCTION EVALUATION AND TESTING

The loaded haul truck was able to traffic the surface without slipping or excessive rutting or ODF lateral displacement. After completion of the test pad trafficking, the surface of the ODF was visually inspected (**Photo 13**) and the liner was carefully uncovered with an excavator (**Photo 14**) with the last foot hand dug.

Photos 15 through 20 present the condition of the liner and subgrade. Light to moderate dimpling and scratching was observed on liner Sample C-1 (directly under truck tire track). All other

samples exhibited only light dimpling, which relaxed significantly within a few hours of uncovering. No deep scratches, gouges, abrasion, or holes were observed in any samples. No damage was observed in any of the GCL samples.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The liner test pad results indicate that the proposed materials and equipment will result in a low risk of liner puncture damage during construction with placement of a single lift as thin as 0.6m. Cushioning from 2 layers of geotextile appears adequate for protecting the liner under repeated haul truck traffic at slow speeds.

The test pad did not simulate construction on slopes. Care must be tacked to avoid tearing the liner due to slippage on slopes. ODF must be placed from downhill to uphill. Haul truck speeds, braking and turning during drain cover fill placement must be strictly controlled to prevent damage to the underlying geomembrane and pipework. Turning equipment in place should be avoided.

The cover fill thickness should be increased to a minimum of 1.5m in concentrated traffic areas or across collection pipes, as required, to prevent damage to the geomembrane and pipework. Haul traffic on the cover fill surface shall be spread out as much as practical to prevent over-compaction of the cover fill in localized areas.

6.0 LIMITATIONS

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Attachment A
Data Sheets

PRODUCT DATA SHEET

GSE BentoLiner NWL-60 Geosynthetic Clay Liner

GSE BentoLiner "NWL-60" is a heavily needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a nonwoven and a scrim-nonwoven geotextile for dimensional stability. The product is intended for steep slopes and high load applications where increased internal shear strength is required.

[*]

AT THE CORE:

This composite clay liner is intended for steep slopes and high load applications where increased internal shear strength is required.

Product Specifications

Tested Property	Test Method	Frequency	VALUE
Geotextile Property			
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	6.0 oz/yd^2 MARV(1)
Carrier Scrim Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	6.0 oz/yd^2 MARV
Bentonite Property			
Swell Index	ASTM D 5890	1/100,000 lb	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb	18 ml max
Finished GCL Property			
Bentonite, Mass/Unit Area(2)	ASTM D 5993	1/40,000 ft^2	0.75 lb/ft^2 MARV
Tensile Strength(3)	ASTM D 6768	1/40,000 ft^2	50 lb/in MARV
Peel Strength	ASTM D 6496 ASTM D 4632(4)	1/40,000 ft^2	12 lb/in MARV 60 lb MARV
Hydraulic Conductivity(5)	ASTM D 5887	1/Week	5 x 10^{-9} cm/sec max
Index Flux(5)	ASTM D 5887	1/Week	1 x 10^{-8} m^3/m^2/sec max
Internal Shear Strength(6)	ASTM D 6243	Periodically	500 psf Typical
TYPICAL ROLL DIMENSIONS			
Width x Length(7)	Typical	Every Roll	15.5 ft x 150 ft
Area per Roll	Typical	Every Roll	2,325 ft^2
Packaged Weight	Typical	Every Roll	2,600 lb

NOTES:

- (1)Minimum Average Roll Value.
- (2)At 0% moisture content.
- (3)Tested in machine direction.
- (4)Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- (5)Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- (6)Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- (7)Roll widths and lengths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

GSE ENVIRONMENTAL™

[DURABILITY RUNS DEEP]

For more information on this product and others, please visit us at GSEworld.com, call 800.435.2008 or contact your local sales office.

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LAYFIELD *Leaders in Film & Geosynthetic Technology*

Mill Certification Report

Sales Order #	325808
Order Date	10/24/2017
Req Ship Date	2/2/2018

Customer Name FG & RM - CP & EC EDMONTON

17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Result	Core Width (273 in +/- 0.5 in)	Roll Length (420 ft +/- 0 ft)	Roll Weight - Net (3993 lbs +/- 0 lbs)	Sheet Width (270 in +/- 2 in)	Roll Area m2	Thickness - Average ASTM D5994 (76 mils to 84 mils)
3322708s2-e0006803-001	Pass	271.50	420	4076.2	270.00	877.9	81.9
3322708s2-e0006803-002	Pass	272.50	420	4086.2	270.00	877.9	80.0
3322708s2-e0006803-003	Pass	271.50	420	4111.2	269.75	877.9	78.6
3322708s2-e0006803-004	Pass	271.50	420	4126.2	269.75	877.9	79.9
3322708s2-e0006803-005	Pass	271.50	420	4111.2	269.50	877.9	80.4
3322708s2-e0006803-006	Pass	271.50	420	4111.2	269.50	877.9	79.9
3322708s2-e0006803-007	Pass	271.50	420	4116.2	270.00	877.9	80.0

LAYFIELD Leaders in Film & Geosynthetic Technology

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17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Thickness - Minimum ASTM D5994 (68 mils to 84 mils)	Asperity - Printed Average ASTM D7466 (18 mils to 30 mils)	Asperity - Unprinted Average ASTM D7466 (18 mils to 30 mils)	Break Strength - MD Average ASTM D638 (120 lbs/in to 325 lbs/in)	Break Elongation - MD Average ASTM D638 (250 % to 1200 %)	Break Strength - TD Average ASTM D638 (120 lbs/in to 325 lbs/in)	Break Elongation - TD Average ASTM D638 (250 % to 1200 %)
3322708s2-e0006803-001	69.00	24.3	29.4	274.4	591	292.0	559
3322708s2-e0006803-002	72.80	21.6	28.8	274.4	591	292.0	559
3322708s2-e0006803-003	77.10	25.7	24.5	274.4	591	292.0	559
3322708s2-e0006803-004	75.00	22.9	23.7	274.4	591	292.0	559
3322708s2-e0006803-005	76.00	20.9	22.5	274.4	591	292.0	559
3322708s2-e0006803-006	72.90	21.3	22.5	300.3	637	306.6	632
3322708s2-e0006803-007	76.00	22.0	23.3	300.3	637	306.6	632

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Sales Order # 325808
Order Date 10/24/2017
Req Ship Date 2/2/2018

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Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Tear Strength - MD Average ASTM D1004 (44 lbs to 70 lbs)	Tear Strength - TD Average ASTM D1004 (44 lbs to 70 lbs)	Puncture Strength - Average ASTM D4833 (88 lbs to 170 lbs)	Density ASTM D1505 (0.925 g/cc to 0.939 g/cc)	Carbon Black Content ASTM D4218 (2 % to 3 %)	Carbon Black Dispersion ASTM D5596	OIT - High Pressure ASTM D5885
3322708s2-e0006803-001	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-002	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-003	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-004	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-005	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-006	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-007	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins

GEOTEX® BY PROPEX

Product Data
GEOTEX® 801

GEOTEX® 801 is a polypropylene, staple fiber, needlepunched nonwoven geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

GEOTEX 801 conforms to the property values listed below[1]. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). This product is NTPEP approved for AASHTO standards.

PROPERTY	TEST METHOD	MARV[2] ENGLISH	MARV[2] METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
MECHANICAL			
Tensile Strength (Grab)	ASTM D-4632	205 lbs	912 N
Elongation	ASTM D-4632	50%	50%
CBR Puncture	ASTM D-6241	525 lbs	2336 N
Trapezoidal Tear	ASTM D-4533	80 lbs	356 N
ENDURANCE			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%
HYDRAULIC			
Apparent Opening Size (AOS)[3]	ASTM D-4751	80 US Std. Sieve	0.180 mm
Permittivity	ASTM D-4491	1.5 sec^{-1}	1.5 sec^{-1}
Water Flow Rate	ASTM D-4491	110 gpm/ft^2	4482 $l/min/m^2$

ROLL SIZES	12.5 ft x 360 ft 15 ft x 300 ft	3.81 m x 109.8 m 4.57 m x 91.5 m

NOTES:
1. The property values listed above are effective 04/2011 and are subject to change without notice.
2. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
3. Maximum average roll value.

Propex™ Geotextile Systems

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Specifications

REFILL CAPACITIES

		A35G	A40G
Crankcase	l	50	50
Fuel tank	l	480	480
Cooling system	l	44	44
Brake cooling system	l	188	188
Transmission	l	43	43
Dropbox	l	9	9
Axles, front/bogie	l	25/51	26/53
Hydraulic tank	l	174	174
DEF/AdBlue®	l	39	39

®registered trademark of the Verband der Automobilindustrie e.V. (VDA)

SPEED

		A35G	A40G
Forward			
1	km/h	5.9	5.8
2	km/h	8.6	8.5
3	km/h	10.3	10.4
4	km/h	15.2	15
5	km/h	21.9	21.6
6	km/h	27.7	27.3
7	km/h	36.6	36.1
8	km/h	48.5	47.8
9	km/h	57	57
Reverse			
1	km/h	6.6	6.5
2	km/h	9.5	9.4
3	km/h	18	18

OPERATING WEIGHT UNLOADED

		A35G	A40G
Tires		26.5R25*	29.5R25**
Front	kg	15 950	16 200
Rear	kg	13 000	13 700
Total	kg	28 950	29 900
Payload	kg	34 500	39 000

Operating weight includes all fluids and operator

*) A35G with tires 775/65R25, add 200 kg /axle

**) A40G with tires 875/65R25, add 300 kg /axle

TOTAL WEIGHT

		A35G	A40G
Tires		26.5R25*	29.5R25**
Front	kg	19 100	20 200
Rear	kg	44 350	48 700
Total	kg	63 450	68 900

*) A35G with tires 775/65R25, add 200 kg /axle

**) A40G with tires 875/65R25, add 300 kg /axle

GROUND PRESSURE

		A35G	A40G	A35G	A40G
Tires		**26.5R25**	**29.5R25**	**775/65R25**	**875/65R25**
Unloaded					
Front	kPa	132	111	115	98
Rear	kPa	54	47	48	42
Loaded					
Front	kPa	158	139	138	121
Rear	kPa	183	167	160	146

Excavator PASS MATCHING

	EC380	EC480	EC750
	Number of passes		
A35G	9	7	5
A40G	10	8	5

	Well matched, 4-6 buckets.
	Excavator under capacity, 7 buckets or more.
	Excavator undersized for optimum match.

Wheel loader PASS MATCHING

	L150	L180	L220	L250	L350
	Number of passes				
A35G	5	4	4	3	3
A40G	5	5	4	4	3

	Well matched, 2-3 buckets.
	Loader under capacity, 4 buckets or more.
	Loader undersized for optimum match, reach might be an issue.

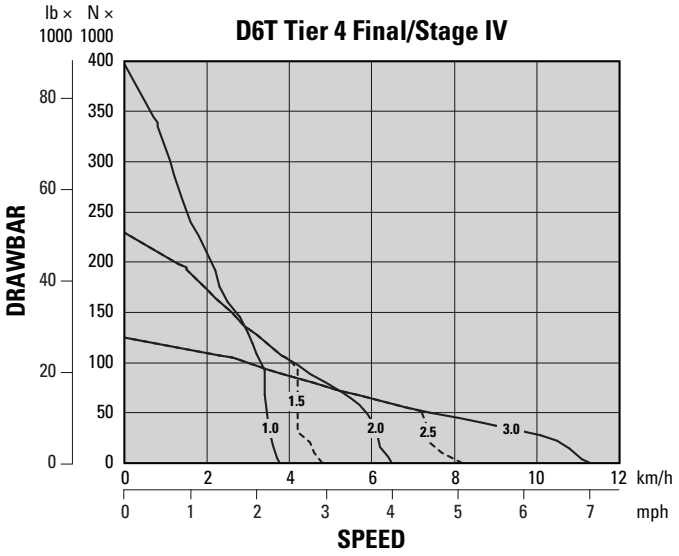
Engine

Engine Model	Cat C9.3 ACERT	
Emissions	U.S. EPA Tier 4 Final	
Engine Power (Maximum)		
SAE J1995	192 kW	257 hp
ISO 14396	190 kW	255 hp
ISO 14396 (DIN)		258 hp
Net Power (Rated)		
ISO 9249/SAE J1349	154 kW	207 hp
ISO 9249/SAE J1349 (DIN)		210 hp
Net Power (Maximum)		
ISO 9249/SAE J1349	180 kW	241 hp
ISO 9249/SAE J1349 (DIN)		244 hp
Bore	115 mm	4.5 in
Stroke	149 mm	5.9 in
Displacement	9.3 L	567 in^3

- Rated power occurs at 2,000 rpm.
- Maximum power occurs at 1,600 rpm.
- Net power advertised is the power available at the engine flywheel when the engine is equipped with a fan at maximum speed, air cleaner, muffler and alternator.
- No deratings required up to 2286 m (7,500 ft) automatic derating occurs.
- All non road Tier 4, Stage IIIB and IV, Japan 2011 and 2014 (Tier 4 Interim and Tier 4 Final) and Korea Tier 4 diesel engines are required to use only Ultra Low Sulfur Diesel (ULSD) fuels containing 15 ppm (mg/kg) sulfur or less. Biodiesel blends up to B20 (20% blend by volume) are acceptable when blended with 15 ppm (mg/kg) sulfur or less ULSD. B20 should meet ASTM D7467 specification (biodiesel blend stock should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEO-ULS™ or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.
- Diesel Exhaust Fluid (DEF) used in Cat Selective Catalytic Reduction (SCR) systems must meet the requirements outlined in the International Organization for Standardization (ISO) standard 22241.

Transmission

0.5 Forward	2.7 km/h	1.7 mph
0.7 Forward	3.3 km/h	2.1 mph
1.0 Forward	3.7 km/h	2.3 mph
1.5 Forward	4.7 km/h	3.0 mph
1.7 Forward	5.8 km/h	3.6 mph
2.0 Forward	6.5 km/h	4.1 mph
2.5 Forward	8.2 km/h	5.1 mph
2.7 Forward	10.0 km/h	6.2 mph
3.0 Forward	11.3 km/h	7.0 mph
0.5 Reverse	3.5 km/h	2.2 mph
0.7 Reverse	4.2 km/h	2.6 mph
1.0 Reverse	4.8 km/h	3.0 mph
1.5 Reverse	6.1 km/h	3.8 mph
1.7 Reverse	7.4 km/h	4.6 mph
2.0 Reverse	8.3 km/h	5.2 mph
2.5 Reverse	10.5 km/h	6.5 mph
2.7 Reverse	12.7 km/h	7.9 mph
3.0 Reverse	14.4 km/h	9.0 mph
Drawbar Pull		
0.5-1.0 Forward	382 kN	86,000 lbf
1.5-2.0 Forward	221 kN	49,800 lbf
2.5-3.0 Forward	119 kN	26,800 lbf
2.5-3.0 Forward	119 kN	26,800 lbf



D6T Track-Type Tractor Specifications

Service Refill Capacities

Fuel Tank	411 L	108.7 gal
DEF Tank	17.1 L	4.5 gal
Cooling System	51 L	13.4 gal
Engine Crankcase	24.6 L	6.5 gal
Power Train	148.0 L	39.1 gal
Final Drives (each)	13.5 L	3.6 gal
Roller Frames (each)	25.0 L	6.6 gal
Pivot Shaft Compartment	5.0 L	1.3 gal
Hydraulic Tank	65.5 L	17.3 gal

Hydraulic Controls – Pressures

Maximum Operating Pressures		
Non-VPAT	19 300 kPa	2,800 psi
VPAT	21 550 kPa	3,125 psi
Steering	40 000 kPa	5,800 psi
Relief Pressures		
Non-VPAT	21 700 kPa	3,150 psi
VPAT	24 400 kPa	3,540 psi

Hydraulic Controls – Pump

Pump Output		
Fan	93 L/min	25 gal/min
Implement	205 L/min	54 gal/min
Steering	195 L/min	52 gal/min
Lift Cylinder Flow	205 L/min	54 gal/min
Tilt Cylinder Flow	110 L/min	29 gal/min
Ripper Cylinder Flow	205 L/min	54 gal/min
Angle Cylinder Flow – VPAT	190 L/min	50 gal/min

Ripper

Type	Fixed Parallelogram	
Ramp Angle	26 degrees	
Pocket Spacing	1000 mm	39.4 in
Shank Gauge	2000 mm	78.8 in
Shank Section	74 mm × 175 mm	2.9 in × 6.9 in
Number of Pockets	3	
Overall Beam Width	2202 mm	87 in
Beam Cross Section	219 mm × 304 mm	8.8 in × 12 in
Maximum Clearance Raised (under tip)	514 mm	20.2 in
Maximum Penetration	457 mm	18.0 in
Maximum Penetration Force	65.6 kN	14,747 lb
Pryout Force	116.5 kN	26,190 lb
Weight		
With One Shank	1498 kg	3,302 lb
Each Additional Shank	73 kg	161 lb

Weights

Operating Weight		
XL A	21 306 kg	46,791 lb
XL SU	20 985 kg	46,263 lb
XL VPAT	23 663 kg	52,167 lb
XW A	22 191 kg	48,922 lb
XW SU	21 788 kg	48,034 lb
XW VPAT	24 118 kg	53,170 lb
LGP S	22 902 kg	50,490 lb
LGP A	24 020 kg	52,954 lb
LGP VPAT	24 336 kg	53,651 lb
Shipping Weight		
XL A/SU	17 753 kg	39,138 lb
XL VPAT	21 394 kg	47,165 lb
XW A/SU	18 414 kg	40,596 lb
XW VPAT	20 793 kg	45,840 lb
LGP S/A	19 806 kg	43,664 lb
LGP VPAT	22 009 kg	48,521 lb

- Operating weight includes blade, lubricants, coolant, full fuel tank, standard track, ROPS/FOPS cab, drawbar and operator.
- Shipping weight includes blade lift cylinders (C-frame for VPAT), lubricants, coolant, ROPS/FOPS cab, standard track and 10% fuel.

Blades

	6 SU – XL		6A – XL		6 VPAT – XL	
Capacity	5.55 m^3	7.26 yd^3	3.95 m^3	5.17 yd^3	4.64 m^3	6.07 yd^3
Width	3260 mm	10.7 ft	4160 mm	13.7 ft	3880 mm	12.8 ft
Height	1407 mm	4.6 ft	1151 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	501 mm	19.7 in	555 mm	21.8 in	792 mm	31.2 in
Ground Clearance	1180 mm	46.5 in	1112 mm	43.8 in	1053 mm	41.5 in
Maximum Tilt	812 mm	32.0 in	424 mm	16.7 in	410 mm	16.1 in
Weight	1338.0 kg	2,949.8 lb	1194.6 kg	2,633.6 lb	1669.5 kg	3,680.6 lb

	6 SU – XW		6A – XW		6 VPAT – XW	
Capacity	5.64 m^3	7.38 yd^3	4.35 m^3	5.69 yd^3	5.02 m^3	6.57 yd^3
Width	3560 mm	11.7 ft	4520 mm	14.8 ft	4160 mm	13.7 ft
Height	1407 mm	4.6 ft	1153 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	502 mm	19.7 in	541 mm	21.3 in	743 mm	29.3 in
Ground Clearance	1180 mm	46.5 in	1139 mm	44.8 in	1102 mm	43.4 in
Maximum Tilt	791 mm	31.2 in	424 mm	16.7 in	442 mm	17.4 in
Weight	1415.4 kg	3,120.4 lb	1299.6 kg	2,865.2 lb	1763.8 kg	3,888.4 lb

	6S LGP		6A – LGP		6 VPAT – LGP	
Capacity	3.79 m^3	4.96 yd^3	4.94 m^3	6.46 yd^3	5.02 m^3	6.57 yd^3
Width	4063 mm	13.3 ft	5070 mm	16.7 ft	4160 mm	13.7 ft
Height	1108 mm	3.6 ft	1150 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	590 mm	23.2 in	853 mm	33.6 in	743 mm	29.3 in
Ground Clearance	1094 mm	43.1 in	1004 mm	39.5 in	1102 mm	43.4 in
Maximum Tilt	735 mm	28.9 in	618 mm	24.3 in	442 mm	17.4 in
Weight	1189.7 kg	2,622.2 lb	1456.5 kg	3,211.0 lb	1763.8 kg	3,888.4 lb

Winch

Winch Model	PA56	
Winch Drive	Mechanical	
Control	Mechanical	
Weight	1203 kg	2,652 lb
Oil Capacity	67 L	17.8 gal
Increased Tractor Length		
XL/XW	516 mm	20.4 in
LGP	365 mm	14.4 in
Drum Diameter	254 mm	10.0 in
Rope Diameter		
Recommended	22 mm	0.88 in
Optional	25 mm	1.00 in
Drum Capacity		
22 mm (0.88 in)	88 m	288.7 ft
25 mm (1.0 in)	67 m	219.8 ft
Cable Ferrule Size (O.D. × Length)	54 mm × 67 mm	2.1 in × 2.6 in
Maximum Bare Drum		
Line Pull*	40 700 kg	89,800 lb
Line Speed	39.6 m/min	130 ft/min
Maximum Full Drum		
Line Pull*	34 600 kg	76,300 lb
Line Speed	68.3 m/min	224 ft/min

* Maximum line pull is lesser of calculated line pull at maximum tractor PTO output torque or catalog breaking strength of maximum optional size new IWRC IPS wire rope.

Drive Train

Type	Mechanical

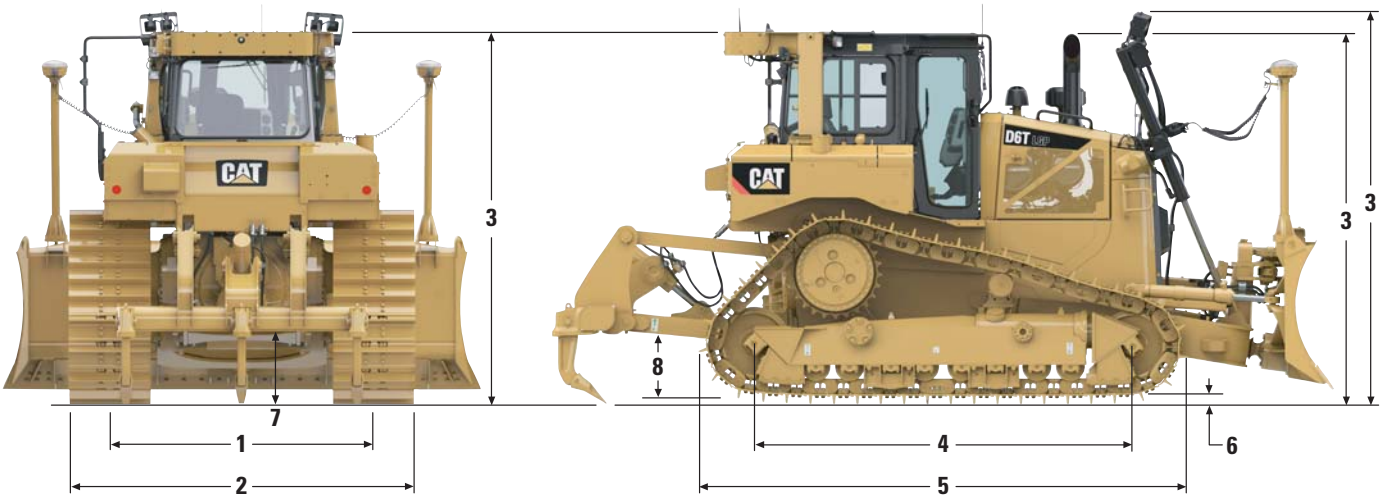
Standards

ROPS/FOPS	ROPS meets ISO 3471:2008, FOPS meets ISO 3449:2005 Level II
Brakes	Brakes meet the International Standard ISO 10265:2008
Cab	Meets appropriate standards as listed below

- The declared dynamic operator sound pressure level is 76 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.
- **Sound Level Information for Machines in European Union Countries and in Countries that Adopt the "European Union Directives"** – The information below applies to only the machine configurations that have the "CE" mark on the Product Identification Plate.
- The declared dynamic operator sound pressure level is 75 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.
- Hearing protection is recommended when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The declared exterior sound power level is 111 dB(A) when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.

Dimensions

All dimensions are approximate.



	XL		XW		LGP	
1 Track gauge	1880 mm	6 ft 2 in	2032 mm	6 ft 8 in	2286 mm	7 ft 6 in
2 Width of tractor over trunnions	2690 mm	8 ft 10 in	2944 mm	9 ft 8 in	3480 mm	11 ft 5 in
Width of tractor without trunnions (standard track)	2590 mm	8 ft 6 in	2792 mm	9 ft 2 in	3201 mm	10 ft 6 in
3 Machine height** from tip of grouser:						
ROPS	3185 mm	10 ft 5 in	3185 mm	10 ft 5 in	3235 mm	10 ft 7 in
Premium Light Package	3341 mm	11 ft 0 in	3341 mm	11 ft 0 in	3097 mm	11 ft 1 in
Height to top of Sweeps (not shown)	3199 mm	10 ft 6 in	3199 mm	10 ft 6 in	3249 mm	10 ft 8 in
4 Length of track on ground	2860 mm	9 ft 5 in	2860 mm	9 ft 5 in	3270 mm	10 ft 9 in
5 Length of basic tractor	4250 mm	13 ft 9 in	4250 mm	13 ft 9 in	4546 mm	14 ft 11 in
With following attachments add:						
Drawbar	218 mm	9 in	218 mm	9 in	229 mm	9 in
Ripper Multi-shank (tip at ground line)	1395 mm	4 ft 7 in	1395 mm	4 ft 7 in	1259 mm	4 ft 2 in
Winch	570 mm	22 in	570 mm	22 in	435 mm	17 in
S Blade	—	—	—	—	947 mm	3 ft 1 in
SU Blade	1068 mm	3 ft 6 in	1068 mm	3 ft 6 in	—	—
A Blade	1007 mm	3 ft 4 in	1068 mm	3 ft 6 in	1305 mm	4 ft 4 in
A Blade angled approximately 25° for transport	837 mm	33 in	889 mm	35 in	989 mm	38.9 in
6 Height of grouser	65 mm	2.6 in	65 mm	2.6 in	65 mm	2.6 in
7 Ground clearance	372 mm	15 in	372 mm	15 in	406 mm	16 in
Oscillation at front idler	141 mm	5.5 in	137 mm	5.4 in	163 mm	6.4 in
Track pitch	203 mm	8 in	203 mm	8 in	203 mm	8 in
Number of shoes per side	41		41		45	
Track rollers/carrier rollers per side	7/1		7/1		8/1	
Standard shoe width (moderate service)	560 mm	22 in	760 mm	30 in	915 mm	36 in
Ground contact area (standard track)*	3.54 m^2	5,489 in^2	4.81 m^2	7,449 in^2	6.53 m^2	10,122 in^2
Ground pressure*	58.1 kPa	8.4 psi	44.5 kPa	6.4 psi	34.4 kPa	4.99 psi
8 Drawbar height	576 mm	23 in	576 mm	23 in	626 mm	25 in
From ground face of shoe	511 mm	20 in	511 mm	20 in	561 mm	22 in

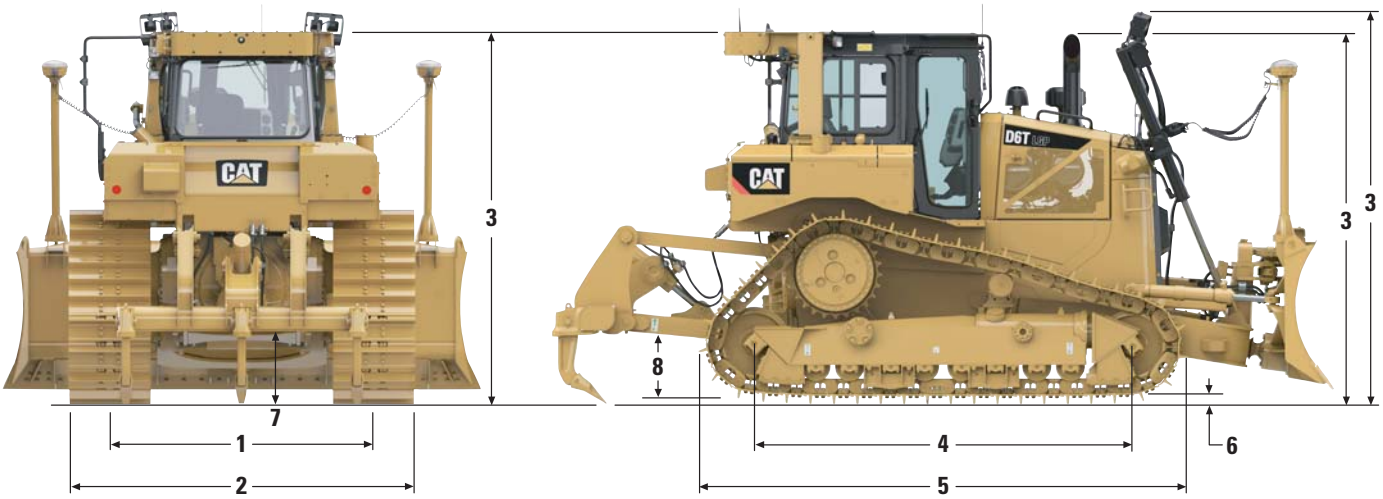
*All dimensions above with SystemOne undercarriage. XL and XW with SU blade, LGP with S blade with no rear attachments unless otherwise specified and calculated per ISO 16754.

**When Cat Grade Control 3D antennas are installed, overall machine height increases by approximately 82 mm/3.2 in.

D6T Track-Type Tractor Specifications

Dimensions

All dimensions are approximate.



		XL VPAT		XW VPAT		LGP VPAT	
1	Track gauge	2134 mm	7 ft 0 in	2286 mm	7 ft 6 in	2286 mm	7 ft 6 in
2	Width of tractor over trunnions	—	—	—	—	—	—
	Width of tractor without trunnions (standard track)	2717 mm	8 ft 11 in	2996 mm	9 ft 10 in	3143 mm	10 ft 4 in
3	Machine height** from tip of grouser:						
	ROPS	3185 mm	10 ft 5 in	3235 mm	10 ft 7 in	3235 mm	10 ft 7 in
	Premium Light Package	3308 mm	10 ft 10 in	3358 mm	11 ft 1 in	3358 mm	11 ft 1 in
	Height to top of Sweeps (not shown)	3199 mm	10 ft 6 in	3249 mm	10 ft 8 in	3249 mm	10 ft 8 in
4	Length of track on ground	2860 mm	9 ft 5 in	3270 mm	10 ft 9 in	3270 mm	10 ft 9 in
5	Length of basic tractor	4950 mm	16 ft 3 in	5086 mm	16 ft 8 in	5086 mm	16 ft 8 in
	With following attachments add:						
	Drawbar	218 mm	9 in	229 mm	9 in	229 mm	9 in
	Ripper Multi-shank (tip at ground line)	1395 mm	4 ft 7 in	1259 mm	4 ft 2 in	1259 mm	4 ft 2 in
	Winch	570 mm	22 in	435 mm	17 in	435 mm	17 in
	S Blade	—	—	—	—	—	—
	SU Blade	—	—	—	—	—	—
	VPAT Blade	420 mm	1 ft 5 in	420 mm	1 ft 5 in	420 mm	1 ft 5 in
	VPAT Blade angled approximately 25° for transport	670 mm	26.4 in	720 mm	28.3 in	720 mm	28.3 in
6	Height of grouser	65 mm	2.6 in	65 mm	2.6 in	65 mm	2.6 in
7	Ground clearance	372 mm	15 in	406 mm	16 in	406 mm	16 in
	Oscillation at front idler	141 mm	5.5 in	163 mm	6.4 in	163 mm	6.4 in
	Track pitch	203 mm	8 in	203 mm	8 in	203 mm	8 in
	Number of shoes per side	41		45		45	
	Track rollers/carrier rollers per side	7/1		8/1		8/1	
	Standard shoe width (moderate service)	560 mm	22 in	710 mm	28 in	785 mm	31 in
	Ground contact area (standard track)*	3.54 m^2	5,489 in^2	5.10 m^2	7,909 in^2	5.60 m^2	8,684 in^2
	Ground pressure*	65.5 kPa	9.5 psi	46.4 kPa	6.7 psi	42.6 kPa	6.2 psi
8	Drawbar height	576 mm	23 in	626 mm	25 in	626 mm	25 in
	From ground face of shoe	511 mm	20 in	561 mm	22 in	561 mm	22 in

*All dimensions above with SystemOne undercarriage. XL and XW with SU blade, LGP with S blade with no rear attachments unless otherwise specified and calculated per ISO 16754.

**When Cat Grade Control 3D antennas are installed, overall machine height increases by approximately 82 mm/3.2 in.

TECHNICAL DATA SHEET

LLDPE Series, 2.00 mm

Black, Textured

2801 Marie-Victorin Blvd. Varennes, Quebec Canada J3X 1P7
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America:1-800-571-3904 www.Solmax.com www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Metric	1007064
SPECIFICATIONS				
Nominal Thickness	-	-	mm	2.00
Thickness (min. avg.)	ASTM D-5994	Every roll	mm	1.90
Lowest ind. for 8 out of 10 values			mm	1.80
Lowest ind. for 10 out of 10 values			mm	1.70
Asperity Height (min. avg.) (3)	ASTM D-7466	Every roll	mm	0.50
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≤ 0.939
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 / Cat. 2
OIT - standard (avg.)	ASTM D-3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Break			kN/m	31
Elongation at Break			%	400
2% Modulus (max.)	ASTM D-5323	Per formulation	kN/m	840
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	N	220
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	N	500
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
STD OIT (min. avg.)	ASTM D-3895		%	35
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Res. - % retained after 1600 hr	ASTM D-7238	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	35
Low Temperature Brittleness	ASTM D-746	Certified	°C	- 77
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		m	6.80
Roll Dimension - Length	-		m	121.9
Area (Surface/Roll)	-		m²	828.9

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. ASTM D7466 is identical to GRI-GM12.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Attachment B
Photos



Photo 1: Preparation of subgrade.



Photo 2: Preparation of subgrade.



Photo 3: Deployment of GCL over subgrade.



Photo 4: Deployment of geomembrane liner over GCL.



Photo 5: Section A pad with CGL, liner, 2 layers of geotextile and ODF.



Photo 6: ODF material.



Photo 7: Placement of ODF.



Photo 8: Placement of ODF.



Photo 9: Spreading of ODF with D6 dozer on Section C.



Photo 10: Survey check for ODF thickness.



Photo 11: Trafficking test pad with trackhoe excavator.



Photo 12: Trafficking test pad with loaded 40T rock truck.



Photo 13: ODF surface after traffic.



Photo 14: Uncovering liner with trackhoe excavator.

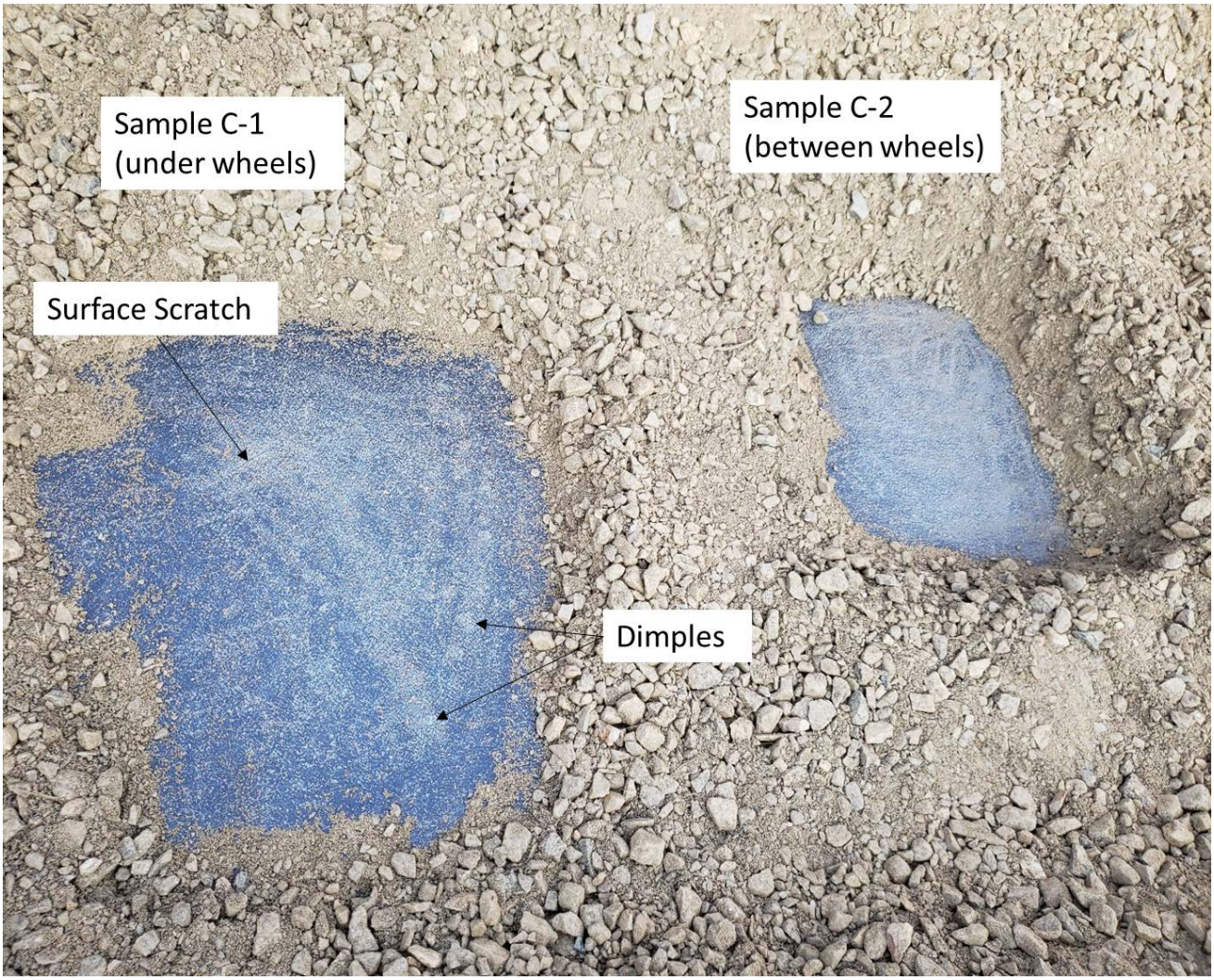


Photo 15: Uncovered liner at Section C.



Photo 16: Uncovered subgrade at Sample C-1 location.



Photo 17: Uncovered subgrade at Sample C-2 location.

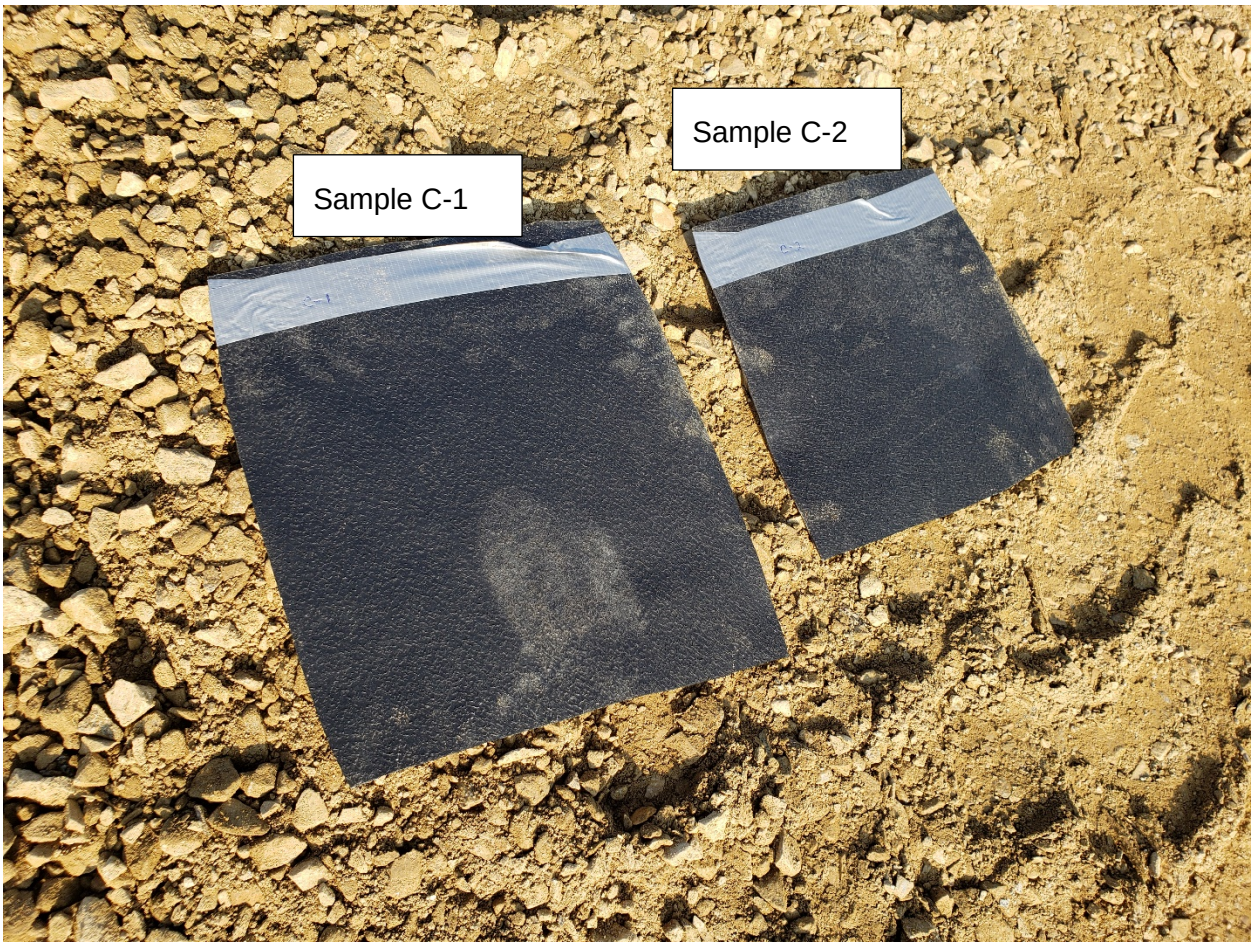


Photo 18: Samples C-1 and C-2.

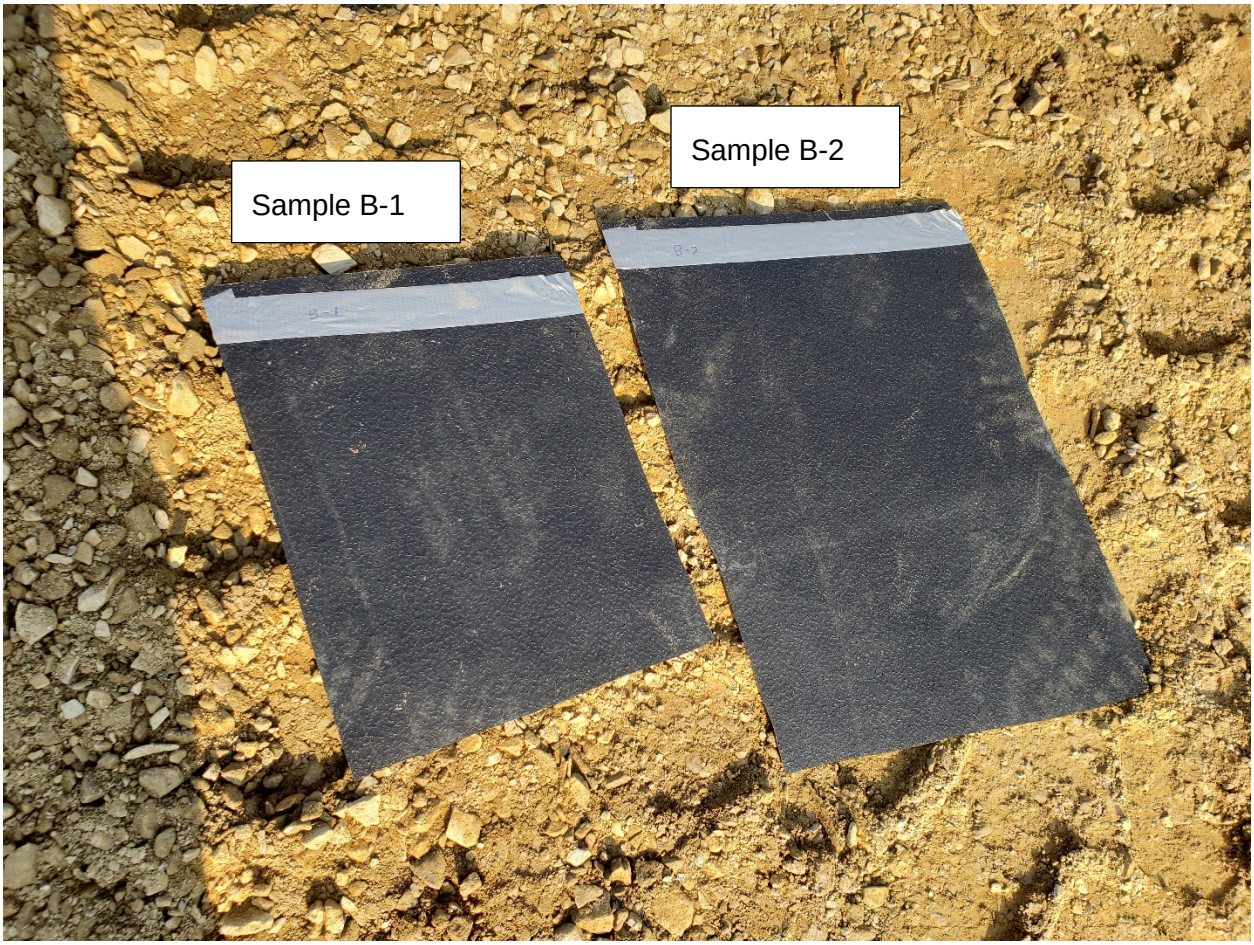


Photo 19: Samples B-1 and B-2.

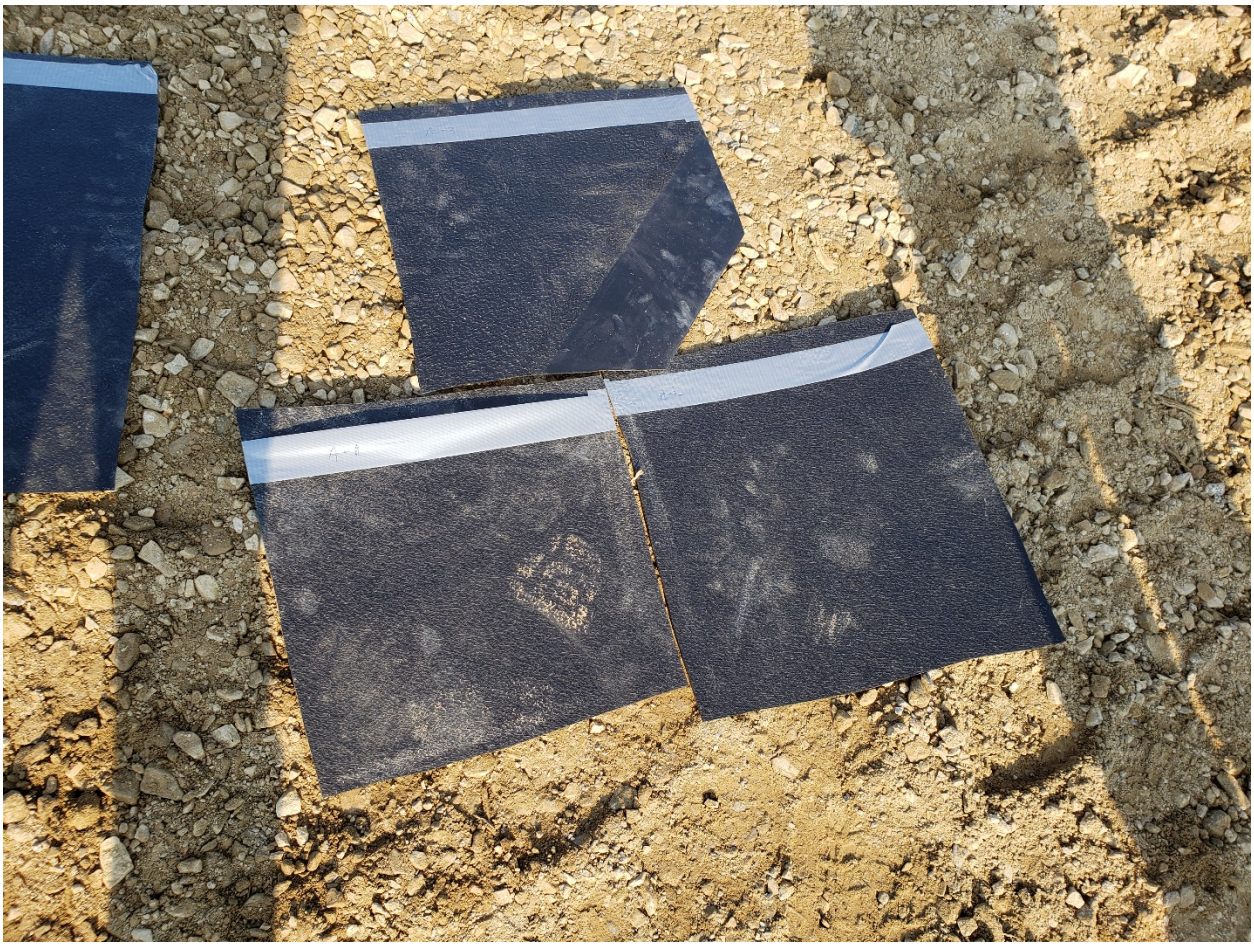


Photo 20: Samples A-1, A-2, and A-3.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Field Memorandum
FM-08

To:	**Jean-Francois Maille**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**October 27, 2018**
Copied:	**Troy Meyer; Dan Granda**	**Record:**	**FM-08**

Re: Placement of Fill at the Event Pond During Winter Conditions

1.0 INTRODUCTION AND OBJECTIVE

Placement of fill in the Event Pond will continue into sub-zero temperatures. Additionally, snow, rain, and ice storms may be frequent. In this memorandum these are referred to as "Winter Conditions". Typically, construction using earth fills is more controlled or limited in these types of conditions. Proper compaction of any material during cold temperatures will require lower moisture to prevent soil cohesion and a significant increase in applied energy to achieve settlement. Unlike summer construction experienced during completion of the Embankment, winter activities may include ripping frozen soil crusts, breaking down frozen chunks of material, moving over surfaces or relatively low mobility, additional compaction effort, and other significant difficulties. This memorandum provides guidance on how to place fill material for the Phase 1 HLF project during winter months.

2.0 PROCEDURES FOR PLACEMENT OF FILL MATERIALS AT THE EVENT POND IN WINTER CONDITIONS

2.1. Material 1 – Site Grading Fill

2.1.1. Material Requirements and Placement Procedures per the Technical Specifications and/or Method Specs When Temperatures are over 0ºC

Material 1 has typically consisted of glacial till, alluvium, colluvium, and residual highly weathered bedrock. Material 1 can be used as fill in the Event Pond Berms or to achieve subgrade for liner placement.

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
150 mm	100
19 mm	70-100
Other Requirements: No gap grading	

Maximum Dry Density (per Proctor): 2,236 kg/m3
Optimum Moisture (per Proctor): 7.7%
Min compaction: 95% of max dry density (Standard Proctor)
Max loose lift thickness: 0.3 m
Minimum Vibratory Compactor Weight: 6 ton.
Minimum Number of Passes with Vibratory Compactor: 5

2.1.2. Additional Material Requirements and Placement Procedures for Winter Conditions

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
150 mm	100
19 mm	70-100
N 200 Sieve	0-15
Other Requirements: No gap grading	

Allowable moisture: <3%
Minimum Number of Passes with Vibratory Compactor: minimum 5 to 10 per the Engineer or as required to achieve 95% of max dry density (Standard Proctor).

Additional Measures:

- The use of Material 1 may not be possible once placed soil temperatures reach 0ºC, depending on placed moisture content. The Engineer will determine suitability based on achieved density and in-place moisture content as measured by Nuclear method.

2.2. Material 3 – Structural Fill

2.2.1. Material Requirements and Placement Procedures per the Technical Specifications and/or Method Specs When Temperatures are over 0ºC

Material 3 has consisted primarily of highly weathered bedrock. The methods used for placement of Material 3 has been developed and modified based on test fills conducted and observations during construction of the HLF embankment.

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
300 mm	100
19 mm	70-100
Other Requirements: No gap grading	

Maximum Dry Density (per Proctor): 2,270 kg/m3

Optimum Moisture (per Proctor): 6.1%
Min compaction: 95% of max dry density (Standard Proctor)
Max loose lift thickness: 0.45 m
Minimum Vibratory Compactor Weight: 9 ton.
Minimum Number of Passes with Vibratory Compactor: 4

2.2.2. Changes to Material Requirements and Placement Procedures for Winter Conditions

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
150 mm	100
19 mm	70-100
N 200 Sieve	0-15
Other Requirements: No gap grading	

Maximum Allowable Moisture: 3%
Minimum Number of Passes with Vibratory Compactor: 4 to 10 per the Engineer or as required to achieve 95% of max dry density (Standard Proctor).

Additional Measures:

- The Engineer may call for lift thicknesses to be reduced if density requirements are not being achieved.
- The use of Material 1 may not be possible once temperatures reach 0ºC, depending on placed moisture content. The Engineer will determine suitability based on achieved density and in-place moisture content as measured by Nuclear method

2.3. Material 7 – Compacted Rockfill

2.3.1. Material Requirements and Placement Procedures per the Technical Specifications and/or Method Specs When Temperatures are over 0ºC

Rockfill has mostly been generated from blasting of hard bedrock at the ADR East and West areas. The material has generally consisted of mostly quartzite rock occasionally with up to 30% phyllite rock. The material has mostly been well graded.

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
Two thirds loose lift thickness	100
19 mm	30
Other Requirements: No gap grading	

Maximum Dry Density (per Proctor): NA
Optimum Moisture (per method spec): 3.2 to 6%
Min compaction: Compaction requirements per test fill method spec based on settlement and density observations.
Max loose lift thickness: 0.9 m
Minimum Vibratory Compactor Weight: 9 ton.

Minimum Number of Passes with Vibratory Compactor: 4

2.3.2. Changes to Material Requirements and Placement Procedures for Winter Conditions

Gradation Requirements	
ASTM Sieve Size	**Percent Passing**
Two thirds loose lift thickness	100
19 mm	0-70
N 200 Sieve	0-10
Other Requirements: No gap grading	

Allowable Moisture: Dependent on test fill observations and the presence of moisture sensitive material. May range from 5% to less than3%.
Max loose lift thickness: Dependent on test fill observations. Less than 0.75m expected. Should not be greater than 0.95m.
Minimum Number of Passes with Vibratory Compactor: 4 to 10 per the Engineer or as required per temperature dependent test fill.

*Additional Measures:

- Since density and moisture cannot be accurately tracked using the nuclear density gauge additional test fills will be required once temperatures have consistently reached:
    - Between -0ºC and -20ºC.
    - Below -20ºC.
    - Additional test fills may be required by the Engineer if soil temperatures at the borrow source or placed material change significantly from what was measured during the above test fills.
- Density testing will be required for the test fills and may be required on compacted lifts per the Engineer. As water replacement testing in sub-zero temperatures may be problematic a method to use photo-surveying (provided by Underhill) should be finalized and used for density testing.
- The Engineer may increase or reduce lift thickness depending on results of test fills, field observations, and QC testing. Lifts should not be greater than 0.95m.
- The use of Material 7 may not be possible once placed material temperatures appear to be affecting the ability to compact. The Engineer will determine suitability based on observations of placement operations and test trenching results.

2.4. Material and Placement Procedures for Winter Conditions Applicable Regardless of which Material is Being Used

- Placement of material may be halted if moisture is above 3% for moisture sensitive materials. This will be dependent on field observations and QC testing.
- Placement of material may be halted if temperatures are consistently below 0ºC and there is significant precipitation (rain, snow, ice, ect). The Engineer should be consulted at the time but in general significant precipitation signifies events where precipitation can bring moisture content of moisture sensitive material above 3% or can accumulate on lift surfaces in significant enough quantity to form icy layers. This may be averted if moisture and frozen layers can be removed prior to placement of a new lift.
- Snow, ice or frozen layers on compacted lifts or spread material must be removed prior to compaction or placement of the next lift.

- Once temperatures are consistently below 0ºC compacted lifts should be scarified immediately before placement of the next lift if a frozen crust develops.
- Additional passes may be required when temperatures are consistently below 0ºC for more than a 24 hour period. The number of passes needed will be based on field testing and observations made by the Engineer.
- Phyllite material has shown a tendency to be moisture sensitive and frost susceptible. Therefore, phyllite material should be limited to less than 1/3 of any fill place at the Event Pond. Phyllite material should be well mixed with stronger materials such as quartzite if used in fill.
- Compaction should begin immediately after spreading to prevent soil cohesion due to frost and to prevent ice formation at the near surface.
- Compaction areas may be limited to no longer than 20m to limit surface freezing between passes. This will be dependent on observations made by the engineer and QC test results.
- Frozen crust and clumps on borrow surfaces should be excavated and wasted.
- Frozen clumps accidently delivered to the Event Pond or that formed while being delivered to the Event Pond should be removed and not compacted in the lift.
- BGC will monitor placement and compaction to determine additional measures needed.
- Test trenching of compacted lifts to inspect for frost and void space may be required by the Engineer periodically once placed material temperatures are consistently below 0ºC.
- Based on field testing results borrow, placement, spreading, and compacting sequencing may need to be modified to ensure that soil temperatures remain high enough to achieve sufficient compaction.

3.0 QC TRACKING AND REPORT

Standard QC tracking and reporting should continue as normal. Once temperatures are consistently below 0ºC for more than 24 hours the following information should also be tracked and reported during QC inspections.

- The presence of frost, water, snow, or ice accumulation on the surface of compacted lifts should be reported at a minimum of once per shift.
- The presence of frost, ice, or water observed in test trenches should be reported.
- The presence of frozen borrow surfaces and confirmation that frozen material was excavated and wasted should be documented at least once per shift.
- Soil temperatures for placed but uncompacted material should be reported at least twice per shift. The soil temperatures for compacted lifts should be collected immediately after compaction and reported at least twice per shift. Soil temperatures for compacted lifts that have been sitting should be collected twice per shift immediately before new material is placed over it.

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4.0 LIMITATIONS

BGC Engineering Inc. (BGC) prepared this document for the account of Victoria Gold and their EPCM. The material in it reflects the judgment of BGC staff considering the information available

to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

As a mutual protection to our client, the public, and ourselves, all documents and drawings are submitted for the confidential information of our client for a specific project. Authorization for any use and/or publication of this document or any data, statements, conclusions or abstracts from or regarding our documents and drawings, through any form of print or electronic media, including without limitation, posting or reproduction of same on any website, is reserved pending BGC's written approval. If this document is issued in an electronic format, an original paper copy is on file at BGC and that copy is the primary reference with precedence over any electronic copy of the document, or any extracts from our documents published by others.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Field Memorandum
FM-009

To:	**Jean-Francois Maille**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0972021**
From:	**Troy Meyer (BGC)**	**Date:**	**October 1, 2018**
Copied:	**Dan Granda; Roy Morlan (BGC)** **Steve Wilbur (StrataGold)**	**Record:**	**FM-009**

Re: 2018 HLF Instrumentation

Design drawings EGHLF XD-09-01 and 09-02 presents the HLF instrumentation plan. The system will be installed in 2019, however BGC recommends instruments be installed in the LDRS and PLS sumps in 2018 to allow monitoring of water levels and temperatures through this winter. The sumps should be pumped through the winter to minimize the water levels and frost accumulation.

The instrumentation system has been designed to allow a phased installation with two sets of piezometers installed in 2018 and the remainder of the system installed in 2019. The equipment list and costs for 2018 (Phase 1) is provided below. This equipment will allow monitoring of the PLS and LDRS sumps and will be integrated into the ultimate system to be installed in 2019.

Eagle Gold HLF

Instrumentation - Phase 1 (2018)

Quantity	U/M	Model	Description	Unit Price	Ext. Price
4	EA	4500S-350KPA	VW Piezometer, unvented, 350kPa (51psi)	$ 360.00	$ 1,440.00
1300	FT	02-250V6-E	Blue PVC Cable, 0.250", 2 twisted pairs *(325 ft on each VW Piezometer)*	$ 0.71	$ 923.00
1	EA	8800-3-2A	GeoNet Node, 1-CH, VW, 900 MHz 10-Pin Bulkhead, North America	$ 810.00	$ 810.00
1	EA	8032-5	Multiplexor Cable, standard length, 10' (3m)	$ 148.50	$ 148.50
1	EA	8800-8-1	8-CH MUX for GeoNet, VW+TH only 0.16" - 0.31" Strain Relief Cable Entries	$ 882.00	$ 882.00
1	EA	8800-4-1A	GeoNet Supervisor, RS-232, 900 MHz North America. Specify 8800-GNA Software	$ 972.00	$ 972.00
2	EA	BAT-202	Battery, D-Size, 3.6V Lithium, 17Ah	$ 27.00	$ 54.00
			Sub Total - US Dollars		**$ 5,229.50**

The instrumentation equipment costs were provided by quote from Geokon (Attachment A). The installation will also require PVC pipe to allow lowering the instruments to the bottom of the inclined casings. A total of 175 m of 1-inch diameter threaded PVC blank is required for the 2018 installations.

1" X 10' PVC RISER - S40 - 8TPI

HLF piezometer for inclined risers
Need 175 m total 1" treaded pvc blank



ATTACHMENT A

GEOKON QUOTE AND DATA

GEOKON®
48 Spencer Street, Lebanon, NH 03766, USA
TEL: 603-448-1562 FAX: 603-448-3216 www.geokon.com

Quote

Number: 90059126
Date: September 20, 2018

Invoice To **Customer ID:**10192

BGC Engineering
590 Oak Road
Ridgway, CO 81432
UNITED STATES

Ship To

BGC Engineering
590 Oak Road
Ridgway, CO81432
UNITED STATES

Phone 970-901-2263
E-mail tmeyer@bgcengineering.ca

Customer Ref #:piezometers

Requested By	Trade Terms	Ship Via	Payment Terms	Quote Validity
Troy Meyer	FCA Lebanon NH	FedEx Ground	Pending	90 Days

LN	DL	Qty	U/M	Model	Description	Unit Price	Ext. Price
01	01	16.00	EA	4500S-350KPA	VW Piezometer, unvented, 350 kPa (51psi) * SPECIFY THE LENGTH OF 02-250V6-E CABLE ATTACHED TO EACH PIEZOMETER.	360.00	5760.00
02	01	1.00	EA	4580-1	VW Barometer, 200 mbar (2.5 psi) range Specify elevation at which sensor will be used. * SPECIFY THE LENGTH OF 02-250V6-E CABLE ATTACHED TO EACH BAROMETER	648.00	648.00
03	01	1.00	FT	02-250V6-E	Blue PVC Cable, 0.250", 2 twisted pairs	0.71	0.71
04	01	3.00	EA	8800-3-1A	GeoNet Node, 1-CH, VW, 900 MHz Cable Gland, North America	738.00	2214.00
05	01	2.00	EA	8800-3-2A	GeoNet Node, 1-CH, VW, 900 MHz 10-Pin Bulkhead, North America	810.00	1620.00
06	01	2.00	EA	8032-5	Multiplexer Cable, standard length, 10' (3m)	148.50	297.00
07	01	2.00	EA	8800-8-1	8-CH MUX for GeoNet, VW+TH only, 0.16" - 0.31" Strain Relief Cable Entries	882.00	1764.00
08	01	1.00	EA	8800-4-1A	GeoNet Supervisor, RS-232, 900 MHz North America. Specify 8800-GNA Software	972.00	972.00
09	01	12.00	EA	BAT-202	Battery, D-Size, 3.6V Lithium, 17Ah ** MAY REQUIRE HAZ-MAT SHIPPING **	27.00	324.00
10	01	1.00	EA	8800-GNA	Agent Software (NOT SHIPPED) Download here: www.geokon.com/8800-Series	0.00	0.00

Sub Total - US Dollars **$13,599.71**
(Amounts exclude any applicable taxes, duties or fees)

Quoted by: Martin Gradijan **e-mail:** mgradijan@geokon.com
Project Name: Pond embankment
Record and Shipping Comments:

Comments:

Number: 90059126
Date: September 20, 2018

General Information

All prices shown are FCA Lebanon, N.H., USA and are for merchandise packaged for shipment by domestic carrier within the continental limits of North America. Special packaging for export air or sea freights are extra-charged items. Freight charges will be prepaid by Geokon, Inc. and charges invoiced to the purchaser.

Terms

Domestic shipments are payable: net 30 days with approved accounts.

A monthly service charge of 1.5% (18% APR) will be added on all past due balances.

Export shipments will be made only:
1) After receipt of irrevocable letter of credit.
2) By payment in advance.
3) By special prior arrangement with Geokon, Inc.

Quotations

All Geokon, Inc. quotations are firm for 90 days. Thereafter, they are subject to change without notice.

Errors, Shortages, Complaints

All shipments should be opened immediately on delivery and the contents checked against the packing list sent with the shipment.
Geokon, Inc. exercises due care to avoid errors and shortages. However, where errors and shortages do occur, they should be reported within 10 days of receipt of the equipment. Where errors are the fault of Geokon, Inc., they will be rectified without delay.

Responsibility and Risk

Geokon, Inc.'s responsibility for merchandise damaged in transit ceases when the merchandise has been delivered to the carrier for shipment and a valid receipt obtained. Claims for damage in transit are to be made with the carrier, and damaged containers or other evidence of rough handling should be noted at the time of receipt, and the containers retained until the claim is resolved.

Returned Merchandise and Cancelled Orders

Equipment is not to be returned without first contacting Geokon, Inc. and obtaining its consent. All approved returns must be packaged to prevent damage, insured and returned prepaid. Returned equipment and cancelled orders are subject to a 25% restocking charge. Orders for custom products are not eligible for return or cancellation.

Taxes and Import Duties

All destination taxes, duties, importation fees and importation documentation expenses are to be paid by the purchaser, unless specific provisions to the contrary are made at the time the order is placed.

Custom Documentation

Orders requiring specialized documentation may be subject to a documentation fee.
This fee will be priced accordingly based on the customer requirements.

Changes and Improvements

All equipment described in Geokon, Inc. catalogs is subject to modification and improvement as may be dictated by subsequent developments. Accordingly, we reserve the right to change and improve items, to discontinue listings and to add new ones without notice.

Rental Policy

1) Rental charges are 25% of the purchase price for the first month, one month minimum, and 15% of the purchase price per month thereafter.
2) Rental period begins on the day of outgoing shipment and ends upon receipt of goods back at Geokon.
3) Orders cancelled after shipment are subject to a $165.00 processing fee (customer responsible for all freight charges incurred).

Rental with Option to Purchase

75% of the first month's fee will apply toward the purchase and 50% of the subsequent months' fees, up to a maximum of 50% of the purchase price.

Field Services

Field services to train client's personnel in assembly, installation and operation of the instruments is available.

The hourly rate of $120.00 per hour, or part thereof, will be charged as follows:
1) Time required for traveling from N.H. to the job site and return.
2) Time required for working on the job including time over 8 hours per day. Minimum charge is $960.00 per day.
3) Standby time at job site up to a maximum of 8 hours per day.
4) Time required for traveling between accommodation and job site in excess of 30 minutes each way.

Repairs

All items returned for repair, both warranty and non-warranty, must have an officially issued Return Authorization (RA) number and a Health and Safety Clearance form. Please contact Geokon directly for more information and to initiate the Return Authorization process. The hourly rate for non-warranty repair is $100 USD. Non-warranty repair should be accompanied by a purchase order to authorize the work. Geokon will not accept, nor work on, returns that are lacking Return Authorization numbers or unsigned Health and Safety Clearance forms. All returns for repair must be sent with shipping prepaid. All repairs are subject to the terms and conditions of the following warranty statement.

Warranty Policy

Refer to: http://www.geokon.com/warranty

To:	**Calvin GoldSchmidt**	**Project:**	**Eagle Gold Construction Support**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Roy Morlan**	**Date:**	**2018-12-07**
Copied:	**Troy Meyer**	**Record:**	

Re: Revetment Criteria

1.0 INTRODUCTION

Provided are spillway criteria for use by revetment subcontractors to perform analysis.

Hydraulic analysis is required using the parameters below to show acceptable factors of safety and required anchoring.

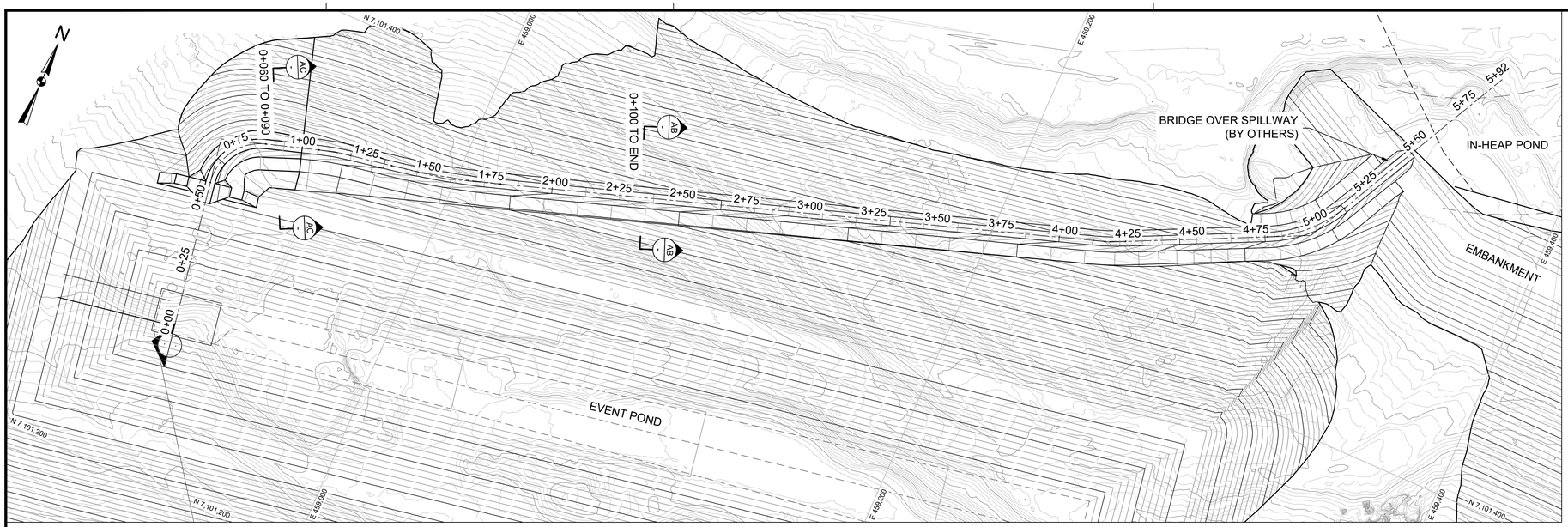
Variable	Value	Units	
Bottom Width	M	3.5	
Side Slope	m/m	2H:1V	
Channel Slope	m/m	Per Drawings	
Flow Rate	cms	10.8	
Flow Velocity	m/s	Calculated based on product Manning's value	
Permissible Shear	Pa	From Testing Per ASTM D6460	
Permissible Velocity	m/s	From Testing Per ASTM D6460	

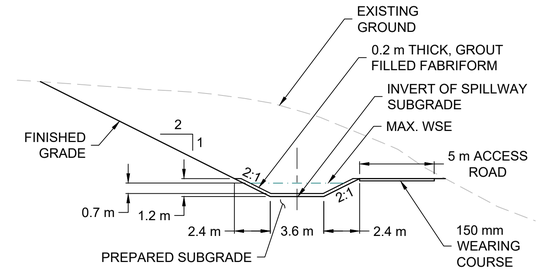
Note: ASTM D6460 is the Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.

Two spillway areas are proposed to be lined. The first is a spillway between the embankment invert and event pond. The second is the emergency spillway leading downstream of the event pond. Drawings are included as ***Attachment 1*** and show the dimensions of both spillways.

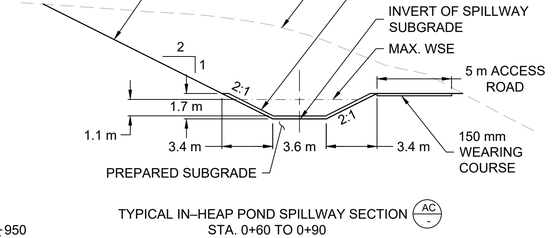
BGC ENGINEERING INC.
per:
Roy Morlan, PG, PMP
Senior Engineering Geologist

ATTACHEMENTS

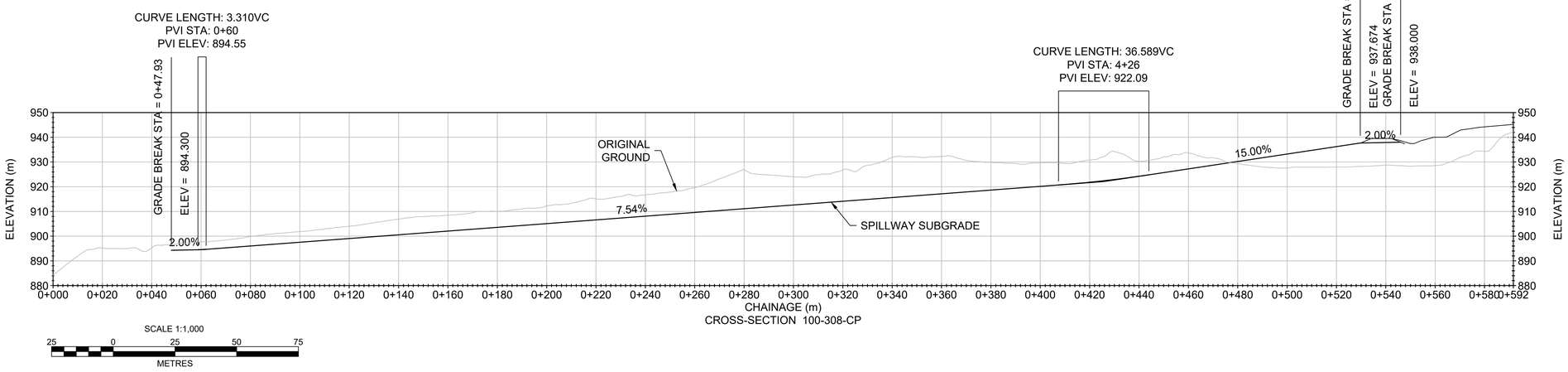




TYPICAL IN–HEAP POND SPILLWAY SECTION (AB)
STA. 1+00 TO END
SCALE = N.T.S.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AC)
STA. 0+60 TO 0+90
SCALE = N.T.S.



CROSS-SECTION 100-308-CP

SCALE 1:1,000
25 0 25 50 75
METRES

***NOT FOR CONSTRUCTION.
FOR PRELIMINARY CONCEPTUAL
PURPOSES ONLY.***

NOT FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY FOR VENDOR REVETMENT BID.

SCALE:	-
DATE:	12/7/18
DRAWN:	DG
CHECKED:	-
APPROVED:	-

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

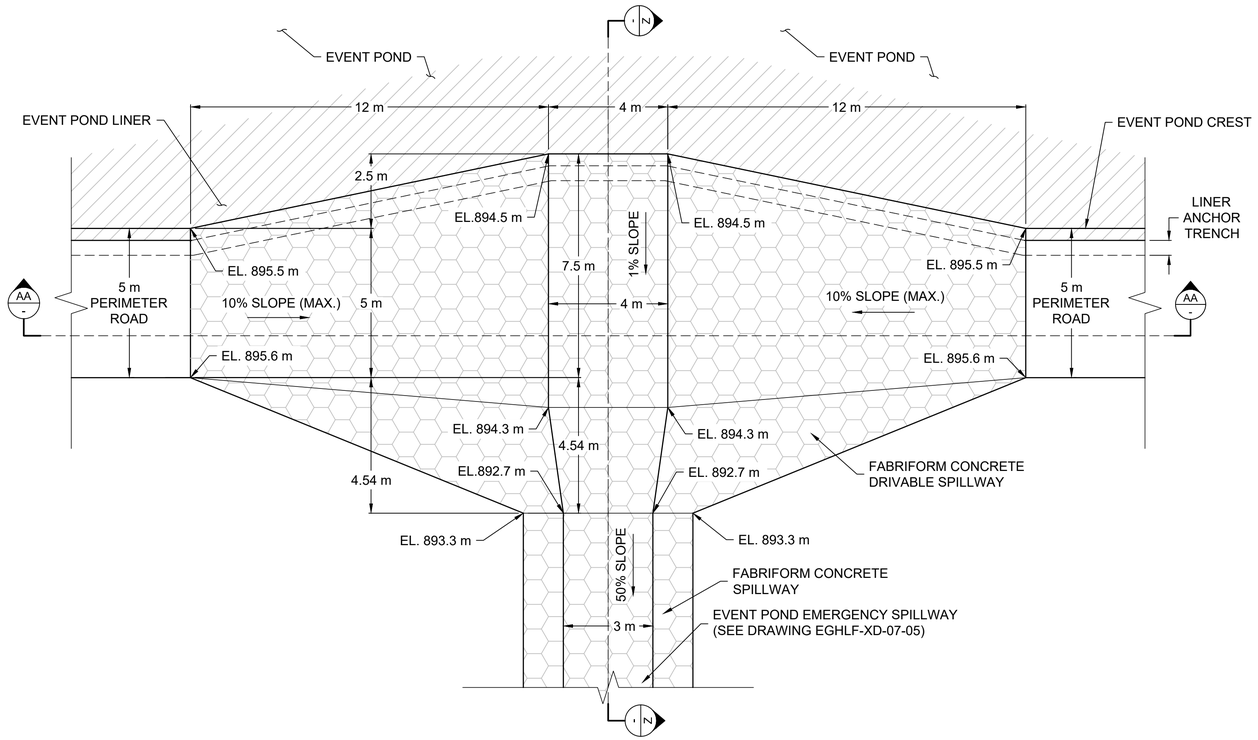
TITLE: SPILLWAY PLAN AND PROFILE FOR VENDOR REVETMENT BID

PROJECT No.:

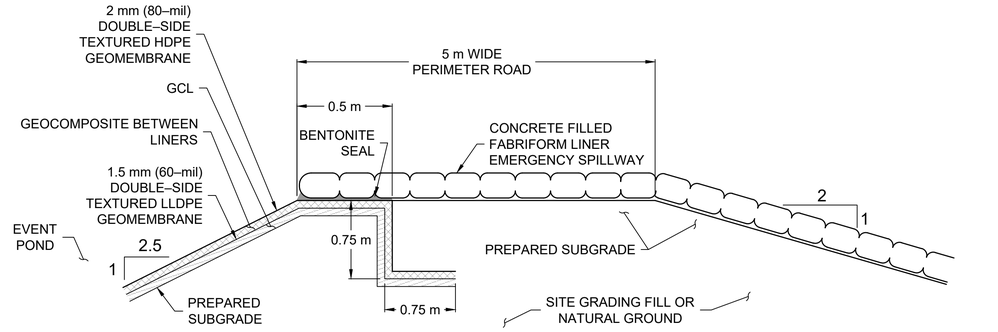
FIG No.: 01

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

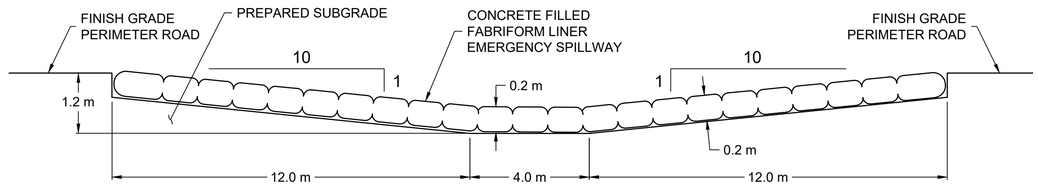
X:\Projects\0792 Victoria Gold\CAD\Design\Archive\100-308-CP-REV181011-OPEN CHANNEL.dwg Layout: EGHLF-XD-08-01 Plot Date: Dec 7 18 Time: 11:39 AM



EMERGENCY SPILLWAY DRIVEABLE SWALE DETAIL (82 / 07-06), 07-03, 07-05



EMERGENCY SPILLWAY DRIVEABLE SWALE SECTION (Z)
SCALE = N.T.S.



TYPICAL EMERGENCY SPILLWAY SECTION VIEW (AA)
SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. FABRIFORM SHALL BE ANCHORED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

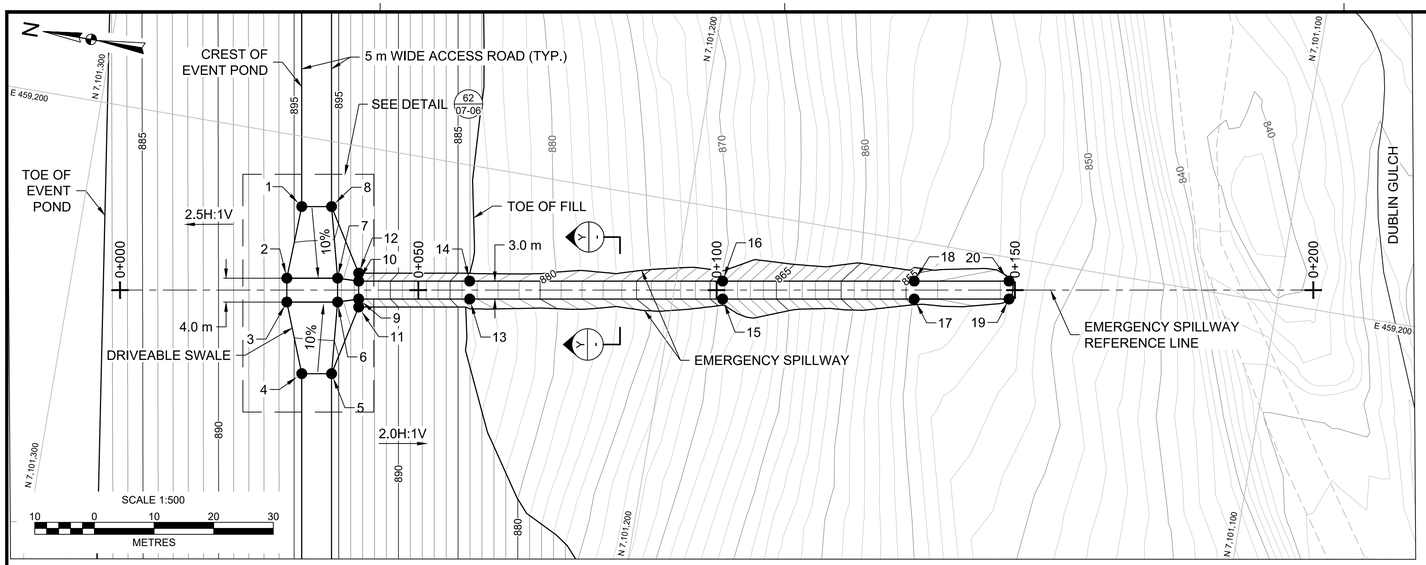
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

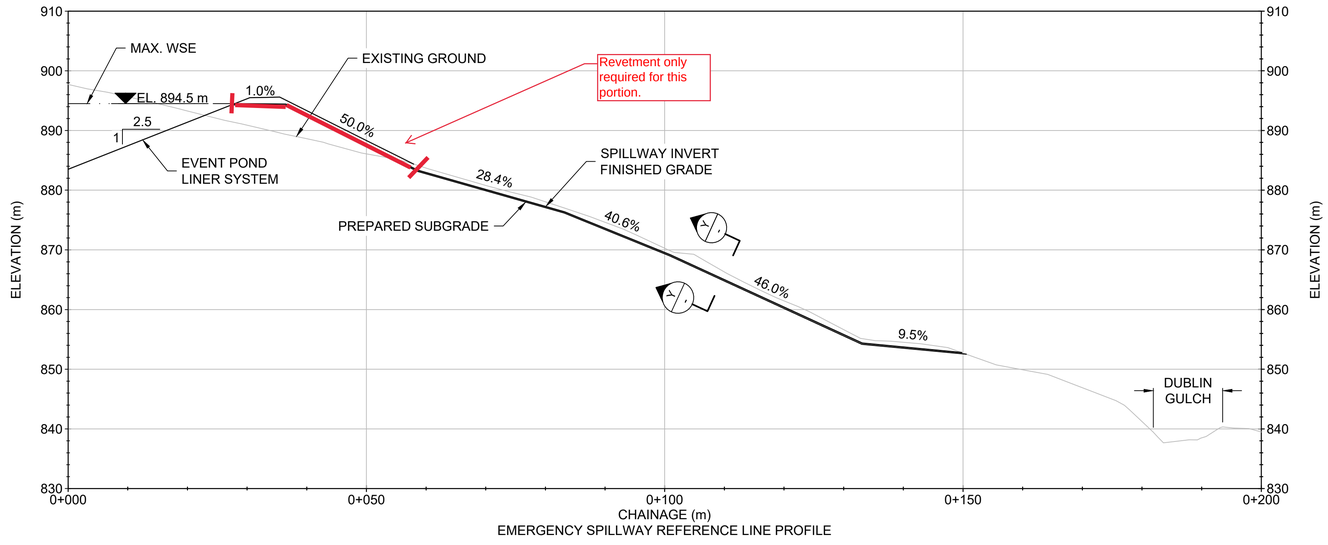
TITLE: EVENT POND SPILLWAY TYPICAL SECTIONS AND DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-07-06	0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-07-06.dwg Layout: EGHLF-XD-07-06 Plot Date: Jan 4 18 Time: 12:22 PM



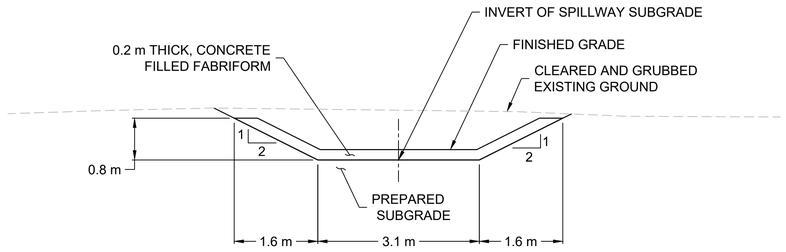


EMERGENCY SPILLWAY REFERENCE LINE PROFILE

SCALE 1:500
10 0 10 20 30
METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

EVENT POND EMERGENCY SPILLWAY FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,188.4	7,101,263.9	895.5	CREST
2	459,176.1	7,101,264.3	894.5	CREST
3	459,172.2	7,101,263.7	894.5	CREST
4	459,160.8	7,101,259.2	895.5	CREST
5	459,161.6	7,101,254.2	895.6	CREST
6	459,173.6	7,101,255.3	894.3	TOE
7	459,177.6	7,101,256.0	894.3	TOE
8	459,189.2	7,101,259.0	895.6	CREST
9	459,174.7	7,101,251.9	892.7	TOE
10	459,177.7	7,101,252.4	892.7	TOE
11	459,173.4	7,101,251.6	893.3	CREST
12	459,179.0	7,101,252.6	893.3	CREST
13	459,177.9	7,101,233.5	883.4	TOE
14	459,180.8	7,101,234.0	883.4	TOE
15	459,185.0	7,101,191.7	869.1	TOE
16	459,188.0	7,101,192.2	869.1	TOE
17	459,190.4	7,101,160.1	854.4	TOE
18	459,193.4	7,101,160.6	854.4	TOE
19	459,193.1	7,101,144.4	852.9	TOE
20	459,196.1	7,101,144.9	852.9	TOE



TYPICAL EMERGENCY SPILLWAY SECTION (Y / -)
SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

DRAWN BY:	CHECK DRAWING:
DAG	CJT
DESIGN BY:	CHECK DESIGN:
TLM	MEH
LEAD ENGINEER:	APPROVAL DATE:
DEH	12/08/17
PROJECT MANAGER:	APPROVAL DATE:
TLM	12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EVENT POND SPILLWAY PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
1:500	EGHLF-XD-07-05	0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-07-05.dwg Layout: EGHLF-XD-07-05 Plot Date: Jan 2 18 Time: 5:58 PM

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Project Memorandum

To:	**File**	**Doc. No.:**	**FM-011**
Attention:	**Calvin Goldschmidt**	**cc:**	
From:	**Roy Morlan**	**Date:**	**December 14, 2018**
Subject:	**BGC December 2018 Demobilization**		
Project No.:	**0792021.02**		

1.0 INTROCUTION

The purpose of this memorandum is to provide a brief discussion of the status of select tasks and the recommendations for work performed between BGC's demobilization on December 15, 2018 and the resumption of work in the spring of 2019.

2.0 CONSTRUCTION ACTIVITIES

2.1. ADR Quarry as a Source for ODF Material

Task: JDS would like to investigate the use of the ADR quarry as a source for ODF. The ADR quarry is variable and consists of large areas of strong quartzite rock and thinner seems of very weak phyllite rock. Using this quarry may require sorting these materials during borrow. BGC requested that two samples be collected. One using the typical mix of approximately 70% quartzite/ 30% phyllite rock that is produced from this quarry. The second from a seem predominantly composed of phyllite. Roy Morlan (BGC) and Mike Blusson (JDS) identified the sources for these materials and the material was stockpiled at the Neuway crusher plant. This material will be processed by Neuway and a sample of each sent to Tetra Tech in Whitehorse for durability testing.

Recommendations: BGC will complete the Chain of Custody (COC) for Tetra Tech and coordinate the analysis. The phyllite rich sample should be labeled ADR-ODF-01 and the more representative quartzite rich sample should be labeled ADR-ODF-02. 4 buckets should be collected for each sample. The sample ID (ADR-ODF01 or ADR-ODF-02) should be written on the side of each bucket (not the lid). If the sampling is completed before December 20 they can be given to Richard Oswell with Tetra Tech who will drive them to Whitehorse.

2.2. Instrumentation

Task: A piezometer, barometer, and the sensor and supervisor nodes for the instrument system were scheduled to be installed this season. These instruments are now either be installed in January or February 2019 or when the entire instrument program commences in 2019.

Recommendations: BGC has left the instruments in the BGC/Tetra Tech office. The inventory includes:



Sensor Node: Count 2



Supervisor Node: Count 1

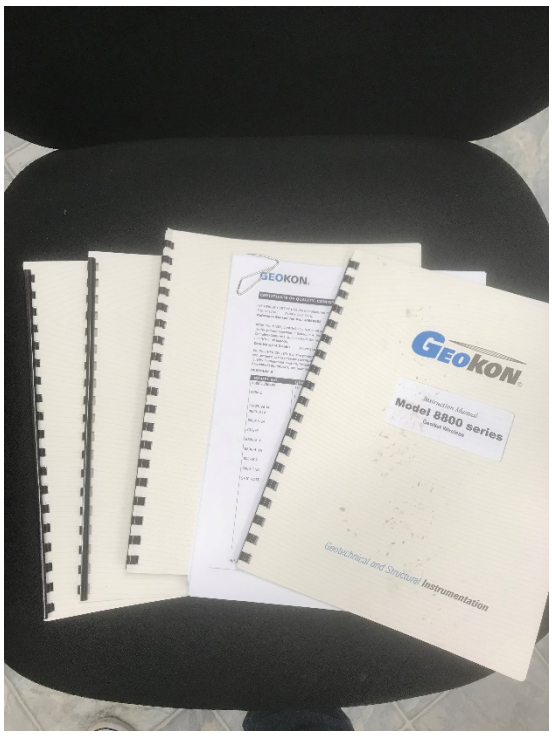


Multiplexor: Count 1



Piezometers: Count 4 spools. Three shown, 1 in the cardboard box.

Barometer: Count 1 spool. In the cardboard box.



Manuals: Count 4.



All items as they are currently stored in the BGC/ Tetra Tech office.

Recommendations: These items should be kept together. BGC should be consulted before installation.

2.3. Liner Destructive Test Samples

Task: Tetra Tech has retained the destructive test samples for archiving. These are currently being stored in bags in the BGC/ Tetra Tech office.



Samples stored in bags in the BGC/ Tetra Tech office.

Recommendations: The samples should be stored in a location where they will not be lost.

2.4. Fill Placement

Task: Fill placement will be needed within the Phase 1 HL area and in limited areas of the Interceptor Ditch. Fill over the winter months will be completed using rockfill following the method specifications developed by BGC. QC for the fill placement will be completed by Pelly or Tetra Tech, depending on availability. BGC is not expected to be present during most of the fill placement.

Recommendations: BGC makes the following recommendations for fill placement:

- Placement should follow recommendations from the test fill documented in CTFM-05.
- The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
- The cold weather placement guidance document (FM18-020) should be followed.
- BGC should be informed in advance of material changes and should approve any new material before use.
- Proof rolling will be needed over the compacted fill over the areas where liner will be placed. Additional compaction of placed lifts may be needed in 2019 depending on proof rolling results.
- The following compaction information should be tracked and reported to BGC related to compaction of fill:
    - Photographs of the subgrade prior to fill placement.
    - Photographs of the fill placement and compaction.
    - Confirmation that the number of passes and roller size met the specifications.
    - Confirmation (visual) that the material meets the general gradation requirements for rockfill.
    - Confirmation that material predominately quartzite rock (ie less than 30% phyllite rock).
    - Confirmation that the lift thickness does not exceed 0.9m.
    - A daily recording of rockfill temperatures immediately before compaction.

2.5. Subgrade Approvals

Task: The Phase 1 heap area will be shaped to the design grade over the winter months.

Recommendations: BGC makes the following recommendations for subgrade shaping:

- As proof rolling to verify density is not possible in the current temperatures, final liner subgrade approval will be required before liner is placed in the spring.
- Excavation of frost jacked, wet, or loose subgrade may be needed in 2019 prior to liner placement.
- Additional compaction of loose subgrade may be needed in 2019 prior to liner placement.
- Final subgrade as-built drawings should be provided to BGC for review.

2.6. Underdrains

Task: The majority of the underdrains at the Event Pond will be complete prior to BGC demobilization on December 15. Lateral drains will be excavated in the 2019 winter. The underdrain header trench and at least portions of the lateral drains will be completed in the winter of 2019.

Recommendations: BGC makes the following recommendations for subgrade shaping:

- Underdrain and piping construction should always meet the requirements of the technical specifications and the design drawings.
- If underdrains are completed this season with piping and drain rock and liner subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some adjacent underdrains.
- Additional compaction of loose subgrade may be needed in 2019 prior to liner placement.
- The following drain construction information should be tracked and reported to BGC:
    - Photographs of drain subgrade.
    - Photographs of drain construction.
    - Confirmation that all materials (ie geotextile, drain fill, piping, cover) met the requirements of the technical specifications and the drawings.
    - Confirmation that all installation requirements from the technical specifications and design drawings were met. For example; geotextile overlap, connections between drain pipes, welds between header pipes, ect.
    - As-built drawings for the drain/lateral trench subgrade and final construction. Final subgrade as-built drawings should be provided to BGC for review

2.7. Interceptor Ditch and General Water Control

Task: Currently the alignment of the Interceptor Ditch is being cleared. In winter 2019 the interceptor ditch will be excavated and lined with geotextile and rip-rap. Other measures should be taken to ensure that spring melt does not flow to and beneath the installed liner, if needed.

Recommendations: BGC makes the following recommendations for subgrade shaping:

- The interceptor ditch should be completed prior to spring melt in 2019. As with the drains and subgrade construction should meet the requirements of the technical specifications and the design drawings. Photographs, material usage, construction methods, and as-builts should be tracked and reported to BGC for review.
- Some runoff will likely be directed to exposed underdrains. If so, precautions should be taken to ensure that sediment loads do not migrate into the drain rock. This can be done through the use of settling ponds, placing geotextile over the exposed drain rock, or other measures devised by the constructor. Methods to deal with runoff should be provided to BGC who will review it in the context of protecting finished construction.
- It is BGC's understanding that at the least all lateral drain trenches would be completed prior to spring runoff. This should help in diverting water away from the placed liner. If it is not possible to complete the lateral drain trenches before the spring runoff then alternative methods for capturing water should be discussed.

2.8. Snow Removal

Task: Snow will be removed prior to construction in March 2019 for access to help reduce runoff.

Recommendations: BGC will require that now removed over liner be done by hand. No metal equipment (such as shovels) should be used for removal.

2.9. GCL Inspection and Liner Leak Testing

Task: ODF have been placed only in the in-heap pond sump to support the PLS pipework. Remaining PLS pipework and ODF placement will occur in 2019.

Recommendations: Prior to placement of ODF, BGC will oversee an inspection program involving cutting openings in the primary and secondary geomembrane at locations on a spacing equivalent to approximately 5,000 square meters to allow a visual examination of the GCL. The GCL samples will be examined to determined that all of the above criteria are met. A final determination of compliance will be made upon consultation with the GCL manufacturer and Victoria Gold.

Following the GCL inspection program, a liner leak test will be performed based on guidance from ASTM D6747 and discussions with Layfield (liner installer) and Victoria Gold to determine the most suitable method(s). The methods may include vacuum (VALID) testing, electrical testing, water testing, or a combination thereof. Any located holes will be repaired and tested. BGC will oversee this program and subsequent placement of ODF.

To:	**JDS**	**Project:**	**Eagle Gold Construction Support**
Company:	**BGC**	**Project No.**	**0792023**
From:	**Roy Morlan**	**Date:**	**2019-04-12**
Copied:	**Troy Meyer**	**Record:**	**FM-12**

Re: Observations at the Switchback 5 ODF Source

1.0 INTRODUCTION

JDS requested that BGC observe material that was blasted for the purpose of developing a quarry source for ODF material located near the Pit Road Switchback 5. BGC visited the location with JDS and Victoria Gold Engineering. The purpose of the visit was to develop a preliminary idea of any issues that may arise from producing ODF form this source based on previous experience producing ODF from similar sources on site. This observations summary was developed at JDS's request.

2.0 OBSERVATIONS AT THE LOWER BENCH

The lower bench contained mostly hard, strong, granodiorite material (W3- moderately weathered, R4- strong, H3- hard). Test runs of similar material performed in 2018 and 2017 produced ODF that met the Technical Specification gradation and permeability requirements. The material on the far west portion of the bench transitioned to a granodiorite weathered almost to soil (W5- weathered, R1- very weak, H5- moderately soft) and a portion of the bench was soil (colluvium).

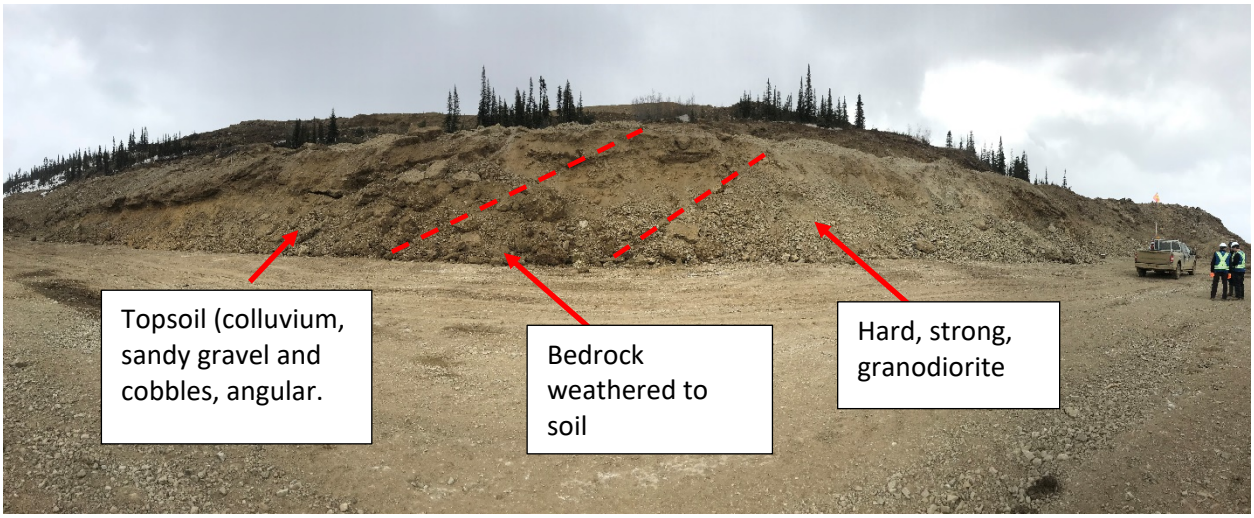


Photo 1: Panoramic photograph of lower bench.



Photo 2: Granodiorite source.



Photo 3: Granodiorite sample.



Photo 4: Highly weathered near surface bedrock.



Photo 5: Topsoil portion of bench.

3.0 OBSERVATIONS AT UPPER BENCH

The upper bench contained weaker metasediments material (W4- highly weathered, R3- moderately strong, H3 to h4 moderately hard to hard). Test runs of similar material performed in 2017 produced ODF with fines above the requirements in the technical specifications and lower permeability.



Photo 6: Panoramic photo of bench. Weak, highly fractured, metasediments.



Photo 7: Typical metasediments observed in upper bench.

4.0 CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of JDS. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

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Yours sincerely,

BGC ENGINEERING INC.
per:

Roy Morlan, PG, PMP

Senior Engineering Geologist

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Project Memorandum

To:	**JDS Energy & Mining**	**Doc. No.:**	**FM-013**
Attention:	**Calvin Goldschmidt**	**cc:**	
From:	**Troy Meyer**	**Date:**	**April 27,2019**
Subject:	**HLF In-Heap Pond Liner Leak Test**		
Project No.:	**0792023.02**		

1.0 INTROCUTION

The purpose of this memorandum is to provide a summary of the liner leak testing and results for the Heap Leach Facility (HLF) In-Heap Pond. The liner system comprises two layers of LLDPE geomembrane liners with a leak detection and recovery system (LDRS). The leak test involves hydrostatic testing of the upper liner.

2.0 LDRS DESIGN AND CONSTRUCTION

The Leak Detection and Recovery System (LDRS) within the In-Heap Pond and Event Pond consists of a monitoring sump to be equipped with an automatic, fluid-level activated pump located between the top and bottom liners. The pump will be sized to sufficiently remove fluids to minimize head on the bottom liner. The LDRS sumps will remove fluids from potential leaks in the top liner via the geonet material located between the two geomembranes to allow fluid to the sump. Drawings EGHLF-XD-05-01 through EGHLF-XD-05-06 present the LDRS sump and pipework design details for the In-Heap Pond. Drawings EGHLF-XD-07-01 through EGHLF-XD-07-04 present the LDRS sump and pipework design details for the Event Pond. Appendix F of the design report (BGC 2018) presents the liner leakage and sump sizing calculations and establishes alert levels for operational monitoring of the LDRS flows.

The In-Heap pond sump, LDRS and PLS was modified from the design to accommodate the proposed construction methods. Figure 1 (attached) presents the modified section through the sump. The inclined LDRS pipes were installed with an invert elevation of 909.5m and the bottom of the PLS sump was constructed at elevation 911.5m. Overliner drain fill (ODF) has been placed to approximate elevation 915.5m to secure the PLS header and inclined riser pipes.

3.0 LINER LEAK TESTING PROCEDURE

In addition to the specified field seam testing of the geomembrane, the geomembrane installer is required to water test the top geomembrane installed in the ponds prior to acceptance by the engineer (BGC) and owner (StrataGold).

It is BGC's understanding that the normal PLS pump operational level will be 918m (approximately 5.5m above the bottom of the PLS riser pipe). Alert leakage levels for the ponds have been updated to reflect the as-built conditions. The low alert level (Alert Level 1, or AL1), is based on the small defect leakage rate, which is intended to represent the leakage rate expected from geomembranes installed with strict construction quality assurance. The AL rates vary with the pond level since the hydraulic head dictates the rate of leakage through a hole or seam defect. Tables 1 presents the alert levels calculated for a range of pond elevations.

Alert Level 1 (AL1) will be used as a threshold for the leak testing. The appropriate threshold is determined based on the actual pond level. For an In-Heap Pond level of 918m, a threshold leakage rate of 3,954 L/day was selected.

The proposed procedure involved monitoring via pumping out the pond's leak detection system (LDRS) over a period of time. However, the procedure was modified to rely mainly on monitoring the LDRS sump head levels due issues encountered with the pump safety cutoff causing unreliable flow volume monitoring. A Solinst Levelogger transducer (accurate to 1mm) was installed in the inclined LDRS riser pipe to measure changes in head level during the leak test. This data was used to estimate the leakage rate by converting head changes to leak volume based on the as-built size of the sump and the lab-tested porosity of ODF drainage gravel in the sump.

The following information was recorded to document the liner leak testing:

- Surveyed pond water level at start and end of test period
- Water elevation and head pressure levels in the LDRS sump

BGC measured the LDRS sump head level via the transducer at 30-minute intervals over a 24-hour period. The LDRS sump was not pumped out during this period. PLS pond level survey data was provided by JDS.

4.0 LINER LEAK TESTING RESULTS

The leak test was started on April 14, 2019 with the PLS pond level at 918m. The initial tests failed with leak rates much higher than the allowable rate. The PLS pond was then lowered to inspect for holes and damage. Two damaged areas were identified:

- Elevation 916.5m damage – apparent welder burnout and cut. ***Photo 1*** shows damage and ***Photo 2*** shows repair.
- Elevation 915.5m damage – apparent equipment damage. ***Photo 3*** shows damage and ***Photo 4*** shows repair.



Photo 1: Liner damage at elevation 916.5m



Photo 2: Liner repair at elevation 916.5m



Photo 3: Liner repair at elevation 915.5m



Photo 4: Liner repair at elevation 915.5m

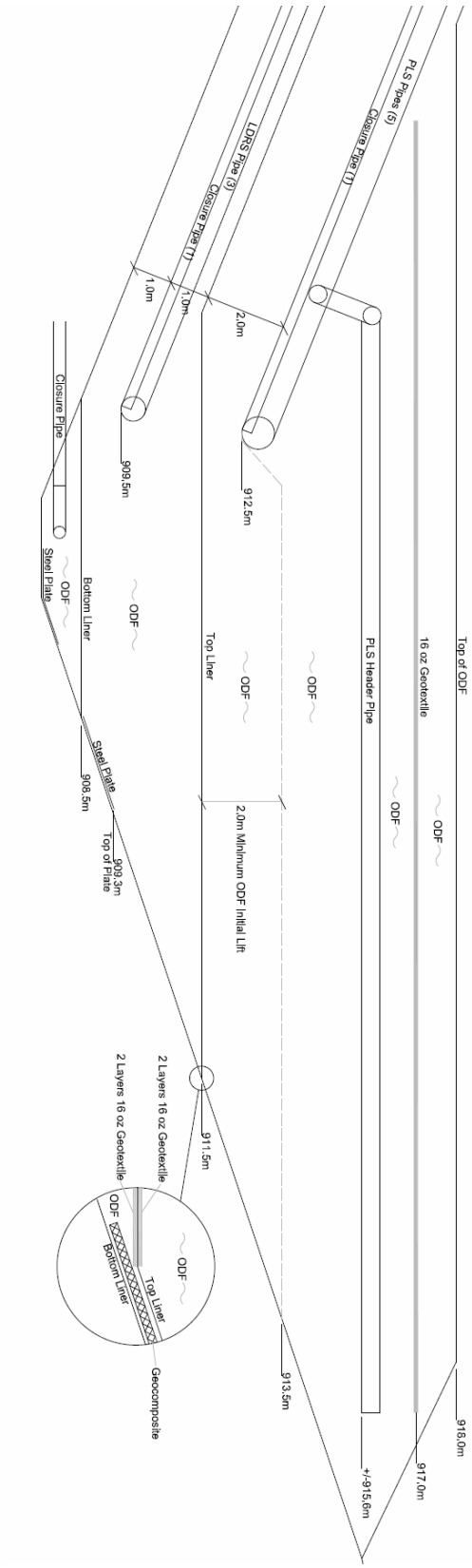
An unofficial 5-hour duration leak test was performed at PLS pond elevation 915m and “passed” (see Attachment A for data). The liner surface between 915 and 918m was also washed and re-inspected for damage. A few small dents and scratches were found and repaired but no additional holes in the liner were found. The PLS pond was raised to elevation 918m for an official leak test. The results indicated a calculated leak rate of 2,648 L/day measured over a 24-hour period. This rate is below the allowable rate of 3,954 L/day (see Table 1) based on the established Alert Level 1 rate for pond elevation of 918.0m.

The full set of results for the leak test is presented in Attachment A.

Table 1 – In-Heap Pond Alert Levels

Elevation	Contour Area	Incremental Volume	Cumulative Volume	Alert Level 1
m	m2	m3	m3	L/day
911.5	360	0	0	-
912	711	268	268	191
912.5	963	418	686	367
913	1206	542	1228	562
913.5	1439	661	1890	775
914	1679	779	2669	1,011
914.5	1935	904	3573	1,276
915	2208	1036	4609	1,572
915.5	2483	1173	5781	1,891
916	2780	1316	7097	2,245
916.5	3073	1463	8561	2,616
917	3388	1615	10176	3,025
917.5	3717	1776	11952	3,466
918	4073	1948	13900	3,954
918.5	4454	2132	16031	4,486
919	4864	2329	18361	5,071
919.5	5310	2543	20904	5,718
920	5783	2773	23678	6,419

Figure 1. In-Heap Pond LDRS and PLS sump section



5.0 CLOSURE

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Yours sincerely,

BGC ENGINEERING INC.



Troy Meyer, P.Eng.
Principal Geotechnical Engineer

Attachment A

Eagle Gold Project
HLF In-Heap (PLS) Pond Liner Leak Test

Approx. LDRS Sump Pore Volume =	500	cu.m.	Bottom LDRS Casing =	909.5	m
	500,000	litres	PLS Casing =	912.5	m
Estimated Pump Capacity =	3.5	litres/sec	Bottom LDRS Sump =	908.5	m
Time to Evacutate LDRS Sump =	40	hrs	Bottom PLS Sump =	911.5	m
			Datum LDRS Top Casing =	918.7	m

Date	Time	Time Between Readings (hours)	Total Time (hrs)	Tape Reading (m)	Transducer Reading (m)	Elevation of Water in LDRS Sump (m)	Elevation of Water in PLS Pond (m)	Estimated Leak Rate L/day [1]	Allowable Leak Rate L/day [2]	Pass/Fail[3]
4/14/2019	10:30	baseline				917.7	918			
4/14/2019	10:50	0.33	0.33			917.7	918			
4/14/2019	11:30	0.67	1.00			917.7	918			
4/14/2019	12:00	0.50	1.50			917.7	918			
4/14/2019	13:43	1.72	3.22			917.6	918			
4/14/2019	15:00	1.28	4.50			917.5	918			
4/14/2019	16:00	1.00	5.50			917.4	918	345,600	3,954	Fail
4/15/2019	Pump ran all night but stopped due to mechanical issues. Resumed at 9:30									
4/15/2019	7:45	15.75	21.25			916.5	918			
4/15/2019	13:42	5.95	27.20			916.4	918			
4/16/2019	16:00	2.30	29.50			916.3	918			
4/16/2019	8:26	16.43	45.93			915.9	918	345,600	3,954	Fail
4/17/2019	Pumping PLS pond down to 917 to isolate leak zone									
4/18/2019	16:00			14.0	3.0325	916.099	917			
4/19/2019	1:56	9.93	9.93	14.0	2.2844	915.350	917			
4/19/2019	8:30	6.57	16.50	14.0	2.045	915.111	917	262,109	3,025	Fail
4/19/2019	Pumping PLS pond down to 915.5 to isolate leak zone (Holes found at approx 916.5m and 915.5m)									
4/20/2019	8:56			21.0	2.5947	912.994	916.45			
4/21/2019	9:26	0.50	0.50	21.0	2.5119	912.911	916.45			
4/22/2019	15:56	6.50	7.00	21.0	3.9585	914.358	915.62			
4/19/2019	Stop pumping PLS pond at elevation 915.211m to perform liner repairs									
4/20/2019	22:00			21.0	4.0068	914.406	915.21			
4/21/2019	8:00	10.00	10.00	21.0	4.0015	914.401	915.21			
4/21/2019	9:30	Start pumping LDRS sump								
4/21/2019	10:00			21.0	3.9003	914.299	915.21			
4/22/2019	13:00	5.00	5.00	21.0	2.5586	912.958	915.21			
4/21/2019	14:30	Stop pumping LDRS sump								
4/22/2019	15:00	2.00	7.00	21.0	2.1486	912.548	916.21			
4/23/2019	16:00	1.00	8.00	21.0	0	910.399	915.21			
4/21/2019	17:00	Liner damage at 915.5m and 916.5m repaired, resume pumping LDRS to below bottom of PLS sump								
4/22/2019	9:30			24.85	0.5237	909.359	915.0			
4/22/2019	14:30	7.00	7.00	24.85	0.5264	909.459	915.0	1,003	1,572	Ok
4/22/2019	17:00	Pumping into PLS pond to raise level to 918.0m								
4/22/2019	17:00			25.3	0.7095	909.470	915.0			
4/23/2019	13:00	20.00	20.00	25.3	0.7205	909.481	916.1	1,452	2,319	Ok
4/26/2019	14:30			25.3	0.7216	909.482	918.0			
4/27/2019	14:30	24.00	24.00	25.3	0.7453	909.506	918.0	2,648	3,954	Pass

Notes:
1) Leak rate estimated from change in head level in LDRS sump measured by transducer.
2) From BGC Memo "Liner Leak Testing Procedure - Draft" dated March 12, 2019, varies with PLS head level.
3) Official "Pass" is for a 24 hour static test. Unofficial checks are noted as "Ok" if below the Action Rate 1 for durations less than 24 hours.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Project Memorandum

To:	**JDS**	**Doc. No.:**	**FM-014**
Attention:	**Calvin Goldschmidt**	**cc:**	
From:	**Troy Meyer/Roy Morlan**	**Date:**	**May 5, 2019**
Subject:	**Field Screening Procedure for ODF Source**		
Project No.:	**0792023.02**		

1.0 INTRODUCTION

The purpose of this memorandum is to provide a field screening procedure to help guide the selection of source material from the Eagle Pit for processing as Overliner Drain Fill (ODF) for use at the Heap Leach Facility (HLF).

2.0 ODF SPECIFICATIONS AND TESTING

The Overliner Drain Fill (ODF) for the leach pad liner cover fill shall consist of free-draining granular material with 38-mm maximum particle size and a maximum of 5 percent fines passing the No. 200 ASTM sieve size (0.075-mm). The ODF shall have an operational permeability of 2x10-4 m/sec or higher. Material durability testing was performed on ODF to determine if additional breakdown of material during stockpiling, hauling, and placement is possible. Such breakdown of material could result in lower ODF permeability and/or excess generation of fines that could result in localized zones of higher pore pressure. The ODF sources were tested for durability using the following laboratory methods:

- LA Abrasion ASTM C131.
- Relative Density and Absorption of Aggregate ASTM C127/ASTM C128.
- Sieve ASTM C136/C117
- Slake testing ASTM D4644.

The acceptable range for LA Abrasion Results for aggregate is <40% mass loss for concrete use per ASTM C33. For slake testing results categorizing the material as Type I is typically most favorable as this classification is the least susceptible to slaking.

QC gradation testing per the technical specifications requires a minimum of 1 sampler per 5,000 m3 produced with additional gradation tests being performed at QA request.

ODF produced to date has been sourced from surface weathered matasediments and surface weathered intrusive. These rock types are also expected from the Eagle Pit source, although, with varying degrees of silicification. A description of rock types mapped at the Eagle Pit are included in ***Section 3***.

3.0 DESCRIPTION OF EAGLE PIT ROCK

The following descriptions were taken from the Feasibility Study Open Pit Slope Design report submitted by BGC and dated January 2012.

3.1. Metasediments and Surface Weathered Metasediments

The metasediments observed in the EGZ range in composition from quartzites to phyllites. The quartzites are generally strongly foliated and consist of pure quartz to quartz-feldspar, with laminations of muscovite and sericite. Grain sizes are typically 1 mm to 2 mm, with individual quartzite beds ranging from centimeters to several meters in thickness. The phyllites are generally strongly foliated and contain compact aggregates of biotite and sericite intercalated with irregular lenses of quartz. Surface weathered sediments are present from 30 m to 100 m below ground. The intact fresh metasedimentary rocks have a median (design) UCS of 83 MPa classifying it as "strong", with a lower (25th) percentile UCS value of 45 MPa and an upper (75th) percentile UCS value of 143 MPa. The intact surface weathered metasedimentary rock has a median (design) UCS of 76 MPa, classifying it as "strong" with a lower (25th) percentile UCS value of 34 MPa and an upper (75th) percentile UCS value of 106 MPa.

3.2. Intrusives and Surface Weathered Intrusives

The granodiorites of the Dublin Gulch Stock are medium grey coloured, medium to coarse grained and equi-granular with up to 15 percent biotite. Surface weathered intrusives are present from 30 m to 100 m below ground. The intact non surface weathered intrusive rocks have a median (design) UCS of 135 MPa, classifying it as 'very strong", with a lower (25th) percentile UCS value of 57 MPa and an upper (75th) percentile UCS value of 213 MPa. The intact surface weathered intrusive rocks have a median (design) UCS of 135 MPa, classifying it as 'very strong' with a lower (25th) percentile UCS value of 53 MPa and an upper (75th) percentile UCS value of 214 MPa.

3.3. Clay Altered Intrusive

A weaker subunit of the intrusive was observed in drillholes GTH2a, GTH3, GTH4, GTH-07, and GTH-08. Based on Victoria Gold's geologic interpretations, this unit shows clay alteration which results in lower intact strengths. The intact clay altered intrusive rocks have a median (design) UCS of 51 MPa classifying it as "strong" with a lower (25th) percentile UCS value of 14 MPa and an upper (75th) percentile UCS value of 108 MPa.

3.4. Rock Strength Estimates

Field estimates of intact rock strength, based on BGC's 2009, 2010 and 2011 geotechnical drilling programs from standard field tests and observations were made in the field using strength grades developed by the International Society of Rock Mechanics (ISRM, 1978). Based upon the penetration of the hammer pick and effect of the pocket knife blade on the rock, a classification was assigned to the rock according to Table A-1.

On average the metasedimentary units have a lower strength grade than the intrusive units, with median values of about R3.5 for the surface weathered medasedimentary unit, and R4 for the unweathered/unaltered intrusive unit, the surface weathered intrusive, and the fresh metasedimentary unit. Where the clay altered intrusive was broken out from the other intrusive units, the average strength grade for this sub-unit was slightly lower at R3.5.

Table A-1: Rock Strength Grades (ISRM, 1978)

Grade	Description	Field Identification	UCS (MPa)	Point Load Index (MPa)
R6	Extremely Strong	Specimen can only be chipped with flat end geological hammer.	> 250	> 10
R5	Very Strong	Specimen requires many blows with flat end geological hammer to fracture.	100-250	4-10
R4	Strong	Specimen requires more than one blow of flat end geological hammer to fracture.	50-100	2-4
R3	Medium Strong	Cannot be scraped or peeled with pocket knife; can be fractured with single firm blow of flat end geological hammer.	25-50	1-2
R2	Weak	Can be peeled by a pocket knife with difficulty; shallow indentation made by firm blow with point geologic hammer.	5-25	-
R1	Very Weak	Crumbles under firm blows with point of geological hammer.	1-5	-
R0	Extremely Weak	Indented by thumbnail.	< 1	-

4.0 SCREENING PROCEDURE

4.1. Gradation, Permeability, and Slake Testing

BGC will visit any new sources to make a preliminary opinion on if the material appears competent enough to produce ODF. A small batch of ODF should be produced from the new bench. The gradation of this batch should be determined by Tetra Tech's on-site field laboratory. The results should be compared the gradation requirement in the Technical Specifications and the range of gradations produced in 2018. Additionally, the amount of waste being produced will be noted by BGC.

If gradations are within the band of previously produced and tested (***Figure 1***) then laboratory or field permeability testing will not be needed. If the gradation is significantly higher in sand or finer material then a field or laboratory permeability test may be needed. This determination will be made by the BGC engineer/geologist in the field. Typically a field permeability test will be performed by BGC and if the results are within an order of magnitude of the design minimum BGC will send a sample to an offsite laboratory to confirm. If the permeability measured in the field is greater than an order of magnitude of the design requirements a laboratory test will not be needed.

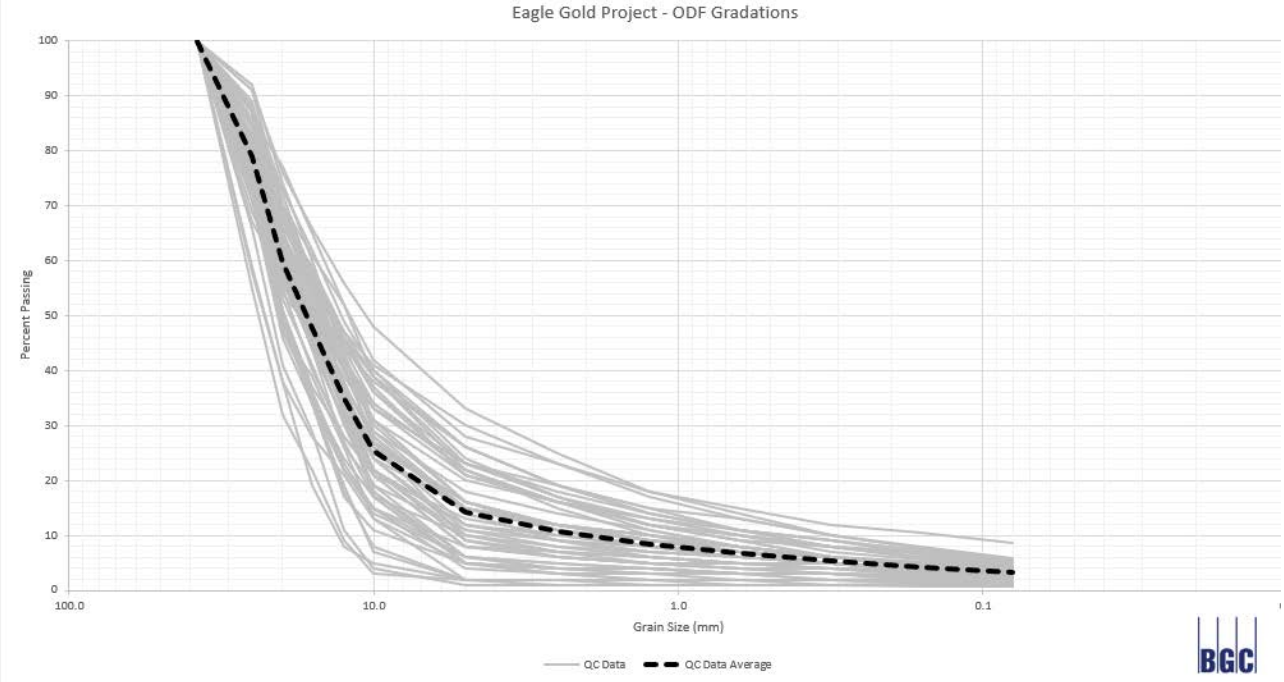


Figure 1: Gradation of ODF produced in 2018.

After a batch is produced BGC will inspect the material again for hardness and strength. A field slaking test (Jar Slake Test) will also be performed if the material appears more porous or has significant bedding. Determination if a sample should be sent off-site for slake testing will be made based on how similar the material is to rock that has already been tested for this project and observations made during the Jar Slake Test. Results from testing performed on ODF material to date has shown that the sources previously used were not susceptible to slaking.

4.2. Impact and Scratch Test

BGC will perform hardness and strength field testing using the standard International Society for Rock Mechanics (ISRM) guidance. Observations will be made of both the source rock and produced ODF at the crushing facility. Samples will be graded with a strength of R1 (extremely weak) through R6 (extremely strong) and a hardness of H1 (extremely hard) to H7 (very soft). Where the rock is observed to vary significantly, a minimum of five samples shall be taken. To obtain a classification for these variable areas in the borrow source areas, four out of five samples shall have the same or higher classification. I.E., if one sample is R3, three samples are R2 and one sample is R1, this would result in an R2 classification.

LA Abrasion results for all samples previously tested reported mass loss of 35% or less. Field hardness and tests correlating to these samples reported R3 (Moderately Strong) to R5 (Very Strong) with hardness reported as H3 (Hard) to H4 (Moderately Hard). Field results that show strength of R3 or greater and hardness between H1 and H4 will not be sent for laboratory testing for LA Abrasion.

5.0 RECORD KEEPING AND RECOMMENDATIONS FOR FURTHER TESTING

5.1. Reporting and Tracking

BGC will maintain a record of the field testing and observations made for ODF production. BGC anticipates to produce an observations record each day that ODF is produced to begin with. The frequency for these records may decrease based on observations. The tracking report will consist of:

- The Eagle Gold Grade Block name and centroid coordinates (provided by Victoria Gold Geology).
- Rock type description and log collected from the Pit or the crusher stockpile.
- Estimated percent of waste being generated (provided by Nueway).
- Field testing results (hardness, strength, slake).
- Percent fines generated and verification that the material is within the required gradation spectrum once the Tetra Tech QC reports are made available.
- Additional field testing, such as permeability, if needed.
- Recommendations, if needed.
- Photographs of the material.

5.2. When Further Lab Testing is Required

Rock types mapped in the area of the Eagle Pit appear to be similar to the sources previously used to produce ODF. Therefore, it is anticipated that the field testing will be sufficient for the remaining ODF production. However, additional laboratory testing will be needed if the following conditions are encountered:

- If gradation testing shows a significant increase in sand and finer fractions of material when compared to previously tested batches of ODF then field and/or laboratory permeability testing will be required.
- Laboratory strength testing including LA Abrasion, Relative Density and Absorption of Aggregate, and Slake Testing may be required if there are indications that the material has the potential to breakdown to extent where it may reduce ODF permeability below the required minimum. Conditions where laboratory durability testing would be required include:
    - Field strength testing results are reported as R1 or R2.
    - Field hardness testing results are reported between H5 and H7.
    - The material appears to be susceptible to slaking.
    - The rock type is significantly different than that already tested for this project.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Project Memorandum

To:	**JDS Energy & Mining**	**Doc. No.:**	**FM-015**
Attention:	**Calvin Goldschmidt**	**cc:**	
From:	**Troy Meyer**	**Date:**	**May 2, 2019**
Subject:	**Event Pond Liner Leak Test**		
Project No.:	**0792023.02**		

1.0 INTROCUTION

The purpose of this memorandum is to provide a summary of the liner leak testing and results for the Heap Leach Facility (HLF) Event Pond. The liner system comprises two layers of LLDPE geomembrane liners with a leak detection and recovery system (LDRS). The leak test involves hydrostatic testing of the upper liner.

2.0 LDRS DESIGN AND CONSTRUCTION

The Leak Detection and Recovery System (LDRS) within the Event Pond consists of a monitoring sump to be equipped with an automatic, fluid-level activated pump located between the top and bottom liners. The pump will be sized to sufficiently remove fluids to minimize head on the bottom liner. The LDRS sumps will remove fluids from potential leaks in the top liner via the geonet material located between the two geomembranes to allow fluid to the sump. Drawings EGHLF-XD-07-01 through EGHLF-XD-07-04 present the LDRS sump and pipework design details for the Event Pond. Appendix F of the design report (BGC 2018) presents the liner leakage and sump sizing calculations and establishes alert levels for operational monitoring of the LDRS flows.

3.0 LINER LEAK TESTING PROCEDURE

In addition to the specified field seam testing of the geomembrane, the geomembrane installer is required to water test the top geomembrane installed in the ponds prior to acceptance by the engineer (BGC) and owner (StrataGold).

Alert leakage levels for the ponds have been updated to reflect the as-built conditions. The low alert level (Alert Level 1, or AL1), is based on the small defect leakage rate, which is intended to represent the leakage rate expected from geomembranes installed with strict construction quality assurance. The AL rates vary with the pond level since the hydraulic head dictates the rate of leakage through a hole or seam defect. Tables 1 presents the alert levels calculated for a range of pond elevations.

Alert Level 1 (AL1) will be used as a threshold for the leak testing. The appropriate threshold is determined based on the actual pond level. The project specifications require the Event Pond to

be hydrotested to 3m above the LDRS level which is elevation 882.5. For an Event Pond level of 882.5m, a threshold leakage rate of 3,339 L/day was selected.

The proposed procedure involved monitoring via pumping out the pond's leak detection system (LDRS) over a period of time. However, the procedure was modified to rely mainly on monitoring the LDRS sump head levels due issues encountered with the pump safety cutoff causing unreliable flow volume monitoring. A Geokon vibrating wire piezometer (accurate to 1mm) was installed in the inclined LDRS riser pipe to measure changes in head level during the leak test. This data was used to estimate the leakage rate by converting head changes to leak volume based on the as-built size of the sump and the lab-tested porosity of ODF drainage gravel in the sump.

The following information was recorded to document the liner leak testing:

- Surveyed pond water level at start and end of test period
- Water elevation and head pressure levels in the LDRS sump

BGC measured the LDRS sump head level via the transducer at 10-minute intervals over a 24-hour period. The LDRS sump was not pumped out during this period. Event Pond level survey data was provided by JDS.

4.0 LINER LEAK TESTING RESULTS

The leak test was started on April 30, 2019 with the pond level at 882.48m. The results indicated a calculated leak rate of 625 L/day measured over a 24-hour period. This rate is below the allowable rate of 3,339 L/day (see Table 1) based on the established Alert Level 1 rate for pond elevation of 882.5m. The full set of results for the leak test is presented in Attachment A.

Table 1 – Event Pond Alert Levels

Elevation	Contour Area	Incremental Volume	Cumulative Volume	Alert Level 1
m	m2	m3	m3	L/day
882	10125	0	0	-
882.5	11142.5	5317	5317	3,339
883	12160	5826	11143	4,721
883.5	13202.5	6341	17483	5,783
884	14245	6862	24345	7,822
884.5	15312.5	7389	31734	8,745
885	16380	7923	39658	11,016
885.5	17472.5	8463	48121	11,898
886	18565	9009	57130	14,417

5.0 CLOSURE

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Yours sincerely,

BGC ENGINEERING INC.



Troy Meyer, P.Eng.
Principal Geotechnical Engineer

Attachment A

Eagle Gold Project
Event Pond Liner Leak Test

Approx. LDRS Sump Pore Volume =	60	cu.m.			
	60,000	litres			
Estimated Pump Capacity =	3.5	litres/sec	Bottom LDRS Sump =	879	m
Time to Evacutate LDRS Sump =	5	hrs	Bottom Pond Sump =	879.5	m

Date	Time	Time Between Readings (hours)	Total Time (hrs)	Transducer Reading (m)	Elevation of Water in LDRS Sump (m)	Elevation of Water in Pond (m)	Estimated Leak Rate L/day [1]	Allowable Leak Rate L/day [2]	Pass/Fail[3]
4/30/2019	9:30			0.363	879.36	882.48			
4/31/2019	9:30	24.00	24.00	0.3679	879.37	882.48	625	3339	Pass

Notes:
1) Leak rate estimated from change in head level in LDRS sump measured by transducer.
2) From BGC Memo "Liner Leak Testing Procedure - Draft" dated March 12, 2019, varies with PLS head level.
3) Official "Pass" is for a 24 hour static test. Unofficial checks are noted as "Ok" if below the Action Rate 1 for durations less than 24 hours.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Project Memorandum

To:	**Strat Gold**	**Doc. No.:**	**FM-016**
Attention:	**Mark Ayranto**	**cc:**	
From:	**Roy Morlan**	**Date:**	**May 18, 2019**
Subject:	**Liner Leak Test**		
Project No.:	**0792023.02**		

1.0 INTROCUTION

The purpose of this memorandum is to provide a summary of the liner leak testing and results for the Heap Leach Facility (HLF) In-Heap Pond and Event Pond. The liner system comprises two layers of LLDPE geomembrane liners with a leak detection and recovery system (LDRS) between the liners to convey any leakage flows to a low point (sump) for monitoring and removal. The leak test involved hydrostatic testing of the upper liner with water while monitoring the LDRS sump.

2.0 LINER LEAK TESTING PROCEDURE

Field quality assurance / quality control (QA/QC) testing of the geomembrane are required throughout installation on a frequency established in the project Technical Specifications. Additionally, the geomembrane installer is required to water test the top geomembrane installed in the ponds prior to acceptance by the engineer (BGC) and owner (StrataGold).

A monitoring alert level was developed for the In-heap Pond and Event Pond based on the estimated small defect leakage rate through the top liner, which is intended to represent the leakage rate expected from geomembranes installed with strict construction quality assurance. This allows the operator to compare leakage rates during operations to a threshold which is considered acceptable. The appropriate alert level threshold is determined based on the actual pond level.

The procedure involved pumping water into the pond and monitoring the LDRS sump head levels. A vibrating wire piezometer or a transducer was used in the inclined LDRS riser pipes to measure changes in head level during the leak tests. This data was used to estimate the leakage rate by converting head changes to leak volume based on the as-built size of the sump and the lab-tested porosity of ODF drainage gravel in the sump.

3.0 LINER LEAK TESTING RESULTS

The In-Heap Pond leak test was started on April 14, 2019 with the In-Heap pond level at 918m. The initial tests were above the alert level threshold. The In-Heap pond was then lowered to inspect for holes and damage. Two damaged areas were identified and repaired:

- Elevation 916.5m damage – apparent welder burnout and cut.
- Elevation 915.5m damage – apparent equipment damage.

These issues were repaired and QC testing was performed on the repairs per the Technical Specifications. An unofficial 5-hour duration leak test was performed at In-Heap pond elevation 915m and results were below the alert level threshold. The liner surface between 915 and 918m was also washed and re-inspected for damage. A few small dents and scratches were found and repaired but no additional holes in the liner were found. The PLS pond was raised to elevation 918m for an official leak test. The results were below the alert level resulting in a passing test.

The Event Pond liner leak testing began on April 30. Before testing the liner was inspected and minor scratches and dents were repaired. The water level in the Event Pond was raised to elevation 882.5m for an official leak test. The results were below the alert level resulting in a passing test.

4.0 CLOSURE

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Field Memorandum
FM-017

To:	**Jean-Francois Maille**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0972023**
From:	**Troy Meyer (BGC)**	**Date:**	**May 26, 2019**
Copied:	**Roy Morlan (BGC)** **Steve Wilbur (StrataGold)**	**Record:**	**FM-017**

Re: In-Heap Pond and Event Pond Spillways

Design drawings EGHLF XD-07-04 through XD-07-06 and XD-08-01 through 08-03 presents the HLF and Event Pond spillway plans and details. The design incorporates concrete box culverts to convey flows from the HLF in-heap pond to the spillway leading to the event pond and an emergency spillway from the event pond to environment. This memo presents the hydraulic analysis to support alternate materials for the culverts and spillway lining.

The project EPCM (JDS) requested evaluation of an alternate conveyance to replace the concrete box culverts and alternate spillway lining to replace the Fabriform liner. BGC evaluated corrugated metal pipe (CMP) culverts and high-density polyethylene (HDPE) culverts of varying shapes (round, arched, etc). The preference from a construction standpoint was round HDPE as it allows a sealed connection to the geomembrane liner and from an engineering standpoint for the lower Manning's value. The round culverts were evaluated using HY-8 hydraulic software for the design peak PMF flow rate of 14.2 cubic meters per second (cms). The results indicate five (5) HDPE culverts of 1200mm diameter would carry the flow with 0.5m residual freeboard with a pipe invert of Elevation 937.5m. The design invert for the box culvert was 938.0m. The lower invert elevation was discussed with StrataGold and approved by Mark Ayranto. Details for liner tie-in and transition to the spillway will be provided in a separate submittal. A Manning's value of 0.012 was used for the HDPE pipe. Figure 1 presents the culvert hydraulic analysis graphical results and Figure 2 present the tabular output.

The construction drawings for the HLF indicate Fabriform lining of the HLF and event pond spillways. However, the design report provided a technical evaluation of alternate lining materials for the spillways, including concrete cloth. The evaluation concluded that concrete cloth would be a suitable alternative if properly anchored. A preliminary anchoring design was provided. This memo presents further analysis of concrete cloth to optimize the channel dimensions of the spillways. A Manning's value of 0.011 was used for the concrete cloth, per the manufacturer's recommendations. Attachment A presents the spillway hydraulic analysis results from the HY-8

model for the in-heap pond and event pond spillways. Peak flow rates of 14.2 cms and 5.4 cms were used for the in-heap pond spillway and event pond spillway, respectively, based on the design criteria from the BGC design report. Attachment B presents the selected concrete cloth information. Based on calculations by the manufacturer representative, the CC8 (8mm thick) material was required for the in-heap spillway and CC13 (13mm thick) material was required for the emergency spillway and on the drivable swales. The above referenced design drawings were revised to reflect these changes and are included in Attachment C.

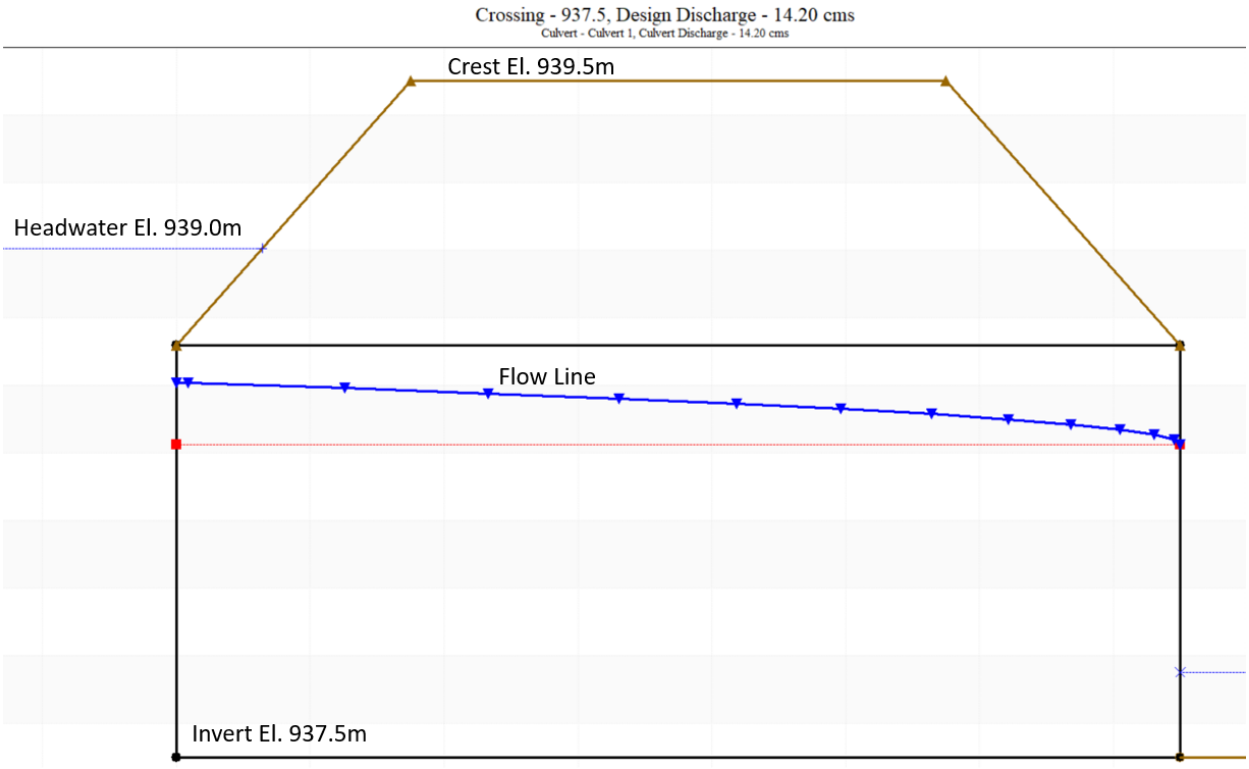


Figure 1 – Culvert Hydraulic Model Results

Headwater Elevation (m)	Total Discharge (cms)	Culvert 1 Discharge (cms)	Roadway Discharge (cms)	Iterations
938.55	8.00	8.00	0.00	1
938.62	9.00	9.00	0.00	1
938.70	10.00	10.00	0.00	1
938.77	11.00	11.00	0.00	1
938.84	12.00	12.00	0.00	1
938.92	13.00	13.00	0.00	1
938.99	14.00	14.00	0.00	1
939.01	14.20	14.20	0.00	1
939.15	16.00	16.00	0.00	1
939.23	17.00	17.00	0.00	1
939.30	18.00	18.00	0.00	1
939.50	20.31	20.31	0.00	Overtopping

Figure 2 – Culvert Hydraulic Model Results

ATTACHMENT A

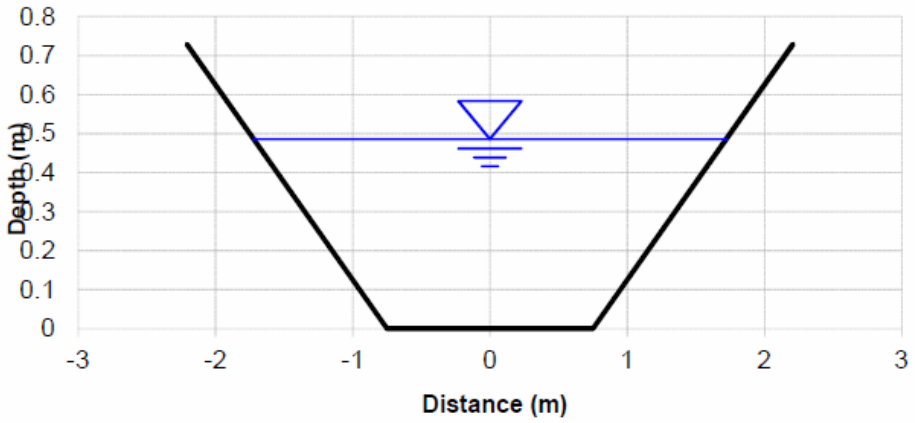
SPILLWAY HYDRAULIC ANALYSES RESULTS

Trapezoidal Channel Manning's Calculator

Project: Eagle Gold
Description: In-Heap Pond Spillway

Solve for: Channel Depth
Units: Metric

Mannings Coefficient:	0.011		
Channel Slope:	0.0750 m/m		
Depth:	0.49 m		
Left Side Slope:	2.00 H:V		
Right Side Slope:	2.00 H:V		
Bottom Width:	1.50 m		
Discharge:	14.20 cms		
		Flow Area:	1.20 sq m
		Wetted Perimeter:	3.67 m
		Top Width:	3.44 m
		Critical Depth:	1.27 m
		Critical Slope:	0.0014 m/m
		Velocity:	11.82 m/s
		Velocity Head:	7.12 m
		Specific Energy:	7.60 m
		Froude Number:	6.39
		Flow Type:	Supercritical



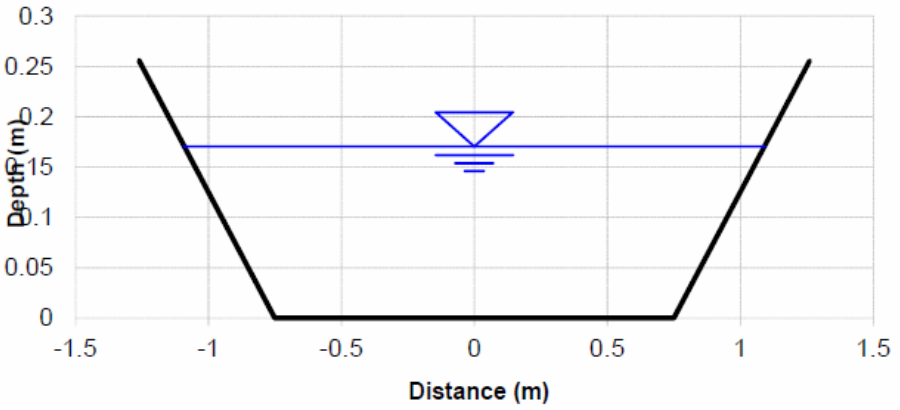
Trapezoidal Channel Manning's Calculator

Project: Eagle Gold
Description: Event Pond Spillway

Solve for: Channel Depth
Units: Metric

Mannings Coefficient:	0.011	
Channel Slope:	0.5000	m/m
Depth:	0.17	m
Left Side Slope:	2.00	H:V
Right Side Slope:	2.00	H:V
Bottom Width:	1.50	m
Discharge:	5.40	cms

Flow Area:	0.31	sq m
Wetted Perimeter:	2.26	m
Top Width:	2.18	m
Critical Depth:	0.78	m
Critical Slope:	0.0016	m/m
Velocity:	17.22	m/s
Velocity Head:	15.12	m
Specific Energy:	15.29	m
Froude Number:	14.50	
Flow Type:	Supercritical	



ATTACHMENT B

CONCRETE CLOTH INFORMATION

Milliken Infrastructure Solutions

Concrete Cloth™

Geosynthetic Cementitious Composite Mat

STORM + SANITARY | BRIDGES + ROADWAYS | OIL, GAS + INDUSTRIAL



The Concrete Cloth™ material is a three-dimensional flexible cement impregnated fabric that hardens after hydration to form a durable concrete layer. Classified as a Geosynthetic Cementitious Composite Mat (GCCM), it is used in a variety of civil infrastructure markets including: transportation, oil & gas, stormwater, landfill, mining, and erosion control. Typical applications for use are ditch lining, slope stabilization, shoreline armor, secondary berm protection, culvert invert protection, and geosynthetic liner protection.

	MAN PORTABLE BATCH ROLLS				BULK ROLLS			
Product	**Roll Width ft (m)**	**Roll Length ft (m)**	**Roll Area ft² (m²)**	**Average Unset Roll Weight lb (kg)**	**Roll Width ft (m)**	**Roll Length ft (m)**	**Roll Area ft² (m²)**	**Average Unset Roll Weight lb (kg)**
CC5	3.63 (~1.1)	30.0 (~9.1)	108.9 (~10.1)	~140 (~64)	3.63 (~1.1)	600.0 (~182.9)	2175.0 (~202)	~2800 (~1270)
CC8	3.50 (~1.1)	20.0 (~6.1)	70.0 (~6.5)	~150 (~68)	3.50 (~1.1)	400.0 (~122)	1400.0 (~130)	~3000 (~1360)
CC13	Not Available				3.60 (~1.1)	239.0 (~72.8)	860.4 (~80)	~3355 (~1520)

Standard production size information is subject to change without notice. Please contact your Milliken representative or distributor on exact roll size quotes (sales based on ft²).
All test data are typical minimum values unless otherwise noted.

Dimensional Parameters

Product	**Thickness in (mm)**	**Dry Weight lb/ft² (kg/m²)**	**Cured Weight lb/ft² (kg/m²)**
CC5	0.2 (5)	1.3 (6.3)	1.7 (8.5)
CC8	0.3 (8)	2.2 (10.6)	2.8 (14.2)
CC13	0.5 (13)	3.7 (18.0)	5.0 (24.3)

Listed weights are minimum values. Actual product weight may exceed these values.

Tensile Strength: ASTM D-5035

Product	**Working Strength lb/ft² (kg/m²)**		**Ultimate Strength lb/ft² (kg/m²)**	
	Length	**Width**	**Length**	**Width**
CC5	60 (10)	20 (3.5)	140 (24)	50 (8.5)
CC8	85 (15)	25 (4.4)	190 (33)	100 (17)
CC13	150 (26)	90 (16)	190 (33)	110 (19)

Puncture Resistance: ASTM D-6241

Product	**Puncture Strength lb (kg)**
CC5	350 (160)
CC8	500 (225)
CC13	720 (325)

CC13 has also passed ASTM G-13 (Impact Resistance of Pipeline Coatings).

Permeability

- Coefficient of Permeability 2x10-11 m/s (CC8)

  Permeability of joints will vary dependent on the jointing method, consult Milliken Infrastructure Solutions or your distributor for more information.

Set Time: ASTM C-807

- Initial Set: 120 min
- Final Set: 240 min

  CC will achieve ~70% strength 24hr after hydration. Working Time 1-2 hrs after hydration.

Flex Strength: ASTM C-1185

- 7 Day Minimum: 475 psi (3.3 MPa)
- 7 Day Modulus Minimum: 26,000 psi (180 MPa)

Compressive Strength of Cement: ASTM C-109

- 3 Day Minimum: 4000 psi (27 MPa)

Taber Abrasion: ASTM C-1353

- Approximately 7.5x Greater than 2500 psi OPC

Freeze Thaw: ASTM C-1185

- 200 Cycles - Pass

Flame Resistance: MSHA ASTP-5011

- Vertical and Horizontal Certification

Manning's n Value: ASTM D-6460

- n=0.011

Permissible Shear & Velocity CC5: ASTM D-6460

- Shear <25 lb/ft2 (1200 Pa)
- Velocity <35 ft/sec (10.7 m/s)

Product Exceeded Large Scale Testing Capabilities and was not tested to failure.

To actually achieve these permissible values, the CC material must be properly anchored with a system designed to meet or exceed these values.

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Milliken® Infrastructure Solutions

Concrete Cloth™

Geosynthetic Cementitious Composite Mat

STORM + SANITARY

BRIDGES + ROADWAYS

OIL, GAS + INDUSTRIAL

Composition

Concrete Cloth GCCM is a three-dimensional flexible cement impregnated fabric that hardens after hydration. The material has a top surface fabric through which water will penetrate during hydration and a bottom surface consisting of a PVC membrane that acts as permeable barrier.

Characteristics

The dry density of the product before hydration is approximately 95 lbs/ft3 (1500 kg/m3). Upon complete hydration the density increases between 30-35% to approximately 125 lbs/ft3 (2000 kg/m3). The exact density will depend slightly on the thickness of material and the relative proportion of PVC membrane to cement.

Storage & Handling

Concrete Cloth matting is sold in three (3) thickness. Standard roll sizes referred to as Bulk or Batch rolls are noted in the product table on the proceeding page. Bulk rolls will be shipped a single roll to a pallet, Batch or Custom rolls maybe shipped multiple stacked rolls to a pallet.

It is important to check the wrapping when the Concrete Cloth rolls arrive on the jobsite. Unopened packages can be stored in a dry location, off the ground, and away from moisture for up to one year. Any damage to the packaging should be repaired prior to storage using plastic wrap and tape to protect the Concrete Cloth GCCM from premature hydration.

Batch rolls are designed to be able to lift by two (2) persons. Bulk rolls will require additional handling equipment rated for the weight of the rolls. Use of a load rated spreader bar is recommended.

Subgrade Preparation

Concrete Cloth matting will generally take the shape and structure of the surface to which it is applied and imperfections in the subgrade will be visible. It is necessary that a compact and smooth subgrade be prepared to engineering specifications prior to placement. Subgrade should be prepared to the lines and tolerances of the engineering drawings for the installation. It should be clear of surface vegetation and debris. To the extent possible Concrete Cloth materials should be in direct contact with the subgrade to which it is being applied.

Installation

Concrete Cloth matting is often overlapped to create joints so installation will typically begin at the lowest point of the project and proceed up the grade. A shingled installation overlapping the rolls is used to reduce any water seepage between the overlapped rolls.

The Concrete Cloth material is designed such that the PVC back of the material will be against the subgrade in most applications. This side is water resistant and will not allow subsequent hydration if the material is installed upside down. The PVC back side is identifiable as the side with a continuous film. It is packaged such that the PVC back will be on the outside of the roll. For this reason it is important when placing Concrete Cloth materials to let the fabric off from the bottom side of the roll.

Temporary anchoring may be used on the leading edge of roll to prevent unrolling. In applications where long lengths will be let off the roll, it is good practice to allow several feet of extra material on the down-slope side of the install to allow for migration of the material in the direction of equipment movement.

After installation of the first roll or cut piece, the leading edge of the second roll or cut piece will typically be shingled over the first. If shingling is not possible, other jointing can be used. Please consult the detailed Concrete Cloth Installation Guide for further details.

Cutting

Concrete Cloth matting is designed to be cut with commonly available cutting tools. A box cutter or razor knife is generally acceptable and rotary cutters are more efficient. Always cut the material from the fabric (top) side down to minimize tearing of the PVC membrane. When possible, use a straight edge. Always wear proper hand PPE when working with cutting tools.

Overlap and Jointing

Four (4) inch overlap is typically recommended for shingling. The most common joint is an overlapped screw joint. A stainless steel #12 screw (coarse threads) is recommended 4-18 inch (typical 6) on center at least 1 inch from the overlap edge. Consult the Installation Guide for additional jointing recommendations.

Anchoring

Along all exterior edges (top, bottom & sides) of the Concrete Cloth installation, it is recommended to install a toe-in trench (minimum of 6 inches in depth) to resist migration of surface water between the Concrete Cloth material and the subgrade. The trench may vary based on the recommendation of a certified design engineer.

Some slopes, soil types and applications may require anchors or nails to stabilize the underling soil mass against internal instability. Concrete Cloth matting may be used as the non-structural facing treatment when internal anchorage conditions are required. Anchors may be installed first or the anchors can be inserted through the cloth.

Hydration

Complete hydration is critical to optimal performance. The Concrete Cloth product cannot be over hydrated and over watering is recommended. Any water source is acceptable in most circumstances.

Saturate the top surface. This will take multiple passes of a moderate spray of water from a garden hose or other source. More water will be needed as the slope of the install increases.

Insure that the material has been saturated by means of the “thumb test”, by pressing a thumb to observe water pooling at the indention.

Wait 30-60 minutes and then put a final dose of water on the material to ensure complete hydration.

The material can also be hydrated by submersion for 5-10 minutes but will only have a 1-2 hour working time after hydration.

Do not jet high pressure water directly onto the surface. Do not hydrate if temperature is likely to fall below 25F (-4C) within 24hrs of initial hydration. Do not install on frozen ground. Consult the Installation Guide for additional details and pictures.

Health & Safety

The material contains cement powder which is alkaline and may cause skin irritation. Always wear proper PPE and consult the SDS for additional information.

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HYDRAULIC ANALYSIS REPORT

Client:	Nuna Innovations Inc
Project:	Eagle Gold, Yukon, Canada
Calculations for:	Hydraulic Loading on Concrete Canvas Channel
Project Number:	

Document Issued To:	Issue Purpose/Remarks:	Revision	Created By:	Checked By:	Date:
Nuna Innovations Inc	Preliminary – Not For Construction	0	LKC		13/03/19

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Currently this project has been logged as Technical Advice Only (No Design Liability). Therefore, the proposal, recommendations or advice provided has not been checked and should be considered as preliminary, no responsibility whatsoever can be accepted by Concrete Canvas Ltd.

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Project:	Calculations For:	Project No:	Created By:	Checked By:	Date:	Rev.:
YUKON	Hydraulic Loading	1903-NA-YUKON	LKC		13/03/19	0

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1.0 Brief
2.0 Information Received
3.0 Analysis Parameters
4.0 Analysis
5.0 Summary
6.0 Additional Considerations

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1.0 Brief

Concrete Canvas Ltd was requested by Nuna Innovations Inc to use our in-house hydraulic analysis to provide recommendations/advice on the requirement for intermediate fixings to resist hydraulic shear forces for the proposed Concrete Canvas (CC) channel lining works at the Eagle Gold Mine, Yukon, Canada.

2.0 Information Received

- Email from Ron Drewry (Nuna) to Phill Greer (CC Ltd) 28/02/19 containing spreadsheet '20190221-R3-Spillway Concrete Cloth Takeoff'

This spreadsheet contains the following information:

- Tables with information on the channel and spillway lengths and CC material takeoffs
- BGC cross sections
- Channel plan drawings from chainages 0+51.5m to 0+534m and the emergency spillway.

The email correspondence includes comments from Matt Coverdale (JDS Energy & Mining Inc) :

- The cross-section from Station 1+00 to the end has a maximum water level of 0.8m and from Station 0+60 to 0+90 has a maximum water level of 0.5 m. I am assuming that station 1+00 to the end is the 7.5% slope and Station 0+60 to 0+90 is the 15% slope, is that correct? If so, the relative shear force in English units for Station 1+00 to the end is 12 lbs/ft2 and the other section is 15.0 lbs/ft2. Their would be an energy jump causing more turbulence which I think you might be over stressing CC-8. I would suggest CC-13 if the budget allows it to protect this situation and provide additional abrasion strength and last longer and is more forgiving to other potential issues such as weak soils that Concrete Cloth will be deployed directly on. Let me know if you need any other assistance. I would suggest if percussion anchors are to be used (which I would strongly recommend) to have the washer seal that seals up the slit caused by the installation of the anchor head.

Note: not data has been provided for the emergency spillway so this has not been included in the analysis.

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3.0 Analysis Parameters

Parameters determined from Information provided:

- Slope gradients from station 0+60 to 0+90 is 7.5% and for station 1+00 to the end is 15% (From correspondence)
- Water depth from station 0+60 to0+90 is 0.5m and for station 1+00 to the end is 0.8m (From correspondence)
- Invert width is 1.5m (from BCG sections)
- Channel side slopes to be 2(H):1(V) (from BCG sections)
- Radius of Curvature is 21m for station 0+60 to 0+90 and 42m for 0+416 to 0+534 (inferred from channel plan drawings), all others are straight
- Options for CC8 for a 7.5% slope and CC13 material for a 15% slope.

Assumptions by CC Ltd:

- CC Installation Layup: Transverse
- Anchor Type: Earth Percussion Anchors with minimum 100mm diameter anchor plate
- CC to be placed on low shear strength soils with an angle of internal friction (Phi) of 20°
- 0.5m water depth for all other channels

The designer must ensure that all assumptions and parameters comply with those found on site. Please report any discrepancies and CC Ltd can review the analysis

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4.0 Analysis

Channel sections were analysed using CC Ltd's in house Hydraulic Calculator.

The active forces of CC self-weight and hydraulic shear due to the head of water is compared with the frictional shearing resistance between the CC and the underlying soil substrate. The results are used to determine if any hydraulic fixings are required, and if so, the density that is needed to resist the shear forces based on a specified anchor plate diameter.

The following table is a summary of the analysis results:

Run	Slope	CC type	RoC used (m)	Required Shear Stress by Fixings (Hydraulic shear minus Frictional shear) (kN/m^2)	Required min. Fixing Density ($number/m^2$)
0+51.5 to 0+60, **0+90 to 0+100**, **0+100 to 0+416** and **1+00 to END**	7.5%	CC8	No Curvature	**-0.621**	**Not Required**
	15%	CC13	No Curvature	**-0.231**	**Not Required**
0+60 to 0+90	7.5%	CC8	21	**-0.472**	**Not Required**
	15%	CC13	21	**+0.068**	**0.065**
0+416 to 0+534	7.5%	CC8	42	**-0.603**	**Not Required**
	15%	CC13	42	**-0.194**	**Not Required**

*Please note that turbulent flow is not considered in the analysis. Additional shear resistance may be required to resist turbulent flow conditions.

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5.0 Summary

The analysis demonstrates that based on the input parameters considered and under uniform flow conditions, the majority of the proposed channel should not require additional anchorage to resist the hydraulic conditions, with the exception of station 0+60 to 0+90 for CC13 used on slopes of 15%, which will require earth percussion anchor fixings at a density of 0.065 per square metre.

It is recommended to install earth percussion anchors through overlap joints, which are at 1m centres when CC8 and CC13 material is installed in a transverse layup.

Assuming the channel length is in the x direction and cross channel width is in the y direction, if a fixing is installed in every overlap joint (x=1) the number of anchors required per overlap joint is calculated as follows:

Y=1/(x*Min. Required Fixing Density)
Y=1/(1*0.065) =15m

For the channel at station 0+60 to 0+90, the total wetted cross channel width is 1.1mx1.5mx1.1m=3.7m which is less than 15m.

Therefore, one fixing through every overlap joint will be sufficient to resist the forces calculated in the analysis and provide a factor of safety of approximately 4 (15/3.7).

If the designer considers this factor of safety to be too conservative, the spacing of the earth percussion anchors can be rationalised to reduce the quantity that need to be installed. By specifying an anchor through every other overlap joint (x = 2m) the resulting a factor of safety for anchor density is approximately 2.

The two options considered above are summarised in Figure 1. The fixing spacing can be economised further, but CC Ltd recommend a maximum fixing spacing in the x direction of 4m to prevent a build-up of shear force between fixings.

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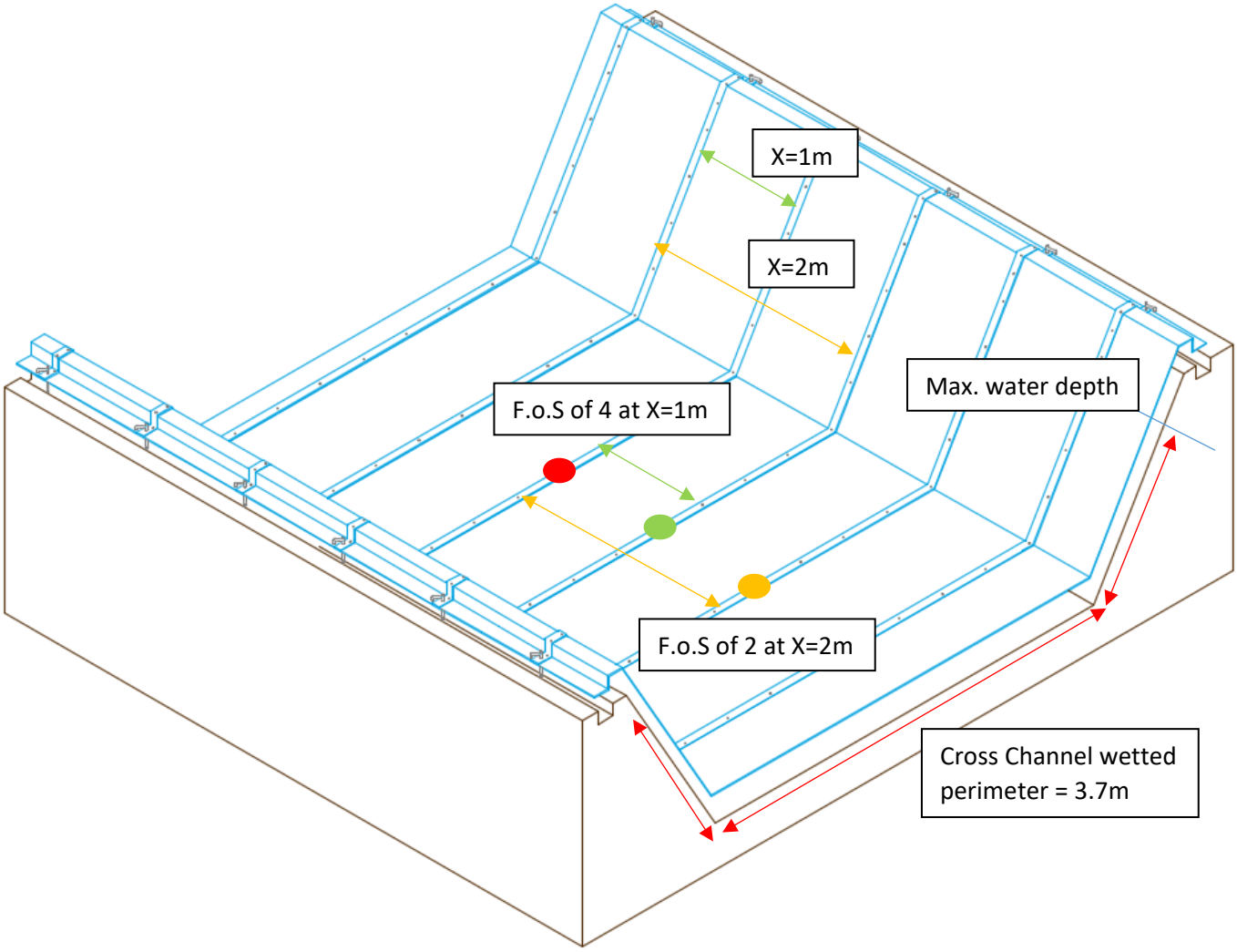


Figure 1. Illustration of the Factor of Safety of earth percussion anchors at 1m and 2m spacings

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6.0 Additional Considerations

6.1 Reliability of Information

This analysis report has been produced using the methodology detailed above. However, it should be noted that it has been generated from information provided to CC Ltd which has not been independently verified and may contain assumptions and inaccuracies regarding hydraulic and other parameters. This report is provided to assist the designer in considering the requirement for fixings to resist hydraulic forces. The designer should satisfy themselves on the fixings required and specify these under their indemnity insurance.

6.2 Anchor Trenches

As with all erosion control mats, in order to prevent water ingress and undermining of the CC material, the edges need to be buried in anchor trenches. All perimeter edges should be buried to prevent water ingress and undermining. This is typically in 300mmx300mm anchor trenches which are concrete backfilled.

6.3 Check Slots

Concrete Canvas acts as an impermeable erosion control layer, channelling flowing water along the surface of the material. A fundamental design consideration is that water is cannot flow beneath the material, which would create dynamic loading and potentially displace CC layers. Water flow beneath the CC can typically be prevented by burying all perimeter edges in backfilled anchor trenches as detailed above and shingling overlapped layers in the direction of water flow to prevent ingress. However, conditions may occur where the water can flow beneath the CC layer, for example if the material is damaged by puncture due to debris impact. Channels may be located alongside stockpiles of large boulders, which may become dislodged and fall into the channel. If this occurs, it may be possible for large impacts to punch a hole through the CC (although it should be noted that CC has a far superior puncture resistance compared to other geomembranes). A hole in a CC layer could allow water ingress, cause dynamic loading and uplift, unzipping the CC layers. The likelihood of occurrence is dependent on the amount of debris that could enter the channel and the impact energy. If the likelihood of severe debris impact or the consequence of unzipping is high, a client may wish to limit the extent by which an unzipping can occur (and therefore commercial risk to repair) by introducing check slots into a channel. A check slot is essentially a mid channel concrete filled anchor trench which divides the channel into smaller sections, such that if a dynamic failure were to occur the quantity of material damaged is limited to an acceptable commercial value as determined by the client.

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Section of channel at risk of boulder impact and potential damage



Check slot being installed in channel

The client they may wish to limit the potential for unzipping as a result of future dynamic failure in high risk sections of channel, such as for steep hydraulic gradient sections of channel or sections with a radius of curvature. If check slots are incorporated, the spacing should be determined by the client as a balance between an increase in the initial installation cost and reduction of potential future repair cost if unzipping were to occur. In an example case study at Myra Falls check slots were installed at 30m centres as the likelihood of trees or boulders falling from the mountainside was high, but for other projects the check slots were spaced to limit potential risk to one full roll of CC material.

Design Statement:

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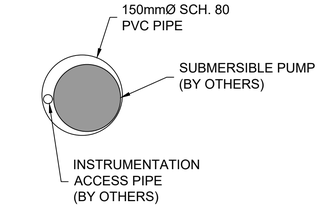
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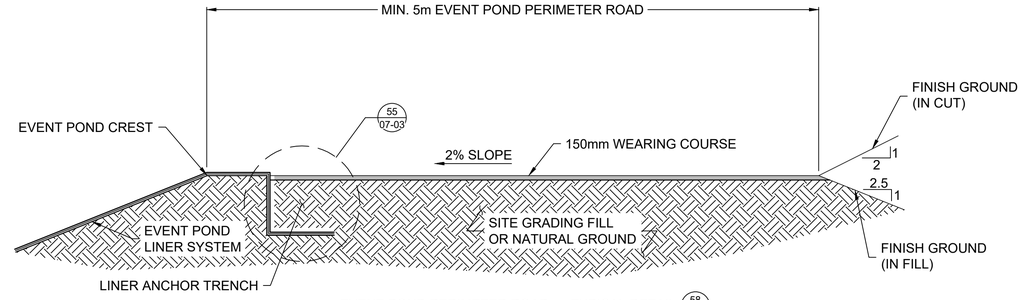
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REVISED DESIGN DRAWINGS



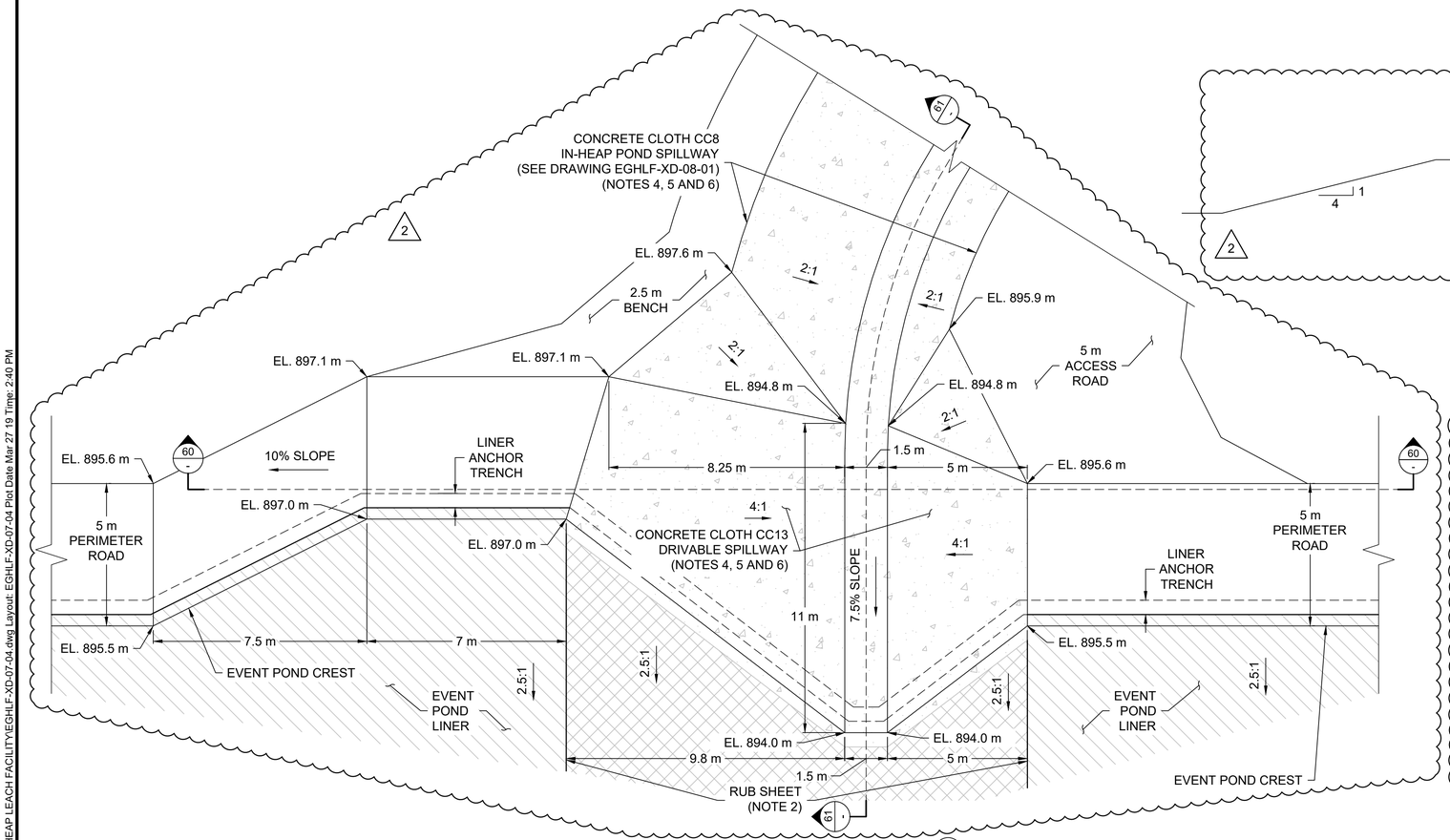
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SCALE = N.T.S.



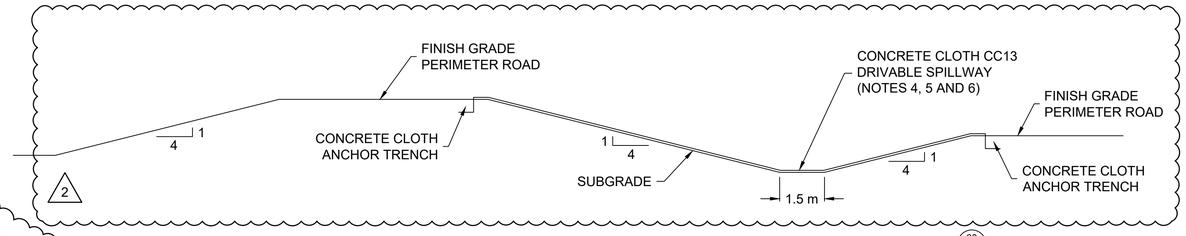
EVENT POND PERIMETER ROAD – TYPICAL DETAIL (58 / 07-02)

SCALE = N.T.S.



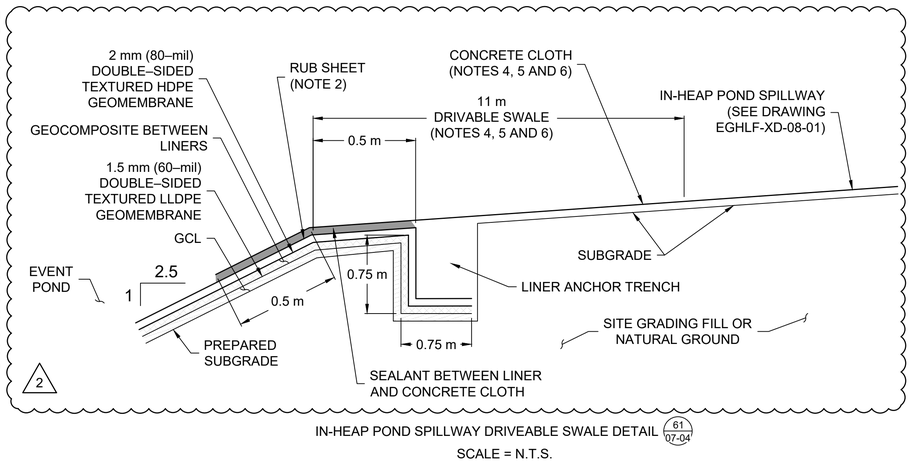
IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (59 / 07-01)

SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (60 / 07-02)

SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (61 / 07-04)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL CONSIST OF A DOUBLE LAYER OF 2 mm (80-mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO LINER BELOW SPILLWAY.
3. ALL ELEVATIONS SHOWN ON THIS DRAWING REPRESENT FINISHED GRADE.
4. APPLY SPILLWAY GEOMETRY FROM DETAIL AC ON 08-01 ABOVE DRIVEABLE SPILLWAY.
5. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND CC8 WHERE VEHICLES WON'T TRAVEL.
6. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

2

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	27	DAG	TLM	MEH	TLM	REVISE DETAILS 60, 61. ADD GEOMEMBRANE.
2	19	03	27	DAG	TLM	RM	TLM	REVISE DRIVEABLE SPILLWAY MATERIAL AND DESIGN

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EVENT POND DETAILS
SHEET 2 OF 2

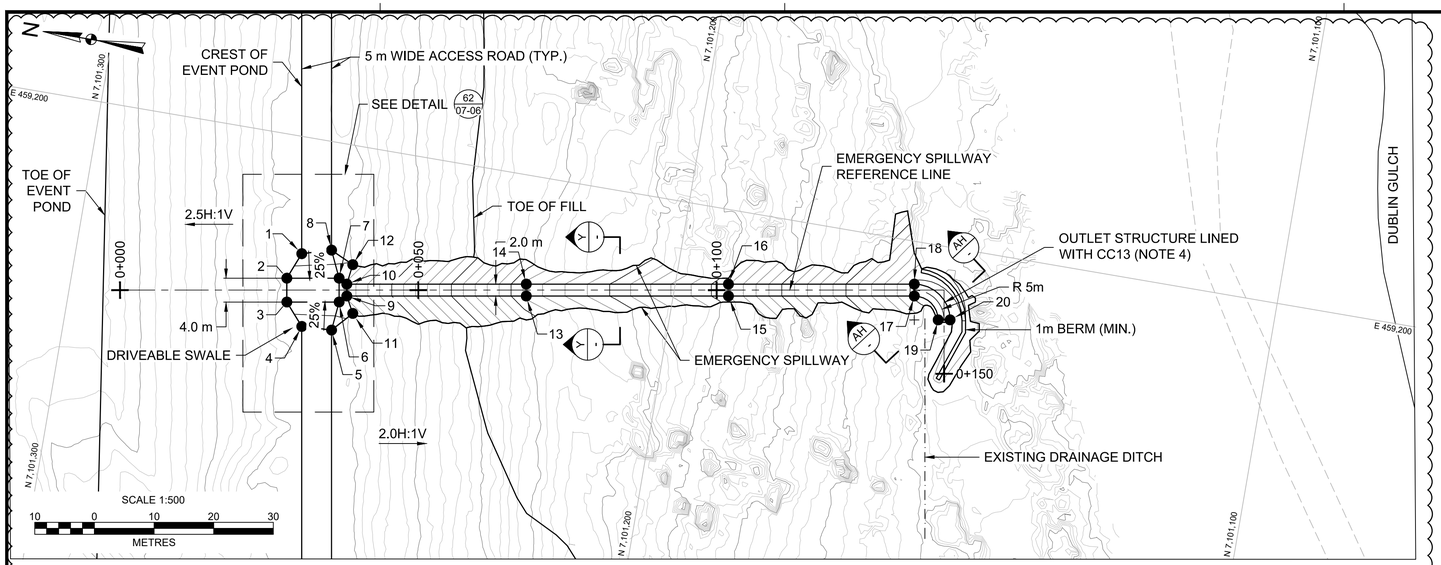
SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-07-04	2

ISSUED FOR CONSTRUCTION

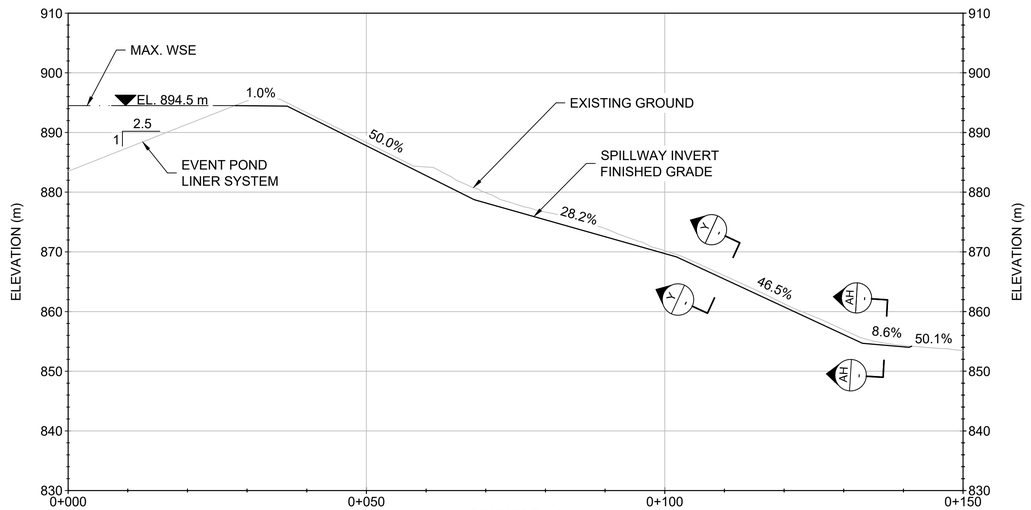
THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

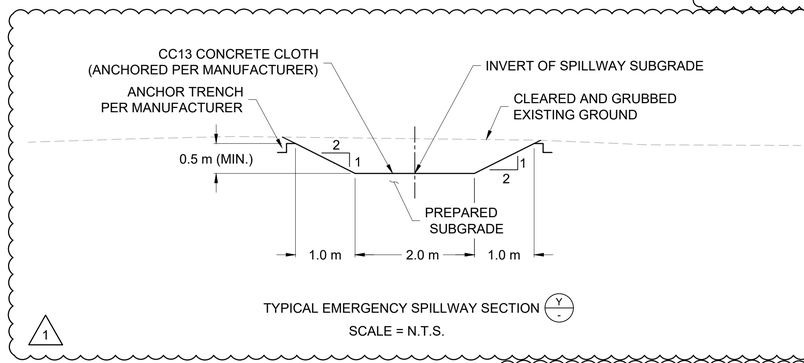
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EVENT POND EMERGENCY SPILLWAY FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,180.6	7,101,262.6	895.5	CREST
2	459,176.1	7,101,264.3	894.5	CREST
3	459,172.2	7,101,263.7	894.5	CREST
4	459,168.6	7,101,260.5	895.5	CREST
5	459,168.8	7,101,255.5	895.6	CREST
6	459,173.7	7,101,255.0	894.4	TOE
7	459,177.6	7,101,255.7	894.4	TOE
8	459,182.0	7,101,257.7	895.6	CREST
9	459,174.9	7,101,253.9	893.8	TOE
10	459,176.8	7,101,254.3	893.8	TOE
11	459,172.2	7,101,252.4	894.7	CREST
12	459,180.2	7,101,253.8	894.9	CREST
13	459,179.9	7,101,224.3	878.7	TOE
14	459,181.9	7,101,224.6	878.7	TOE
15	459,185.7	7,101,190.9	869.2	TOE
16	459,187.6	7,101,191.2	869.2	TOE
17	459,190.9	7,101,160.2	854.7	TOE
18	459,192.9	7,101,160.5	854.7	TOE
19	459,187.7	7,101,155.5	854.0	TOE
20	459,188.0	7,101,153.6	854.0	TOE

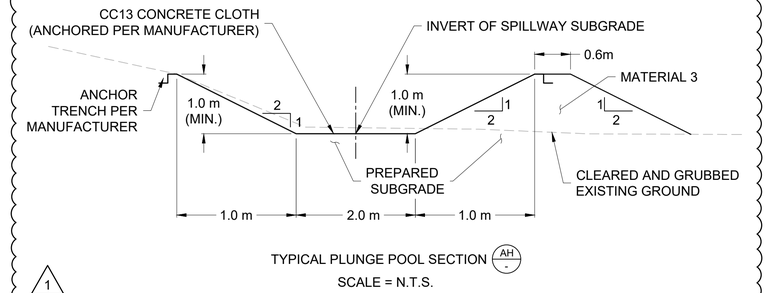


EMERGENCY SPILLWAY REFERENCE LINE PROFILE



TYPICAL EMERGENCY SPILLWAY SECTION (Y)

SCALE = N.T.S.



TYPICAL PLUNGE POOL SECTION (AH)

SCALE = N.T.S.

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL Y TO AH AT STA. 1+31.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG ENTIRE SPILLWAY PROFILE.
4. CONCRETE CLOTH SHALL BE FIXED WITH TWO ANCHORS PER JOINT IN THE CHANNEL AND SIX ANCHORS PER JOINT IN THE OUTLET STRUCTURE. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

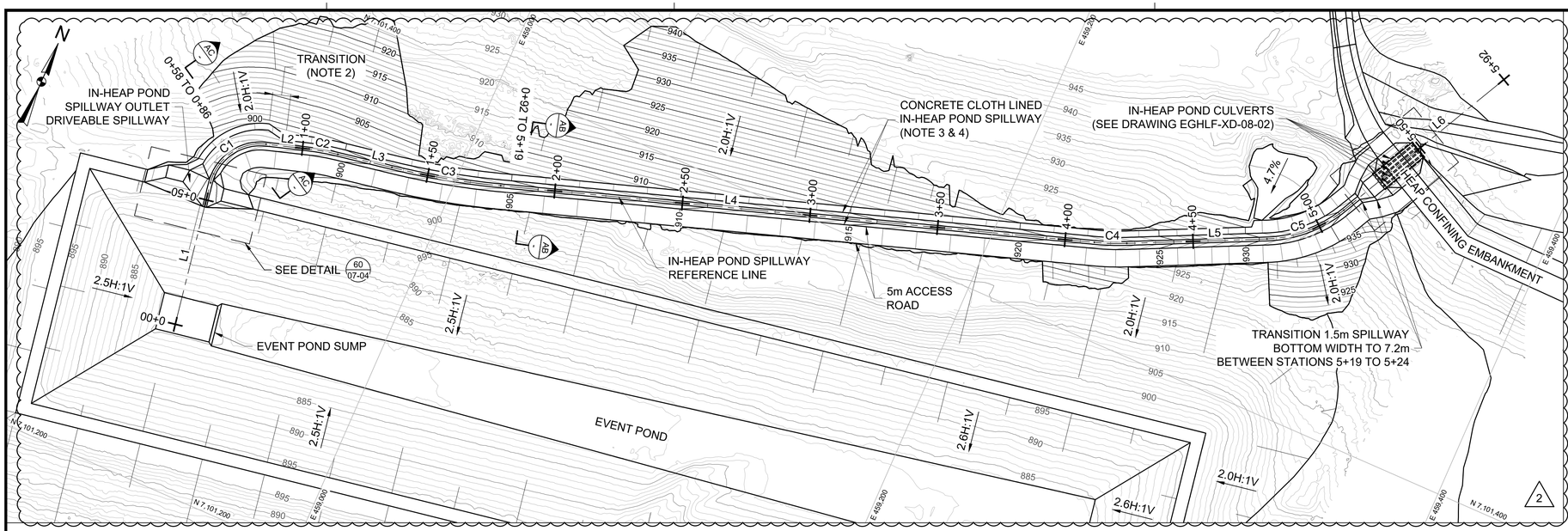
ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	19	03	21	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, DRIVEABLE SWALE

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND SPILLWAY PLAN AND PROFILE
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:500 / DWG No.: EGHLF-XD-07-05 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

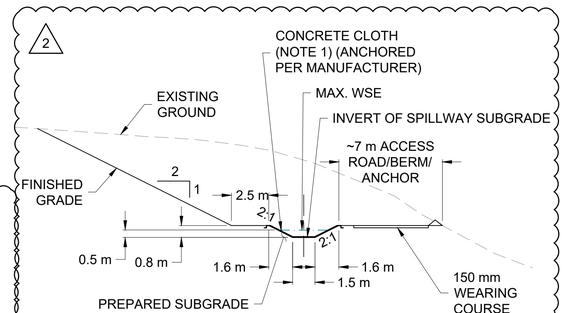
X:\Projects\07792 Victoria Gold\CAD\Production\FC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-07-05.dwg Layout: EGHLF-XD-07-05 Plot Date: Mar 27 19 Time: 12:50 PM



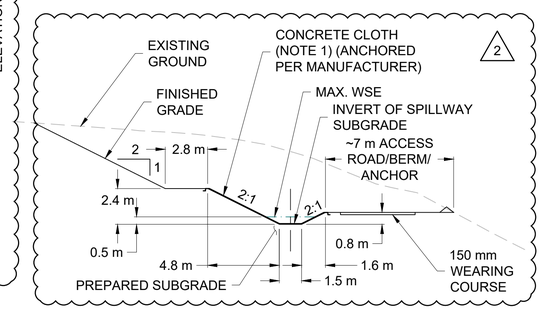
CURVE TABLE				
C#	RADIUS (m)	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
C1	20.0	28.8	(458,912.7,7,101,318.6)	(458,926.5,7,101,341.1)
C2	100.0	12.6	(458,941.5,7,101,345.7)	(458,953.8,7,101,348.7)
C3	300.0	43.1	(458,975.1,7,101,352.5)	(459,016.8,7,101,363.0)
C4	100.0	12.7	(459,237.8,7,101,435.9)	(459,249.5,7,101,440.6)
C5	50.0	32.6	(459,298.9,7,101,464.2)	(459,321.9,7,101,486.6)

LINE TABLE			
L#	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
L1	56.9	(458,922.3,7,101,262.5)	(458,912.7,7,101,318.6)
L2	15.8	(458,926.5,7,101,341.1)	(458,941.5,7,101,345.7)
L3	21.6	(458,953.8,7,101,348.7)	(458,975.1,7,101,352.5)
L4	232.7	(459,016.8,7,101,363.0)	(459,237.8,7,101,435.9)
L5	54.7	(459,249.5,7,101,440.6)	(459,298.9,7,101,464.2)
L6	80.6	(459,321.9,7,101,486.6)	(459,358.6,7,101,558.3)

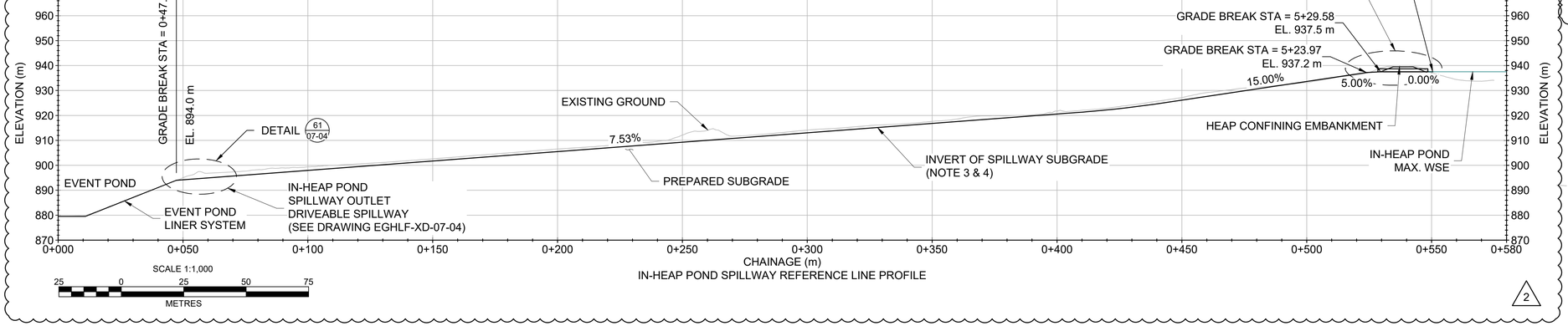
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AB -)
STA. 1+00 TO END
SCALE = N.T.S.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AC -)
STA. 0+60 TO 0+90
SCALE = N.T.S.



IN-HEAP POND SPILLWAY REFERENCE LINE PROFILE

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ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL AC TO AB BETWEEN STATION 0+86 TO 0+92 AND DETAIL AB TO 7.2m BOTTOM WIDTH BETWEEN 5+19 TO 5+24.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
4. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAILS FOR FEBRIFORM HEIGHT AND ADD GEOMEMBRANE
	2	19	03	18	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, CULVERTS, DRIVEABLE SWALE

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

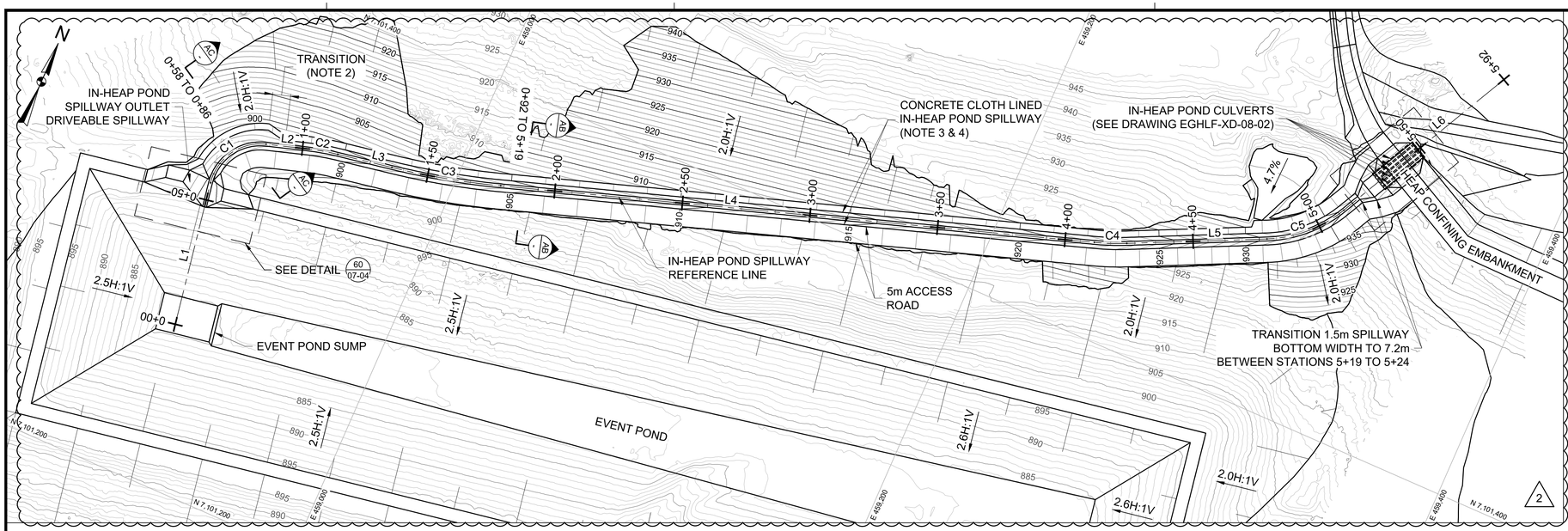
DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: IN-HEAP POND SPILLWAY PLAN AND PROFILE		
SCALE: 1:1,000	DWG No.: EGHLF-XD-08-01	REV.: 2

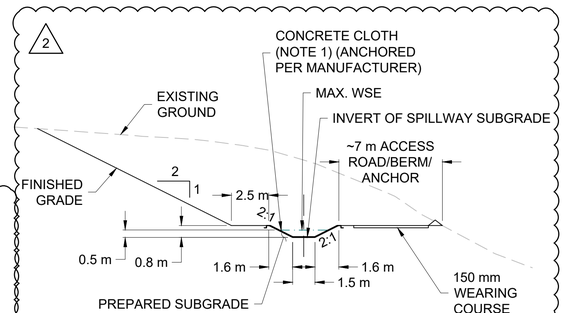
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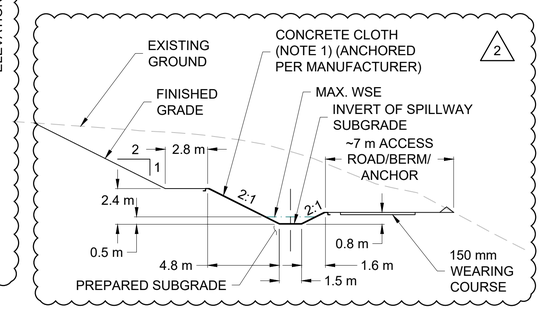
CURVE TABLE				
C#	RADIUS (m)	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
C1	20.0	28.8	(458,912.7,7,101,318.6)	(458,926.5,7,101,341.1)
C2	100.0	12.6	(458,941.5,7,101,345.7)	(458,953.8,7,101,348.7)
C3	300.0	43.1	(458,975.1,7,101,352.5)	(459,016.8,7,101,363.0)
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C5	50.0	32.6	(459,298.9,7,101,464.2)	(459,321.9,7,101,486.6)

LINE TABLE			
L#	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
L1	56.9	(458,922.3,7,101,262.5)	(458,912.7,7,101,318.6)
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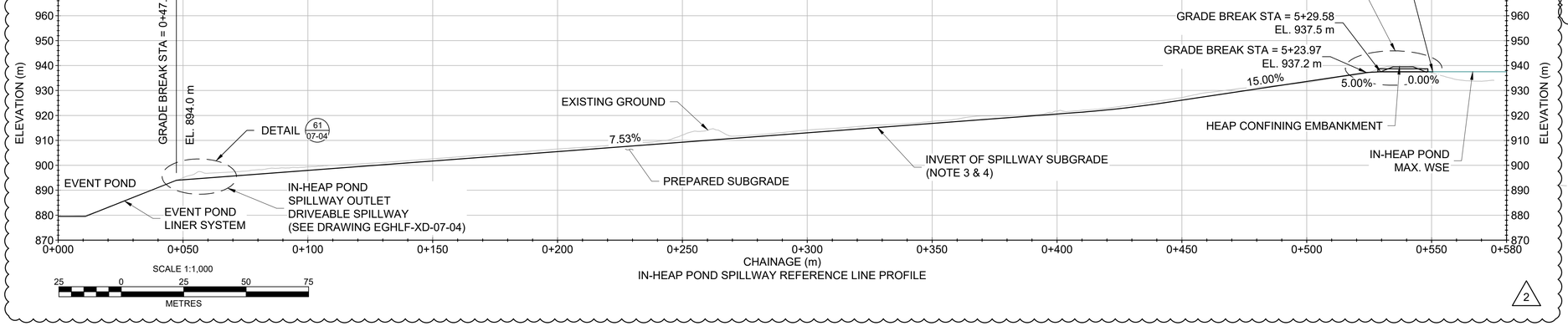
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AB -)
STA. 1+00 TO END
SCALE = N.T.S.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AC -)
STA. 0+60 TO 0+90
SCALE = N.T.S.



IN-HEAP POND SPILLWAY REFERENCE LINE PROFILE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL AC TO AB BETWEEN STATION 0+86 TO 0+92 AND DETAIL AB TO 7.2m BOTTOM WIDTH BETWEEN 5+19 TO 5+24.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
4. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAILS FOR FEBRIFORM HEIGHT AND ADD GEOMEMBRANE
	2	19	03	18	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, CULVERTS, DRIVEABLE SWALE

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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AN APPLIED EARTH SCIENCES COMPANY

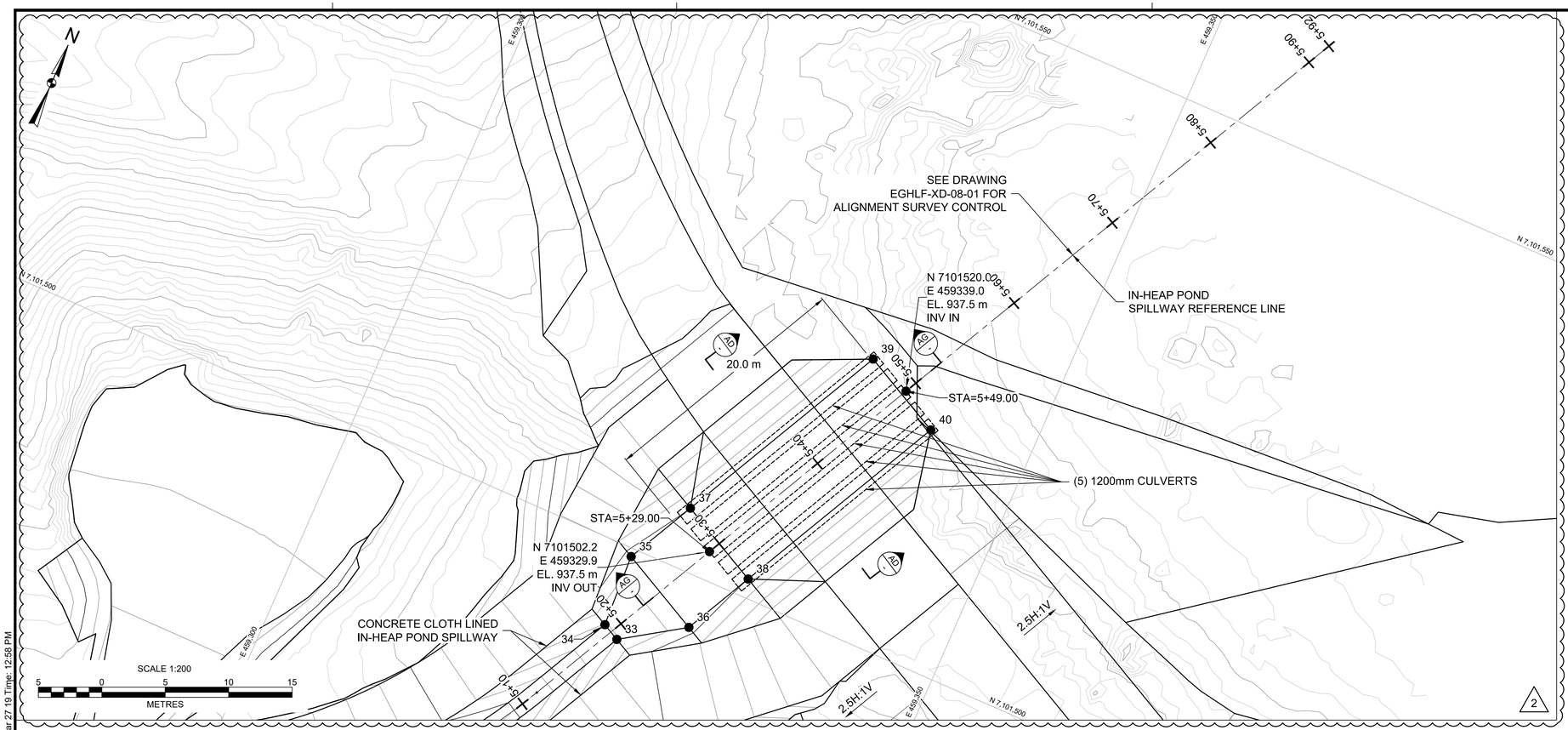
CLIENT: StrataGold Corporation

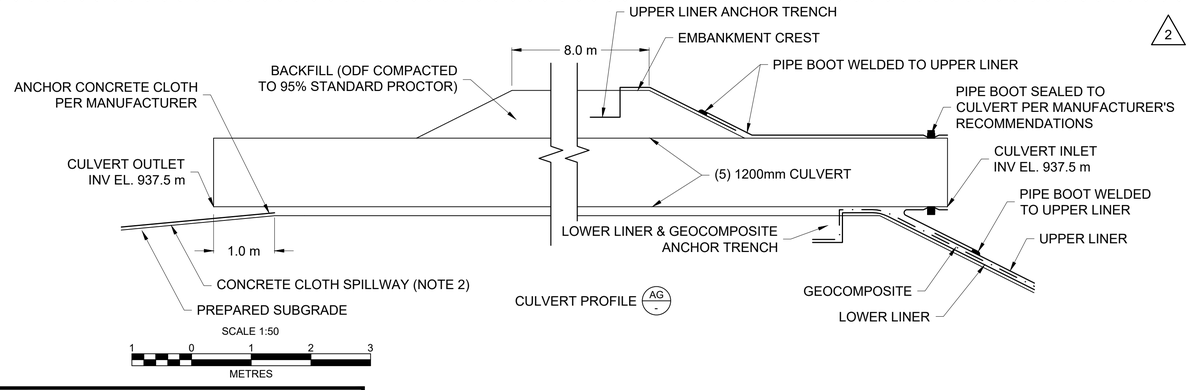
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: IN-HEAP POND SPILLWAY PLAN AND PROFILE		
SCALE: 1:1,000	DWG No.: EGHLF-XD-08-01	REV.: 2

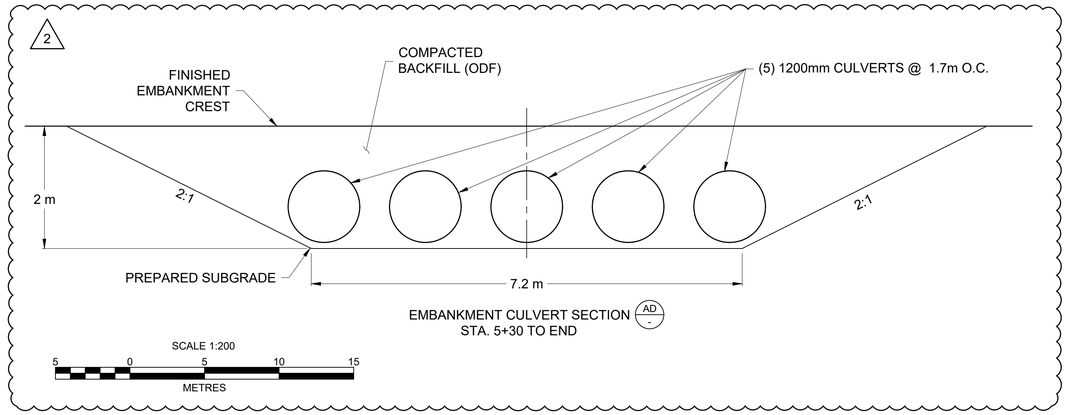
X:\Projects\0792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-08-01.dwg Layout: EGHLF-XD-08-01 Plot Date: Mar 27 19 Time: 1:01 PM

BOX CULVERT FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
33	459,326.0	7,101,492.9	936.5	BOTTOM
34	459,324.7	7,101,493.6	936.5	BOTTOM
35	459,324.4	7,101,499.4	937.2	BOTTOM
36	459,330.8	7,101,496.1	937.2	BOTTOM
37	459,327.1	7,101,504.7	937.5	BOTTOM
38	459,333.5	7,101,501.5	937.5	BOTTOM
39	459,335.6	7,101,521.3	937.5	BOTTOM
40	459,342.0	7,101,518.0	937.5	BOTTOM

2







THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
3. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.
4. PIPE BOOT SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. BGC SHALL REVIEW PIPE BOOT INSTALLATION METHOD.
5. SEE DRAWING EGHLF-XD-02-06 FOR LOWER LINER ANCHORING DETAILS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	06	29	DAG	TLM	MEH	TLM	GEOMEMBRANE ADDED TO SPILLWAY
2	19	03	18	DAG	TLM	RM	TLM	REVISE CULVERT / SPILLWAY MATERIAL AND DESIGN

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND SPILLWAY BOX CULVERT PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
1:200	EGHLF-XD-08-02	0

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APPENDIX 4
QC Data

Field Density Reports

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 9, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	9	Placing structural fill at embankment
-	Hitachi 1200 Excavator	8	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	8.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	5	Removing areas softened by excessive moisture

2.0 HEAP LEACH FACILITY

- Areas softened by excessive moisture were identified at 80 to 100 cm below lift elevation 904.43 m along the east abutment during and inspection with BGC. These areas were excavated and replaced with structural fill, which was compacted in two lifts using the CAT CS 78 B Compactor from 07:00 to 10:00
- Areas softened by excess moisture were also identified along the north embankment. This fill was removed using Link Belt 490 Excavator..
- Start of lift #39 (904.43 m design elevation) at 07:00. A notable amount of deflection was observed after witnessing compaction with the CAT CS 78 B Compactor. The Southeast portion of the lift was removed using the CAT D-10 Dozer until minimal deflection was observed as instructed by Roy Morlan (BGC) from 14:00 to 15:30.
- Moisture content testing was conducted using a nuclear densometer to assess the depth of water penetration. Tests were conducted at various depths into the lift ranging from 0 to 300 mm. Test results ranged from 3.1 % to 4.2 % M/C which could indicate that the lift was placed dry of the optimum moisture content of 6.2% as determined from standard proctor.
- Once significant remediation had been complete, BGC decided to continue placing new lifts of structural fill on top of the remaining soft spots on the lift. The remaining soft areas in this lift would be bridged in the upcoming placement of drier, sound structural fill.

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- Structural fill from the ADR stockpile had a moisture content of 7.0% to 8.0%. Material was slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This does not meet the BGC method specification requirement for structural fill for moisture content.
- Nightshift to continue lift #39 (904.46 m design elevation).

3.0 DISCUSSION/OTHER

- Structural fill material brought to the embankment had high moisture content. Elliot (BGC) was assigned to observe the structural fill material being loaded by the excavator.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift. Placing lift #39 (904.48 design elevation).



Photo 2 - Excavating areas softened by excess moisture identified by nightshift.



Photo 3 - Soil profile of remediated area.



Photo 4 - Typical gradation of structural fill brought from ADR stockpile.



Photo 5 - Excavating areas softened by excess moisture identified during nightshift.



Photo 6 - Grader scraping unstable structural fill in the Southwest section of the embankment.



Photo 7 - Excavating areas softened by excess moisture in the North section of the embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 8°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from ADR Stockpile
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Shift change for the Pelly crew.
- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 904.43 m (as built average elevation) resumed at 19:35. Placement was completed at 21:45. Compaction for this lift began at 19:300 and was completed by 23:30. Compaction and moisture testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.1 % to 99.6 %. Moisture content ranged from 3.1 % MC to 5.7 % MC. This is below the targeted BGC method specification requirements for moisture content.
- Compaction was primarily completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of lift elevation 904.83 m (design elevation) began at 22:15. Placement was incomplete by the end of shift. Due to spreading and grading methodology, compaction did not start until 02:00. Compaction for this lift was incomplete by the end of shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material is becoming coarser, but visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was not used to moisture condition the structural fill

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stockpile due to previous rain events. Shovel attempted to blend the wet surface material with the drier core of the stockpile to moisture condition the pile.

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 4 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 69 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 2,484 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of lift 904.83 m (design elevation) was spread using a fanning spread pattern, causing a delay in the vibratory compactor sealing the lift. Future lift placement may benefit from single width straight line placement, which may mitigate rain damage to the loose, uncompacted lift.
- The most recent placement of drier structural fill in lift 904.83 m (design elevation) appeared to help bridge the areas where deflections had been noted in previous lifts.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Placement and compaction of structural fill for lift elevation 904.83 m.



Photo 2: Typical gradation of structural fill.



Photo 3: Spreading/grading pattern of structural fill.



Photo 4: Oversized aggregate removed from lift and pushed to side slope.



Photo 5: Re-grading compacted area that was above lift thickness tolerance.



Photo 6: Compaction of lift 904.83 m. Irregular surface hinders optimial drum/soil contact of compactor.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 1, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 27°C
File:	[Subject]		Low 15°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Day Shift)
-	Cat D-10 Dozer	10.5	Placing structural fill
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Density tests were completed on nightshift's structural lift. Nightshift's lift met BGC structural fill specifications.
- Start of lift #1 (899.05m design elevation) started at 07:00. Compactor started at 09:00 and finished at 11:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 10:40. Survey confirmed the average elevation to be 898.97m, which calculates to be a 0.32m lift. Moisture content was between 4.2 to 6.4%.
- Structural fill was coming from stockpile #3-1 (near Clark) and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to 6%, whereas the material from stockpile #3-1 has a moisture content of 4 to 5%. Material was fine, visually appeared to have less than 30% over 19 mm. This meets the BGC method specification requirement for structural fill.
- Start of lift #2 (899.37m design elevation) started at 10:40. Compactor started at 11:30 and finished at 14:50. Two passes was observed with sufficient speed and overlap. Loose lift finished at 14:00. Survey confirmed the average elevation to be 899.32m, which calculates to be a 0.35m lift. Moisture content was between 4.1 to 6.1%.
- Start of lift #3 (899.72m design elevation) started at 14:00. Compactor started at 14:50 and finished at 17:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 17:00. Survey confirmed the average elevation to be 899.68m, which calculates to be a 0.36m lift. Moisture content was between 3.4 to 5.6%.
- Density tests were completed on the embankment and complied with BGC's compaction specifications for structural fill.

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3.0 DISCUSSION/OTHER

- 1200 Excavator was seen to be loading 777 Haul trucks at stockpile #3-1 (near Clark) at 12:30 with no moisture conditioning.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift.



Photo 2 - Wiggle truck hauling structural fill from stockpile North of the embankment.



Photo 3 - Typical gradation of structural fill.



Photo 4 - Excavator loading trucks from stockpile near ADR.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 1, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial cloud, rain from 04:30
Client:	JDS		High 22°C
File:	ENG.WARC03235-02.005		Low 15°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	9.5	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment, Elevation lift 900.05 m from day shift. Placement of fill completed by 20:10 hours. Compaction for this lift began at 19:00 hours and was completed by 21:20 hours. Compaction and moisture testing and final survey completed at 21:30 hours.
- Placement of Elevation lift 900.45 m started at 20:15 hours. Placement was completed at 01:00 hours. Compaction for this lift began at 21:45 hours and was completed by 03:00 hours. Compaction and moisture testing and final survey completed at 03:20 hours.
- Elevation lift 900.84 m was started at 02:10 hours. Placement was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was slightly coarser than yesterday, but still visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. If oversized cobbles or boulders were noticed in the lift, they were removed prior to compaction. This meets the BGC method specification requirement for structural fill.
- The moisture content of the structural fill source was visually lower than previous days. This was later confirmed via moisture content testing via nuclear densometer to be below 3 %. A water truck was used to precondition the stockpile prior to placement. During the evening, Pelly discovered that the hydraulic pump was beginning to overheat and could no longer condition the structural fill at the stockpile. Pelly elected to use the gravity fed end discharge of the water truck to moisture condition the embankment surface.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory

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p. 780.451.2121 f. 780.454.5688

roller. Eleven compaction tests, using the nuclear densometer, were completed. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.6 % to 99.7 %. Moisture content ranged from 3.0 % MC to 5.2 % MC this is below the targeted BGC method specification requirements. Further moisture conditioning was held off until the extent of the rain event was to be determined.

- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged around 3 cm below target design elevation of 40 cm lift thickness. This also satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 88 loads were placed during shift. Assuming 36 m^3 per load, a total of 3,168 m^3 of structural fill was placed on the embankment during nightshift. Haul trucks experienced difficulty completing loads during the rain event as inclined roadways became increasingly difficult to traverse. Additional work to ramps and haul roads carried out to improve route.

3.0 DISCUSSION/OTHER

- Moisture conditioning of structural fill after placement is more evenly distributed throughout the lift when preformed at the borrow source. If moisture conditioning is required after placement. The lift may be scarified and bladed to promote complete mixing.

4.0 CLOSURE

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Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



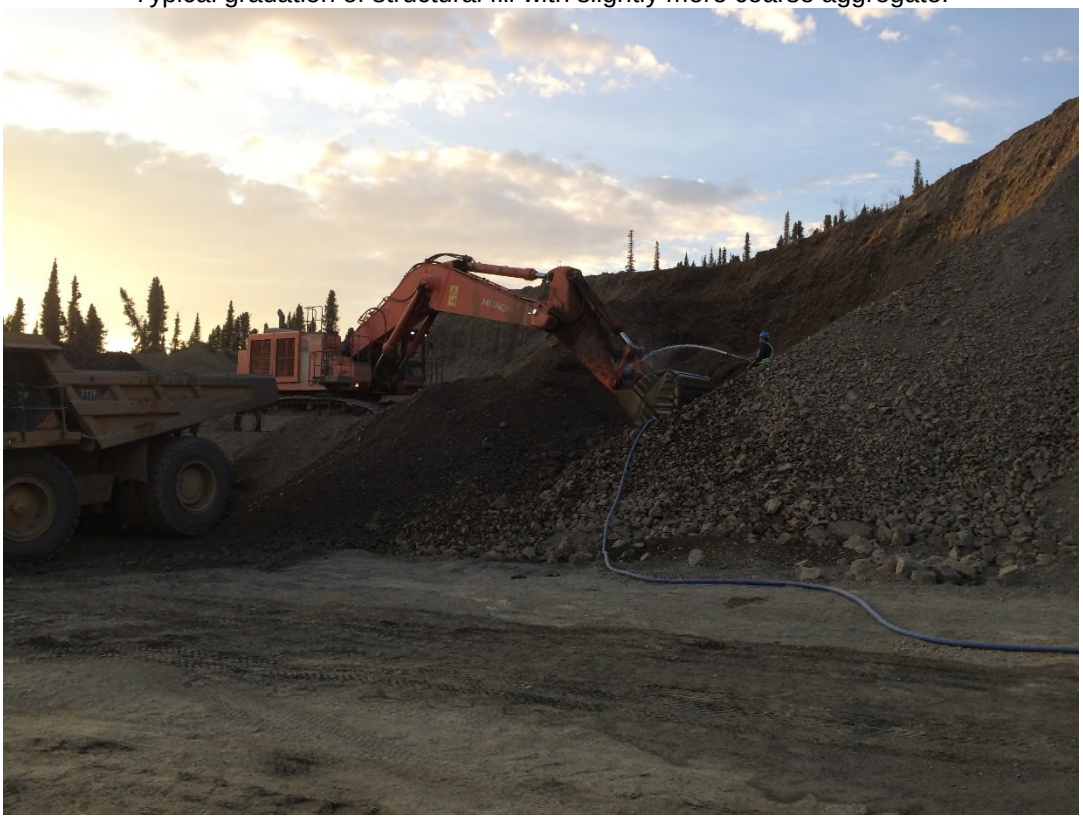
Placement and compaction of lift elevation 900.05 m.



Checking grades during placement of lift elevation 900.42 m.



Typical gradation of structural fill with slightly more coarse aggregate.



ADS stockpile being moisture conditioned via watertruck.



Water truck moisture conditioning a placed and compacted lift elevation 900.45 m.



Water truck moisture conditioning a placed and uncompacted lift elevation 900.85 m.

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/11/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Test Pad - Type 3 Structural Fill

Material Usage/Zone: Method Spec Test Pad at Event Pond

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/11/2018	**1** / 300	Method Spec Test Fill - 6 pass cycles, beside plate #3	Gr	2233	3.7	2175	8.2	**102.7**
8/11/2018	**2** / 300	Method Spec Test Fill - 6 pass cycles, between plate #2 and #3	Gr	2274	3.6	2175	8.2	**104.6**
8/11/2018	**3** / 300	Method Spec Test Fill - 6 pass cycles, between plate #2 and #3	0.13	2096	5.5	2175	8.2	**96.4**

Remarks: Densities provided under supervision of Roy Morlan.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/17/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/17/2018	1 / 300	Event Pond - Southeast Embankment - East section	867.00	2248	4.4	2270	6.7	**99.0**
10/17/2018	2 / 300	Event Pond - Southeast Embankment - West section	867.00	2264	4.9	2270	6.7	**99.7**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/18/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/18/2018	1 / 300	Event Pond - Southeast Embankment - Center	867.60	2235	3.1	2270	6.7	**98.5**
10/18/2018	2 / 300	Event Pond - Southeast Embankment - Northwest section	867.60	2216	3.2	2270	6.7	**97.6**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/19/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/19/2018	1 / 300	Event Pond - Southeast Embankment - Centre	867.90	2167	7.9	2270	6.7	**95.5**
10/19/2018	2 / 300	Event Pond - Southeast Embankment - West of centre	867.90	2172	8.1	2270	6.7	**95.7**
10/19/2018	3 / 300	Event Pond - Southeast Embankment - East of centre	868.20	2163	7.7	2270	6.7	**95.3**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/20/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/20/2018	1 / 300	Event Pond - Southeast Embankment - Northeast corner	868.50	2232	5.3	2270	6.7	**98.3**
10/20/2018	2 / 300	Event Pond - Southeast Embankment - Southwest corner	868.50	2204	3.6	2270	6.7	**97.1**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/21/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/21/2018	1 / 300	Event Pond - Southeast Embankment - Northwest corner	868.80	2231	6.1	2270	6.7	**98.3**
10/21/2018	2 / 300	Event Pond - Southeast Embankment - East of centre	869.10	2189	2.8	2270	6.7	**96.4**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/22/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/22/2018	1 / 300	Event Pond - Southeast Embankment - East	869.40	2230	4.5	2270	6.7	**98.2**
10/22/2018	2 / 300	Event Pond - Southeast Embankment - West of center	869.40	2267	5.9	2270	6.7	**99.9**

Remarks: Compacted using CS68 9 tonne and CS78 13 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/23/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/23/2018	1 / 300	Event Pond - Southeast Embankment - West - Lift 71	871.30	2158	5.7	2270	6.7	**95.1**
10/23/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 72	871.60	2160	5.5	2270	6.7	**95.2**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, and CS78 13 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/24/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/24/2018	1 / 300	Event Pond - Southeast Embankment - West - Lift 75 (871.50 m)	871.50	2229	5.0	2270	6.7	**98.2**
10/24/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 76 (871.80 m)	871.80	2244	5.3	2270	6.7	**98.9**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, CS78 13 tonne, and 56B 6.7 tonne vibratory compactor. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 1.5 ºC **Soil:** 0.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/25/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/25/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	873.30	2255	5.1	2270	6.7	**99.3**
10/25/2018	**2** / 300	Event Pond - South east embankment - West seciton of lift	873.30	2218	7.3	2270	6.7	**97.7**
10/25/2018	**3** / 300	Event Pond - South east embankment - East seciton of lift	873.60	2273	5.3	2270	6.7	**100.1**

Remarks: Compacted using CS68B, CS56B and CS54B vibratory compactors.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -1.5 ºC **Soil:** 0.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/26/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/26/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	874.20	2158	6.0	2270	6.7	**95.1**
10/26/2018	**2** / 300	Event Pond - South east embankment - West seciton of lift	874.20	2240	4.1	2270	6.7	**98.7**
10/26/2018	**3** / 300	Event Pond - South east embankment - East seciton of lift	874.50	2160	3.8	2270	6.7	**95.2**

Remarks: Compacted using CS68B, CS56B and CS54B vibratory compactors.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 18 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/5/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/5/2018	1 / 300	Structural Fill - Lower embankment, West of center	893.98	2285	3.8	2270	6.7	**100.7**
8/5/2018	2 / 300	Structural Fill - Lower embankment, SW corner	894.27	2216	3.5	2270	6.7	**97.6**
8/5/2018	3 / 300	Structural Fill - Lower embankment, North	894.27	2110	3.8	2270	6.7	**93.0**
8/5/2018	4 / 300	Structural Fill - Lower embankment, North, retest	894.27	2214	3.6	2270	6.7	**97.5**
8/5/2018	5 / 300	Structural Fill - Lower embankment, near West ramp	894.62	2220	3.8	2270	6.7	**97.8**
8/5/2018	6 / 300	Structural Fill - Lower embankment, NW corner	894.62	2288	5.0	2270	6.7	**100.8**
8/5/2018	7 / 250	Structural Fill - Lower embankment, center	898.98	2238	4.9	2270	6.7	**98.6**
8/5/2018	8 / 300	Structural Fill - Lower embankment, North	898.98	2294	5.0	2270	6.7	**101.1**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/5/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/5/2018	**1** / 300	HLF Embankment - South west quarter of lift	895.38	2237	5.1	2270	6.7	**98.5**
8/5/2018	**2** / 300	HLF Embankment - South east quarter of lift	895.38	2179	4.3	2270	6.7	**96.0**
8/5/2018	**3** / 300	HLF Embankment - North east quarter of lift	895.38	2242	5.2	2270	6.7	**98.8**
8/5/2018	**4** / 300	HLF Embankment - North west quarter of lift	895.38	2244	4.9	2270	6.7	**98.9**
8/5/2018	**5** / 300	HLF Embankment - South east quarter of lift	895.77	2249	5.2	2270	6.7	**99.1**
8/5/2018	**6** / 300	HLF Embankment - North east quarter of lift	895.77	2159	4.2	2270	6.7	**95.1**
8/5/2018	**7** / 300	HLF Embankment - North west quarter of lift	895.77	2250	3.9	2270	6.7	**99.1**
8/5/2018	**8** / 300	HLF Embankment - Center of lift	895.77	2256	4.4	2270	6.7	**99.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 17 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/6/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/6/2018	**1** / 300	Structural Fill - Lower embankment, SE corner	896.05	2264	4.8	2270	6.7	**99.7**
8/6/2018	**2** / 250	Structural Fill - Lower embankment, NW corner	896.05	2259	3.0	2270	6.7	**99.5**
8/6/2018	**3** / 300	Structural Fill - Lower embankment, center	896.40	2186	5.4	2270	6.7	**96.3**
8/6/2018	**4** / 300	Structural Fill - Lower embankment, West of center	896.40	2131	5.1	2270	6.7	**93.9**
8/6/2018	**5** / 300	Structural Fill - Lower embankment, West of center, retest	896.40	2283	5.2	2270	6.7	**100.6**
8/6/2018	**6** / 300	Structural Fill - Lower embankment, SW corner	896.80	2206	4.2	2270	6.7	**97.2**
8/6/2018	**7** / 250	Structural Fill - Lower embankment, NE corner	896.80	2271	5.2	2270	6.7	**100.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/6/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/6/2018	**1** / 300	HLF Embankment - Lower Lift - SE corner of lift	897.16	2276	4.3	2270	6.7	**100.3**
8/6/2018	**2** / 300	HLF Embankment - Lower Lift - SW corner of lift	897.16	2248	3.2	2270	6.7	**99.0**
8/6/2018	**3** / 300	HLF Embankment - Lower Lift - Center of lift	897.16	2182	3.4	2270	6.7	**96.1**
8/6/2018	**4** / 300	HLF Embankment - Lower Lift - NW Corner of lift	897.16	2171	3.5	2270	6.7	**95.6**
8/6/2018	**5** / 300	HLF Embankment - Lower Lift - SE corner of lift	897.48	2249	4.6	2270	6.7	**99.1**
8/6/2018	**6** / 300	HLF Embankment - Lower Lift - Center of lift	897.48	2282	4.5	2270	6.7	**100.5**
8/6/2018	**7** / 300	HLF Embankment - Lower Lift - NW Corner of lift	897.48	2234	4.0	2270	6.7	**98.4**
8/6/2018	**8** / 300	HLF Embankment - Lower Lift - NE Corner of lift	897.48	2228	6.5	2270	6.7	**98.1**
8/6/2018	**9** / 300	HLF Embankment - Raised Lift - near ODF trench	902.02	2159	6.0	2270	6.7	**95.1**
8/6/2018	**10** / 300	HLF Embankment - Raised Lift - near ODF trench	902.42	2279	6.2	2270	6.7	**100.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 17 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/7/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/7/2018	1 / 300	Structural Fill - lift #35, prior to grading, East abutment, moisture check	-	-	5.9	-	6.7	-
8/7/2018	2 / 300	Structural Fill - lift #35, prior to grading, East abutment, moisture check 2	-	-	7.3	-	6.7	-
8/7/2018	3 / 300	Structural Fill - lift #35, prior to grading, center, moisture check	-	-	4.1	-	6.7	-
8/7/2018	4 / 300	Structural Fill - lift #35, prior to grading, Slightly NE of center, moisture check	-	-	4.6	-	6.7	-
8/7/2018	5 / 300	Structural Fill - lift #35, prior to grading, North, moisture check	-	-	4.5	-	6.7	-
8/7/2018	6 / 250	Structural Fill - lift #35, after grading, North	903.10	2243	4.6	2270	6.7	**98.8**
8/7/2018	7 / 300	Structural Fill - lift #35, after grading, NW corner	903.10	2286	6.3	2270	6.7	**100.7**
8/7/2018	8 / 300	Structural Fill - lift #35, after grading, center	903.10	2264	5.6	2270	6.7	**99.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/6/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/6/2018	**1** / 300	HLF Embankment - South west quarter of lift	903.36	2254	6.0	2270	6.7	**99.3**
8/6/2018	**2** / 300	HLF Embankment - South east quarter of lift	903.36	2272	4.6	2270	6.7	**100.1**
8/6/2018	**3** / 300	HLF Embankment - North east quarter of lift	903.36	2254	6.0	2270	6.7	**99.3**
8/6/2018	**4** / 300	HLF Embankment - North west quarter of lift	903.36	2236	7.3	2270	6.7	**98.5**
8/6/2018	**5** / 300	HLF Embankment - South east quarter of lift	903.36	2191	7.9	2270	6.7	**96.5**
8/6/2018	**6** / 300	HLF Embankment - North east quarter of lift	903.76	2200	7.7	2270	6.7	**96.9**
8/6/2018	**7** / 300	HLF Embankment - North west quarter of lift	903.76	2202	7.7	2270	6.7	**97.0**
8/6/2018	**8** / 300	HLF Embankment - North west quarter of lift. Additional test.	903.76	2198	6.0	2270	6.7	**96.8**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/8/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/8/2018	1 / 300	Structural Fill - NE corner	903.72	2218	5.5	2270	6.7	**97.7**
8/8/2018	2 / 300	Structural Fill - center	903.72	2204	7.0	2270	6.7	**97.1**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/8/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/8/2018	1 / 300	HLF Embankment - North west quarter of lift	904.12	2279	3.2	2270	6.7	**100.4**
8/8/2018	2 / 300	HLF Embankment - Center of lift	904.12	2247	3.5	2270	6.7	**99.0**
8/8/2018	3 / 300	HLF Embankment - South side of lift	904.12	2254	3.2	2270	6.7	**99.3**
8/8/2018	4 / 300	HLF Embankment - East side of lift	904.12	2276	4.5	2270	6.7	**100.3**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/9/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/9/2018	**1** / 300	Structural Fill - SW corner, moisture check 1	904.48	-	3.1	-	6.7	-
8/9/2018	**2** / 150	Structural Fill - SW corner, moisture check 2	904.48	-	3.2	-	6.7	-
8/9/2018	**3** / 300	Structural Fill - SW corner, moisture check 3	904.48	-	3.9	-	6.7	-
8/9/2018	**4** / 0	Structural Fill - SW corner, moisture check 4	904.48	-	4.2	-	6.7	-

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/9/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/9/2018	**1** / 300	HLF Embankment - South west section of lift	904.43	2261	3.2	2270	6.7	**99.6**
8/9/2018	**2** / 300	HLF Embankment - Center of lift	904.43	2240	3.1	2270	6.7	**98.7**
8/9/2018	**3** / 300	HLF Embankment - Center of lift second lift	904.43	2184	3.9	2270	6.7	**96.2**
8/9/2018	**4** / 300	HLF Embankment - North west section of lift	904.43	2182	3.2	2270	6.7	**96.1**
8/9/2018	**5** / 300	HLF Embankment - North East section of lift	904.43	2227	3.2	2270	6.7	**98.1**
8/9/2018	**6** / 300	HLF Embankment - West section of lift	904.43	2237	5.7	2270	6.7	**98.5**
8/9/2018	**7** / 300	HLF Embankment - South section of lift	904.43	2217	4.2	2270	6.7	**97.7**
8/9/2018	**8** / 300	HLF Embankment - South section of lift	904.43	2218	4.8	2270	6.7	**97.7**
8/9/2018	**9** / 300	HLF Embankment - South section of lift	904.43	2184	6.7	2270	6.7	**96.2**
8/9/2018	**10** / 300	HLF Embankment - South section of lift	904.43	2213	5.2	2270	6.7	**97.5**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/10/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/10/2018	**1** 300	Structural Fill - Southwest corner of embankment	904.86	2191	5.6	2270	6.7	**96.5**
8/10/2018	**2** 300	Structural Fill - South of embankment, beside toe	904.86	2188	4.3	2270	6.7	**96.4**
8/10/2018	**3** 300	Structural Fill - Northeast corner of embankment	904.86	2230	4.5	2270	6.7	**98.2**
8/10/2018	**4** 300	Structural Fill - North of embankment	905.26	2218	5.5	2270	6.7	**97.7**
8/10/2018	**5** 300	Structural Fill - Center of embankment	905.26	2281	4.3	2270	6.7	**100.5**
8/10/2018	**6** 300	Structural Fill - Center of toe of embankment	905.26	2209	3.8	2270	6.7	**97.3**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 3 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/10/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/10/2018	1 / 300	HLF Embankment - South west section of lift	905.54	2175	5.1	2270	6.7	**95.8**
8/10/2018	2 / 300	HLF Embankment - North west section of lift	905.54	2201	5.3	2270	6.7	**97.0**
8/10/2018	3 / 300	HLF Embankment - North section of lift	905.54	2181	4.7	2270	6.7	**96.1**
8/10/2018	4 / 300	HLF Embankment - Center of lift	905.54	2613	3.8	2270	6.7	**115.1**
8/10/2018	5 / 300	HLF Embankment - East section of lift	905.54	2180	2.9	2270	6.7	**96.0**
8/10/2018	6 / 300	HLF Embankment - South section of lift	905.54	2223	3.6	2270	6.7	**97.9**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/11/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/11/2018	**1** 300	Structural Fill - North of embankment	905.93	2284	2.9	2270	6.7	**100.6**
8/11/2018	**2** 300	Structural Fill - Center of embankment	905.93	2218	2.6	2270	6.7	**97.7**
8/11/2018	**3** 300	Structural Fill - Southwest corner of embankment	905.93	2194	3.8	2270	6.7	**96.7**
8/11/2018	**4** 300	Structural Fill - Center of toe of embankment	905.93	2184	5.6	2270	6.7	**96.2**
8/11/2018	**5** 300	Structural Fill - Center of East abutment of embankment	905.93	2157	4.0	2270	6.7	**95.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 9 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/11/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/11/2018	**1** / 300	HLF Embankment - South section of lift	906.33	2231	4.2	2270	6.7	**98.3**
8/11/2018	**2** / 300	HLF Embankment - South west section of lift	906.33	2272	3.3	2270	6.7	**100.1**
8/11/2018	**3** / 300	HLF Embankment - East section of lift	906.33	2243	3.9	2270	6.7	**98.8**
8/11/2018	**4** / 300	HLF Embankment - North west section of lift	906.33	2187	4.8	2270	6.7	**96.3**
8/11/2018	**5** / 300	HLF Embankment - South east section of lift	906.33	2233	4.1	2270	6.7	**98.4**
8/11/2018	**6** / 300	HLF Embankment - South west section of lift	906.70	2208	4.9	2270	6.7	**97.3**
8/11/2018	**7** / 300	HLF Embankment - West section of lift	906.70	2268	4.7	2270	6.7	**99.9**
8/11/2018	**8** / 300	HLF Embankment - North section of lift	906.70	2221	6.8	2270	6.7	**97.8**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 17 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/12/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/12/2018	**1** / 300	Structural Fill - Northwest corner	907.04	2218	5.4	2270	6.7	**97.7**
8/12/2018	**2** / 300	Structural Fill - SW corner	907.04	2251	6.2	2270	6.7	**99.2**
8/12/2018	**3** / 300	Structural Fill - Center of toe	907.04	2206	6.4	2270	6.7	**97.2**
8/12/2018	**4** / 300	Structural Fill - Center	907.04	2219	5.3	2270	6.7	**97.8**
8/12/2018	**5** / 300	Structural Fill - Southwest corner	907.04	2201	5.1	2270	6.7	**97.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/12/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/12/2018	**1** / 300	HLF Embankment - South east section of lift	907.27	2267	5.6	2270	6.7	**99.9**
8/12/2018	**2** / 300	HLF Embankment - North east section of lift	907.27	2175	6.3	2270	6.7	**95.8**
8/12/2018	**3** / 300	HLF Embankment - South west section of lift	907.27	2212	5.3	2270	6.7	**97.4**
8/12/2018	**4** / 300	HLF Embankment - North section of lift	907.27	2166	5.4	2270	6.7	**95.4**
8/12/2018	**5** / 300	HLF Embankment - South east section of lift	907.67	2159	6.7	2270	6.7	**95.1**
8/12/2018	**6** / 300	HLF Embankment - South west section of lift	907.67	2187	6.6	2270	6.7	**96.3**
8/12/2018	**7** / 300	HLF Embankment - West section of lift	907.67	2231	5.6	2270	6.7	**98.3**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/14/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/14/2018	**1** / 300	HLF Embankment - North west section of lift	909.50	2199	5.4	2270	6.7	**96.9**
8/14/2018	**2** / 300	HLF Embankment - South west section of lift	909.50	2219	5.1	2270	6.7	**97.8**
8/14/2018	**3** / 300	HLF Embankment - South east section of lift	909.50	2235	5.1	2270	6.7	**98.5**
8/14/2018	**4** / 300	HLF Embankment - North east section of lift	909.50	2261	4.9	2270	6.7	**99.6**
8/14/2018	**5** / 300	HLF Embankment - North west section of lift	909.90	2230	4.8	2270	6.7	**98.2**

Remarks: Material compacted with CS78 13.4 tonne and Volvo SD160 11 tonne vibratory smooth drum roller. Issued for Review. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/15/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/15/2018	**1** / 300	HLF Embankment - North east section of lift	910.31	2194	5.2	2270	6.7	**96.7**
8/15/2018	**2** / 300	HLF Embankment - South east section of lift	910.31	2218	4.5	2270	6.7	**97.7**
8/15/2018	**3** / 300	HLF Embankment - Center section of lift	910.31	2201	5.0	2270	6.7	**97.0**
8/15/2018	**4** / 300	HLF Embankment - West section of lift	910.66	2184	5.0	2270	6.7	**96.2**
8/15/2018	**5** / 300	HLF Embankment - Center section of lift	910.66	2270	5.1	2270	6.7	**100.0**
8/15/2018	**6** / 300	HLF Embankment - North east section of lift	910.66	2159	4.3	2270	6.7	**95.1**
8/15/2018	**7** / 300	HLF Embankment - South east section of lift	910.66	2198	4.9	2270	6.7	**96.8**
8/15/2018	**8** / 300	HLF East Embankment - Top side of trench	Lift 1*	2254	6.1	2270	6.7	**99.3**
8/15/2018	**9** / 300	HLF East Embankment - Bottom side of trench	Lift 1*	2234	6.1	2270	6.7	**98.4**

Remarks: Material compacted with CS78 13.4 tonne and Volvo SD160 11 tonne vibratory smooth drum roller.

*Lift 1 placed along as-built top of sand vertical alignment +40 cm. Issued for Review. Page 1/1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/4/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/4/2018	**1** / 300	HLF Embankment - STA: 0+120 North section of lift	919.55	2259	5.2	2270	6.7	**99.5**
9/4/2018	**2** / 300	HLF Embankment - STA: 0+290 East section of lift	919.55	2175	6.2	2270	6.7	**95.8**
9/4/2018	**3** / 300	HLF Embankment - STA: 0+150 Center section of lift	919.55	2211	6.4	2270	6.7	**97.4**
9/4/2018	**4** / 300	HLF Embankment - STA: 0+080 South west section of lift	919.55	2213	4.5	2270	6.7	**97.5**
9/4/2018	**5** / 300	HLF Embankment - STA: 0+170 North section of lift	919.93	2178	4.4	2270	6.7	**95.9**
9/4/2018	**6** / 300	HLF Embankment - STA: 0+050 North west section of lift	919.93	2173	6.0	2270	6.7	**95.7**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/5/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Dayshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/5/2018	**1** / 300	HLF Embankment - South east section of lift	919.93	2186	5.9	2270	6.7	**96.3**
9/5/2018	**2** / 300	HLF Embankment - South west section of lift	919.93	2215	7.6	2270	6.7	**97.6**
9/5/2018	**3** / 300	HLF Embankment - North east section of lift	920.32	2176	4.2	2270	6.7	**95.9**
9/5/2018	**4** / 300	HLF Embankment - North west section of lift	920.32	2206	6.8	2270	6.7	**97.2**
9/5/2018	**5** / 300	HLF Embankment - South east section of lift	920.32	2257	4.6	2270	6.7	**99.4**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/5/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/5/2018	**1** / 300	HLF Embankment - South west section of lift	920.32	2199	5.9	2270	6.7	**96.9**
9/5/2018	**2** / 300	HLF Embankment - North west section of lift	920.70	2188	3.5	2270	6.7	**96.4**
9/5/2018	**3** / 300	HLF Embankment - North east section of lift	920.70	2161	5.1	2270	6.7	**95.2**
9/5/2018	**4** / 300	HLF Embankment - South east section of lift	920.70	2237	4.6	2270	6.7	**98.5**
9/5/2018	**5** / 300	HLF Embankment - South west section of lift	920.70	2203	5.3	2270	6.7	**97.0**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/5/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Dayshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/5/2018	**1** / 300	HLF Embankment - South east section of lift	919.93	2186	5.9	2270	6.7	**96.3**
9/5/2018	**2** / 300	HLF Embankment - South west section of lift	919.93	2215	7.6	2270	6.7	**97.6**
9/5/2018	**3** / 300	HLF Embankment - North east section of lift	920.32	2176	4.2	2270	6.7	**95.9**
9/5/2018	**4** / 300	HLF Embankment - North west section of lift	920.32	2206	6.8	2270	6.7	**97.2**
9/5/2018	**5** / 300	HLF Embankment - South east section of lift	920.32	2257	4.6	2270	6.7	**99.4**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/6/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/6/2018	**1** / 300	HLF Embankment - North west section of lift	921.45	2278	4.9	2270	6.7	**100.4**
9/6/2018	**2** / 300	HLF Embankment - North east section of lift	921.45	2166	6.5	2270	6.7	**95.4**
9/6/2018	**3** / 300	HLF Embankment - South east section of lift	921.45	2256	4.5	2270	6.7	**99.4**
9/6/2018	**4** / 300	HLF Embankment - South west section of lift	921.45	2199	3.4	2270	6.7	**96.9**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/7/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Dayshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/7/2018	**1** / 300	HLF Embankment - North east section of lift	921.90	2210	4.0	2270	6.7	**97.4**
9/7/2018	**2** / 300	HLF Embankment - North west section of lift	921.90	2207	3.7	2270	6.7	**97.2**
9/7/2018	**3** / 300	HLF Embankment - South east section of lift	921.90	2217	3.8	2270	6.7	**97.7**
9/7/2018	**4** / 300	HLF Embankment - South west section of lift	921.90	2181	4.1	2270	6.7	**96.1**
9/7/2018	**5** / 300	HLF Embankment - South west section of lift	922.23	2202	4.0	2270	6.7	**97.0**
9/7/2018	**6** / 300	HLF Embankment - South west section of lift	922.23	2262	3.9	2270	6.7	**99.6**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/7/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/7/2018	1 / 300	HLF Embankment - North west section of lift	922.23	2247	4.0	2270	6.7	**99.0**
9/7/2018	2 / 300	HLF Embankment - South west section of lift	922.23	2206	4.0	2270	6.7	**97.2**
9/7/2018	3 / 300	HLF Embankment - North east section of lift	922.54	2243	3.8	2270	6.7	**98.8**
9/7/2018	4 / 300	HLF Embankment - North west section of lift	922.54	2203	4.4	2270	6.7	**97.0**
9/7/2018	5 / 300	HLF Embankment - South west section of lift	922.54	2169	4.5	2270	6.7	**95.6**
9/7/2018	6 / 300	HLF Embankment - South east section of lift	922.54	2159	4.6	2270	6.7	**95.1**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 9 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/8/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Dayshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/8/2018	**1** / 300	HLF Embankment - North east section of lift	922.99	2209	4.0	2270	6.7	**97.3**
9/8/2018	**2** / 300	HLF Embankment - North west section of lift	922.99	2197	3.7	2270	6.7	**96.8**
9/8/2018	**3** / 300	HLF Embankment - South east section of lift	922.99	2159	3.8	2270	6.7	**95.1**
9/8/2018	**4** / 300	HLF Embankment - South west section of lift	922.99	2154	4.1	2270	6.7	**94.9**

Remarks: Compacted using CS78 13.4 tonne, Volvo SD160 11 tonne, and CS68 9 tonne vibratory smooth drum roller. Page 1/2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 9 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/8/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Dayshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) - Pond

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/8/2018	**5** / 300	N:710,666.4 m. E: 459,513.9 m.	925.50	2158	4.3	2270	6.7	**95.1**

Remarks: Compacted using CS78 13.4 tonne, drum roller.

Locations reference GPS UTM co-ordinates. Page 2/2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/8/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/8/2018	**1** / 300	HLF Embankment - North west section of lift	923.34	2201	4.1	2270	6.7	**97.0**
9/8/2018	**2** / 300	HLF Embankment - North east section of lift	923.34	2234	5.1	2270	6.7	**98.4**
9/8/2018	**3** / 300	HLF Embankment - South east section of lift	923.34	2216	5.6	2270	6.7	**97.6**
9/8/2018	**4** / 300	HLF Embankment - South west section of lift	923.34	2284	4.2	2270	6.7	**100.6**
9/8/2018	**5** / 300	HLF Embankment - North west section of lift	923.75	2254	3.7	2270	6.7	**99.3**
9/8/2018	**6** / 300	HLF Embankment - North east section of lift	923.75	2215	4.6	2270	6.7	**97.6**

Remarks: Compacted using CS78 13.4 tonne, and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/8/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) - Pond

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/8/2018	**7** / 300	N: 701,608.3 m. E: 459512.6 m.	915.88	2201	4.1	2270	6.7	**97.0**

Remarks: Compacted using CS78 13.4 tonne and CS54B 6 tonne vibratory smooth drum roller.

Locations reference GPS UTM Co-ordinates. Page 2/2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/20/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/20/2018	1 / 300	HLF Embankment - East of center	936.84	2198	4.5	2270	6.7	**96.8**
9/20/2018	2 / 300	HLF Embankment - Center	936.84	2238	4.0	2270	6.7	**98.6**
9/20/2018	3 / 300	HLF Embankment - Southwest corner	936.84	2165	4.6	2270	6.7	**95.4**
9/20/2018	4 / 300	HLF Embankment - East of center	937.13	2162	3.9	2270	6.7	**95.2**
9/20/2018	5 / 300	HLF Embankment - Northwest corner	937.13	2205	3.7	2270	6.7	**97.1**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -2.0 ºC **Soil:** 2.5 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/20/2018 **By:** A. Schoepp

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/20/2018	**1** / 300	HLF Embankment - East section of lift	937.45	2224	5.6	2270	6.7	**98.0**
9/20/2018	**2** / 300	HLF Embankment - West section of lift	937.45	2283	3.7	2270	6.7	**100.6**
9/20/2018	**3** / 300	HLF Embankment - East section of lift	937.88	2258	4.3	2270	6.7	**99.5**
9/20/2018	**4** / 300	HLF Embankment - West section of lift	937.88	2191	4.7	2270	6.7	**96.5**
9/20/2018	**5** / 300	HLF Embankment - East section of lift	938.29	2241	4.6	2270	6.7	**98.7**
9/20/2018	**6** / 300	HLF Embankment - West section of lift	938.29	2200	4.4	2270	6.7	**96.9**

Remarks: Compacted using CS78 13.4 tonne, Volvo 11 tonne and CS68 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/21/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/21/2018	1 / 300	HLF Embankment - Center	938.69	2206	4.2	2270	6.7	**97.2**
9/21/2018	2 / 300	HLF Embankment - Southwest	938.69	2202	4.7	2270	6.7	**97.0**
9/21/2018	3 / 300	HLF Embankment - East of center	939.10	2230	4.2	2270	6.7	**98.2**
9/21/2018	4 / 300	HLF Embankment - West of center	939.10	2228	3.6	2270	6.7	**98.1**
9/21/2018	5 / 300	HLF Embankment - Center	939.50	2203	3.6	2270	6.7	**97.0**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -1.0 ºC **Soil:** 3.4 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/21/2018 **By:** A. Schoepp

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/21/2018	**1** / 300	HLF Embankment - West lift	926.00	2229	4.1	2270	6.7	**98.2**
9/21/2018	**2** / 300	HLF Embankment - West lift	926.31	2225	4.5	2270	6.7	**98.0**
9/21/2018	**3** / 300	HLF Embankment - West lift	926.72	2241	4.0	2270	6.7	**98.7**

Remarks: Compacted using CS78 13.4 tonne, Volvo 11 tonne and CS68 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/22/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/22/2018	**1** 300	HLF West embankment pad - Center	927.88	2223	3.9	2270	6.7	**97.9**
9/22/2018	**2** 300	HLF West embankment pad - Southwest corner	927.88	2159	5.1	2270	6.7	**95.1**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -1.0 ºC **Soil:** 3.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/22/2018 **By:** A. Schoepp

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/22/2018	**1** 300	HLF Embankment - West lift	928.75	2164	4.6	2270	6.7	**95.3**

Remarks: Compacted using CS78 13.4 tonne, Volvo 11 tonne and CS68 9 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/23/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/23/2018	1 / 300	HLF West embankment pad	929.51	2188	6.6	2270	6.7	**96.4**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2.0 ºC **Soil:** 3.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/24/2018 **By:** A. Schoepp

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/24/2018	**1** / 300	HLF Embankment - West lift	929.90	2178	3.9	2270	6.7	**95.9**
9/24/2018	**1** / 300	HLF Embankment - West lift	930.31	2254	4.4	2270	6.7	**99.3**

Remarks: Compacted using CS78 13.4 tonne, Volvo 11 tonne and CS68 9 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/16/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/16	1 / 300	Structural Fill - SE corner	911.06	2224	5.2	2270	6.7	**98.0**
2018/08/16	2 / 300	Structural Fill - South, center	911.06	2271	5.1	2270	6.7	**100.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/17/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/17	1 / 300	Structural Fill - South, Center	912.21	2244	5.8	2270	6.7	**98.9**
2018/08/17	2 / 300	Structural Fill - Center of lift	912.21	2275	4.8	2270	6.7	**100.2**
2018/08/17	3 / 300	Structural Fill - South, Center	912.58	2272	2.4	2270	6.7	**100.1**
2018/08/17	4 / 300	Structural Fill - Center of lift	888.10	2202	5.3	2270	6.7	**97.0**
2018/08/17	5 / 300	Structural Fill - Center, 10 m N of toe	889.38	2308	3.3	2270	6.7	**101.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/18/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/18	1 / 300	Structural Fill - SE Corner	890.98	2205	6.3	2270	6.7	**97.1**
2018/08/18	2 / 300	Structural Fill - SW Corner	891.41	2232	4.3	2270	6.7	**98.3**
2018/08/18	3 / 300	Structural Fill - Center of lift	891.84	2202	4.3	2270	6.7	**97.0**
2018/08/18	4 / 300	Structural Fill - North, Center	892.21	2275	3.8	2270	6.7	**100.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/19/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/19	1 / 300	Structural Fill - SE Corner	893.75	2281	4.7	2270	6.7	**100.5**
2018/08/19	2 / 300	Structural Fill - South Center	894.13	2282	6.3	2270	6.7	**100.5**
2018/08/19	3 / 300	Structural Fill - NE Corner	894.53	2251	4.8	2270	6.7	**99.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/20/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/20	1 / 300	Structural Fill - NW Corner	897.07	2272	5.0	2270	6.7	**100.1**
2018/08/20	2 / 300	Structural Fill - SW Corner	897.40	2251	4.6	2270	6.7	**99.2**
2018/08/20	3 / 300	Structural Fill - SE Corner	897.77	2298	4.1	2270	6.7	**101.2**
2018/08/20	4 / 300	Structural Fill - South Center	897.77	2197	4.5	2270	6.7	**96.8**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/21/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/21	1 / 300	0+310, 10 m from south toe	899.34	2223	4.9	2270	6.7	**97.9**
2018/08/21	2 / 300	0+220, 3 m from south toe	899.34	2277	4.6	2270	6.7	**100.3**
2018/08/21	3 / 300	0+200, 40 m from south toe	899.81	2217	7.2	2270	6.7	**97.7**
2018/08/21	4 / 300	0+220, 3 m from south toe	899.81	2223	4.5	2270	6.7	**97.9**
2018/08/21	5 / 300	0+280, 32 m from south toe	900.07	2225	3.8	2270	6.7	**98.0**
2018/08/21	6 / 300	0+225, 40 m from south toe	900.07	2229	3.7	2270	6.7	**98.2**
2018/08/21	7 / 300	0+270, 50 m from south toe	900.47	2195	6.2	2270	6.7	**96.7**
2018/08/21	8 / 300	0+1600, 15 m from south toe	900.47	2250	2.5	2270	6.7	**99.1**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/22/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/22	1 / 300	0+280, 40 m from south toe	901.77	2253	3.8	2270	6.7	**99.3**
2018/08/22	2 / 300	0+210, 40 m from south toe	901.77	2224	4.8	2270	6.7	**98.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/22/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/22	1 / 300	0+300, 50 m from south toe	902.45	2223	3.6	2270	6.7	**97.9**
2018/08/22	2 / 300	0+230, 2 m from south toe	902.45	2220	8.2	2270	6.7	**97.8**
2018/08/22	3 / 300	0+220, 40 m from south toe	902.45	2229	4.2	2270	6.7	**98.2**
2018/08/22	4 / 300	0+295, 40 m from south toe	902.80	2213	7.2	2270	6.7	**97.5**
2018/08/22	5 / 300	0+250, 3 m from south toe	902.80	2203	7.2	2270	6.7	**97.0**
2018/08/22	6 / 300	0+180, 50 m from south toe	903.20	2241	4.2	2270	6.7	**98.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/23/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/23	**1** / 300	Structural Fill - 35m North of toe from Station 0+230	903.13	2280	3.9	2270	6.7	**100.4**
2018/08/23	**2** / 300	Structural Fill - 60m North of toe from Station 0+325	903.83	2270	5.4	2270	6.7	**100.0**
2018/08/23	**3** / 300	Structural Fill - 25m North of toe from Station 0+160	903.83	2272	3.0	2270	6.7	**100.1**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/23/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/23	1 / 300	0+300, 35 m from south toe	904.28	2172	4.2	2270	6.7	**95.7**
2018/08/23	2 / 300	0+215, 30 m from south toe	904.28	2175	6.0	2270	6.7	**95.8**
2018/08/23	3 / 300	0+370, 50 m from south toe	904.68	2194	3.8	2270	6.7	**96.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/24/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/24	1 / 300	Structural Fill - 20m North of toe from Station 0+310	905.02	2159	7.4	2270	6.7	**95.1**
2018/08/24	2 / 300	Structural Fill - 40m North of toe from Station 0+280	905.02	2213	4.7	2270	6.7	**97.5**
2018/08/24	3 / 300	Structural Fill - 20m North of toe from Station 0+315	905.44	2185	5.3	2270	6.7	**96.3**
2018/08/24	4 / 300	Structural Fill - 30m North of toe from Station 0+281	905.44	2272	3.0	2270	6.7	**100.1**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/24/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/24	1 / 300	0+300, 47 m from south toe	905.62	2196	7.5	2270	6.7	**96.7**
2018/08/24	2 / 300	0+220, 3 m from south toe	905.82	2172	5.2	2270	6.7	**95.7**
2018/08/24	3 / 300	0+330, 7 m from south toe	905.82	2186	5.2	2270	6.7	**96.3**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/25/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/25	1 / 300	Structural Fill - 30m North of toe from Station 0+195	906.20	2207	5.4	2270	6.7	**97.2**
2018/08/25	2 / 300	Structural Fill - 40m North of toe from Station 0+290	906.60	2216	4.9	2270	6.7	**97.6**
2018/08/25	3 / 300	Structural Fill - 20m North of toe from Station 0+245	906.60	2283	4.0	2270	6.7	**100.6**
2018/08/25	4 / 300	Structural Fill - 30m North of toe from Station 0+335	907.03	2211	4.0	2270	6.7	**97.4**
2018/08/25	5 / 300	Structural Fill - 18m North of toe from Station 0+260	907.03	2212	3.9	2270	6.7	**97.4**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/25/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/25	1 / 300	0+170, 45 m from south toe	907.46	2170	6.6	2270	6.7	**95.6**
2018/08/25	2 / 300	0+290, 25 m from south toe	907.46	2172	5.2	2270	6.7	**95.7**
2018/08/25	3 / 300	0+270, 15 m from south toe	907.87	2191	4.7	2270	6.7	**96.5**
2018/08/25	4 / 300	0+310, 60 m from south toe	907.87	2253	4.9	2270	6.7	**99.3**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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ASTM Designation D6938

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QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/26/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/26	1 / 300	Structural Fill - 80m North of toe from Station 0+325	908.24	2214	4.7	2270	6.7	**97.5**
2018/08/26	2 / 300	Structural Fill - 20m North of toe from Station 0+140	908.24	2186	5.3	2270	6.7	**96.3**
2018/08/26	3 / 300	Structural Fill - 20m North of toe from Station 0+280	908.67	2283	4.3	2270	6.7	**100.6**
2018/08/26	4 / 300	Structural Fill -15m North of toe from Station 0+205	908.67	2214	4.4	2270	6.7	**97.5**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/25/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/25	1 / 300	0+298, 77 m from south toe	909.06	2260	4.3	2270	6.7	**99.6**
2018/08/25	2 / 300	0+200, 30 m from south toe	909.06	2224	6.9	2270	6.7	**98.0**
2018/08/25	3 / 300	0+270, 25 m from south toe	909.43	2209	6.9	2270	6.7	**97.3**
2018/08/25	4 / 300	0+236, 35 m from south toe	909.43	2167	7.2	2270	6.7	**95.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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ASTM Designation D6938

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QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/27/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/27	1 / 300	Structural Fill - 40m North of toe from Station 0+300	909.80	2234	4.8	2270	6.7	**98.4**
2018/08/27	2 / 300	Structural Fill - 20m North of toe from Station 0+235	909.80	2180	5.5	2270	6.7	**96.0**
2018/08/27	3 / 300	Structural Fill - 40m North of toe from Station 0+340	910.21	2207	3.9	2270	6.7	**97.2**
2018/08/27	4 / 300	Structural Fill -10m North of toe from Station 0+250	910.21	2250	4.1	2270	6.7	**99.1**
2018/08/27	5 / 300	Structural Fill - 100m North of toe from Station 0+330		2194	4.2	2270	6.7	**96.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/27/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/27	1 / 300	0+340, 60 m from south toe	911.05	2192	6.8	2270	6.7	**96.6**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/28/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/28	1 / 300	Structural Fill - 25m North of toe from Station 0+325	911.36	2194	4.7	2270	6.7	**96.7**
2018/08/28	2 / 300	Structural Fill - 20m North of toe from Station 0+210	911.36	2177	5.2	2270	6.7	**95.9**
2018/08/28	3 / 300	Structural Fill - 50m North of toe from Station 0+260	911.76	2246	3.8	2270	6.7	**98.9**
2018/08/28	4 / 300	Structural Fill - 25m North of toe from Station 0+200	911.76	2206	3.9	2270	6.7	**97.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/28/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/28	**1** 300	0+294, 32 m from south toe	912.15	2191	7.6	2270	6.7	**96.5**
2018/08/28	**2** 300	0+220, 45 m from south toe	912.15	2172	5.2	2270	6.7	**95.7**
2018/08/28	**3** 300	0+270, 60 m from south toe	909.43	2205	4.3	2270	6.7	**97.1**
2018/08/28	**4** 300	0+245, 40 m from north toe	909.43	2183	5.1	2270	6.7	**96.2**
2018/08/28	**5** 300	0+262, 37 m from south toe	909.43	2168	5.5	2270	6.7	**95.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 12 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/29/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/29	1 / 300	Structural Fill - 85m North of toe from Station 0+295	912.92	2225	4.1	2270	6.7	**98.0**
2018/08/29	2 / 300	Structural Fill - 30m North of toe from Station 0+210	912.92	2160	7.3	2270	6.7	**95.2**
2018/08/29	3 / 300	Structural Fill - 100m North of toe from Station 0+280	913.24	2256	4.0	2270	6.7	**99.4**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 1 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/29/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/29	1 / 300	0+300, 30 m from north toe	913.76	2237	5.3	2270	6.7	**98.5**
2018/08/29	2 / 300	0+220, 45 m from north toe	913.76	2235	5.8	2270	6.7	**98.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/30/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/30	1 / 300	Structural Fill - 40m North of toe from Station 0+150	913.69	2261	4.2	2270	6.7	**99.6**
2018/08/30	2 / 300	Structural Fill - 40m North of toe from Station 0+185	913.69	2205	4.0	2270	6.7	**97.1**
2018/08/30	3 / 300	Structural Fill - 80m North of toe from Station 0+320	914.09	2207	3.3	2270	6.7	**97.2**
2018/08/30	4 / 300	Structural Fill - 30m North of toe from Station 0+300	914.09	2165	5.3	2270	6.7	**95.4**
2018/08/30	5 / 300	Structural Fill - 20m North of toe from Station 0+255	914.09	2160	6.7	2270	6.7	**95.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/30/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/30	1 / 300	0+230, 65 m from south toe	914.09	2260	5.6	2270	6.7	**99.6**
2018/08/30	2 / 300	0+350, 25 m from north toe	914.49	2209	6.8	2270	6.7	**97.3**
2018/08/30	3 / 300	0+270, 50 m from south toe	914.49	2176	5.5	2270	6.7	**95.9**
2018/08/30	4 / 300	0+300, 20 m from south toe	914.49	2218	4.7	2270	6.7	**97.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/31/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/31	1 / 300	Structural Fill - 100m North of toe from Station 0+165	914.86	2208	6.9	2270	6.7	**97.3**
2018/08/31	2 / 300	Structural Fill - 40m North of toe from Station 0+195	914.86	2220	4.1	2270	6.7	**97.8**
2018/08/31	3 / 300	Structural Fill - 45m North of toe from Station 0+315	914.86	2156	5.1	2270	6.7	**95.0**
2018/08/31	4 / 300	Structural Fill - 20m North of toe from Station 0+300	914.86	2229	4.0	2270	6.7	**98.2**
2018/08/31	5 / 300	Structural Fill - 65m North of toe from Station 0+270	915.25	2216	3.7	2270	6.7	**97.6**
2018/08/31	6 / 300	Structural Fill - 75m North of toe from Station 0+220	915.25	2176	4.6	2270	6.7	**95.9**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/31/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/31	1 / 300	0+300, 30 m from south toe	915.25	2209	4.2	2270	6.7	**97.3**
2018/08/31	2 / 300	0+230, 25 m from south toe	915.25	2236	5.7	2270	6.7	**98.5**
2018/08/31	3 / 300	0+288, 116 m from south toe	915.65	2162	5.0	2270	6.7	**95.2**
2018/08/31	4 / 300	0+280, 15 m from south toe	915.65	2187	4.5	2270	6.7	**96.3**
2018/08/31	5 / 300	0+220, 15 m from south toe	915.65	2240	3.7	2270	6.7	**98.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	Structural Fill - 65m North of toe from Station 0+200	915.65	2171	4.3	2270	6.7	**95.6**
2018/09/01	2 / 300	Structural Fill - 100m North of toe from Station 0+350	916.05	2222	6.0	2270	6.7	**97.9**
2018/09/01	3 / 300	Structural Fill - 15m North of toe from Station 0+315	916.05	2190	4.3	2270	6.7	**96.5**
2018/09/01	4 / 300	Structural Fill - 30m North of toe from Station 0+215	916.05	2163	5.4	2270	6.7	**95.3**
2018/09/01	5 / 300	Structural Fill - 60m North of toe from Station 0+140	916.05	2172	4.9	2270	6.7	**95.7**
2018/09/01	6 / 300	Structural Fill - 100m North of toe from Station 0+200	916.43	2190	4.9	2270	6.7	**96.5**
2018/09/01	7 / 300	Structural Fill - 90m North of toe from Station 0+355	916.43	2202	4.7	2270	6.7	**97.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	0+340, 10 m from south toe	916.43	2209	4.2	2270	6.7	**97.3**
2018/09/01	2 / 300	0+250, 25 m from south toe	916.43	2236	5.7	2270	6.7	**98.5**
2018/09/01	3 / 300	0+320, 40 m from North toe	816.88	2162	5.0	2270	6.7	**95.2**
2018/09/01	4 / 300	0+290, 15 m from south toe	816.88	2187	4.5	2270	6.7	**96.3**
2018/09/01	5 / 300	0+220, 30 m from north toe	816.88	2240	3.7	2270	6.7	**98.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2/2/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/02/02	1 / 300	0+265, 5 m from south toe	917.22	2161	4.6	2270	6.7	**95.2**
2018/02/02	2 / 300	0+265, 30 m from north toe	917.61	2174	4.5	2270	6.7	**95.8**
2018/02/02	3 / 300	0+320, 116 m from south toe	917.61	2246	4.5	2270	6.7	**98.9**
2018/02/02	4 / 300	0+280, 15 m from south toe	917.61	2208	4.2	2270	6.7	**97.3**
2018/02/02	5 / 300	0+220, 15 m from south toe	917.61	2180	3.9	2270	6.7	**96.0**
2018/02/02	6 / 300	0+220, 15 m from south toe	918.06	2259	3.9	2270	6.7	**99.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/16/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/16	1 / 300	Structural Fill - SE corner	911.06	2224	5.2	2270	6.7	**98.0**
2018/08/16	2 / 300	Structural Fill - South, center	911.06	2271	5.1	2270	6.7	**100.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/17/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/17	1 / 300	Structural Fill - South, Center	912.21	2244	5.8	2270	6.7	**98.9**
2018/08/17	2 / 300	Structural Fill - Center of lift	912.21	2275	4.8	2270	6.7	**100.2**
2018/08/17	3 / 300	Structural Fill - South, Center	912.58	2272	2.4	2270	6.7	**100.1**
2018/08/17	4 / 300	Structural Fill - Center of lift	888.10	2202	5.3	2270	6.7	**97.0**
2018/08/17	5 / 300	Structural Fill - Center, 10 m N of toe	889.38	2308	3.3	2270	6.7	**101.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/18/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/18	1 / 300	Structural Fill - SE Corner	890.98	2205	6.3	2270	6.7	**97.1**
2018/08/18	2 / 300	Structural Fill - SW Corner	891.41	2232	4.3	2270	6.7	**98.3**
2018/08/18	3 / 300	Structural Fill - Center of lift	891.84	2202	4.3	2270	6.7	**97.0**
2018/08/18	4 / 300	Structural Fill - North, Center	892.21	2275	3.8	2270	6.7	**100.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/19/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/19	1 / 300	Structural Fill - SE Corner	893.75	2281	4.7	2270	6.7	**100.5**
2018/08/19	2 / 300	Structural Fill - South Center	894.13	2282	6.3	2270	6.7	**100.5**
2018/08/19	3 / 300	Structural Fill - NE Corner	894.53	2251	4.8	2270	6.7	**99.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	Structural Fill - 65m North of toe from Station 0+200	915.65	2171	4.3	2270	6.7	**95.6**
2018/09/01	2 / 300	Structural Fill - 100m North of toe from Station 0+350	916.05	2222	6.0	2270	6.7	**97.9**
2018/09/01	3 / 300	Structural Fill - 15m North of toe from Station 0+315	916.05	2190	4.3	2270	6.7	**96.5**
2018/09/01	4 / 300	Structural Fill - 30m North of toe from Station 0+215	916.05	2163	5.4	2270	6.7	**95.3**
2018/09/01	5 / 300	Structural Fill - 60m North of toe from Station 0+140	916.05	2172	4.9	2270	6.7	**95.7**
2018/09/01	6 / 300	Structural Fill - 100m North of toe from Station 0+200	916.43	2190	4.9	2270	6.7	**96.5**
2018/09/01	7 / 300	Structural Fill - 90m North of toe from Station 0+355	916.43	2202	4.7	2270	6.7	**97.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	0+340, 10 m from south toe	916.43	2209	4.2	2270	6.7	**97.3**
2018/09/01	2 / 300	0+250, 25 m from south toe	916.43	2236	5.7	2270	6.7	**98.5**
2018/09/01	3 / 300	0+320, 40 m from North toe	916.88	2162	5.0	2270	6.7	**95.2**
2018/09/01	4 / 300	0+290, 15 m from south toe	916.88	2187	4.5	2270	6.7	**96.3**
2018/09/01	5 / 300	0+220, 30 m from north toe	916.88	2240	3.7	2270	6.7	**98.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/2/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/02	1 / 300	0+160, 15 m from North toe	916.82	2321	4.4	2270	6.7	**102.2**
2018/09/02	2 / 300	0+200, 20 m from South toe	917.22	2205	4.4	2270	6.7	**97.1**
2018/09/02	3 / 300	0+250, 10 m from South toe	917.22	2210	3.3	2270	6.7	**97.4**
2018/09/02	4 / 300	0+330, 25 m from North toe	917.22	2157	5.0	2270	6.7	**95.0**
2018/09/02	5 / 300	0+140, 30 m from North toe	917.22	2219	3.9	2270	6.7	**97.8**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2/2/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/02/02	1 / 300	0+265, 5 m from south toe	917.22	2161	4.6	2270	6.7	**95.2**
2018/02/02	2 / 300	0+265, 30 m from north toe	917.61	2174	4.5	2270	6.7	**95.8**
2018/02/02	3 / 300	0+320, 116 m from south toe	917.61	2246	4.5	2270	6.7	**98.9**
2018/02/02	4 / 300	0+280, 15 m from south toe	917.61	2208	4.2	2270	6.7	**97.3**
2018/02/02	5 / 300	0+220, 15 m from south toe	917.61	2180	3.9	2270	6.7	**96.0**
2018/02/02	6 / 300	0+220, 15 m from south toe	918.06	2259	3.9	2270	6.7	**99.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/3/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/03	1 / 300	0+320, 40 m from North toe	918.00	2195	4.1	2270	6.7	**96.7**
2018/09/03	2 / 300	0+200, 10 m from North toe	918.00	2272	5.2	2270	6.7	**100.1**
2018/09/03	3 / 300	0+340, 30 m from North toe	918.00	2232	4.3	2270	6.7	**98.3**
2018/09/03	4 / 300	0+280, 40 m from North toe	918.00	2178	3.9	2270	6.7	**95.9**
2018/09/03	5 / 300	0+240, 25 m from South toe	918.40	2243	4.6	2270	6.7	**98.8**
2018/09/03	6 / 300	0+180, 30 m from South toe	918.40	2191	3.9	2270	6.7	**96.5**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2/3/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/02/03	1 / 300	Test pad; SE corner	918.45	2190	3.5	2270	6.7	**96.5**
2018/02/03	2 / 300	0+330, 15 m from north toe	918.85	2226	4.2	2270	6.7	**98.1**
2018/02/03	3 / 300	0+220, 5 m from north toe	918.85	2241	3.8	2270	6.7	**98.7**
2018/02/03	4 / 300	0+330, 45 m from south toe	918.85	2213	4.7	2270	6.7	**97.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-29	**1** 300	Structural Fill - Embankment Centre	892.2	2195	4.9	2270	6.7	**96.7**
2018-07-29	**2** 300	Structural Fill - Embankment Slightly South of Centre	892.2	2315	5.0	2270	6.7	**102.0**
2018-07-29	**3** 300	Structural Fill - Embankment Along West abutment	892.2	2260	3.8	2270	6.7	**99.6**
2018-07-29	**4** 300	Structural Fill - Embankment Centre near toe	892.2	2212	5.5	2270	6.7	**97.4**
2018-07-29	**5** 300	Structural Fill - Embankment in NW corner	892.2	2214	7.5	2270	6.7	**97.5**
2018-07-29	**6** 300	Structural Fill - Embankment East of centre	892.2	2204	6.0	2270	6.7	**97.1**
2018-07-29	**7** 300	Structural Fill - Embankment SW corner	892.2	2204	3.5	2270	6.7	**97.1**
2018-07-29	**8** 300	Structural Fill - Embankment centre near toe of lift #5	892.7	2231	4.3	2270	6.7	**98.3**
2018-07-29	**9** 300	Structural Fill - Embankment SW corner near toe of lift #5	892.7	2176	4.3	2270	6.7	**95.9**
2018-07-29	**10** 300	Structural Fill - Embankment SW corner of lift #5	892.7	2243	4.4	2270	6.7	**98.8**
2018-07-29	**11** 300	Structural Fill - Embankment SE corner of lift #5	892.7	2268	4.6	2270	6.7	**99.9**

Remarks: Testing completed with BGC present. Page 1 of 2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-29	**12** / 300	Structural Fill - Embankment Centre of lift #5	892.7	2254	4.2	2270	6.7	**99.3**
2018-07-29	**13** / 300	Structural Fill - Embankment Slightly SE of Centre of lift #5	892.7	2236	5.0	2270	6.7	**98.5**
2018-07-29	**14** / 300	Structural Fill - Embankment SE near toe of lift #5	892.7	2314	4.0	2270	6.7	**101.9**

Remarks: Testing completed with BGC present. Page 2 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**1** 300	Structural Fill - NW corner	893.6	2279	4.9	2270	6.7	**100.4**
2018-07-30	**2** 300	Structural Fill - NE corner	893.6	2297	5.5	2270	6.7	**101.2**
2018-07-30	**3** 300	Structural Fill - SE corner	893.6	2249	5.7	2270	6.7	**99.1**
2018-07-30	**4** 300	Structural Fill - toe berm	893.6	2264	5.2	2270	7.7	**99.7**
2018-07-30	**5** 300	Structural Fill - SW corner near abutment	894.1	2279	4.9	2270	7.7	**100.4**
2018-07-30	**6** 300	Structural Fill - Middle west near abutment	894.1	2237	4.7	2270	7.7	**98.5**
2018-07-30	**7** 300	Structural Fill - North and centre	894.1	2140	5.1	2270	7.7	**94.3**
2018-07-30	**8** 300	Structural Fill - North and centre	894.1	2179	5.0	2270	7.7	**96.0**
2018-07-30	**9** 300	Structural Fill - Centre	894.1	2277	4.9	2270	7.7	**100.3**
2018-07-30	**10** 300	Structural Fill - Centre near East abutment	894.1	2228	4.8	2270	7.7	**98.1**
2018-07-30	**11** 300	Structural Fill - Centre near toe	894.1	2244	4.7	2270	7.7	**98.9**

Remarks: Testing completed with BGC present. Page 1 of 4.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**12** / 300	Structural Fill - Slightly North of center	894.1	2142	4.7	2270	6.7	**94.4**
2018-07-30	**13** / 300	Structural Fill - Slightly West of centre	894.1	2140	4.0	2270	6.7	**94.3**
2018-07-30	**14** / 300	Structural Fill - Slightly west of centre near next fill	894.1	2237	4.2	2270	6.7	**98.5**
2018-07-30	**15** / 300	Structural Fill - NW corner	894.4	2118	5.3	2270	6.7	**93.3**
2018-07-30	**16** / 300	Structural Fill - Centre of West abutment	894.4	2235	5.4	2270	6.7	**98.5**
2018-07-30	**17** / 300	Structural Fill - NW corner	894.4	2286	4.1	2270	6.7	**100.7**
2018-07-30	**18** / 300	Structural Fill - SW corner	894.4	2206	4.5	2270	6.7	**97.2**
2018-07-30	**19** / 300	Structural Fill - SW corner more towards center	894.4	2161	5.9	2270	6.7	**95.2**
2018-07-30	**20** / 300	Structural Fill - SW corner more towards center turned 90 deg	894.4	2252	5.1	2270	6.7	**99.2**
2018-07-30	**21** / 300	Structural Fill - NW corner closer towards center	894.4	2184	4.6	2270	6.7	**96.2**
2018-07-30	**22** / 300	Structural Fill - NE corner	894.4	2210	4.9	2270	6.7	**97.4**

Remarks: Testing completed with BGC present. Page 2 of 4.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**23** / 300	Structural Fill - Centre	894.4	2222	4.5	2270	6.7	**97.9**
2018-07-30	**24** / 300	Structural Fill - West Toe	894.4	2273	4.7	2270	6.7	**100.1**
2018-07-30	**25** / 300	Structural Fill - East toe	894.4	2199	5.3	2270	6.7	**96.9**
2018-07-30	**26** / 300	Structural Fill - Centre of East abutment	894.4	2222	4.9	2270	6.7	**97.9**
2018-07-30	**27** / 300	Structural Fill - NE corner	894.4	2248	4.0	2270	6.7	**99.0**
2018-07-30	**28** / 300	Structural Fill - Moisture content check on first load next lift	894.9	2106	5.2	2270	6.7	
2018-07-30	**29** / 300	Structural Test Fill - prepass data	894.9	2088	5.2	2270	6.7	
2018-07-30	**30** / 300	Structural Test Fill - first pass 1	894.9	2220	4.9	2270	6.7	**97.8**
2018-07-30	**31** / 300	Structural Test Fill - first pass 2	894.9	2264	5.3	2270	6.7	**99.7**
2018-07-30	**32** / 300	Structural Test Fill - 2nd pass, 1	894.9	2234	4.7	2270	6.7	**98.4**
2018-07-30	**33** / 300	Structural Test Fill - 2nd pass, 2	894.9	2169	5.5	2270	6.7	**95.6**

Remarks: Testing completed with BGC present. Page 3 of 4. (Test 28-29 checking MC for new lift)

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**34** 300	Structural Test Fill - 2nd pass, nuke 3 (rotated #2)	894.9	2161	5.4	2270	6.7	**95.2**
2018-07-30	**35** 300	Structural Fill - NW corner	894.9	2271	4.5	2270	6.7	**100.0**
2018-07-30	**36** 300	Structural Fill - West of center	894.9	2229	4.0	2270	6.7	**98.2**
2018-07-30	**37** 300	Structural Fill - Center	894.9	2249	5.2	2270	6.7	**99.1**
2018-07-30	**38** 300	Structural Fill - North of center	894.9	2244	5.2	2270	6.7	**98.9**
2018-07-30	**39** 300	Structural Fill - North of center	894.9	2285	4.8	2270	6.7	**100.7**
2018-07-30	**40** 300	Structural Fill - SE corner	894.9	2251	5.2	2270	6.7	**99.2**
2018-07-30	**41** 300	Structural Fill - MC test on next lift	895.3	1937	3.2	2270	6.7	
2018-07-30	**42** 300	Structural Fill - MC test on next lift	895.3	2079	3.5	2270	6.7	

Remarks: Testing completed with BGC present. Page 4 of 4. (Test 41-42 checking MC uncompacted)

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-29	**1** 300	Structural Fill - Embankment Centre	892.2	2195	4.9	2270	6.7	**96.7**
2018-07-29	**2** 300	Structural Fill - Embankment Slightly South of Centre	892.2	2315	5.0	2270	6.7	**102.0**
2018-07-29	**3** 300	Structural Fill - Embankment Along West abutment	892.2	2260	3.8	2270	6.7	**99.6**
2018-07-29	**4** 300	Structural Fill - Embankment Centre near toe	892.2	2212	5.5	2270	6.7	**97.4**
2018-07-29	**5** 300	Structural Fill - Embankment in NW corner	892.2	2214	7.5	2270	6.7	**97.5**
2018-07-29	**6** 300	Structural Fill - Embankment East of centre	892.2	2204	6.0	2270	6.7	**97.1**
2018-07-29	**7** 300	Structural Fill - Embankment SW corner	892.2	2204	3.5	2270	6.7	**97.1**
2018-07-29	**8** 300	Structural Fill - Embankment centre near toe of lift #5	892.7	2231	4.3	2270	6.7	**98.3**
2018-07-29	**9** 300	Structural Fill - Embankment SW corner near toe of lift #5	892.7	2176	4.3	2270	6.7	**95.9**
2018-07-29	**10** 300	Structural Fill - Embankment SW corner of lift #5	892.7	2243	4.4	2270	6.7	**98.8**
2018-07-29	**11** 300	Structural Fill - Embankment SE corner of lift #5	892.7	2268	4.6	2270	6.7	**99.9**

Remarks: Testing completed with BGC present. Page 1 of 2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-29 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-29	**12** / 300	Structural Fill - Embankment Centre of lift #5	892.7	2254	4.2	2270	6.7	**99.3**
2018-07-29	**13** / 300	Structural Fill - Embankment Slightly SE of Centre of lift #5	892.7	2236	5.0	2270	6.7	**98.5**
2018-07-29	**14** / 300	Structural Fill - Embankment SE near toe of lift #5	892.7	2314	4.0	2270	6.7	**101.9**

Remarks: Testing completed with BGC present. Page 2 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 25 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-30 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**1** 300	Structural Fill - NW corner	893.6	2279	4.9	2270	6.7	**100.4**
2018-07-30	**2** 300	Structural Fill - NE corner	893.6	2297	5.5	2270	6.7	**101.2**
2018-07-30	**3** 300	Structural Fill - SE corner	893.6	2249	5.7	2270	6.7	**99.1**
2018-07-30	**4** 300	Structural Fill - toe berm	893.6	2264	5.2	2270	7.7	**99.7**
2018-07-30	**5** 300	Structural Fill - SW corner near abutment	894.1	2279	4.9	2270	7.7	**100.4**
2018-07-30	**6** 300	Structural Fill - Middle west near abutment	894.1	2237	4.7	2270	7.7	**98.5**
2018-07-30	**7** 300	Structural Fill - North and centre	894.1	2140	5.1	2270	7.7	**94.3**
2018-07-30	**8** 300	Structural Fill - North and centre	894.1	2179	5.0	2270	7.7	**96.0**
2018-07-30	**9** 300	Structural Fill - Centre	894.1	2277	4.9	2270	7.7	**100.3**
2018-07-30	**10** 300	Structural Fill - Centre near East abutment	894.1	2228	4.8	2270	7.7	**98.1**
2018-07-30	**11** 300	Structural Fill - Centre near toe	894.1	2244	4.7	2270	7.7	**98.9**

Remarks: Testing completed with BGC present. Page 1 of 4.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 28 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-30 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**12** 300	Structural Fill - Slightly North of center	894.1	2142	4.7	2270	6.7	**94.4**
2018-07-30	**13** 300	Structural Fill - Slightly West of centre	894.1	2140	4.0	2270	6.7	**94.3**
2018-07-30	**14** 300	Structural Fill - Slightly west of centre near next fill	894.1	2237	4.2	2270	6.7	**98.5**
2018-07-30	**15** 300	Structural Fill - NW corner	894.4	2118	5.3	2270	6.7	**93.3**
2018-07-30	**16** 300	Structural Fill - Centre of West abutment	894.4	2235	5.4	2270	6.7	**98.5**
2018-07-30	**17** 300	Structural Fill - NW corner	894.4	2286	4.1	2270	6.7	**100.7**
2018-07-30	**18** 300	Structural Fill - SW corner	894.4	2206	4.5	2270	6.7	**97.2**
2018-07-30	**19** 300	Structural Fill - SW corner more towards center	894.4	2161	5.9	2270	6.7	**95.2**
2018-07-30	**20** 300	Structural Fill - SW corner more towards center turned 90 deg	894.4	2252	5.1	2270	6.7	**99.2**
2018-07-30	**21** 300	Structural Fill - NW corner closer towards center	894.4	2184	4.6	2270	6.7	**96.2**
2018-07-30	**22** 300	Structural Fill - NE corner	894.4	2210	4.9	2270	6.7	**97.4**

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 30 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-30 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**23** / 300	Structural Fill - Centre	894.4	2222	4.5	2270	6.7	**97.9**
2018-07-30	**24** / 300	Structural Fill - West Toe	894.4	2273	4.7	2270	6.7	**100.1**
2018-07-30	**25** / 300	Structural Fill - East toe	894.4	2199	5.3	2270	6.7	**96.9**
2018-07-30	**26** / 300	Structural Fill - Centre of East abutment	894.4	2222	4.9	2270	6.7	**97.9**
2018-07-30	**27** / 300	Structural Fill - NE corner	894.4	2248	4.0	2270	6.7	**99.0**
2018-07-30	**28** / 300	Structural Fill - Moisture content check on first load next lift	894.9	2106	5.2	2270	6.7	**92.8**
2018-07-30	**29** / 300	Structural Test Fill - prepass data	894.9	2088	5.2	2270	6.7	**92.0**
2018-07-30	**30** / 300	Structural Test Fill - first pass 1	894.9	2220	4.9	2270	6.7	**97.8**
2018-07-30	**31** / 300	Structural Test Fill - first pass 2	894.9	2264	5.3	2270	6.7	**99.7**
2018-07-30	**32** / 300	Structural Test Fill - 2nd pass, 1	894.9	2234	4.7	2270	6.7	**98.4**
2018-07-30	**33** / 300	Structural Test Fill - 2nd pass, 2	894.9	2169	5.5	2270	6.7	**95.6**

Remarks: Testing completed with BGC present. Page 3 of 4.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 25 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-30 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-30	**34** / 300	Structural Test Fill - 2nd pass, nuke 3 (rotated #2)	894.9	2161	5.4	2270	6.7	**95.2**
2018-07-30	**35** / 300	Structural Fill - NW corner	894.9	2271	4.5	2270	6.7	**100.0**
2018-07-30	**36** / 300	Structural Fill - West of center	894.9	2229	4.0	2270	6.7	**98.2**
2018-07-30	**37** / 300	Structural Fill - Center	894.9	2249	5.2	2270	6.7	**99.1**
2018-07-30	**38** / 300	Structural Fill - North of center	894.9	2244	5.2	2270	6.7	**98.9**
2018-07-30	**39** / 300	Structural Fill - North of center	894.9	2285	4.8	2270	6.7	**100.7**
2018-07-30	**40** / 300	Structural Fill - SE corner	894.9	2251	5.2	2270	6.7	**99.2**
2018-07-30	**41** / 300	Structural Fill - MC test on next lift	895.3	1937	3.2	2270	6.7	
2018-07-30	**42** / 300	Structural Fill - MC test on next lift	895.3	2079	3.5	2270	6.7	

Remarks: Testing completed with BGC present. Page 4 of 4.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 25 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-31 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-31	**1** / 300	Structural Fill - Along East abutment	896.2	2257	3.1	2270	6.7	**99.4**
2018-07-31	**2** / 200	Structural Fill - SE corner	896.2	2226	2.8	2270	6.7	**98.1**
2018-07-31	**3** / 300	Structural Fill - Toe center	896.2	2281	2.9	2270	6.7	**100.5**
2018-07-31	**4** / 250	Structural Fill - West abutment	896.5	2283	2.4	2270	6.7	**100.6**
2018-07-31	**5** / 250	Structural Fill - West abutment, further south	896.5	2271	3.1	2270	6.7	**100.0**
2018-07-31	**6** / 300	Structural Fill - West abutment near toe	896.5	2226	2.6	2270	6.7	**98.1**
2018-07-31	**7** / 300	Structural Fill - NE corner	896.5	2278	3.3	2270	6.7	**100.4**
2018-07-31	**8** / 250	Structural Fill - East abutment	896.5	2201	2.7	2270	6.7	**97.0**
2018-07-31	**9** / 300	Structural Fill - slightly east of center at toe	896.5	2246	5.3	2270	6.7	**98.9**
2018-07-31	**10** / 300	Structural Fill - SE corner, near toe	896.5	2267	5.3	2270	6.7	**99.9**
2018-07-31	**11** / 300	Structural Fill - NW corner	897.0	2256	4.8	2270	6.7	**99.4**

Remarks: Testing completed with BGC present. Page 1 of 3.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 25 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-31 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-31	**12** / 300	Structural Fill - Along West abutment	897.0	2194	7.9	2270	6.7	**96.7**
2018-07-31	**13** / 300	Structural Fill - North, center	897.0	2288	3.6	2270	6.7	**100.8**
2018-07-31	**14** / 250	Structural Fill - Center, toe	897.0	2244	5.3	2270	6.7	**98.9**
2018-07-31	**15** / 300	Structural Fill - NE corner	897.0	2241	5.7	2270	6.7	**98.7**
2018-07-31	**16** / 300	Structural Fill - SE corner near toe	897.0	2265	4.3	2270	6.7	**99.8**
2018-07-31	**17** / 300	Structural Fill - SW corner	897.3	2231	5.3	2270	6.7	**98.3**
2018-07-31	**18** / 250	Structural Fill - West abutment	897.3	2245	3.8	2270	6.7	**98.9**
2018-07-31	**19** / 300	Structural Fill - North center	897.3	2254	5.3	2270	6.7	**99.3**
2018-07-31	**20** / 300	Structural Fill - Center	897.3	2267	5.5	2270	6.7	**99.9**
2018-07-31	**21** / 300	Structural Fill - NE corner near abutment	897.3	2243	4.9	2270	6.7	**98.8**
2018-07-31	**22** / 300	Structural Fill - SE corner	897.3	2203	5.8	2270	6.7	**97.0**

Remarks: Testing completed with BGC present. Page 2 of 3.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 25 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-31 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % MPD
2018-07-31	**23** / 300	Structural Fill - Center	897.3	2255	5.3	2270	6.7	**99.3**
2018-07-31	**24** / 300	Structural Fill - NW corner	897.6	2205	5.7	2270	6.7	**97.1**
2018-07-31	**25** / 300	Structural Fill - SW corner	897.6	2251	5.5	2270	6.7	**99.2**
2018-07-31	**26** / 300	Structural Fill - Center	897.6	2241	5.1	2270	6.7	**98.7**
2018-07-31	**27** / 300	Structural Fill - Toe center	897.6	2261	4.9	2270	6.7	**99.6**

Remarks: Testing completed with BGC present. Page 3 of 3.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 24 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/2/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/2/2018	**1** / 300	Structural Fill - NW corner of embankment	900.75	2291	4.2	2270	6.7	**100.9**
8/2/2018	**2** / 250	Structural Fill - SW corner of embankment	900.75	2265	4.7	2270	6.7	**99.8**
8/2/2018	**3** / 250	Structural Fill - Center of embankment	900.75	2209	4.9	2270	6.7	**97.3**
8/2/2018	**4** / 250	Structural Fill - SE of embankment	900.75	2223	2.6	2270	6.7	**97.9**
8/2/2018	**5** / 300	Structural Fill - SE of embankment, 2nd test	900.75	2305	2.1	2270	6.7	**101.5**
8/2/2018	**6** / 300	Structural Fill - NW corner of embankment	901.07	2248	3.6	2270	6.7	**99.0**
8/2/2018	**7** / 300	Structural Fill - SE corner of embankment	901.07	2150	5.9	2270	6.7	**94.7**
8/2/2018	**8** / 300	Structural Fill - Center of embankment	901.07	2257	6.8	2270	6.7	**99.4**
8/2/2018	**9** / 300	Structural Fill - South of center of embankment	901.07	2248	7.9	2270	6.7	**99.0**
8/2/2018	**10** / 250	Structural Fill - West of center of embankment	901.42	2234	3.7	2270	6.7	**98.4**
8/2/2018	**11** / 300	Structural Fill - Center of embankment	901.42	2253	3.7	2270	6.7	**99.3**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 24 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/2/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/2/2018	**12** / 300	Structural Fill - SE corner of embankment	901.42	2190	7.6	2270	6.7	**96.5**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 2 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 22 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/3/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/3/2018	**1** / 300	Structural Fill - Lower embankment, center	891.08	2270	4.0	2270	6.7	**100.0**
8/3/2018	**2** / 300	Structural Fill - Upper embankment, NW corner	902.42	2277	4.8	2270	6.7	**100.3**
8/3/2018	**3** / 300	Structural Fill - Upper embankment, south of center	902.42	2225	4.0	2270	6.7	**98.0**
8/3/2018	**4** / 250	Structural Fill - Upper embankment, center of toe	902.42	2214	3.6	2270	6.7	**97.5**
8/3/2018	**5** / 300	Structural Fill - Upper embankment, SE corner	902.42	2298	4.4	2270	6.7	**101.2**
8/3/2018	**6** / 300	Structural Fill - Lower embankment, NW corner	891.40	2284	3.8	2270	6.7	**100.6**
8/3/2018	**7** / 300	Structural Fill - Lower embankment, center	891.40	2234	4.3	2270	6.7	**98.4**
8/3/2018	**8** / 300	Structural Fill - Lower embankment, West of center	891.40	2270	3.8	2270	6.7	**100.0**
8/3/2018	**9** / 250	Structural Fill - Upper embankment, NW corner	902.75	2226	3.9	2270	6.7	**98.1**
8/3/2018	**10** / 300	Structural Fill - Upper embankment, center	902.75	2177	4.1	2270	6.7	**95.9**
8/3/2018	**11** / 300	Structural Fill - Upper embankment, SE corner	902.75	2173	5.7	2270	6.7	**95.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 22 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/3/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/3/2018	**12** / 300	Structural Fill - Lower embankment, SE corner near 365 entrance	891.40	2174	4.4	2270	6.7	**95.8**
8/3/2018	**13** / 300	Structural Fill - Lower embankment at the toe design stake	891.08	2167	3.9	2270	6.7	**95.5**
8/3/2018	**14** / 300	Structural Fill - Halfway up East embankment ramp	-	2300	3.5	2270	6.7	**101.3**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 2 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 24 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-07-27 **By:** J.Purves

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: GRAVEL* and SAND, silty (*material over 80mm observed)

Material Usage/Zone: Moisture testing stockpile

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
2018-07-27	**1** / 300	Test pad uncompacted (0.5m)	NA	2037	5.3	2270	6.5	**89.7**
2018-07-27	**2** / 300	Test pad 1st Pass	NA	2235	6.0	2270	6.5	**98.5**
2018-07-27	**3** / 300	Test pad 2nd Pass	NA	2286	5.6	2270	6.5	**100.7**
2018-07-27	**4** / 300	Test pad 3rd Pass	NA	2281	5.9	2270	6.5	**100.5**
"	**5** / 300							
"	**6** / 300							
"	**7** / 300							
"	**8** / 300							
"	**9** / 300							
"	**10** / 300							
"	**11** / 300							
"	**12** / 300							

Remarks: Structural fill test pad 0.5m. No observed change after three passes at current MC. CAT 78B 13500 kg drum on high vibratory.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 18 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2018-06-27 **By:** J.Buyck

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 2 Select Fill Material - SAND, trace silt (12.5 mm reject sand)

Material Usage/Zone: Proposed liner and pipe bedding

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density (kg/m³)	Opt. MC %	Comp % SPD
2018-06-27	**1** / 300	Method spec test of 150 mm of static rolled lift thickness	NA	1976	6.5	2080	9.5	**95.0**
2018-06-27	**2** / 300	Method spec test of 300 mm of static rolled lift thickness	NA	2007	6.1	2080	9.5	**96.5**

Remarks: Material placed and static rolled in two separate 150 mm and 300 mm lift thickness. Testing performed with R. Morlan present.

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TETRA TECH

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 19 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/4/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/4/2018	**1** / 300	Structural Fill - Lower embankment, center	892.15	2332	2.9	2270	6.7	**102.7**
8/4/2018	**2** / 300	Structural Fill - Lower embankment, East near ramp	892.60	2253	4.0	2270	6.7	**99.3**
8/4/2018	**3** / 300	Structural Fill - Lower embankment, Slightly East of center	892.60	2217	4.3	2270	6.7	**97.7**
8/4/2018	**4** / 300	Structural Fill - Lower embankment, center near toe	892.60	2184	3.0	2270	6.7	**96.2**
8/4/2018	**5** / 300	Structural Fill - Lower embankment, East near access road	892.93	2271	3.6	2270	6.7	**100.0**
8/4/2018	**6** / 300	Structural Fill - Lower embankment, slightly East of center	892.93	2196	3.8	2270	6.7	**96.7**
8/4/2018	**7** / 300	Structural Fill - Lower embankment, center of toe	892.93	2189	3.1	2270	6.7	**96.4**
8/4/2018	**8** / 300	Structural Fill - Lower embankment, East of center	892.93	2108	3.9	2270	6.7	**92.9**
8/4/2018	**9** / 300	Structural Fill - Lower embankment, East of center, retest	892.93	2286	3.2	2270	6.7	**100.7**
8/4/2018	**10** / 250	Structural Fill - Lower embankment, moisture check on loose lift	893.30	-	4.1	2270	6.7	**-**
8/4/2018	**11** / 250	Structural Fill - Lower embankment, center of toe	893.30	2252	4.4	2270	6.7	**99.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 2.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 19 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/4/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
8/4/2018	**12** / 250	Structural Fill - Lower embankment, center	892.15	2332	2.9	2270	6.7	**102.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 2 of 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/4/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/4/2018	1 / 300	HLF Embankment - North east corner of lift	896.63	2230	4.7	2272		**98.2**
8/4/2018	2 / 300	HLF Embankment - Center of lift	896.63	2213	3.9	2272		**97.4**
8/4/2018	3 / 300	HLF Embankment - West of west ramp	896.63	2204	4.3	2272		**97.0**
8/4/2018	4 / 300	HLF Embankment - South west corner of lift	894.03	2263	3.6	2272		**99.6**
8/4/2018	5 / 300	HLF Embankment - South west corner of lift	894.03	2204	4.7	2272		**97.0**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/3/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/3/2018	1 / 300	HLF Embankment - North east corner of lift	891.78	2274	5.2	2272		**100.1**
8/3/2018	2 / 300	HLF Embankment - Center of lift	891.78	2240	4.9	2272		**98.6**
8/3/2018	3 / 300	HLF Embankment - West of west ramp	891.78	2248	4.3	2272		**98.9**
8/3/2018	4 / 300	HLF Embankment - South west corner of lift	891.78	2171	4.2	2272		**95.6**
8/3/2018	5 / 300	HLF Embankment - South west corner of lift	892.18	2211	4.7	2272		**97.3**
8/3/2018	6 / 300	HLF Embankment - Center of lift	892.18	2257	4.8	2272		**99.3**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/2/2018 **By:** RTO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/2/2018	**1** / 300	HLF Embankment	901.74	2270	3.9	2272		**99.9**
8/2/2018	**2** / 300	HLF Embankment	901.74	2160	5.2	2272		**95.1**
8/2/2018	**3** / 300	HLF Embankment	901.74	2248	3.6	2272		**98.9**
8/2/2018	**4** / 300	HLF Embankment	902.07	2212	3.9	2272		**97.4**
8/2/2018	**5** / 300	HLF Embankment	902.07	2260	4.2	2272		**99.5**
8/2/2018	**6** / 300	HLF Embankment	902.07	2257	3.8	2272		**99.3**
8/2/2018	**7** / 300	HLF Embankment	902.07	2243	4.6	2272		**98.7**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 18 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/28/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/28/2018	**1** / 250	HLF Embankment	891.25	2205	4.4	2272		**97.1**
7/28/2018	**2** / 250	HLF Embankment	891.25	2227	4.4	2272		**98.0**
7/28/2018	**3** / 250	HLF Embankment	891.25	2189	4.9	2272		**96.3**
7/28/2018	**4** / 250	HLF Embankment	891.25	2202	5.0	2272		**96.9**
7/28/2018	**5** / 250	HLF Embankment	891.55	2221	4.7	2272		**97.8**
7/28/2018	**6** / 250	HLF Embankment	891.55	2192	4.5	2272		**96.5**
7/28/2018	**7** / 250	HLF Embankment	891.55	2212	4.0	2272		**97.4**
7/28/2018	**8** / 250	HLF Embankment	891.55	2184	4.7	2272		**96.1**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 15 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/1/2018 **By:** RO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/1/2018	**1** / 300	HLF Embankment	900.05	2173	3.7	2272		**95.6**
8/1/2018	**2** / 300	HLF Embankment	900.05	2199	4.7	2272		**96.8**
8/1/2018	**3** / 300	HLF Embankment	900.05	2174	4.0	2272		**95.7**
8/1/2018	**4** / 300	HLF Embankment	900.05	2224	3.7	2272		**97.9**
8/1/2018	**5** / 300	HLF Embankment	900.05	2196	3.6	2272		**96.7**
8/1/2018	**6** / 300	HLF Embankment	900.42	2261	3.0	2272		**99.5**
8/1/2018	**7** / 300	HLF Embankment	900.42	2207	3.2	2272		**97.1**
8/1/2018	**8** / 300	HLF Embankment	900.42	2265	3.0	2272		**99.7**
8/1/2018	**9** / 300	HLF Embankment	900.42	2239	4.4	2272		**98.5**
8/1/2018	**10** / 300	HLF Embankment	900.42	2255	4.6	2272		**99.3**
8/1/2018	**11** / 300	HLF Embankment	900.82	2220	5.2	2272		**97.7**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 17 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/29/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/29/2018	**1** / 250	HLF Embankment	892.90	2226	4.7	2272		**98.0**
7/29/2018	**2** / 250	HLF Embankment	892.90	2277	4.0	2272		**100.2**
7/29/2018	**3** / 250	HLF Embankment	892.90	2256	4.6	2272		**99.3**
7/29/2018	**4** / 250	HLF Embankment	892.90	2202	5.0	2272		**96.9**
7/29/2018	**5** / 250	HLF Embankment	893.30	2198	4.9	2272		**96.7**
7/29/2018	**6** / 250	HLF Embankment	893.30	2206	5.0	2272		**97.1**
7/29/2018	**7** / 250	HLF Embankment	893.30	2214	5.9	2272		**97.4**
7/29/2018	**8** / 250	HLF Embankment	893.30	2188	4.8	2272		**96.3**
7/29/2018	**9** / 250	HLF Embankment	893.65	2202	5.7	2272		**96.9**
7/29/2018	**10** / 250	HLF Embankment	893.65	2234	5.2	2272		**98.3**
7/29/2018	**11** / 250	HLF Embankment	893.65	2188	4.9	2272		**96.3**
7/29/2018	**12** / 250	HLF Embankment	893.65	2202	5.0	2272		**96.9**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 19 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/30/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/30/2018	**1** / 250	HLF Embankment	895.17	2212	3.8	2272		**97.4**
7/30/2018	**2** / 250	HLF Embankment	895.17	2214	4.0	2272		**97.4**
7/30/2018	**3** / 250	HLF Embankment	895.17	2256	4.3	2272		**99.3**
7/30/2018	**4** / 250	HLF Embankment	895.17	2301	2.9	2272		**101.3**
7/30/2018	**5** / 250	HLF Embankment	895.55	2276	5.6	2272		**100.2**
7/30/2018	**6** / 250	HLF Embankment	895.55	2231	3.8	2272		**98.2**
7/30/2018	**7** / 250	HLF Embankment	895.55	2236	3.8	2272		**98.4**
7/30/2018	**8** / 250	HLF Embankment	895.55	2227	4.2	2272		**98.0**
7/30/2018	**9** / 250	HLF Embankment	895.95	2222	4.4	2272		**97.8**
7/30/2018	**10** / 250	HLF Embankment	895.95	2224	4.6	2272		**97.9**
7/30/2018	**11** / 250	HLF Embankment	895.95	2206	3.9	2272		**97.1**
7/30/2018	**12** / 250	HLF Embankment	895.95	2236	4.4	2272		**98.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 19 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/30/2018 **By:** SD

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/30/2018	**13** / 250	HLF Embankment	896.35	2246	3.3	2272		**98.9**
7/30/2018	**14** / 250	HLF Embankment	896.35	2238	4.3	2272		**98.5**
7/30/2018	**15** / 250	HLF Embankment	896.35	2215	3.9	2272		**97.5**
7/30/2018	**16** / 250	HLF Embankment	896.35	2218	4.1	2272		**97.6**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/31/2018 **By:** SD, RO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/31/2018	**1** / 300	HLF Embankment	897.58	2253	5.4	2272		**99.2**
7/31/2018	**2** / 300	HLF Embankment	897.58	2208	5.4	2272		**97.2**
7/31/2018	**3** / 300	HLF Embankment	897.95	2196	5.1	2272		**96.7**
7/31/2018	**4** / 300	HLF Embankment	897.95	2238	5.5	2272		**98.5**
7/31/2018	**5** / 300	HLF Embankment	897.95	2239	5.7	2272		**98.5**
7/31/2018	**6** / 300	HLF Embankment	897.95	2255	5.1	2272		**99.3**
7/31/2018	**7** / 300	HLF Embankment	897.95	2248	4.4	2272		**98.9**
7/31/2018	**8** / 300	HLF Embankment	898.32	2213	5.5	2272		**97.4**
7/31/2018	**9** / 300	HLF Embankment	898.32	2280	4.5	2272		**100.4**
7/31/2018	**10** / 300	HLF Embankment	898.32	2257	5.6	2272		**99.3**
7/31/2018	**11** / 300	HLF Embankment	898.32	2251	5.6	2272		**99.1**
7/31/2018	**12** / 300	HLF Embankment	898.32	2191	5.1	2272		**96.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/31/2018 **By:** SD, RO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/31/2018	**13** / 300	HLF Embankment	899.05	2232	5.4	2272		**98.2**
7/31/2018	**14** / 300	HLF Embankment	899.05	2235	5.4	2272		**98.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/31/2018 **By:** SD, RO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/31/2018	**1** / 300	HLF Embankment	897.58	2253	5.4	2272		**99.2**
7/31/2018	**2** / 300	HLF Embankment	897.58	2208	5.4	2272		**97.2**
7/31/2018	**3** / 300	HLF Embankment	897.95	2196	5.1	2272		**96.7**
7/31/2018	**4** / 300	HLF Embankment	897.95	2238	5.5	2272		**98.5**
7/31/2018	**5** / 300	HLF Embankment	897.95	2239	5.7	2272		**98.5**
7/31/2018	**6** / 300	HLF Embankment	897.95	2255	5.1	2272		**99.3**
7/31/2018	**7** / 300	HLF Embankment	897.95	2248	4.4	2272		**98.9**
7/31/2018	**8** / 300	HLF Embankment	898.32	2213	5.5	2272		**97.4**
7/31/2018	**9** / 300	HLF Embankment	898.32	2280	4.5	2272		**100.4**
7/31/2018	**10** / 300	HLF Embankment	898.32	2257	5.6	2272		**99.3**
7/31/2018	**11** / 300	HLF Embankment	898.32	2251	5.6	2272		**99.1**
7/31/2018	**12** / 300	HLF Embankment	898.32	2191	5.1	2272		**96.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 14 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 7/31/2018 **By:** SD, RO

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
7/31/2018	**13** / 300	HLF Embankment	898.70	2232	5.4	2272		**98.2**
7/31/2018	**14** / 300	HLF Embankment	898.70	2235	5.4	2272		**98.4**

Remarks: Material compacted with CS 78 13.4 tonne vibratory smooth drum roller.

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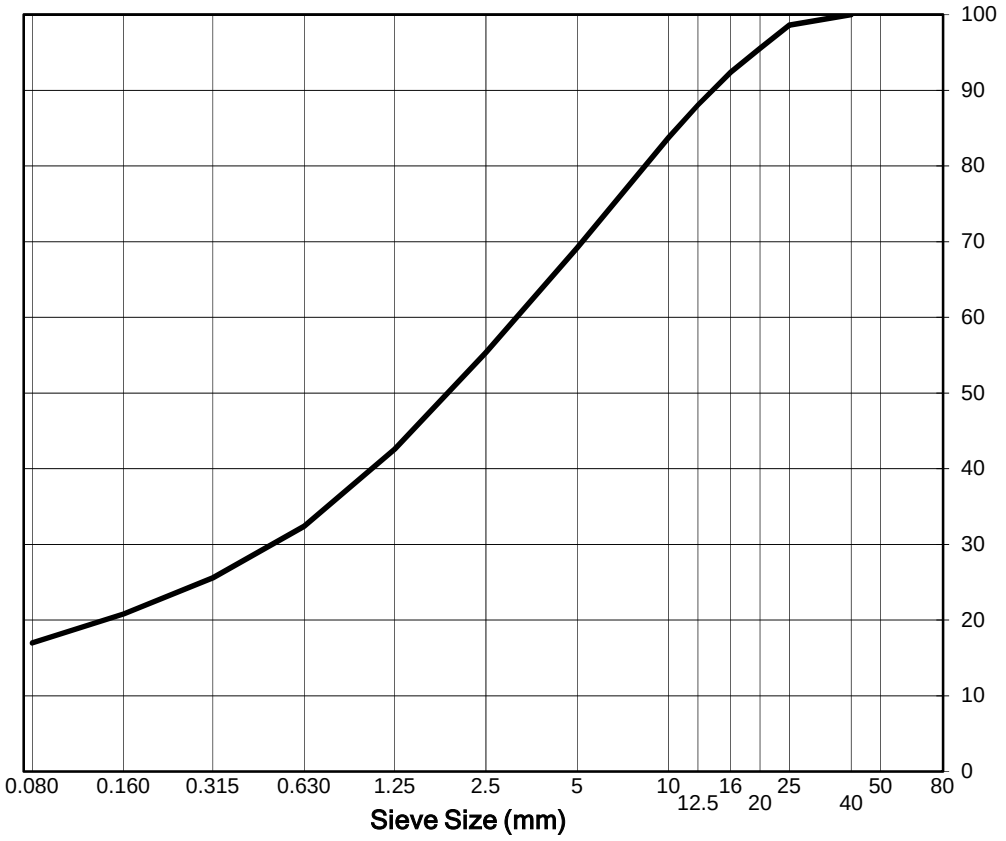
Material 1 Gradation Data

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03235-05.005	Sample No.:	EP004
Project:	Eagle Gold Project - Event Pond QA/QC	Date Sampled:	October 21, 2018
Client:	JDS Energy & Mining	Sampled by:	RO
Attention:	C. Copley, R. Morlan	Date Tested:	October 22, 2018
Email:	chrisc@JDSmining.com	Tested by:	RO/ME Office: Vic Gold
Description:	SAND, gravely, trace fines (silt/clay)	Moisture Content (as received):	5.6%
		No. Crushed Faces:	Two (2) or Three (3)
Material Source	Event Pond - Spillway Borrow	By Particle Mass:	
Supplier:	Pelly Construction		
Sample Location:	Sampled from Stockpile on South Embankment Pad Lift 869.10 m.		
Specification:	Event Pond Site Grading Fill		

Sieve Size	Percent Passing
40	100
25	99
20	96
16	92
12.5	88
10	84
5.0	69
3	55
1.25	43
0.630	32
0.315	26
0.160	21
0.080	17.0



Remarks:

Reviewed By: **Issued For Review** C.E.T.

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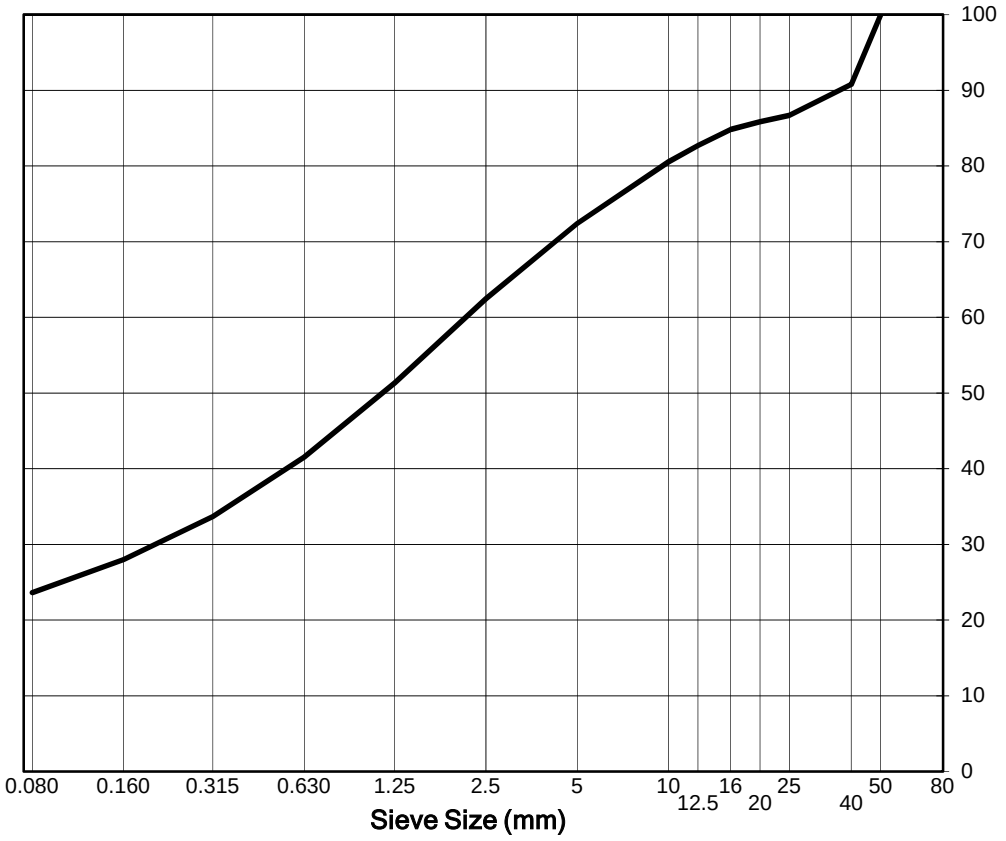
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03235-05.005	Sample No.:	EP005
Project:	Eagle Gold Project - Event Pond QA/QC	Date Sampled:	October 22, 2018
Client:	JDS Energy & Mining	Sampled by:	RO
Attention:	C. Copley, R. Morlan	Date Tested:	October 22, 2018
Email:	chrisc@JDSmining.com	Tested by:	RO/ME Office: Vic Gold
Description:	SAND, gravely, trace fines (silt/clay)	Moisture Content (as received):	6.7%
		No. Crushed Faces:	Two (2) or Three (3)
Material Source:	Event Pond - Spillway Borrow	By Particle Mass:	
Supplier:	Pelly Construction		
Sample Location:	Sampled from Stockpile on South Embankment Pad Lift 869.70 m.		
Specification:	Event Pond Site Grading Fill		

Sieve Size	Percent Passing
50	100
40	91
25	87
20	86
16	85
12.5	83
10	81
5	72
3	62
1.25	51
0.630	42
0.315	34
0.160	28
0.080	23.6



Remarks:

Reviewed By: **Issued For Review** C.E.T.

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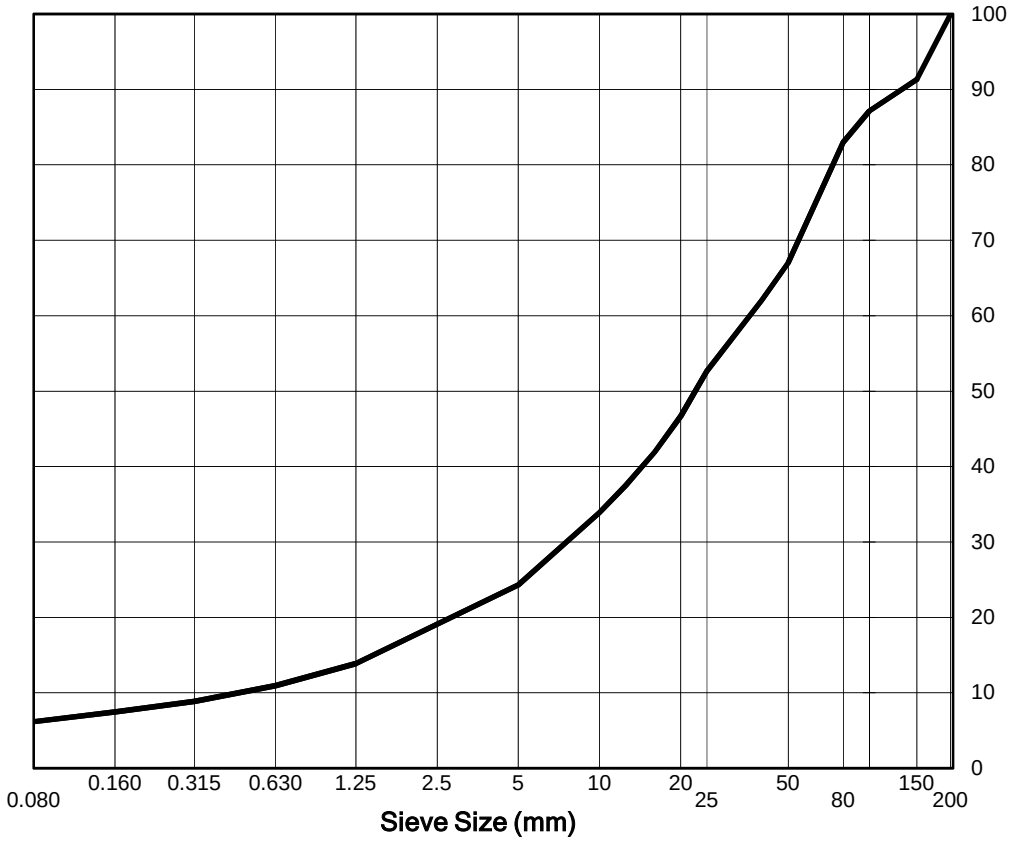
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03235-05.005	Sample No.:	EP006
Project:	Eagle Gold Project - Event Pond QA/QC	Date Sampled:	October 23, 2018
Client:	JDS Energy & Mining	Sampled by:	RTO
Attention:	C. Copley, R. Morlan	Date Tested:	October 24, 2018
Email:	chrisc@JDSmining.com	Tested by:	RTO Office:
Description:	GRAVEL, Sandy, some silt, trace cobble, Brown	Moisture Content (as received):	2.6%
		No. Crushed Faces:	Two (2) or Three (3)
Material source:	Event Pond - HLF Borrow	By particle mass:	
Supplier:	Pelly Construction		
Sample location:	Sampled from Stockpile on South Embankment Pad Lift 871.20 m.		
Specification:	Eagle Gold Site Grading Fill		

Sieve Size	Percent Passing
200	100
150	91
100	87
80	83
50	67
40	62
25	53
20	47
16	42
12.5	37
10	34
5	24
1.25	14
0.630	11
0.315	9
0.160	7
0.080	6.2



Remarks:

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TETRA TECH

Material 2 Gradation

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA6 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 6 to July 1, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Morlan/D. Granda	Specification:	CSA 23.1 FA1 Fine Aggregate
Description:	12.5 mm Minus Overdrain (Sand Reject)	Fracture (2 faces):	N/A
Location:	Various stockpiles nearby crusher	Moisture Content:	9.9%

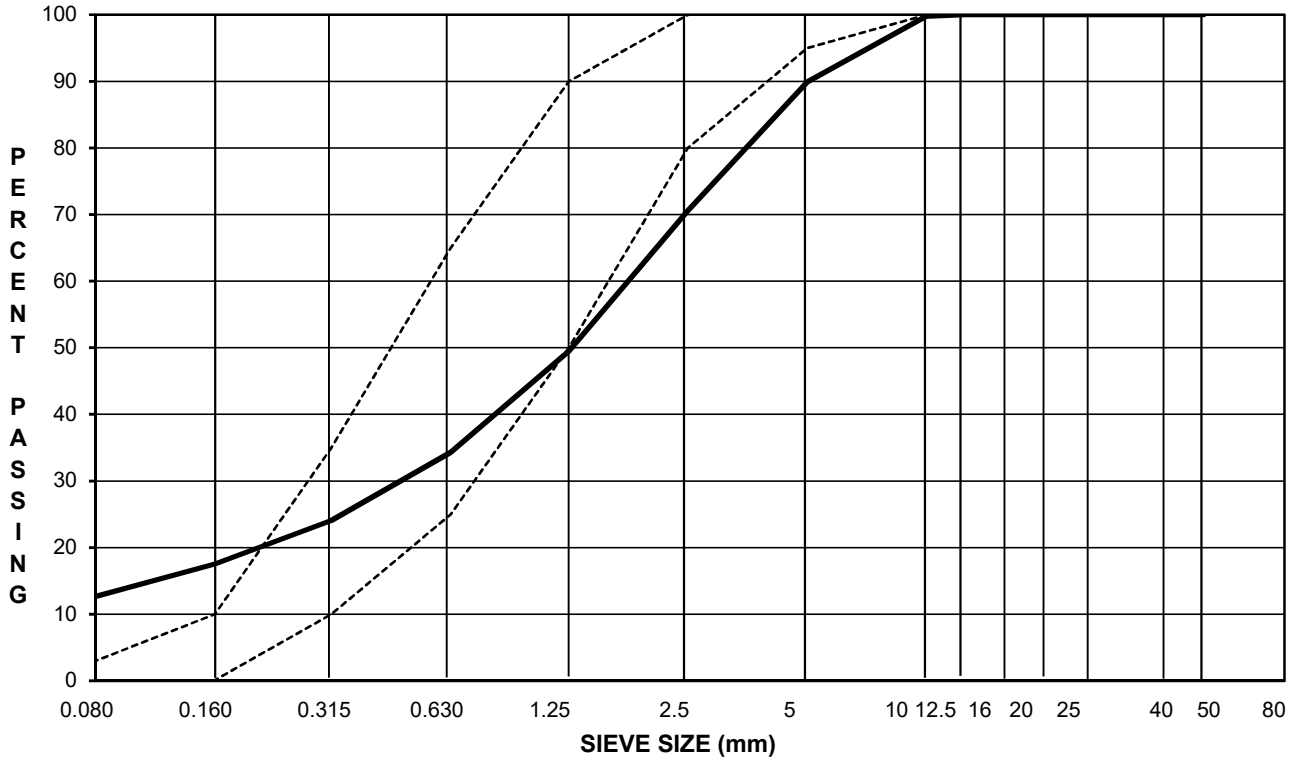
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	100	100	90	65	35	10	3
Lower Limit							100	95	80	50	25	10	0	0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**90**	**71**	**49**	**34**	**24**	**17.5**	**12.6**

Remarks: *Trace Organics

Stockpile located 100 m west of crusher

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA9 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 6 to July 6, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Morlan/D. Granda	Specification:	CSA 23.1 FA1 Fine Aggregate
Description:	12.5 mm Minus Overdrain (Sand Reject)	Fracture (2 faces):	N/A
Location:	Various stockpiles nearby crusher	Moisture Content:	7.6%

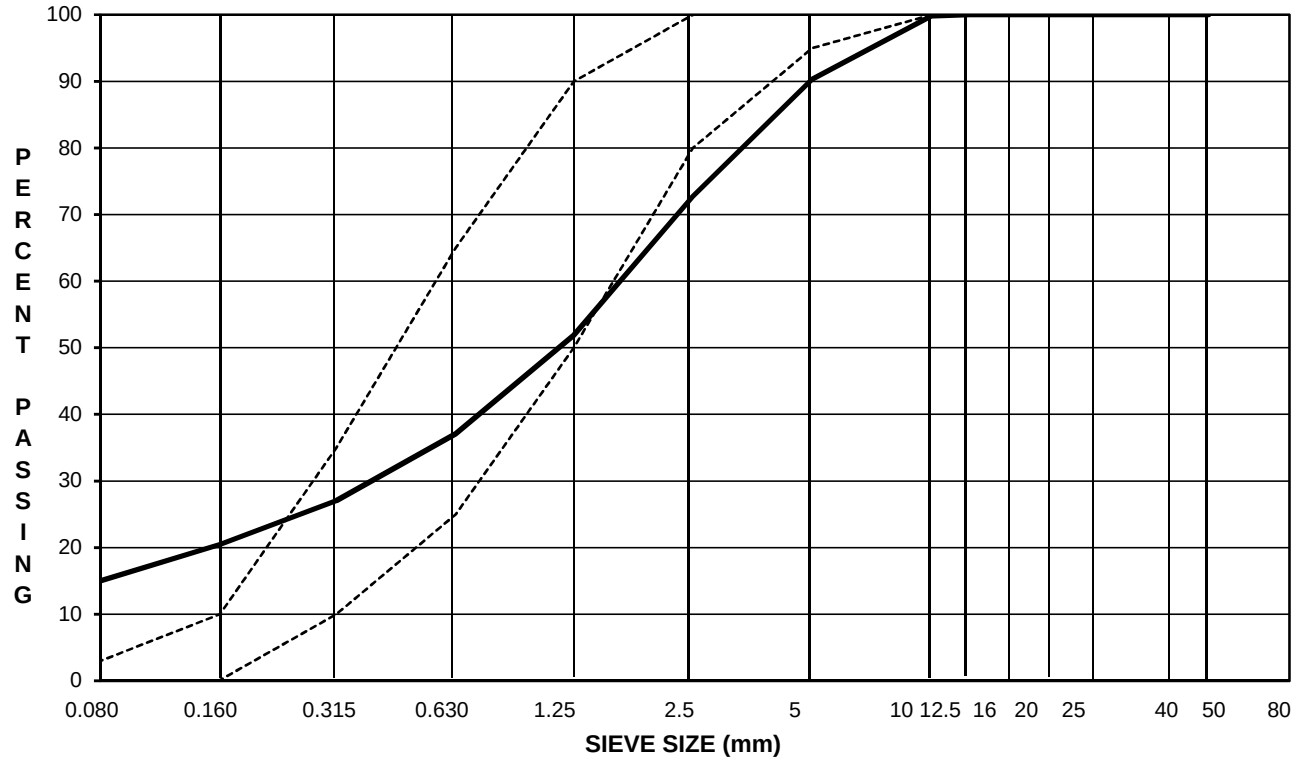
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	100	100	90	65	35	10	3
Lower Limit							100	95	80	50	25	10	0	0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**90**	**73**	**52**	**37**	**27**	**20.5**	**15.0**

Remarks: *Trace Organics

Stockpile located 100 m west of crusher

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA10 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 6 to July 10, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Morlan/D. Granda	Specification:	CSA 23.1 FA1 Fine Aggregate
Description:	12.5 mm Minus Overdrain (Sand Reject)	Fracture (2 faces):	N/A
Location:	Various stockpiles nearby crusher	Moisture Content:	6.7%

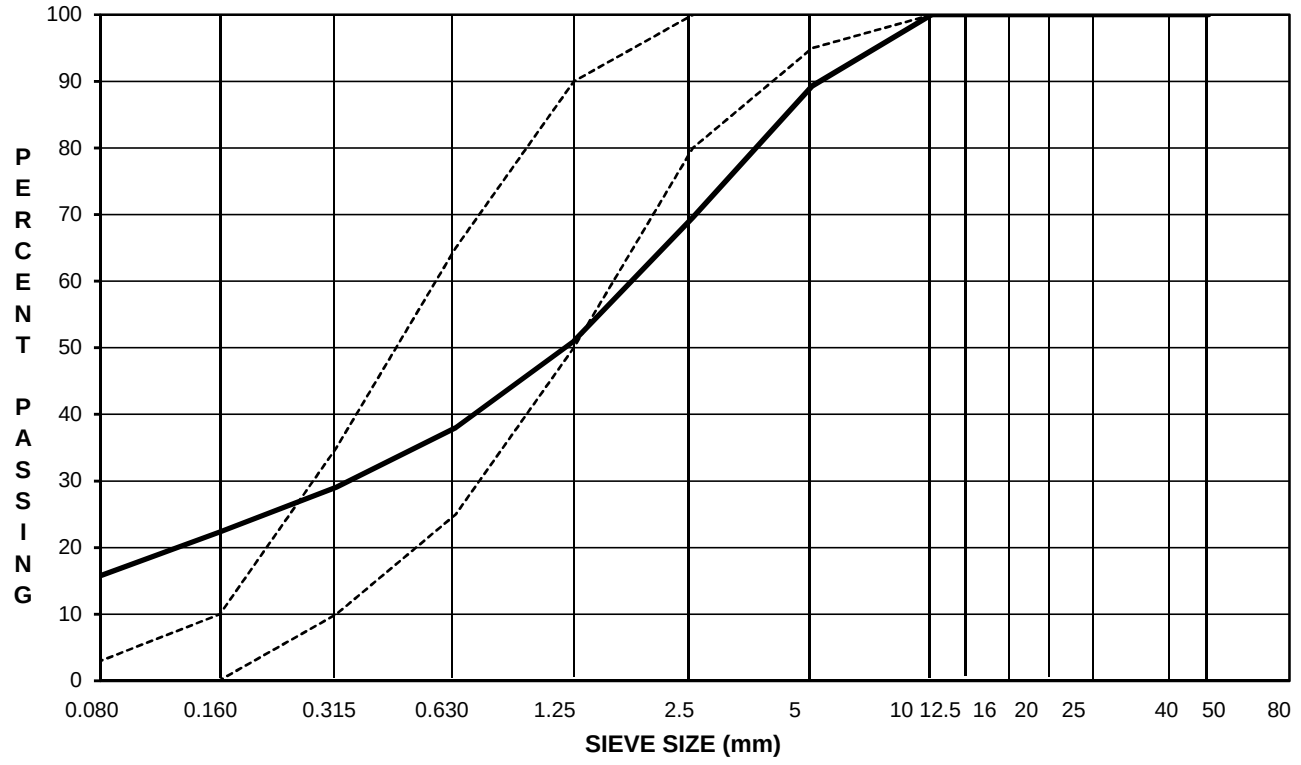
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	100	100	90	65	35	10	3
Lower Limit							100	95	80	50	25	10	0	0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**89**	**70**	**51**	**38**	**29**	**22.4**	**15.8**

Remarks: *Trace Organics

Stockpile located 100 m west of crusher

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA14 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 6 to July 15, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Morlan/D. Granda	Specification:	CSA 23.1 FA1 Fine Aggregate
Description:	12.5 mm Minus Overdrain (Sand Reject)	Fracture (2 faces):	N/A
Location:	Various stockpiles nearby crusher	Moisture Content:	7.1%

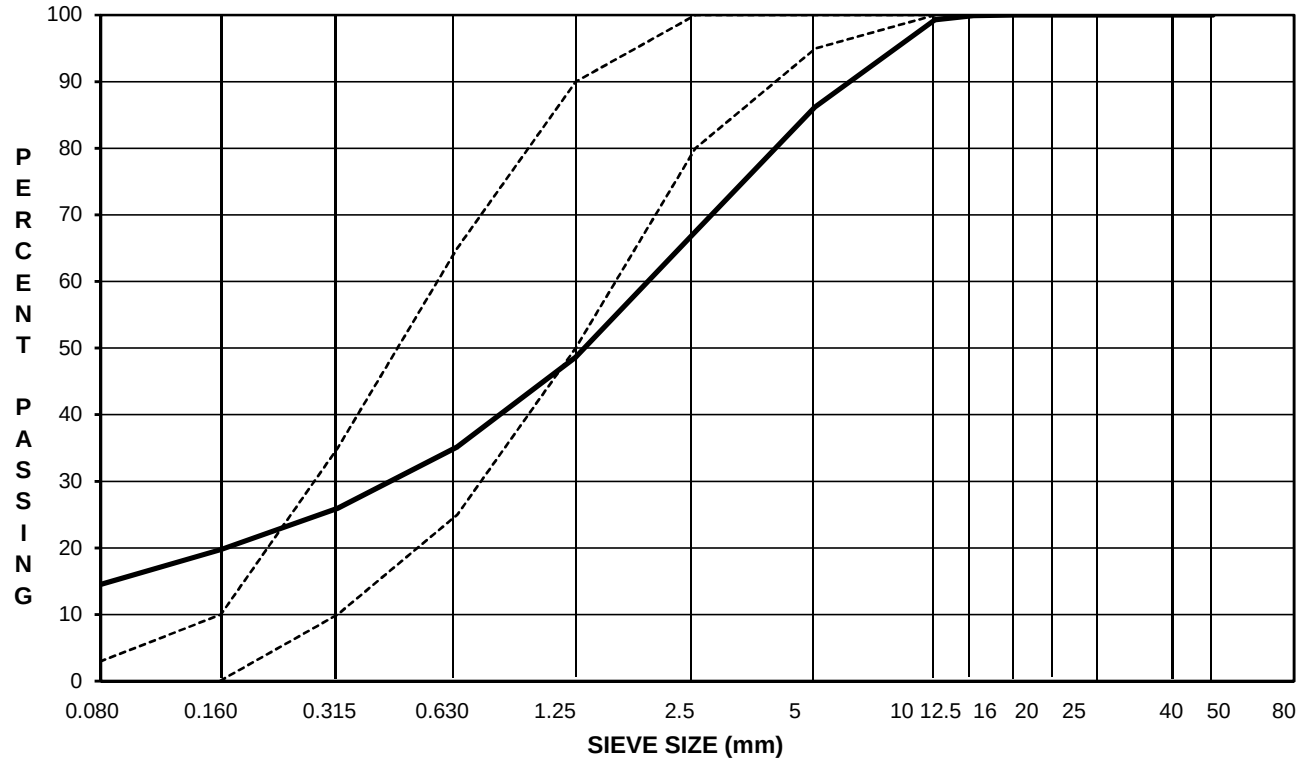
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	100	100	90	65	35	10	3
Lower Limit							100	95	80	50	25	10	0	0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**99**	**86**	**67**	**49**	**35**	**26**	**19.7**	**14.5**

Remarks: *Trace Organics

Stockpile located 100 m west of crusher

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA6 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 6 to July 1, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Morlan/D. Granda	Specification:	CSA 23.1 FA1 Fine Aggregate
Description:	12.5 mm Minus Overdrain (Sand Reject)	Fracture (2 faces):	N/A
Location:	Various stockpiles nearby crusher	Moisture Content:	9.9%

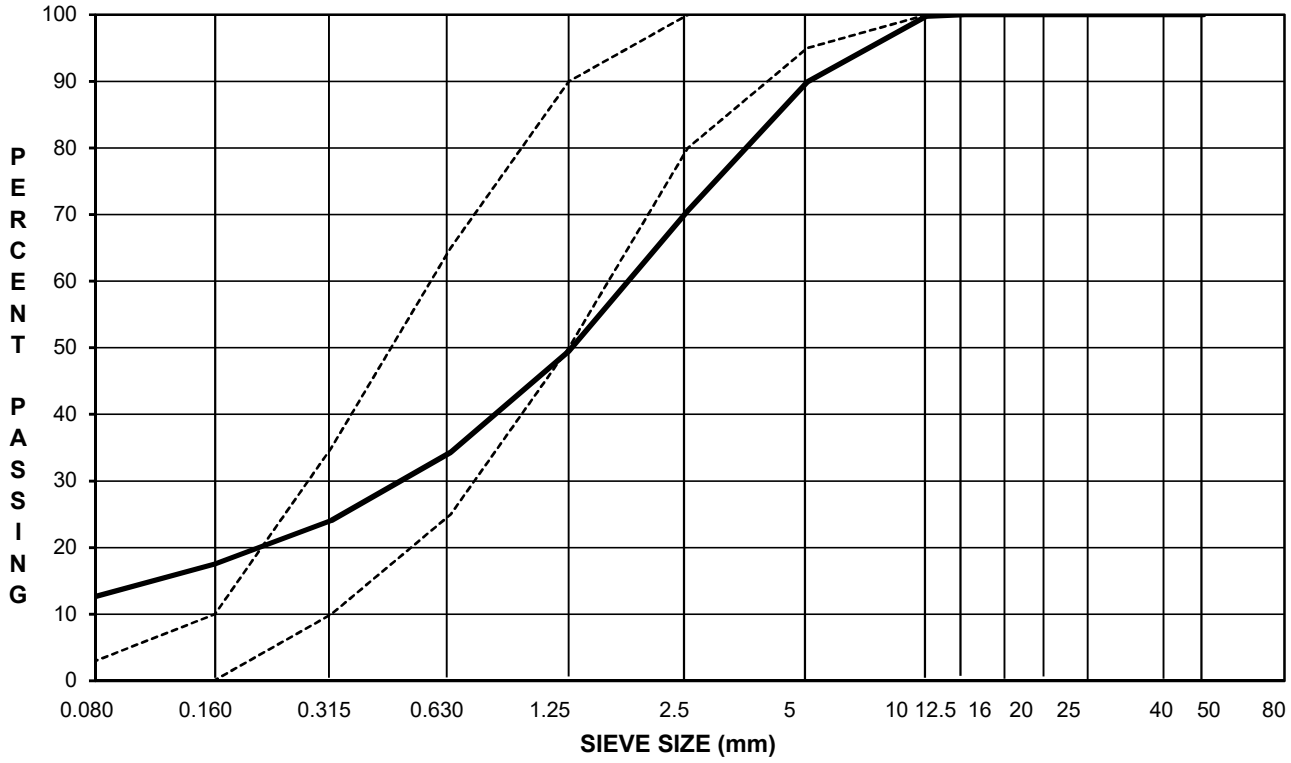
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	100	100	90	65	35	10	3
Lower Limit							100	95	80	50	25	10	0	0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**90**	**71**	**49**	**34**	**24**	**17.5**	**12.6**

Remarks: *Trace Organics

Stockpile located 100 m west of crusher

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

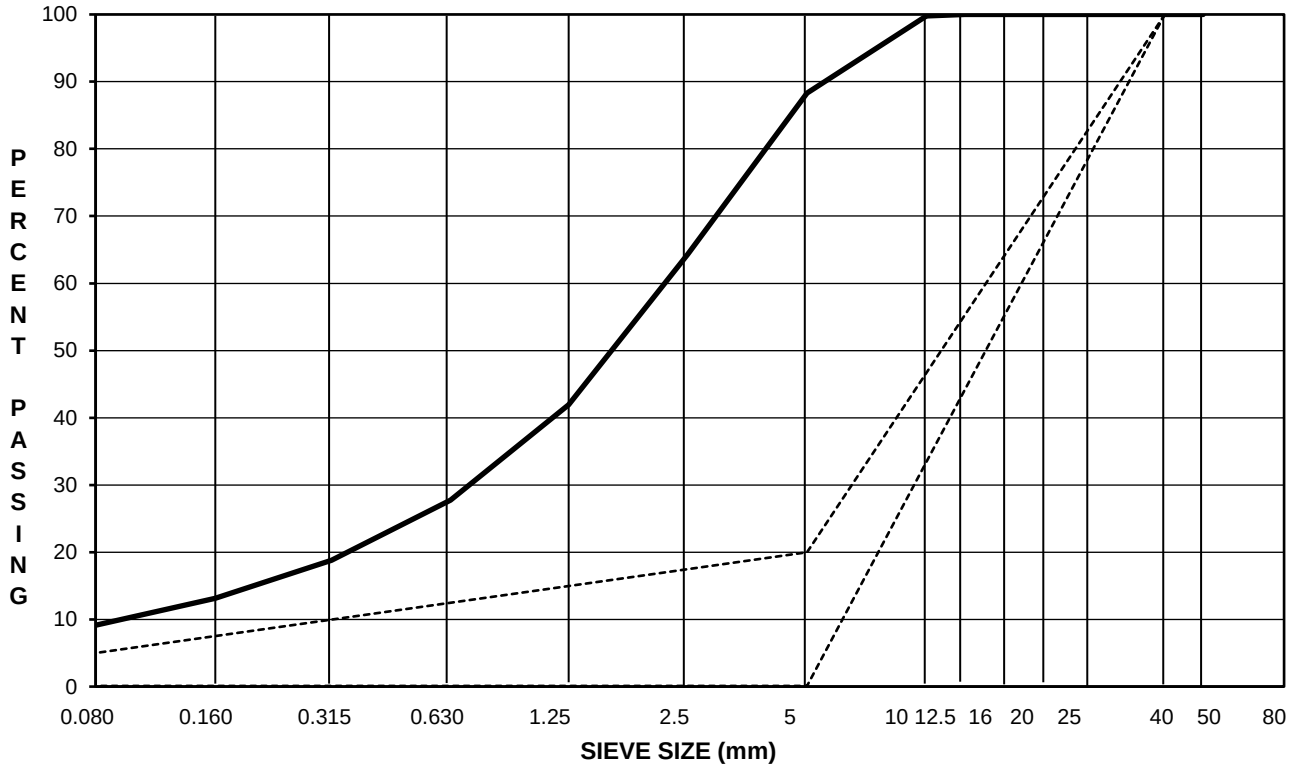
Project:	Eagle Gold Project	Sample Number:	SA01 - 17:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 9, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	Reject Sand from 38mm DRF	Fracture (2 faces):	N/A
Location:	Crusher Stacker Belt	Moisture Content:	6.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**88**	**64**	**42**	**28**	**19**	**13.1**	**9.1**

Remarks: REJECT SAND GRADATION

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA02 - 15:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 18, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	NA
Description:	Reject Sand from 38mm DRF	Fracture (2 faces):	N/A
Location:	Crusher Stacker Belt	Moisture Content:	5.0%

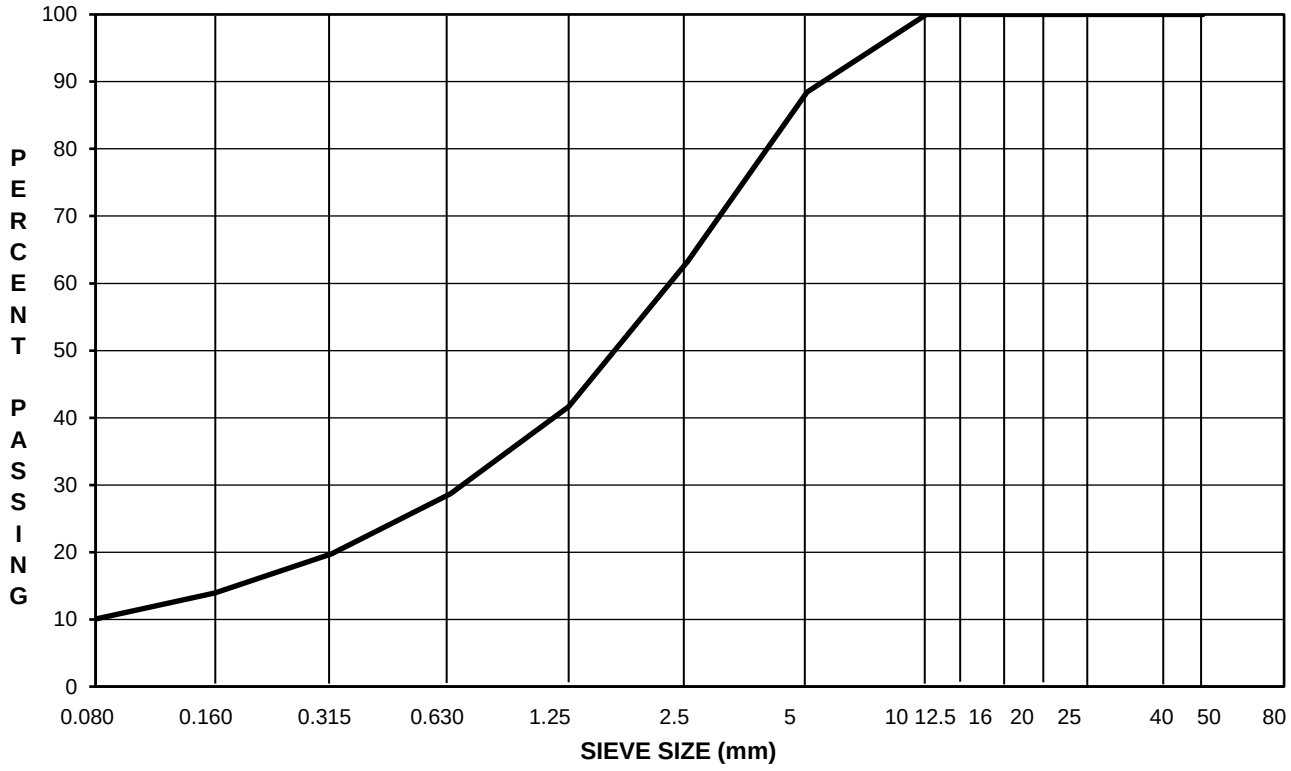
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**88**	**63**	**42**	**29**	**20**	**13.9**	**10.1**

Remarks: REJECT SAND GRADATION

Test 2

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

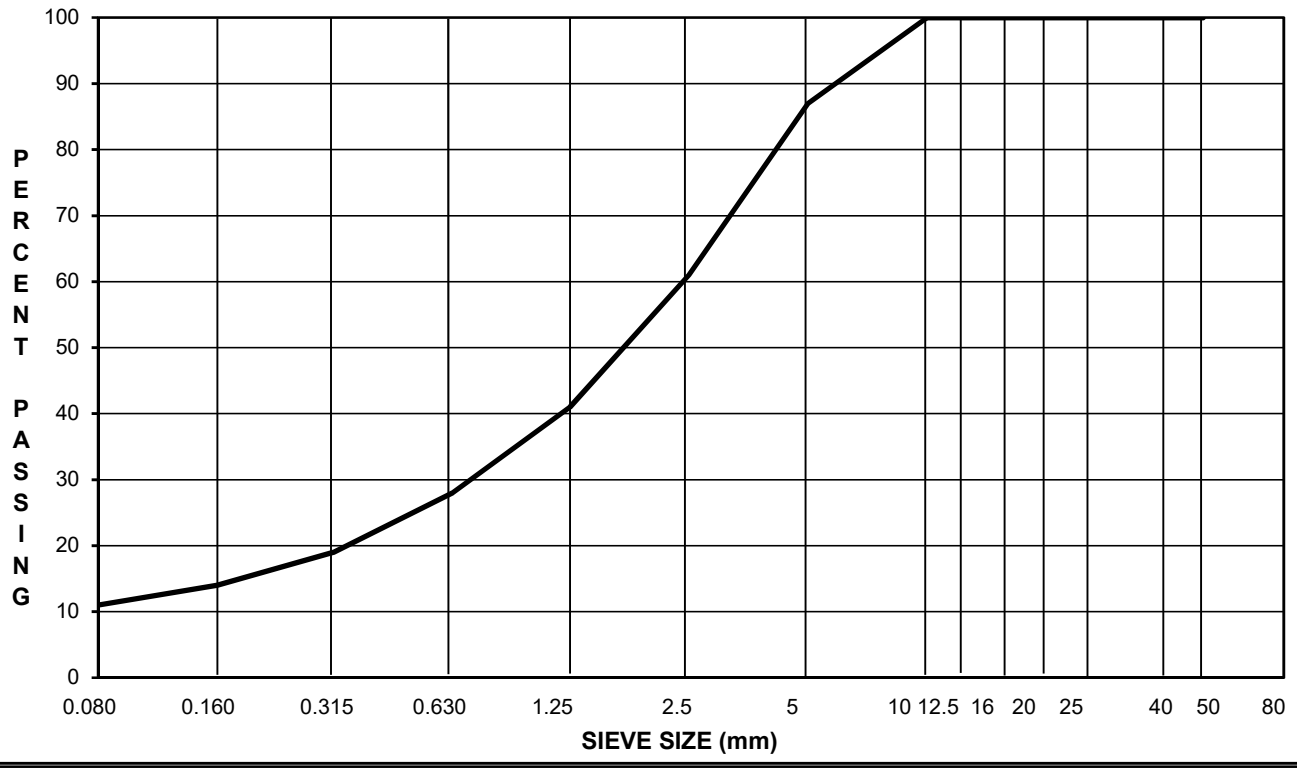
Project:	Eagle Gold Project	Sample Number:	SA1 - 0940 hrs		
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 2, 2018		
Client:	JDS	Sampled By:	JB	Tested By:	JB
Attention:	Mr. Clint Abel	Specification:			
Description:	SAND - some gravel, trace silt to some sil	Fracture (2 faces):	N/A		
Location:	Screened Sand Reject	Moisture Content:	3.9%		

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**87**	**61**	**41**	**28**	**19**	**14**	**11.0**

Remarks:

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

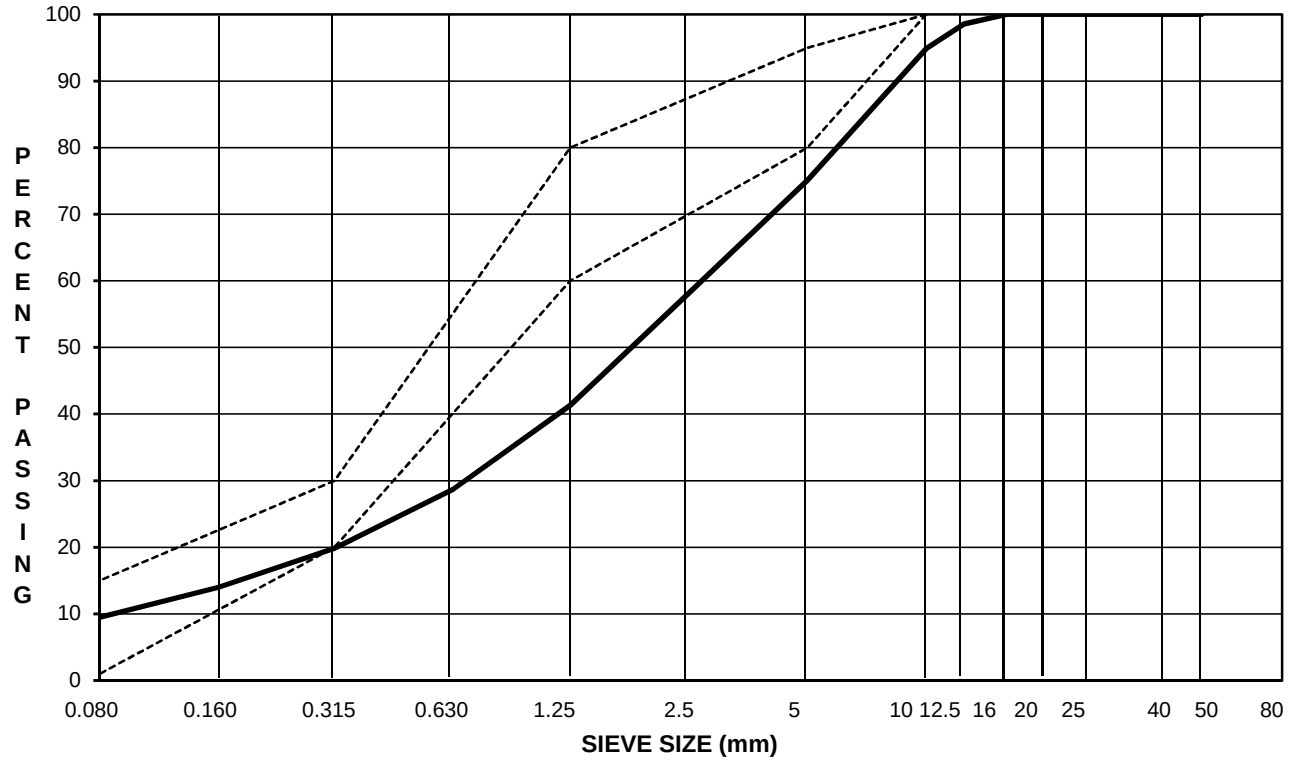
Project:	Eagle Gold Project	Sample Number:	SA7 - 10:00 hrs
Project No.:	704-ENG.WARC03235-01	Date Sampled:	October 5, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	R. Bilobrowka	Specification:	See Remarks
Description:	12.5 mm Sand Reject	Fracture (2 faces):	N/A
Location:	Eagle Pup Sourced Screener Discharge	Moisture Content:	4.0%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit							100	95		80		30		15
Lower Limit							100	80		60		20		1
Test Result	**100**	**100**	**100**	**100**	**100**	**99**	**95**	**75**	**58**	**41**	**29**	**20**	**14.0**	**9.5**

Remarks: Material produced from 20 mm Crush Stockpiled at Eagle Pup borrow source

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 6 - July 1, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stockpiles
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Type 2 Material (Reject Sand)	Tested By:	JP/JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
06-Jun	17:30	SA1	N/A	6.8	100	100	100	100	100	88	64	42	28	19	13.1	9.1
18-Jun	15:45	SA2	"	5.0	100	100	100	100	100	88	63	42	29	20	13.9	10.1
27-Jun	12:00	SA3	"	7.2	100	100	100	100	100	86		46	31	21	15.0	10.8
29-Jun	10:15	SA4	"	8.8	100	100	100	100	100	93	76	55	38	27	19.7	14.8
30-Jun	15:30	SA5	"	9.9	100	100	100	100	100	92	77	57	42	31	23.2	16.7
01-Jul	13:40	SA6	"	6.2	100	100	100	100	100	91	75	55	39	28	20.3	14.4
Average	-	-	-	7.3	100	100	100	100	100	90	71	49	34	24	17.5	12.6

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 6 - July 1, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stockpiles
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Type 2 Material (Reject Sand)	Tested By:	JP/JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
06-Jun	17:30	SA1	N/A	6.8	100	100	100	100	100	88	64	42	28	19	13.1	9.1
18-Jun	15:45	SA2	"	5.0	100	100	100	100	100	88	63	42	29	20	13.9	10.1
27-Jun	12:00	SA3	"	7.2	100	100	100	100	100	86		46	31	21	15.0	10.8
29-Jun	10:15	SA4	"	8.8	100	100	100	100	100	93	76	55	38	27	19.7	14.8
30-Jun	15:30	SA5	"	9.9	100	100	100	100	100	92	77	57	42	31	23.2	16.7
01-Jul	13:40	SA6	"	6.2	100	100	100	100	100	91	75	55	39	28	20.3	14.4
02-Jul	8:40	SA7	"	7.4	100	100	100	100	100	92	77	60	48	39	31.3	22.6
03-Jul	11:40	SA8	"	9.7	100	100	100	100	100	93	78	58	43	33	26.5	21.1
06-Jul	14:00	SA9	"	7.5	100	100	100	100	100	89	71	51	37	27	21.2	15.7
Average	-	-	-	7.6	100	100	100	100	100	90	73	52	37	27	20.5	15.0

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 6 - July 1, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stockpiles
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Type 2 Material (Reject Sand)	Tested By:	JP/JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
06-Jun	17:30	SA1	N/A	6.8	100	100	100	100	100	88	64	42	28	19	13.1	9.1
18-Jun	15:45	SA2	"	5.0	100	100	100	100	100	88	63	42	29	20	13.9	10.1
27-Jun	12:00	SA3	"	7.2	100	100	100	100	100	86		46	31	21	15.0	10.8
29-Jun	10:15	SA4	"	8.8	100	100	100	100	100	93	76	55	38	27	19.7	14.8
30-Jun	15:30	SA5	"	9.9	100	100	100	100	100	92	77	57	42	31	23.2	16.7
01-Jul	13:40	SA6	"	6.2	100	100	100	100	100	91	75	55	39	28	20.3	14.4
02-Jul	8:40	SA7	"	7.4	100	100	100	100	100	92	77	60	48	39	31.3	22.6
03-Jul	11:40	SA8	"	9.7	100	100	100	100	100	93	78	58	43	33	26.5	21.1
06-Jul	14:00	SA9	"	7.5	100	100	100	100	100	89	71	51	37	27	21.2	15.7
10-Jul	23:00	SA10	N/A	6.7	100	100	100	100	100	89	70	51	38	29	22.4	15.8
Average	-	-	-	7.5	100	100	100	100	100	90	72	52	37	27	20.7	15.1

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 6 - July 14, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stockpiles
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Type 2 Material (Reject Sand)	Tested By:	JP/JB/RO

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
06-Jun	17:30	SA1	N/A	6.8	100	100	100	100	100	88	64	42	28	19	13.1	9.1
18-Jun	15:45	SA2	"	5.0	100	100	100	100	100	88	63	42	29	20	13.9	10.1
27-Jun	12:00	SA3	"	7.2	100	100	100	100	100	86		46	31	21	15.0	10.8
29-Jun	10:15	SA4	"	8.8	100	100	100	100	100	93	76	55	38	27	19.7	14.8
30-Jun	15:30	SA5	"	9.9	100	100	100	100	100	92	77	57	42	31	23.2	16.7
01-Jul	13:40	SA6	"	6.2	100	100	100	100	100	91	75	55	39	28	20.3	14.4
02-Jul	8:40	SA7	"	7.4	100	100	100	100	100	92	77	60	48	39	31.3	22.6
03-Jul	11:40	SA8	"	9.7	100	100	100	100	100	93	78	58	43	33	26.5	21.1
06-Jul	14:00	SA9	"	7.5	100	100	100	100	100	89	71	51	37	27	21.2	15.7
10-Jul	23:00	SA10	N/A	6.7	100	100	100	100	100	89	70	51	38	29	22.4	15.8
11-Jul	21:30	SA11	"	6.1	100	100	100	100	99	79	59	42	30	22	16.7	12.4
12-Jul	21:00	SA12	"	8.0	100	100	100	100	98	81	63	47	36	28	21.6	16.0
13-Jul	22:00	SA13	"	5.9	100	100	100	99	97	72	52	37	28	21	16.5	13.1
14-Jul	21:00	SA14	"	4.8	100	100	100	100	97	72	52	37	27	20	14.9	11.3
Average	-	-	-	7.1	100	100	100	100	99	86	67	49	35	26	19.7	14.5

Material 4 Gradation

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA4 to SA87 AVERAGE**
Project No.:	704-ENG.WARC03235-01	Date Sampled:	June 8 to Aug 16, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Bilobrowka	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.2%

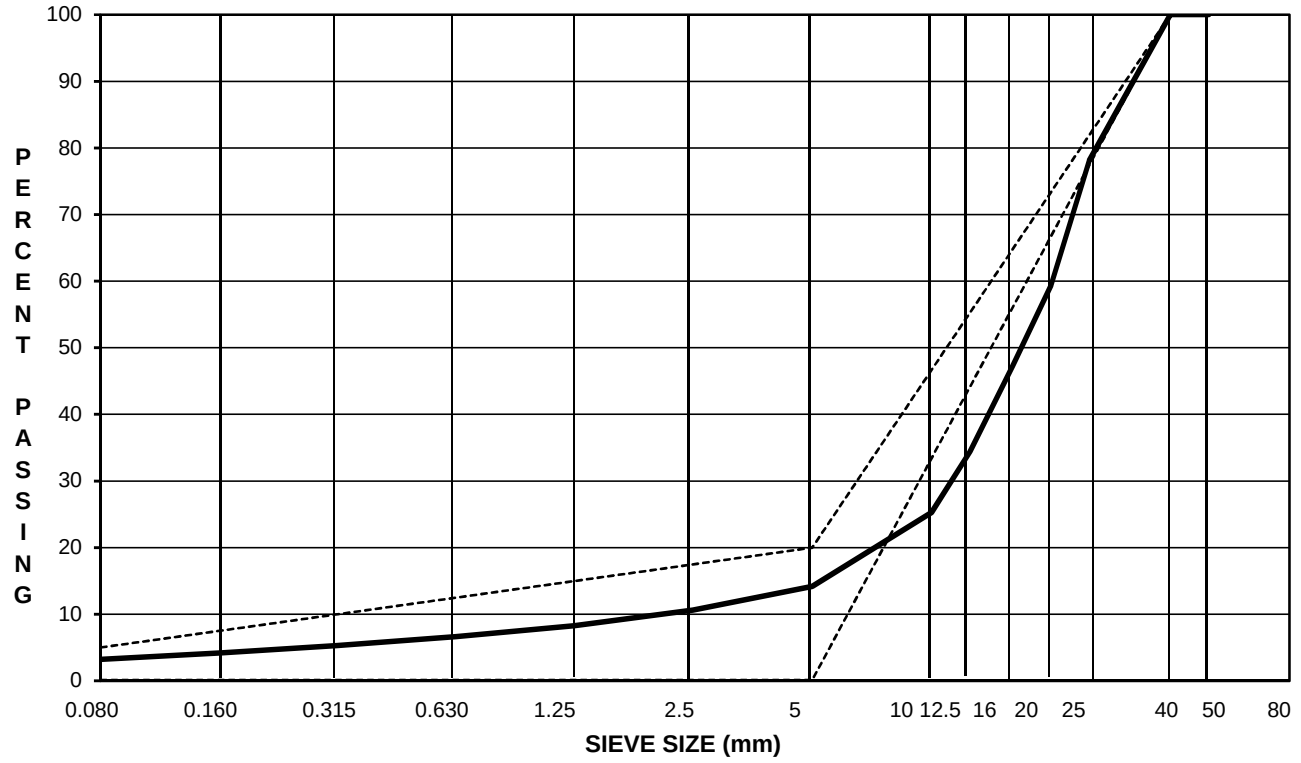
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**78**	**59**	**47**	**34**	**25**	**14**	**11**	**8**	**7**	**5**	**4.2**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No. 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA4 to SA97 AVERAGE**
Project No.:	704-ENG.WARC03235-01	Date Sampled:	June 8 to Sept 6, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	R. Bilobrowka	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.2%

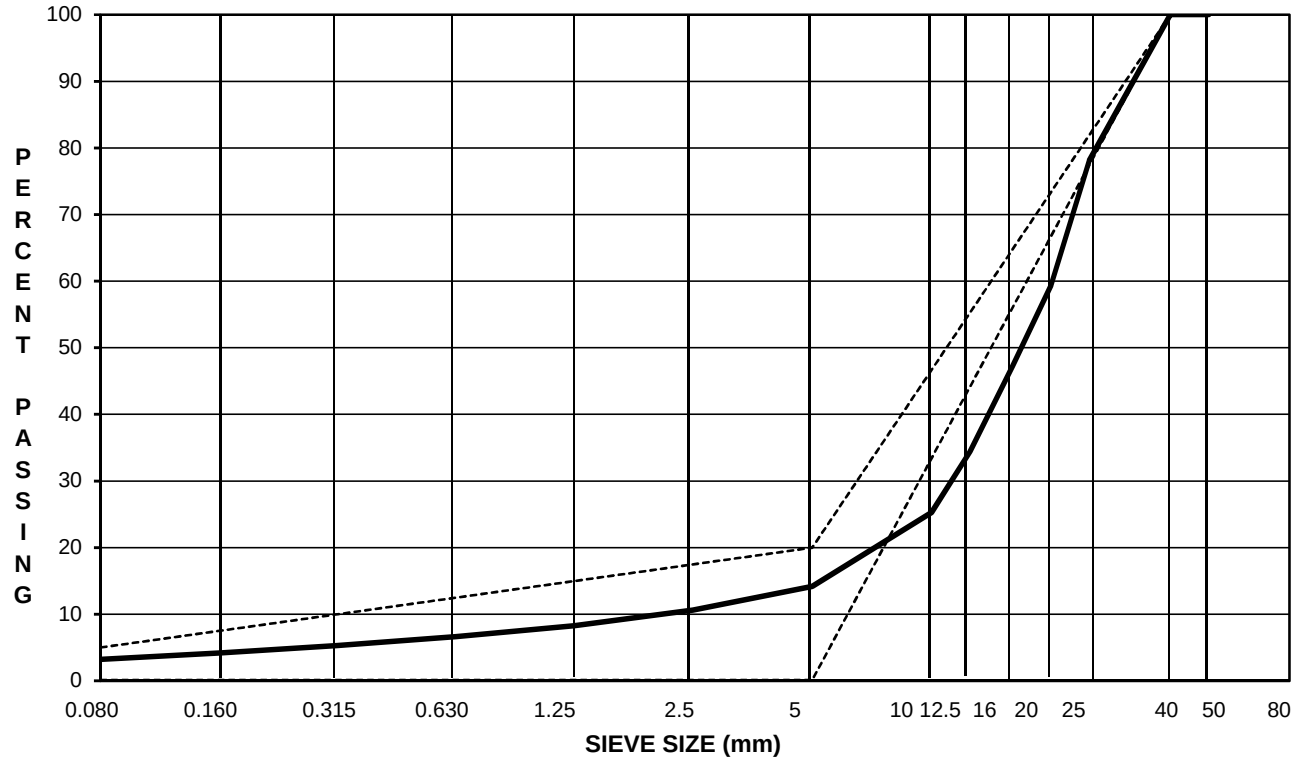
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**78**	**59**	**47**	**34**	**25**	**14**	**11**	**8**	**7**	**5**	**4.2**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No. 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA1 - 17:10		
Project No.:	704-ENG.WARC03235-05	Date Sampled:	September 8, 2018		
Client:	JDS	Sampled By:	JB	Tested By:	JB
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks		
Description:	38 mm Minus DR - **Light Greyish Brown**	Fracture (2 faces):	N/A		
Location:	ROM Road Dump (Stockpile No. 1)	Moisture Content:	1.6%		

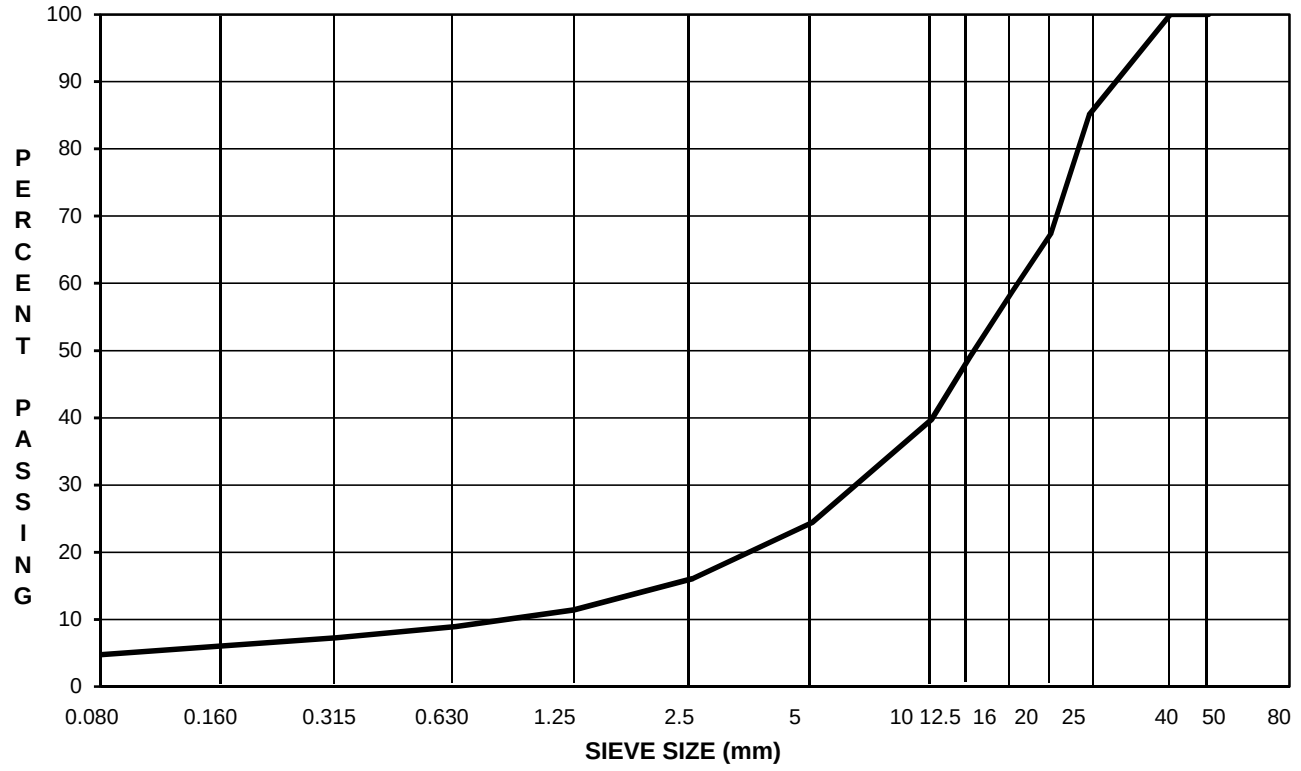
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**85**	**67**	**59**	**49**	**40**	**24**	**16**	**11**	**9**	**7**	**6.0**	**4.8**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA1 - 16:45
Project No.:	704-ENG.WARC03235-05	Date Sampled:	September 8, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus DR - **Light Reddish Brown**	Fracture (2 faces):	N/A
Location:	Crusher Access Road - 1st Switchback (Nuway Site Stockpile No. 2)	Moisture Content:	2.2%

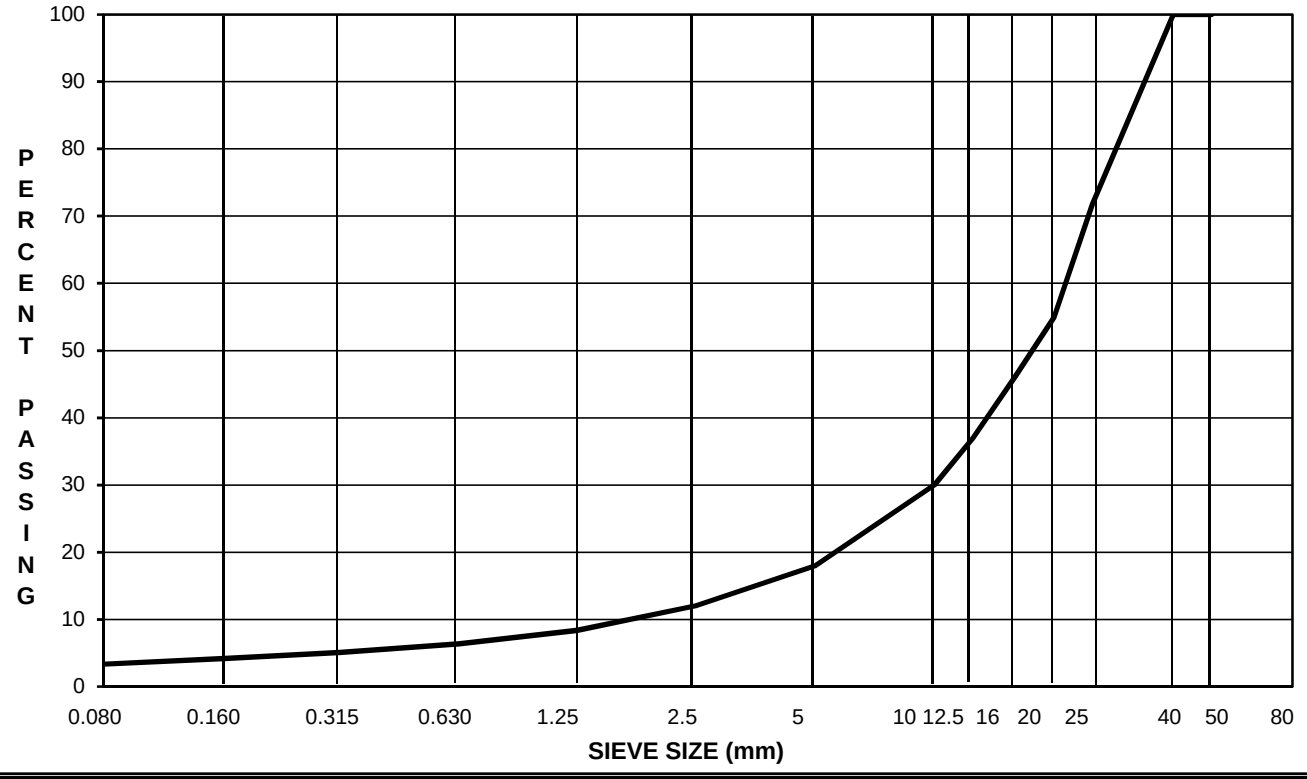
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**72**	**55**	**46**	**37**	**30**	**18**	**12**	**8**	**6**	**5**	**4.2**	**3.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA1 - 14:15 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 28, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.0%

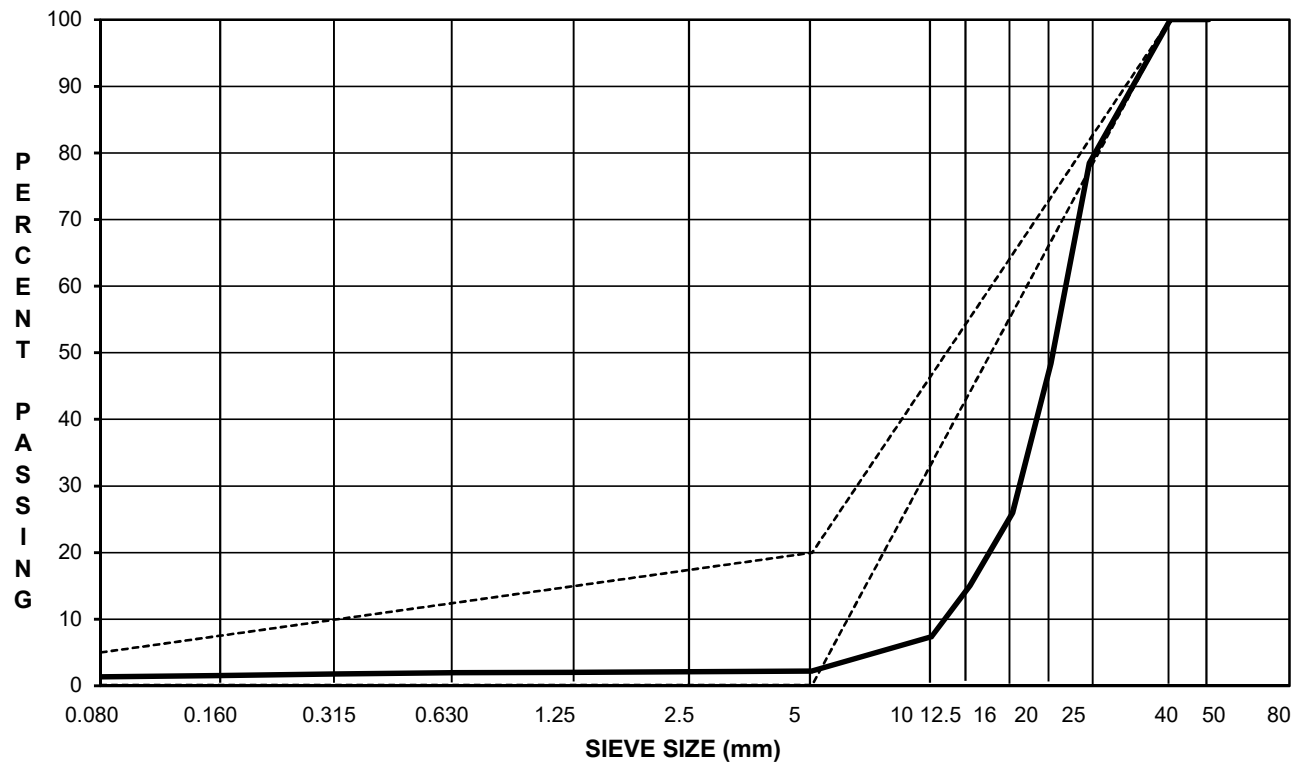
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**78**	**48**	**26**	**15**	**7**	**2**	**2**	**2**	**2**	**2**	**1.5**	**1.4**

Remarks: _____

_____

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA2 - 16:15 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 28, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.8%

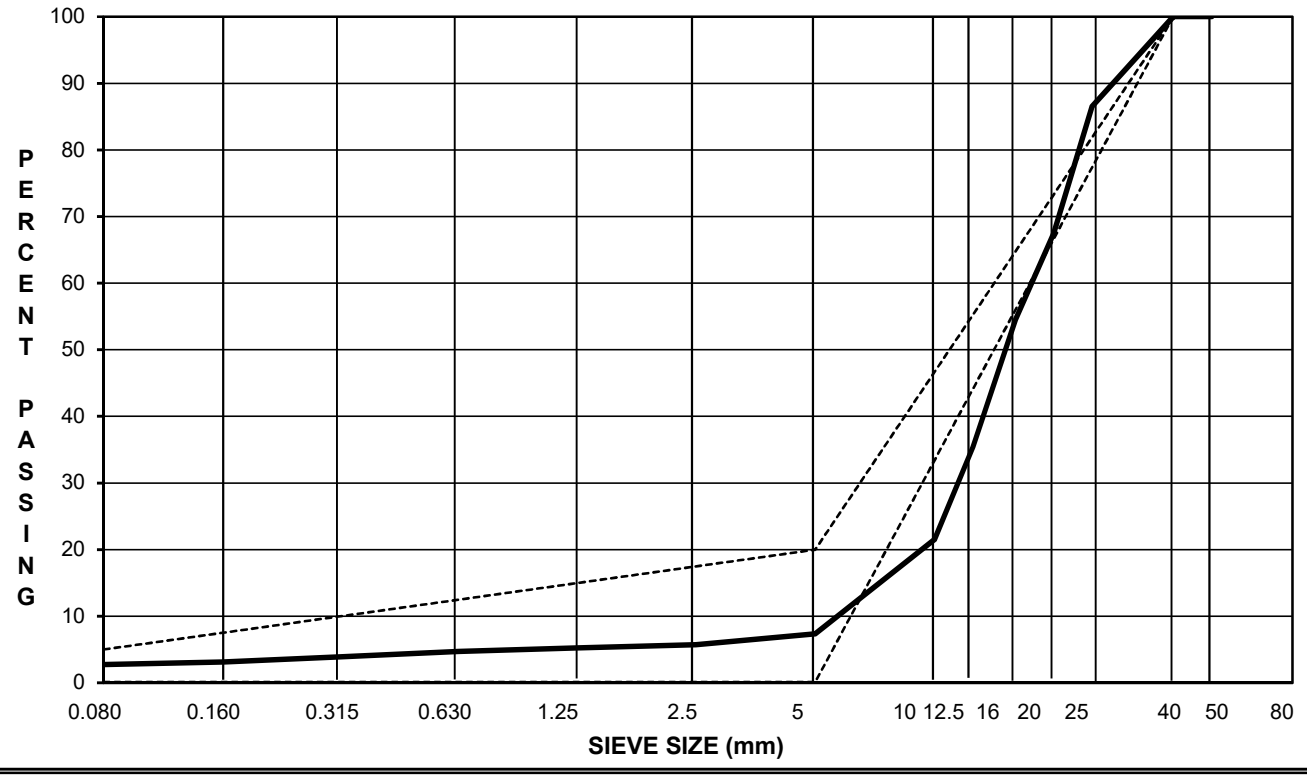
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**87**	**68**	**55**	**35**	**22**	**7**	**6**	**5**	**5**	**4**	**3.1**	**2.7**

Remarks: _____

_____

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

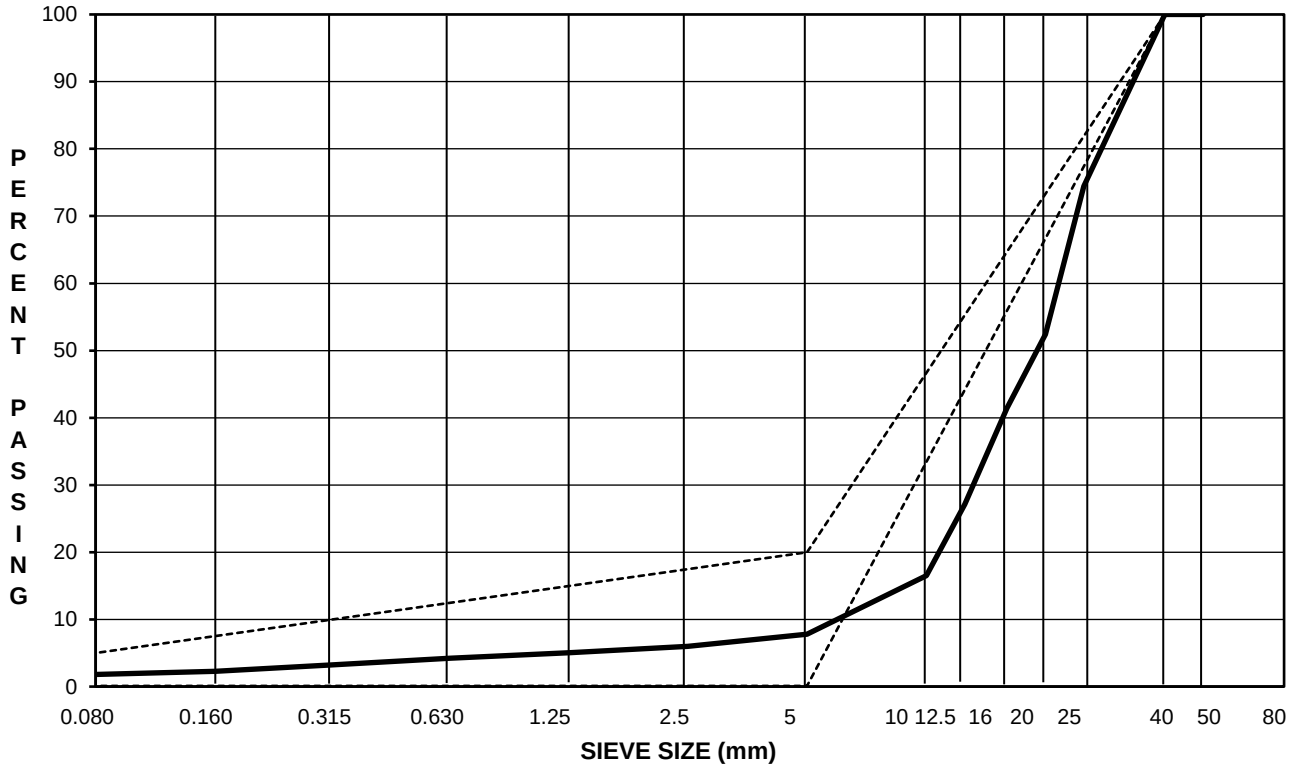
Project:	Eagle Gold Project	Sample Number:	SA3 - 8:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 29, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.6%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**74**	**52**	**41**	**27**	**17**	**8**	**6**	**5**	**4**	**3**	**2.3**	**1.8**

Remarks: _____

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

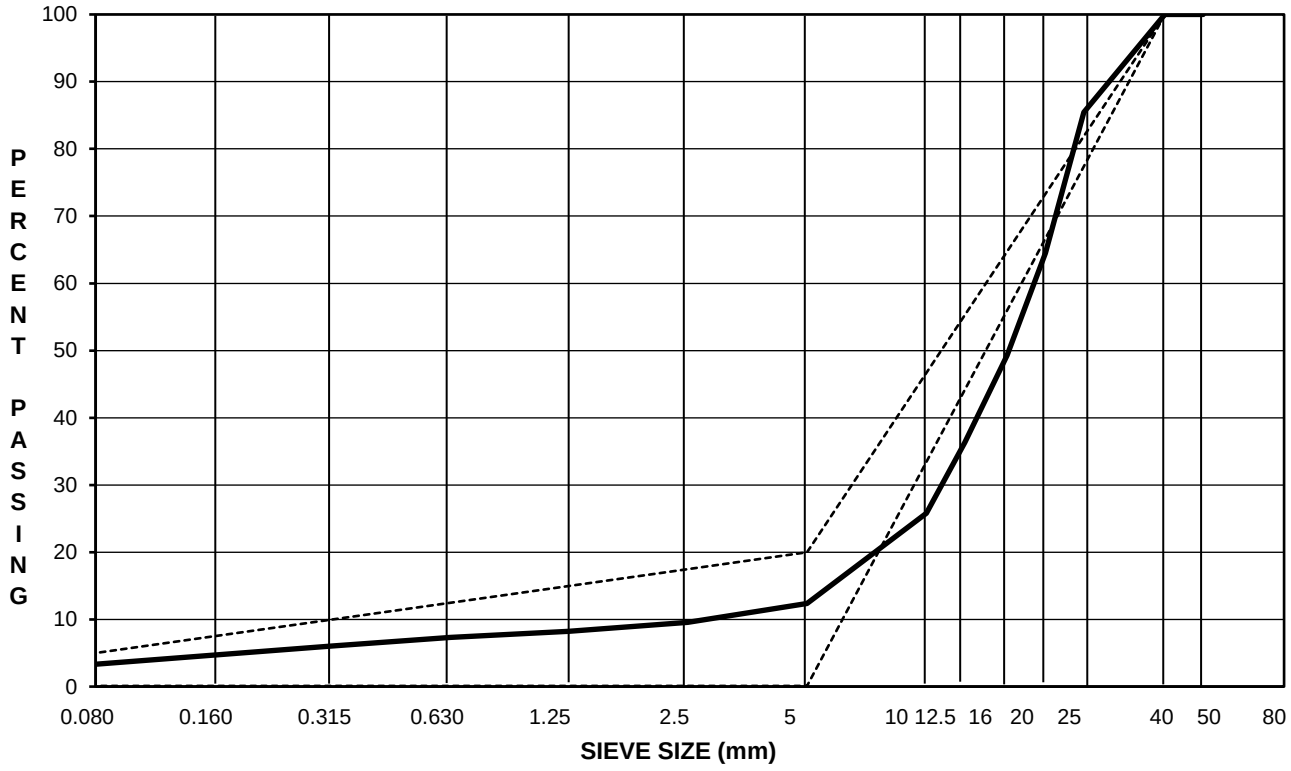
Project:	Eagle Gold Project	Sample Number:	SA4 - 17:25 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**85**	**64**	**49**	**36**	**26**	**12**	**10**	**8**	**7**	**6**	**4.7**	**3.3**

Remarks: 1st test new location above eagle pup

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to SA35 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to 28, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.3%

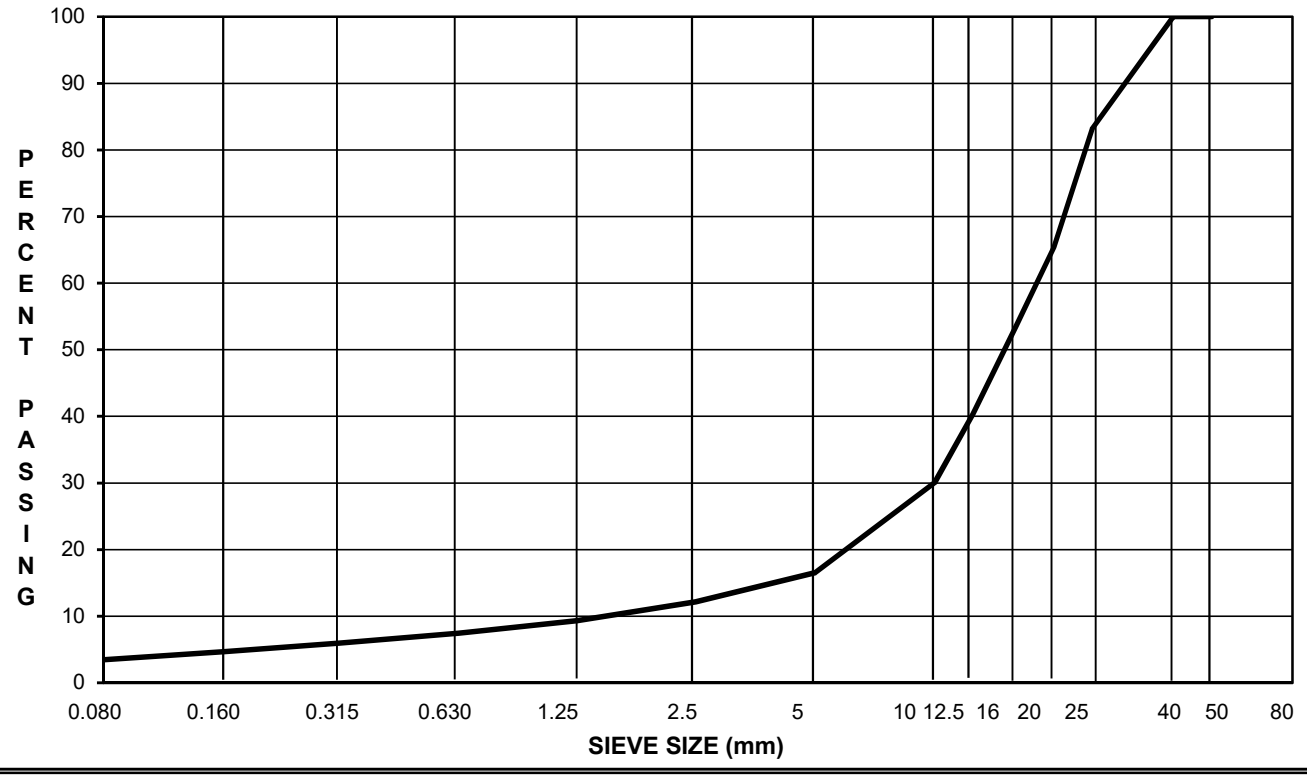
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**83**	**65**	**53**	**40**	**30**	**17**	**12**	**9**	**7**	**6**	**4.7**	**3.5**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - June 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

Date	Time	Sample No.	% F.F.	% M.	% PASSING (mm)											
					40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
Average	-	-	-	2.3	100	83	65	53	40	30	17	12	9	7	6	4.7	3.5

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - June 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
Average	-	-	-	2.3	100	81	63	51	38	28	16	11	9	7	6	4.5	3.3

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - July 1, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
Average	-	-	-	2.3	100	81	63	51	38	28	16	11	9	7	6	4.5	3.3

SIEVE ANALYSIS REPORT

ASTM C136 & C117

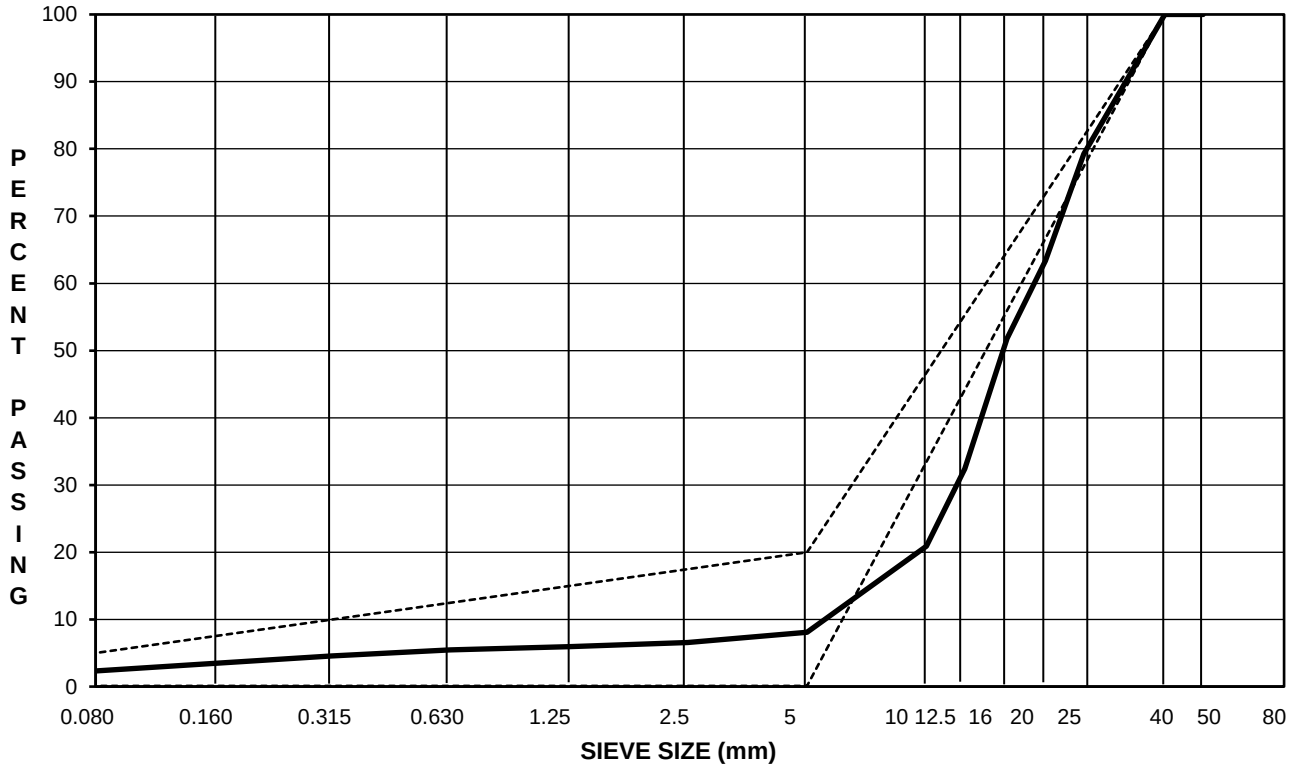
Project:	Eagle Gold Project	Sample Number:	SA5 - 10:25 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 9, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**79**	**63**	**52**	**32**	**21**	**8**	**7**	**6**	**5**	**5**	**3.4**	**2.3**

Remarks: In spec

Reviewed By: C.E.T.



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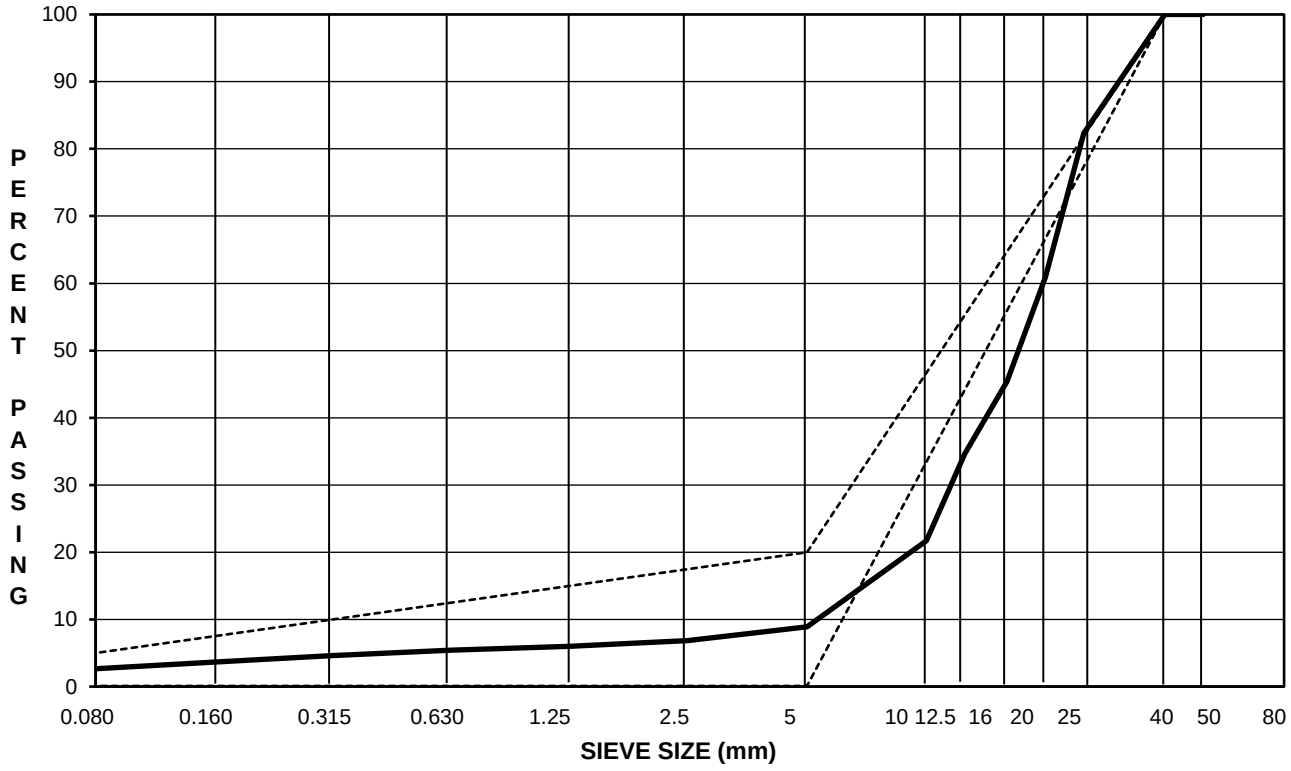
Project:	Eagle Gold Project	Sample Number:	SA6 - 15:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 9, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**82**	**61**	**45**	**35**	**22**	**9**	**7**	**6**	**5**	**5**	**3.6**	**2.7**

Remarks: In spec

Reviewed By: C.E.T.



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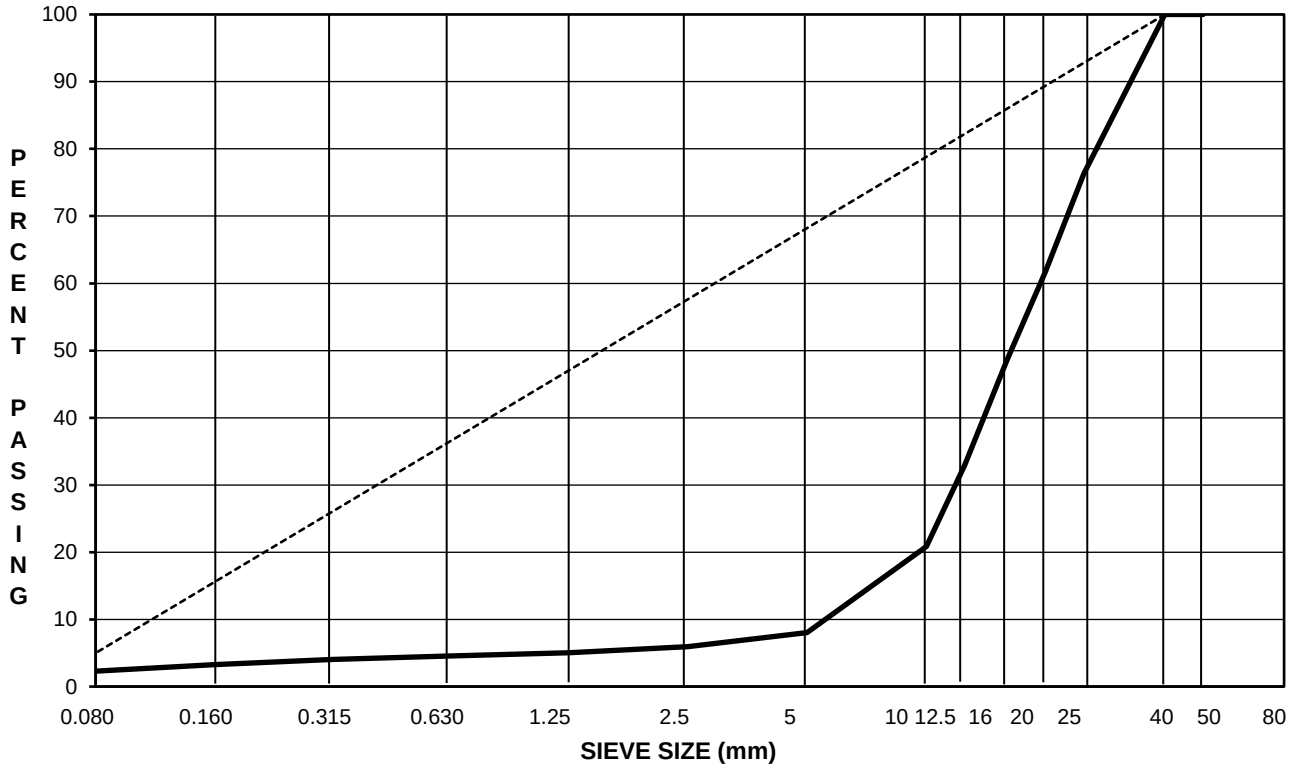
Project:	Eagle Gold Project	Sample Number:	SA7 - 08:00 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 9, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.0%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0												0.1
Test Result	**100**	**100**	**76**	**62**	**49**	**33**	**21**	**8**	**6**	**5**	**5**	**4**	**3.3**	**2.3**

Remarks: In spec

Reviewed By: C.E.T.



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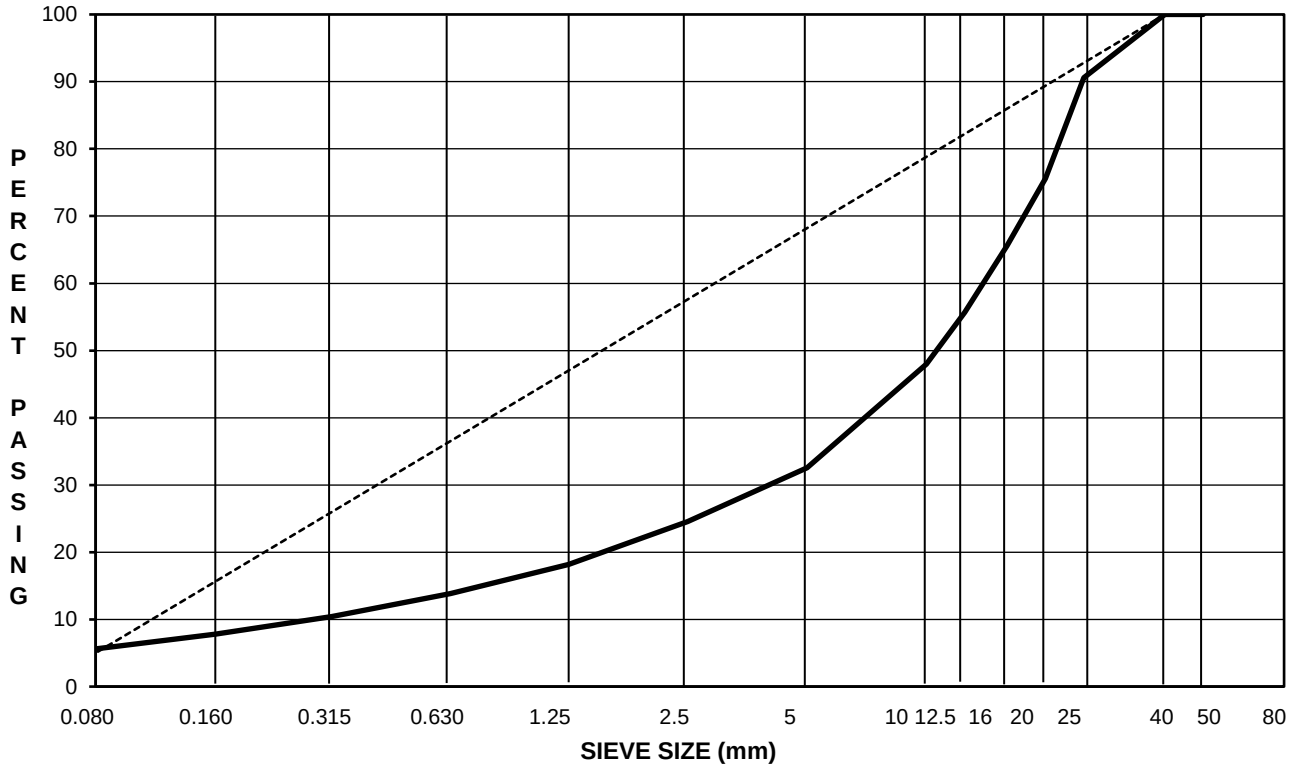
Project:	Eagle Gold Project	Sample Number:	SA8 - 13:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 10, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.2%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0												0.1
Test Result	**100**	**100**	**91**	**76**	**66**	**56**	**48**	**33**	**25**	**18**	**14**	**10**	**7.8**	**5.6**

Remarks: Too fine at 0.080mm

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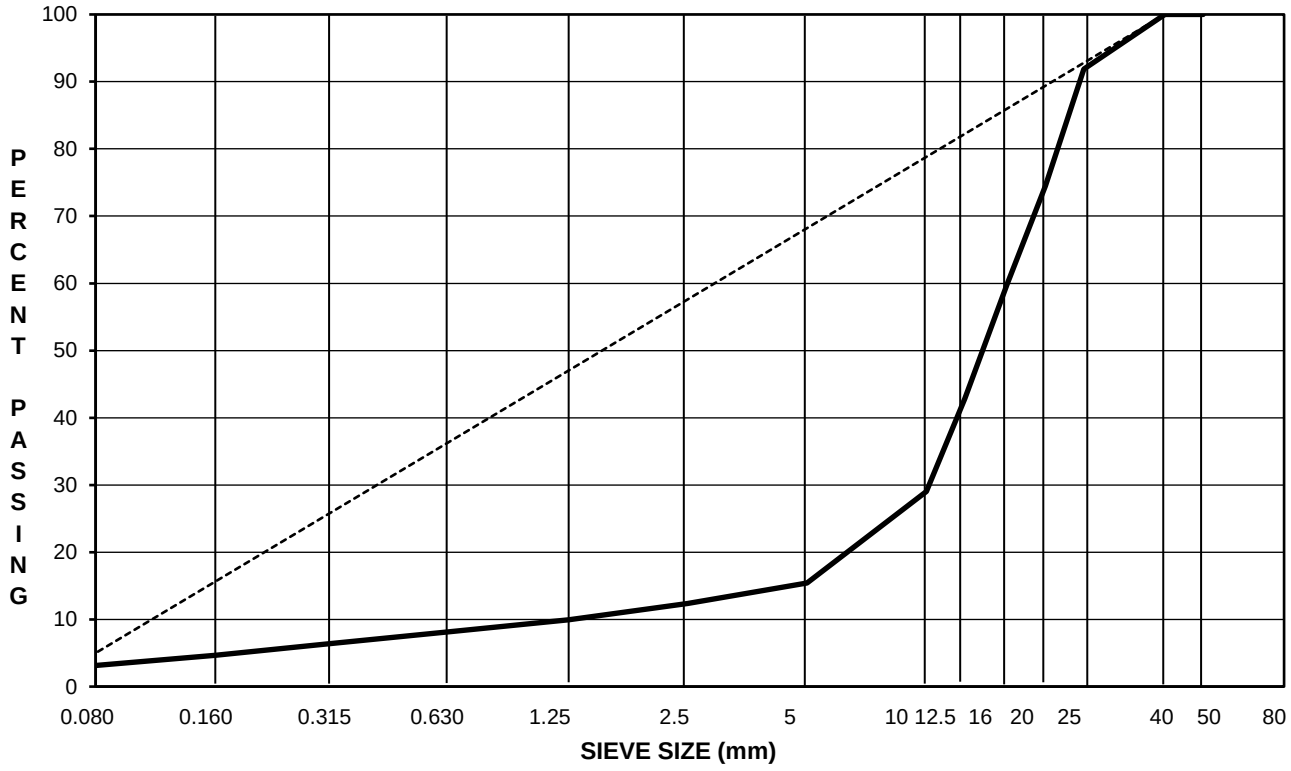
Project:	Eagle Gold Project	Sample Number:	SA9 - 15:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 10, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.2%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0												0.1
Test Result	**100**	**100**	**92**	**74**	**60**	**43**	**29**	**15**	**12**	**10**	**8**	**6**	**4.6**	**3.1**

Remarks: In spec

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

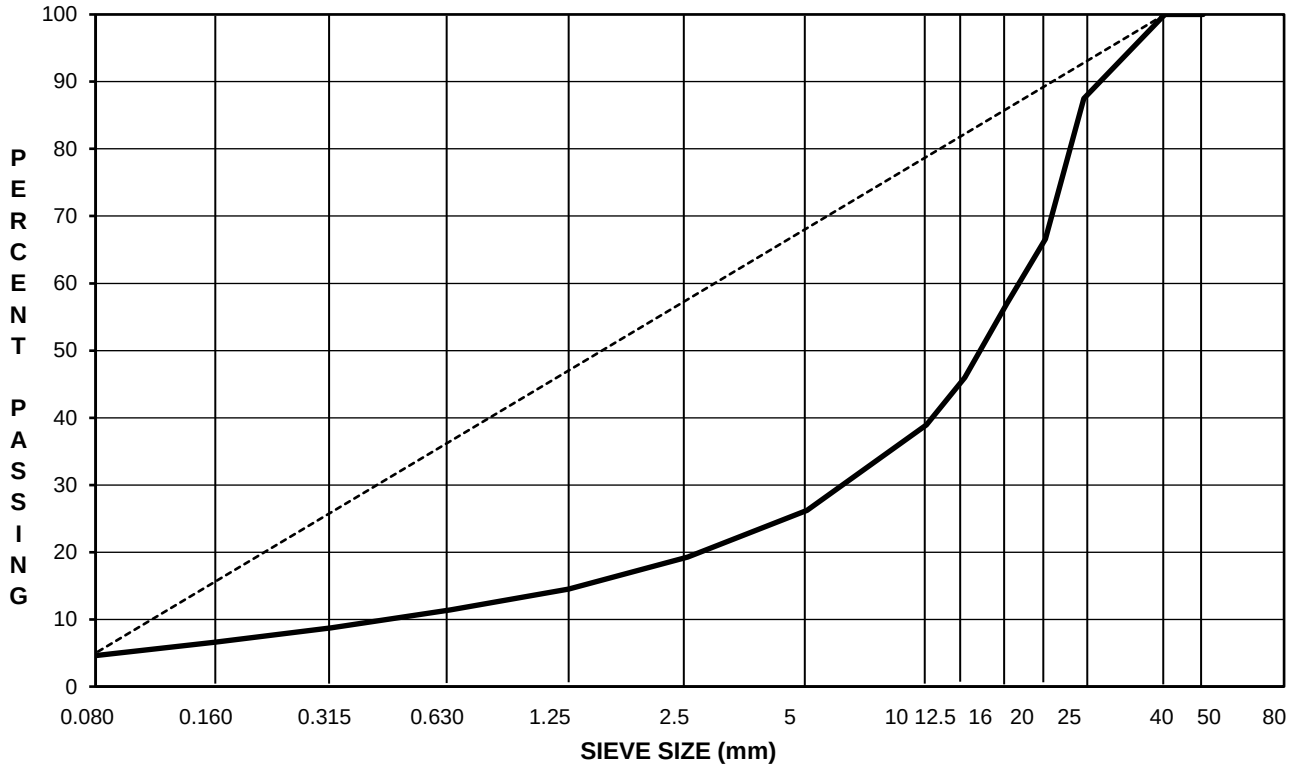
Project:	Eagle Gold Project	Sample Number:	SA10 - 08:05 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 11, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0												0.1
Test Result	**100**	**100**	**87**	**67**	**57**	**46**	**39**	**26**	**19**	**15**	**11**	**9**	**6.6**	**4.6**

Remarks: Too much sand at 5mm

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

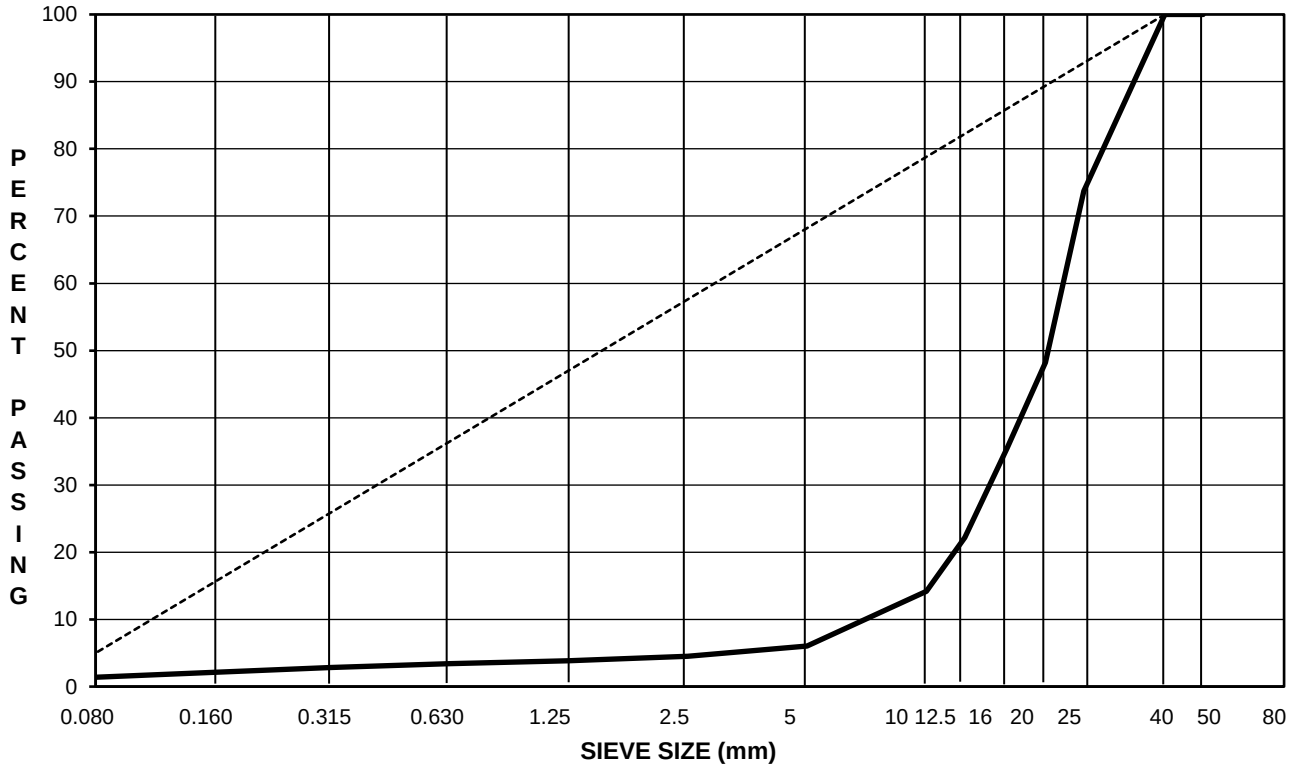
Project:	Eagle Gold Project	Sample Number:	SA11 - 10:45 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 11, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**74**	**48**	**35**	**22**	**14**	**6**	**4**	**4**	**3**	**3**	**2.1**	**1.4**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

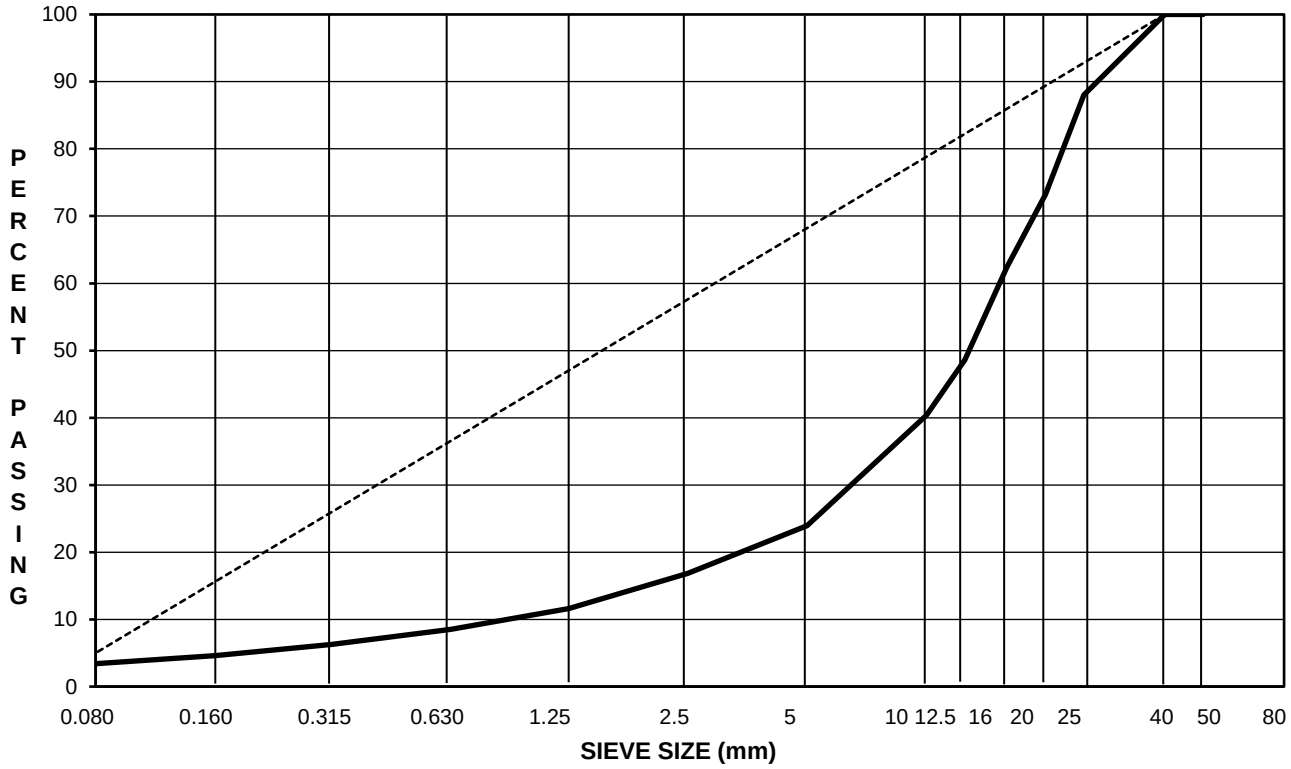
Project:	Eagle Gold Project	Sample Number:	SA12 - 08:05 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 12, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Drain Rock
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**88**	**73**	**62**	**49**	**40**	**24**	**17**	**12**	**9**	**6**	**4.6**	**3.4**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

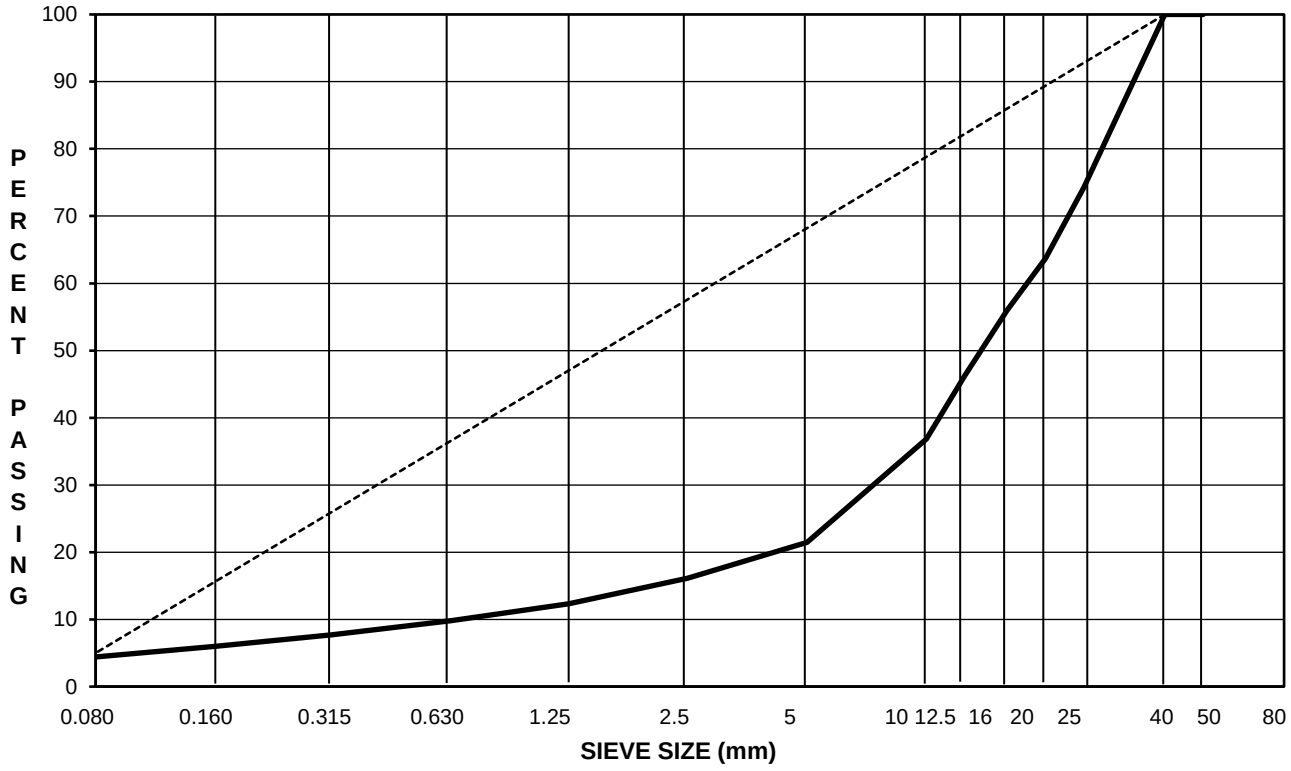
Project:	Eagle Gold Project	Sample Number:	SA13 - 11:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 12, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.5%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**74**	**64**	**56**	**46**	**37**	**21**	**16**	**12**	**10**	**8**	**6.0**	**4.4**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

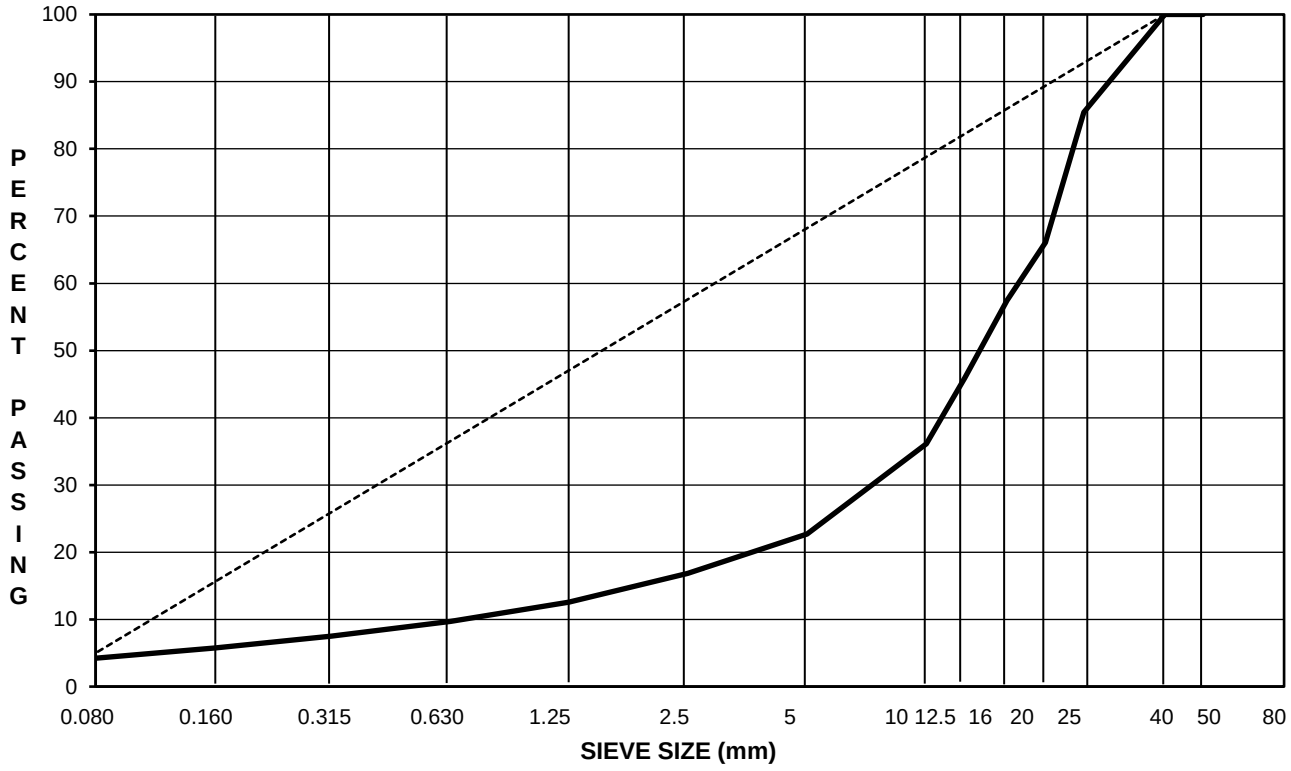
Project:	Eagle Gold Project	Sample Number:	SA14 - 15:40 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 12, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.7%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**85**	**66**	**57**	**46**	**36**	**23**	**17**	**13**	**10**	**7**	**5.7**	**4.2**

Remarks: In spec

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

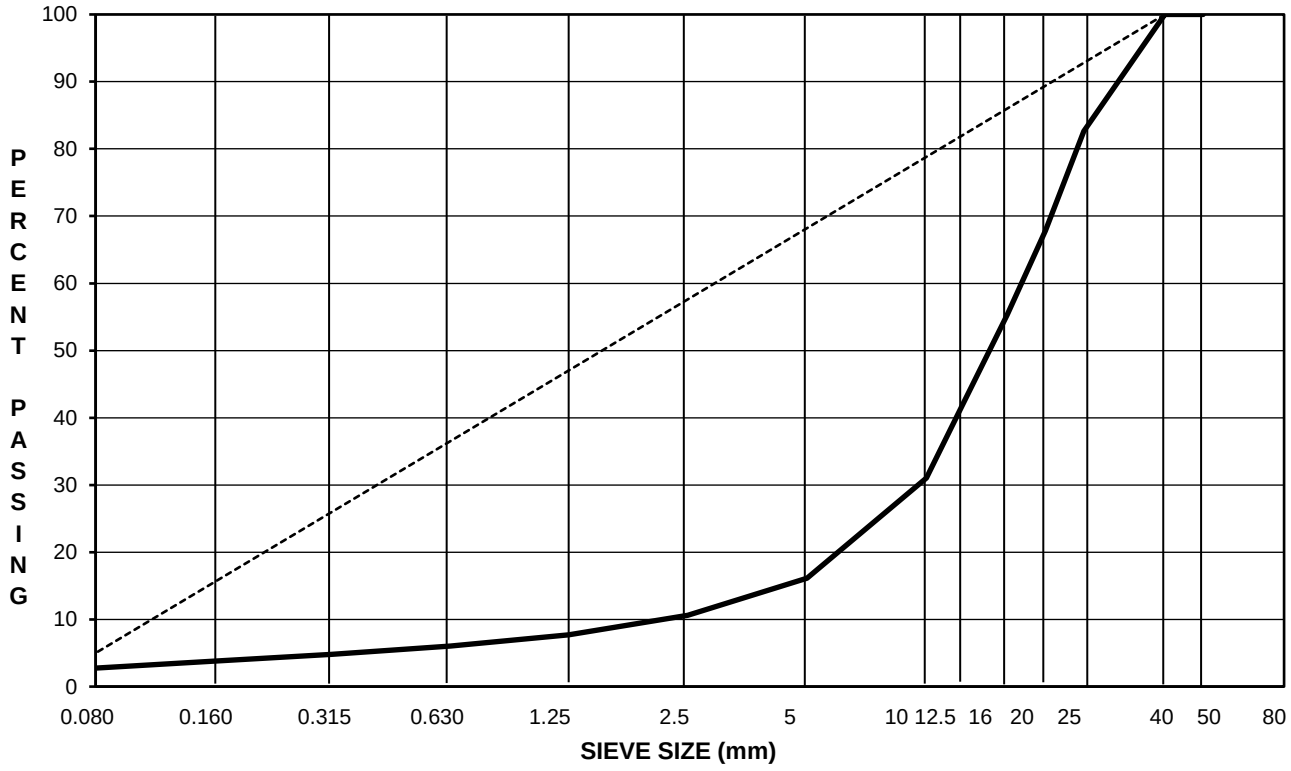
Project:	Eagle Gold Project	Sample Number:	SA15 - 11:55 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 13, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Dan Granda	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.8%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**83**	**68**	**55**	**43**	**31**	**16**	**11**	**8**	**6**	**5**	**3.8**	**2.8**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

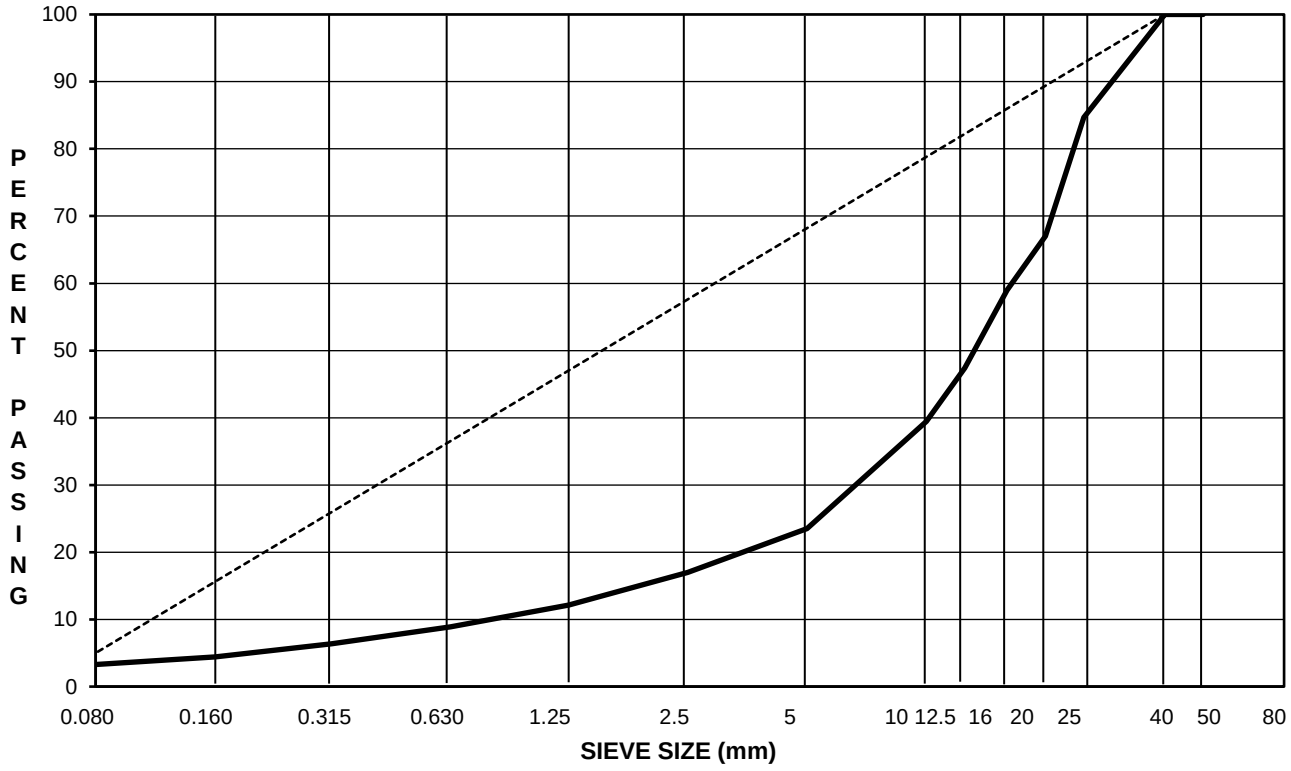
Project:	Eagle Gold Project	Sample Number:	SA16 - 14:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 13, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.7%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**85**	**67**	**59**	**47**	**39**	**23**	**17**	**12**	**9**	**6**	**4.4**	**3.3**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

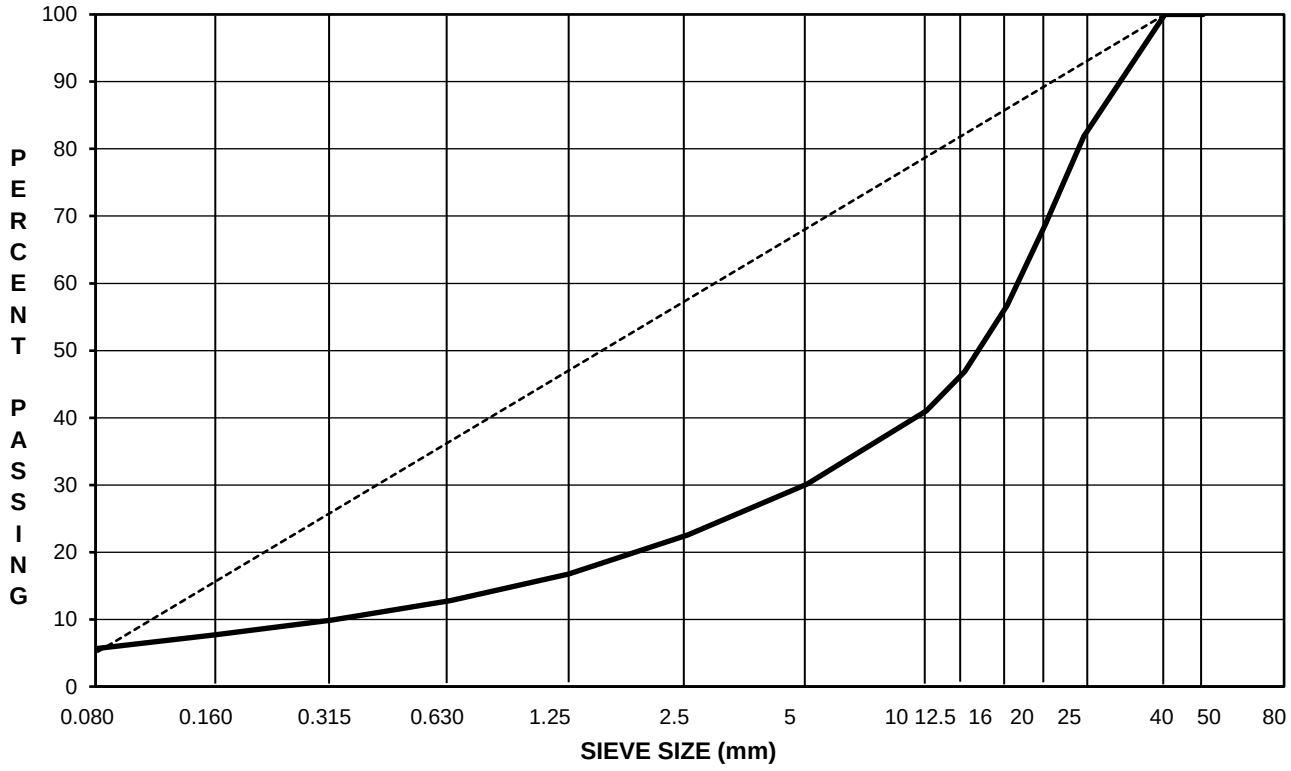
Project:	Eagle Gold Project	Sample Number:	SA17 - 08:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 14, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**82**	**69**	**57**	**47**	**41**	**30**	**23**	**17**	**13**	**10**	**7.7**	**5.6**

Remarks: Stockpile segregation test selected sandy section of recent pile (dumped)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

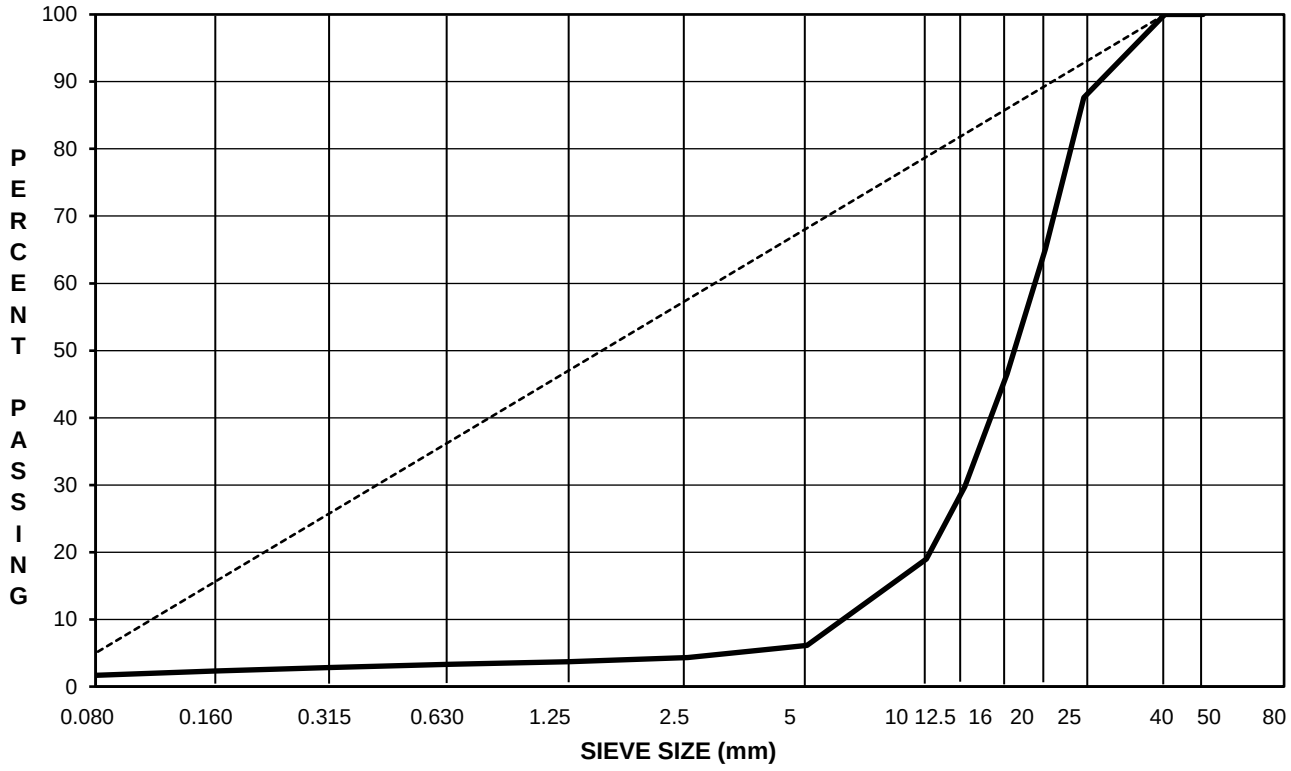
Project:	Eagle Gold Project	Sample Number:	SA17 - 13:30 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 14, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.2%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**88**	**65**	**46**	**30**	**19**	**6**	**4**	**4**	**3**	**3**	**2.3**	**1.7**

Remarks: In spec

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

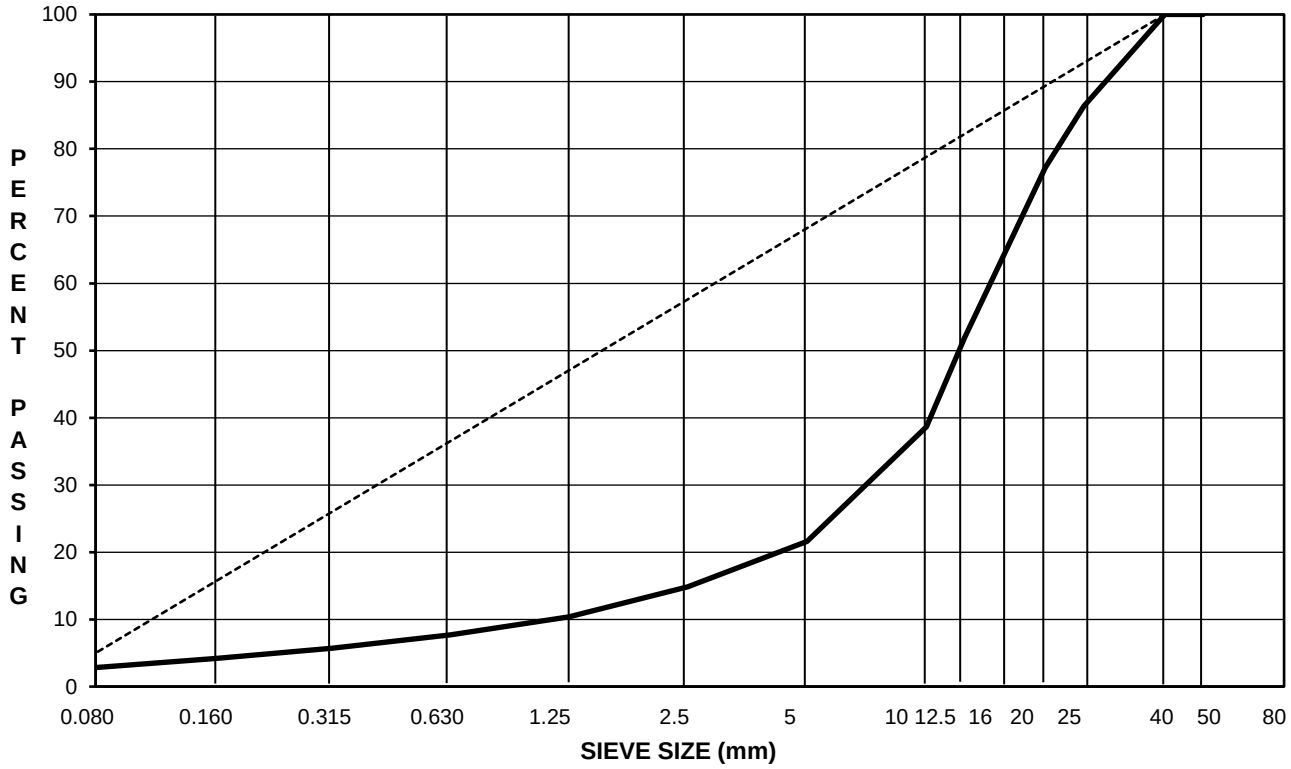
Project:	Eagle Gold Project	Sample Number:	SA19 - 14:20 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 15, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	38mm Minus Overliner Drain
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.0%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100												5
Lower Limit		0	0	0	0	0	0	0	0	0	0	0	0	0.1
Test Result	**100**	**100**	**86**	**77**	**65**	**52**	**39**	**22**	**15**	**10**	**8**	**6**	**4.2**	**2.8**

Remarks: In spec

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA81 - 04:30 hrs
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 1, 2018
Client:	JDS	Sampled By:	RO Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	0.7%

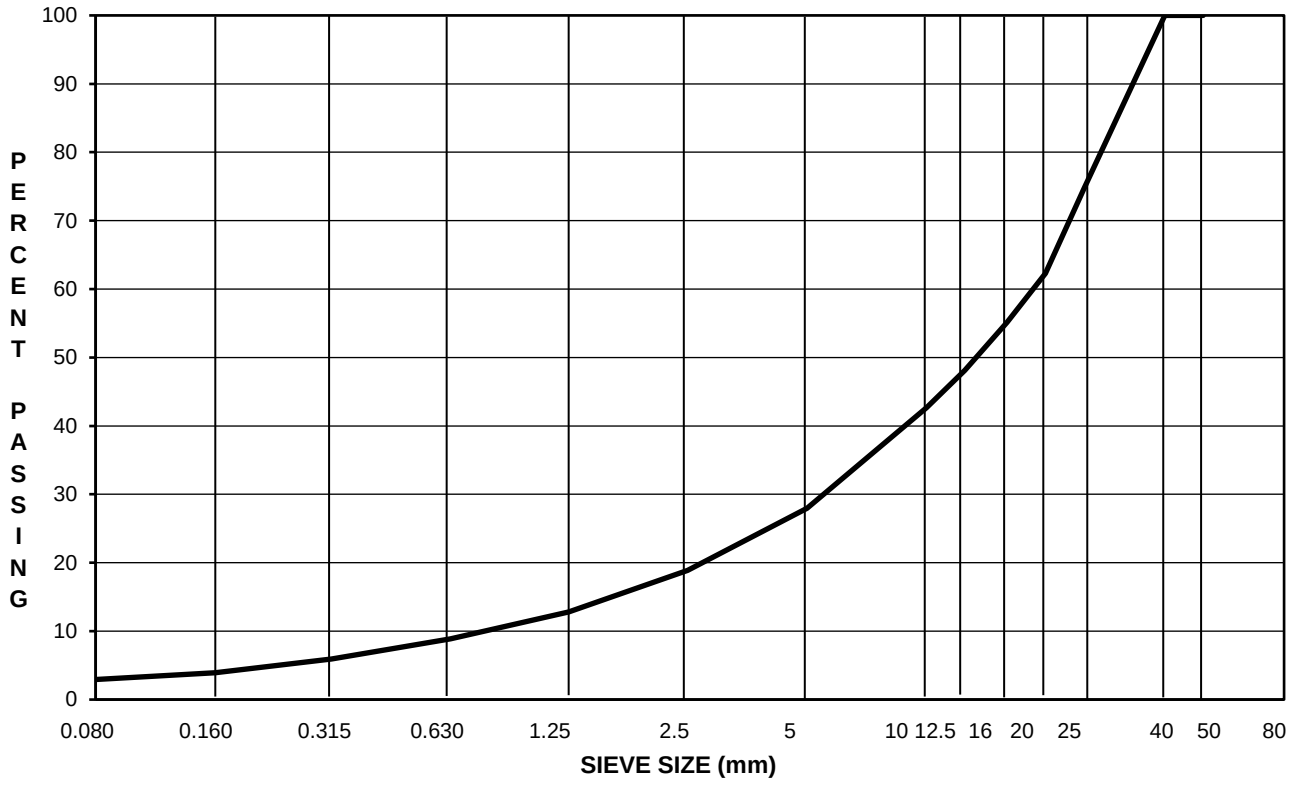
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**75**	**62**	**55**	**48**	**43**	**28**	**19**	**13**	**9**	**6**	**3.9**	**2.9**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA82 - 13:00 hrs
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 3, 2018
Client:	JDS	Sampled By:	ME Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.9%

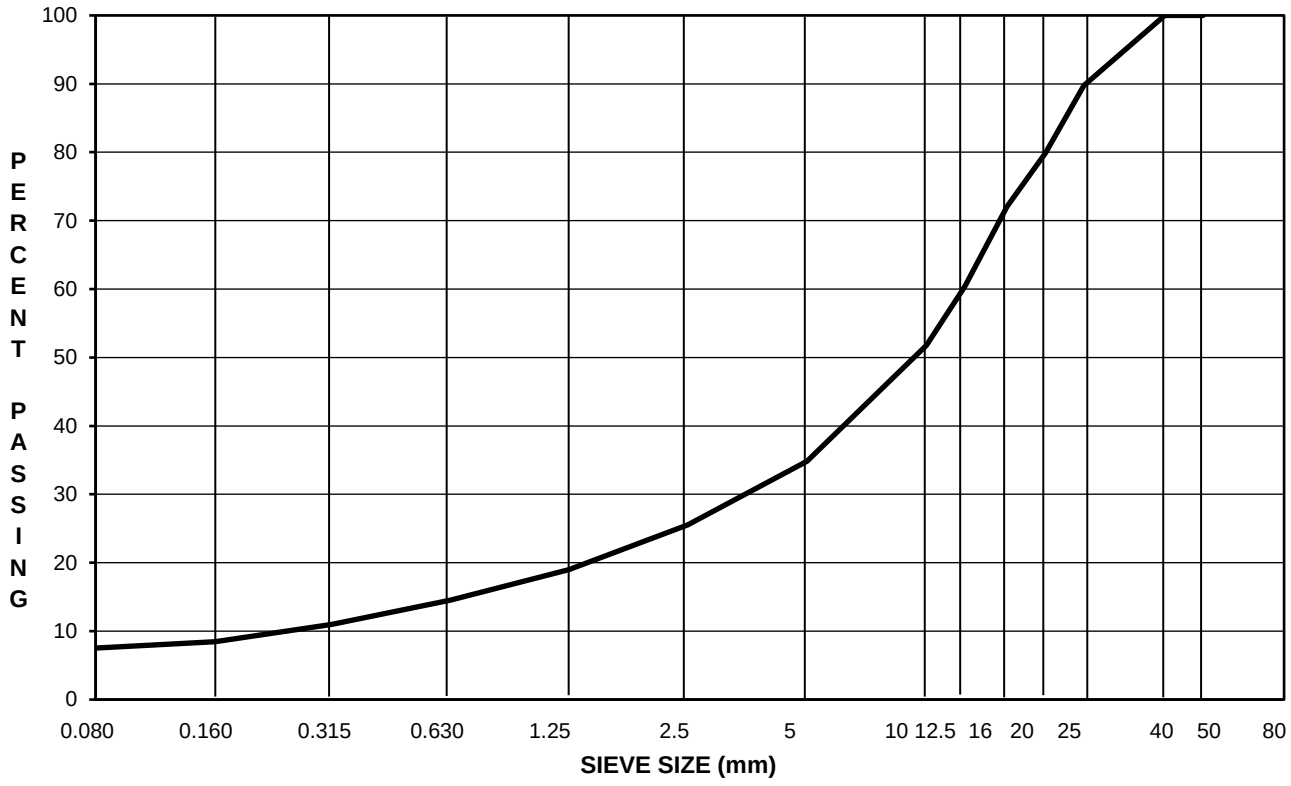
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**90**	**80**	**72**	**60**	**52**	**35**	**26**	**19**	**15**	**11**	**8.4**	**7.5**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA83 - 15:30 hrs
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 3, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.9%

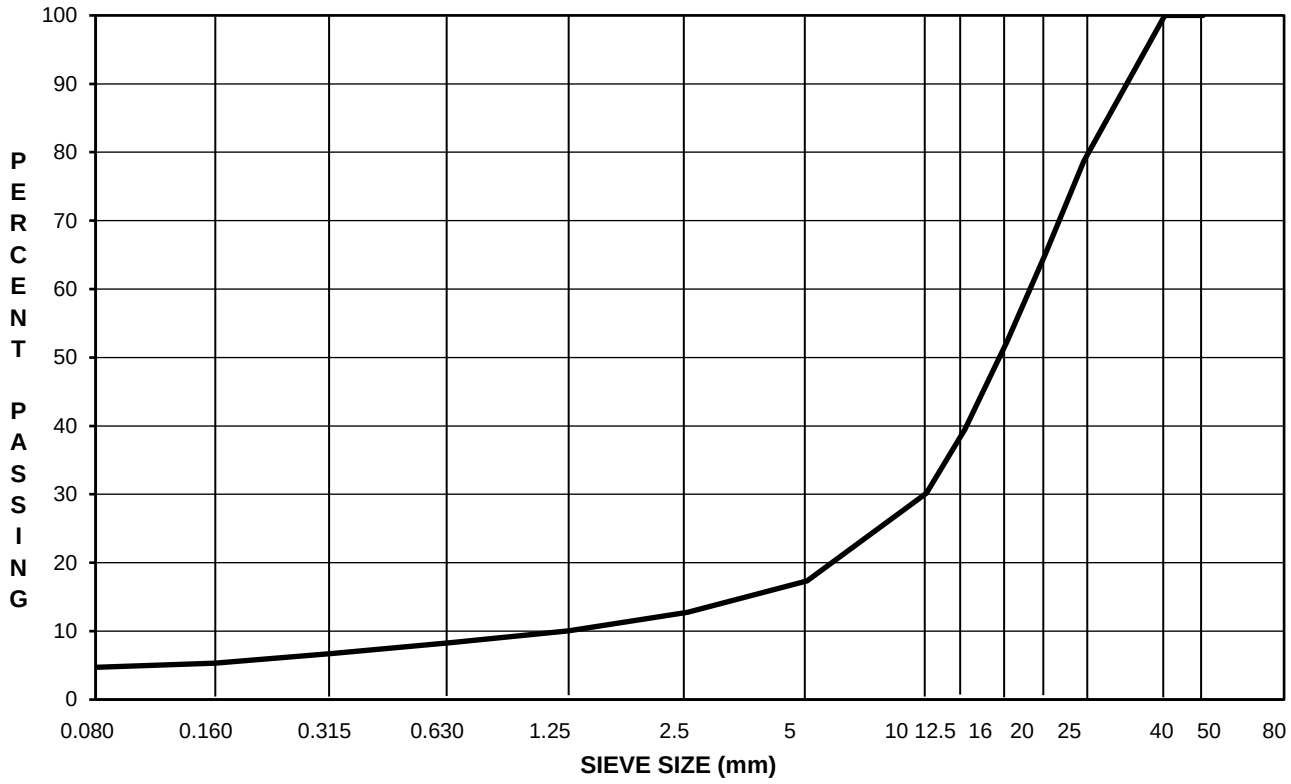
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**79**	**65**	**52**	**39**	**30**	**17**	**13**	**10**	**8**	**7**	**5.3**	**4.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA84 - 16:00 hrs
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 5, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	3.5%

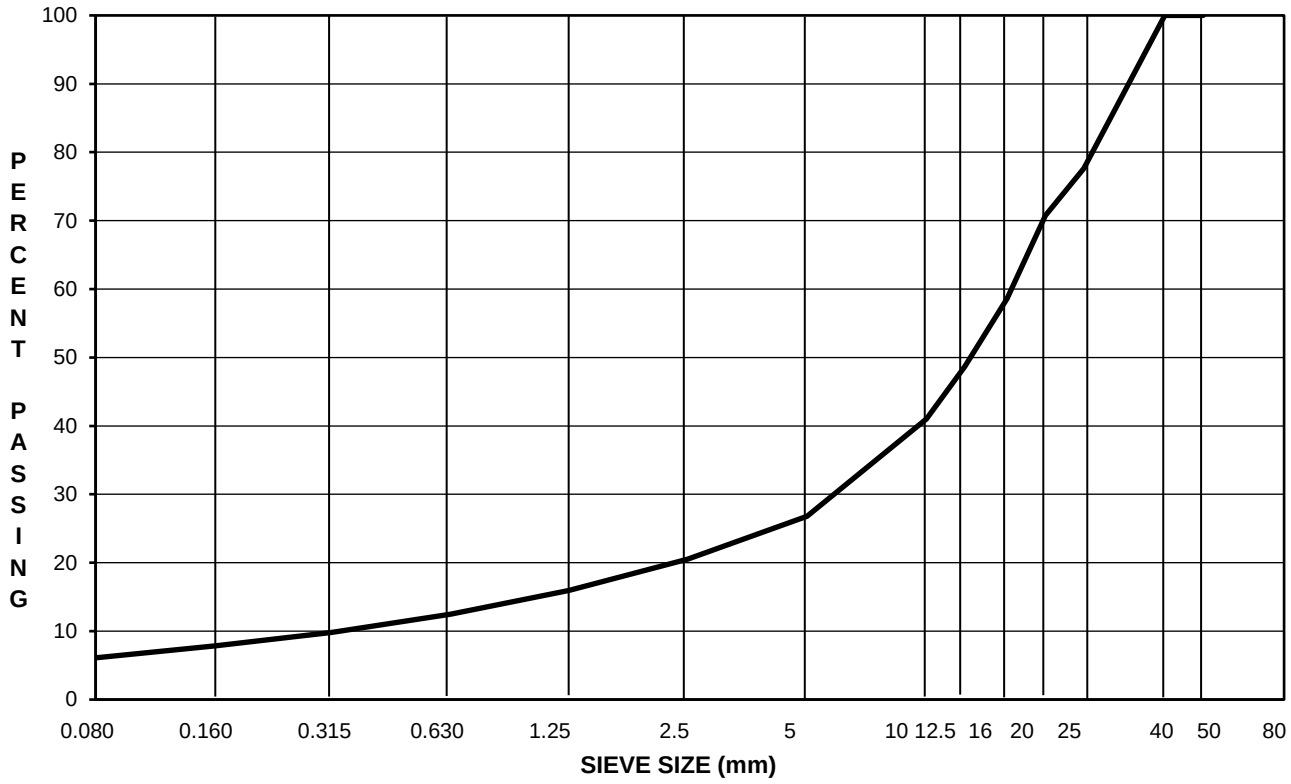
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**78**	**71**	**59**	**49**	**41**	**27**	**21**	**16**	**12**	**10**	**7.8**	**6.1**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA85 - 15:45 hrs
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 6, 2018
Client:	JDS	Sampled By:	JP Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.6%

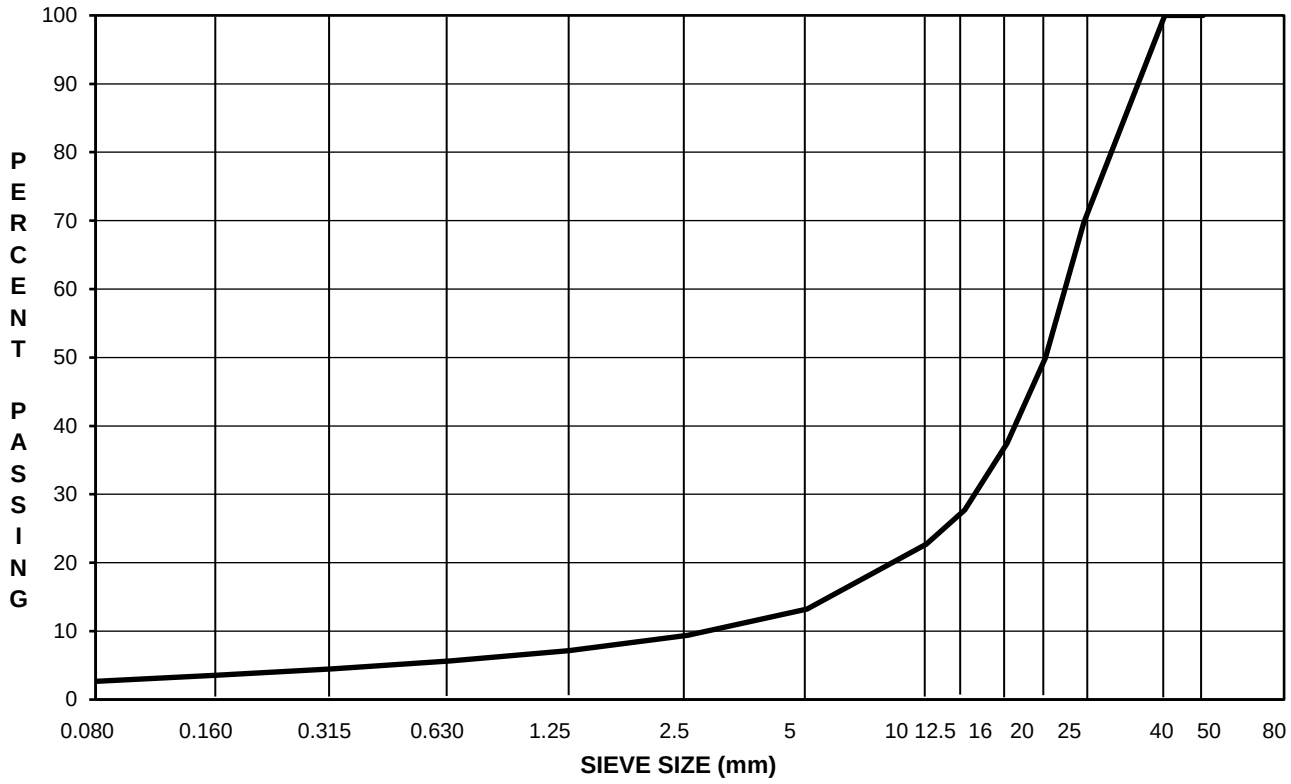
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**70**	**50**	**37**	**28**	**23**	**13**	**9**	**7**	**6**	**4**	**3.6**	**2.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - June 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
Average	-	-	-	2.3	100	81	63	51	38	28	16	11	9	7	6	4.5	3.3

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	Drain Check
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 6, 2018
Client:	JDS/BGC	Sampled By:	RM Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	See remarks
Description:	38 mm Minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	NCL 38mm Stockpile	Moisture Content:	3.3%

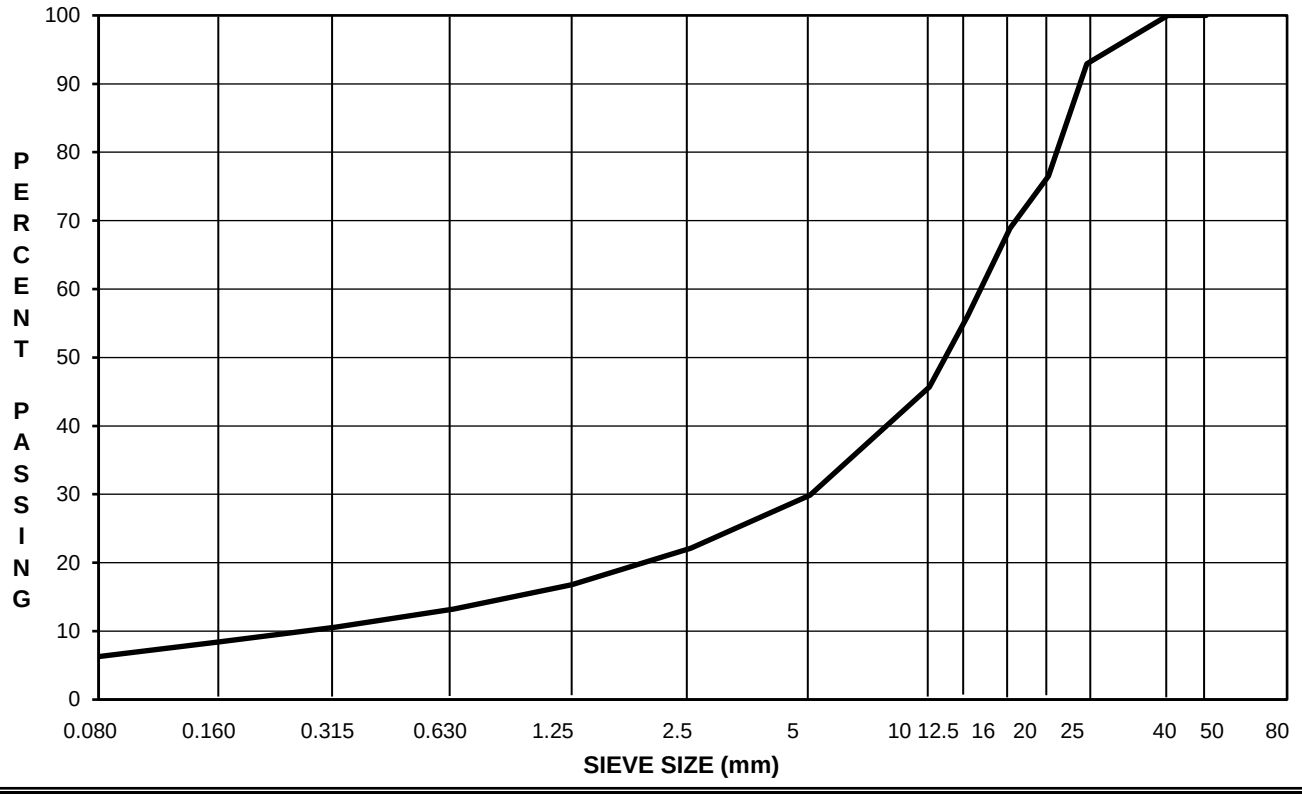
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**93**	**77**	**69**	**56**	**46**	**30**	**22**	**17**	**13**	**11**	**8.4**	**6.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

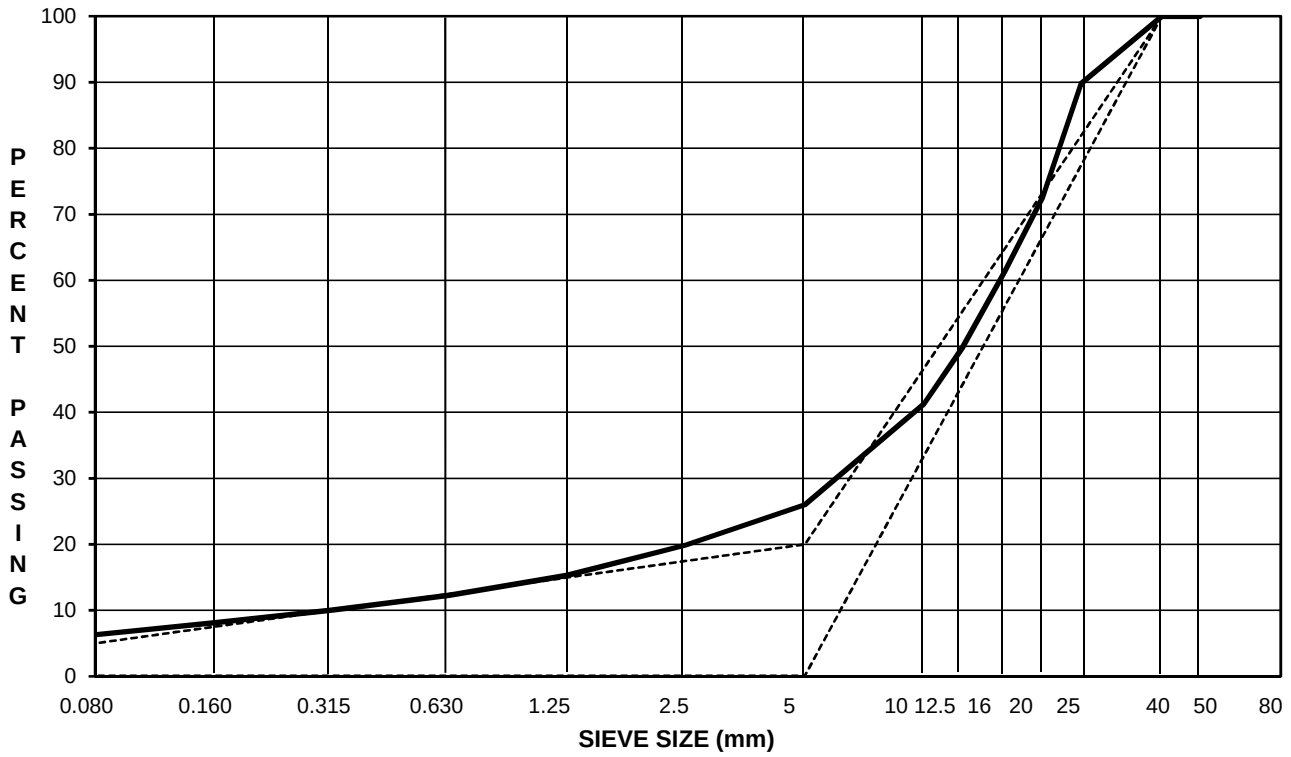
Project:	Dublin Gulch Project	Sample Number:	SA01 - 13:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	October 12, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	
Location:	Heap Leach Pond	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**89.8**	**72.6**	**61.3**	**49.7**	**41.3**	**26.0**	**19.9**	**15.3**	**12.3**	**10.0**	**8.1**	**6.3**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

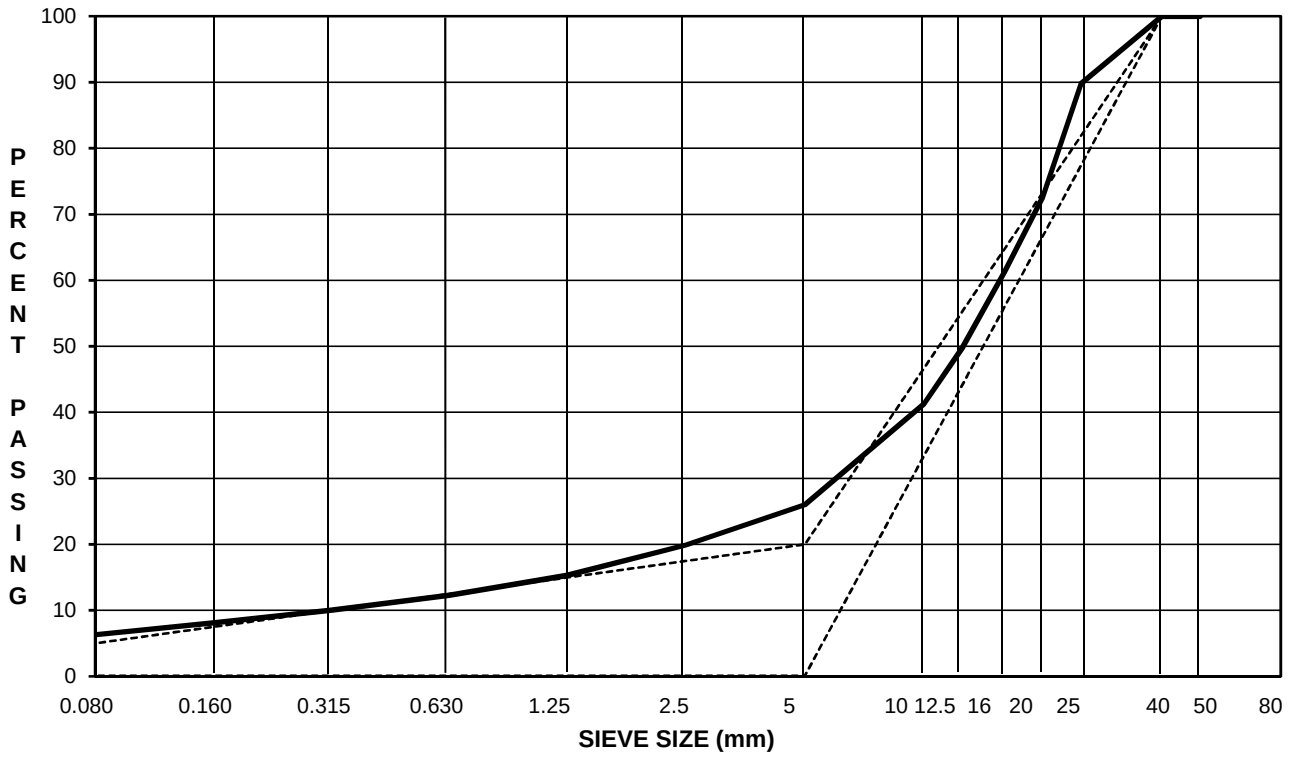
Project:	Dublin Gulch Project	Sample Number:	SA02 - 13:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	November 26, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	
Location:	Heap Leach Pond - Sump Area elev. 912	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**84.9**	**69.3**	**53.1**	**42.7**	**34.7**	**23.2**	**18.1**	**13.9**	**11.0**	**8.8**	**7.1**	**5.5**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

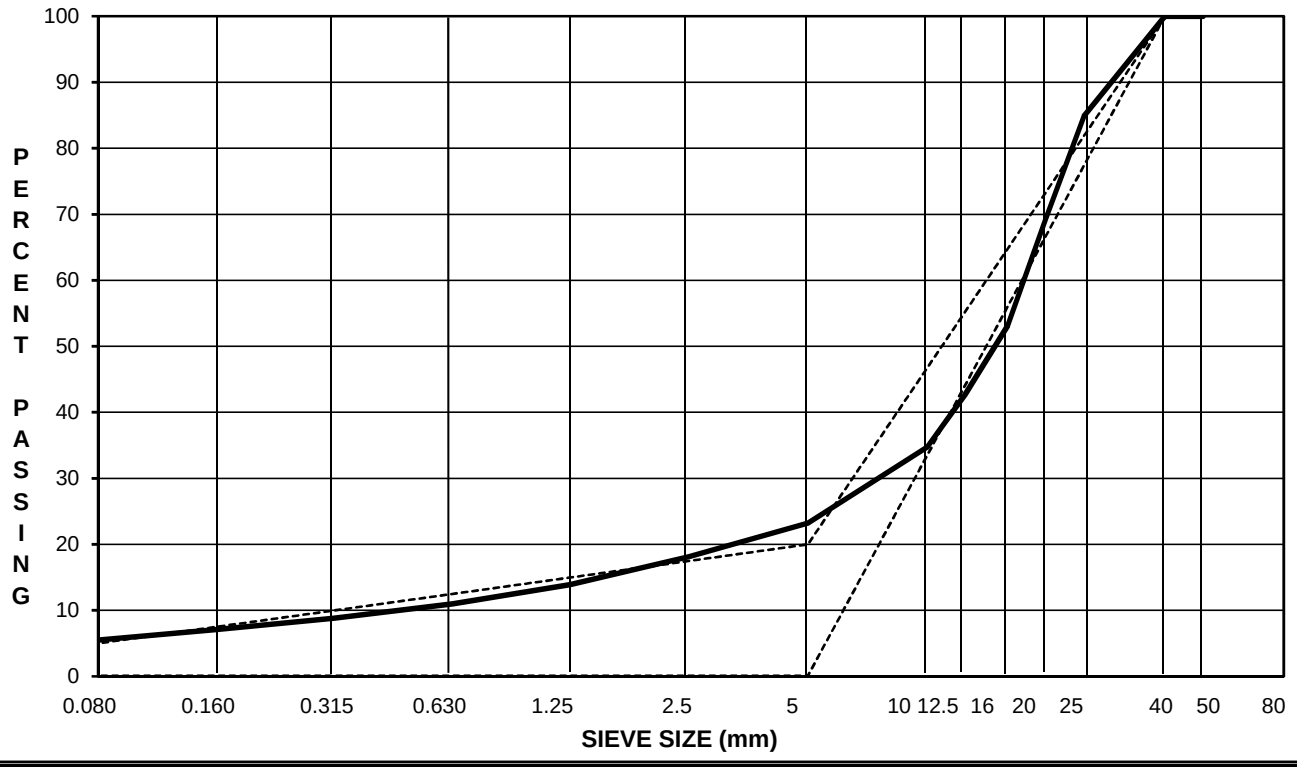
Project:	Dublin Gulch Project	Sample Number:	SA02 - 13:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	November 26, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	
Location:	Heap Leach Pond - Sump Area elev. 912	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**84.9**	**69.3**	**53.1**	**42.7**	**34.7**	**23.2**	**18.1**	**13.9**	**11.0**	**8.8**	**7.1**	**5.5**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

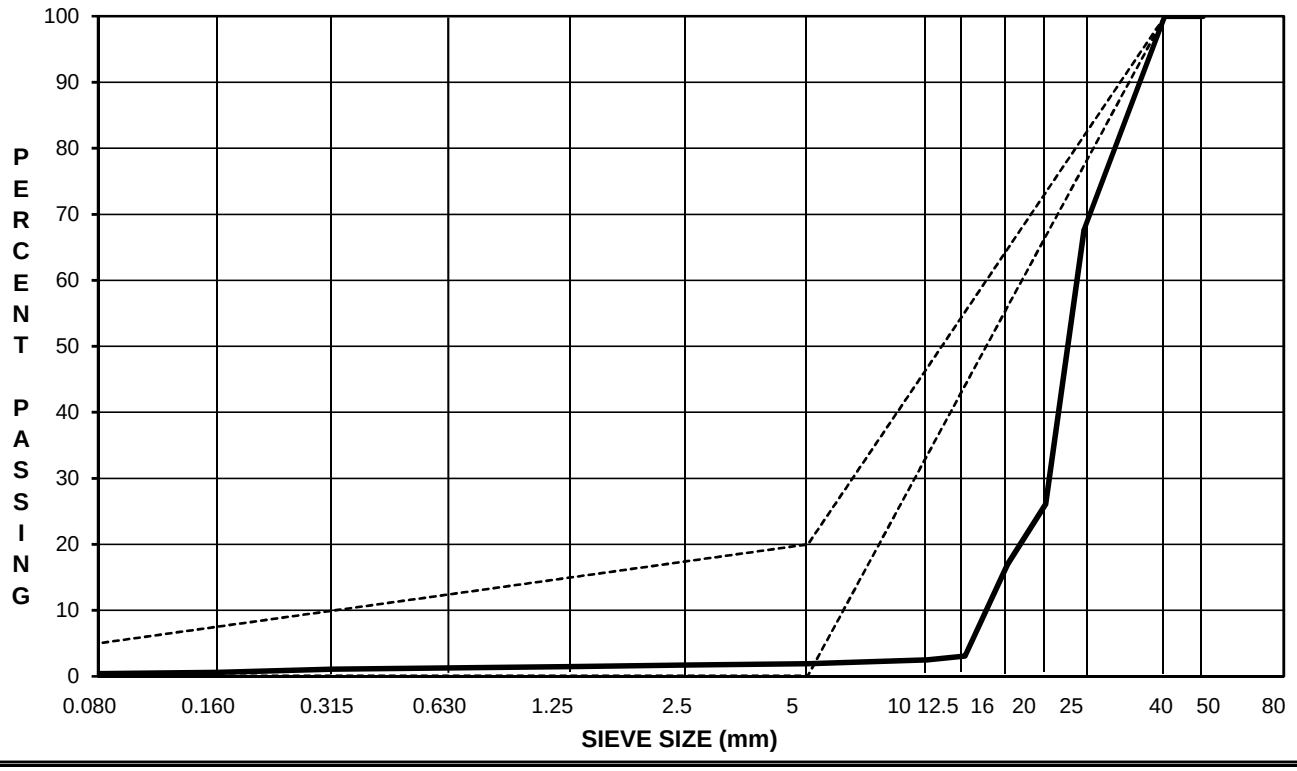
Project:	Dublin Gulch Project	Sample Number:	SA03 - 10:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	November 27, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus screened Drain Rock	Fracture (2 faces):	
Location:	Crusher area stockpile	Moisture Content:	2.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**67.7**	**26.1**	**17.0**	**3.1**	**2.5**	**1.9**	**1.7**	**1.5**	**1.3**	**1.1**	**0.6**	**0.4**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - Sept 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB/RO/ME

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
11-Jul	16:00	SA54	"	3.1	100	80	62	49	35	25	15	12	10	8	6	4.3	3.3
11-Jul	21:30	SA55	"	2.3	100	87	63	46	35	26	16	12	10	7	6	4.6	3.4
12-Jul	3:00	SA56	"	1.5	100	76	49	34	19	7	2	2	2	2	1	1.2	0.9
12-Jul	9:00	SA57	"	2.0	100	71	46	34	17	11	5	4	4	3	3	2.2	1.9
12-Jul	21:00	SA58	"	3.7	100	84	60	52	40	33	23	19	15	13	10	7.9	5.9

13-Jul	3:00	SA59	"	2.5	100	80	60	47	33	24	15	12	9	8	6	4.9	3.9
13-Jul	9:00	SA60	N/A	2.0	100	72	47	39	26	19	11	9	8	7	5	4.3	3.6
13-Jul	22:00	SA61	"	2.1	100	75	55	40	28	21	13	10	8	6	5	4.2	3.5
14-Jul	4:45	SA62	"	3.7	100	82	65	53	37	29	18	14	11	8	6	4.6	3.5
14-Jul	10:30	SA63	"	1.7	100	81	49	35	24	17	10	8	7	6	5	3.9	3.3
14-Jul	21:00	SA64	"	1.8	100	78	51	34	22	15	8	6	5	4	3	2.2	1.8
15-Jul	3:00	SA65	"	2.3	100	58	38	19	8	5	2	2	1	1	1	0.7	0.6
15-Jul	23:00	SA66	"	6.6	100	81	71	65	61	57	46	38	30	23	18	15.1	12.6
16-Jul	4:30	SA67	"	2.1	100	73	50	36	22	15	6	5	4	3	3	1.9	1.6
16-Jul	8:30	SA68	"	2.1	100	70	49	36	23	11	5	3	3	2	2	1.5	1.2
16-Jul	21:00	SA69	"	1.3	100	62	41	27	15	9	5	4	3	3	2	1.9	1.6
17-Jul	2:00	SA70	N/A	2.1	100	70	55	44	30	21	11	8	5	4	3	1.9	1.6
17-Jul	15:45	SA71	"	1.7	100	67	40	28	14	7	3	3	2	2	2	1.6	1.6
17-Jul	20:30	SA72	"	2.6	100	67	58	45	29	19	10	9	8	6	5	4.2	3.9
18-Jul	16:45	SA73	"	1.3	100	73	48	36	24	15	8	6	4	4	3	2.3	2.0
19-Jul	11:00	SA74	"	2.1	100	81	58	42	25	17	9	7	6	5	4	3.4	3.1
19-Jul	14:30	SA75	"	1.8	100	89	68	52	33	19	8	6	5	4	3	2.6	2.5
21-Jul	9:00	SA76	"	1.2	100	64	46	29	13	5	3	2	2	2	2	1.5	1.5
21-Jul	14:30	SA77	"	0.8	100	67	39	24	13	6	2	1	1	1	1	1.0	1.0
23-Jul	11:30	SA78	"	1.2	100	87	70	58	42	34	19	13	9	7	6	4.3	3.6
24-Jul	15:00	SA79	"	1.9	100	90	72	61	51	42	27	20	15	12	9	7.1	5.5
30-Jul	NS	SA80	N/A	1.2	100	91	81	70	57	49	31	21	15	11	8	5.7	4.6
01-Aug	4:30	SA81	"	0.7	100	75	62	55	48	43	28	19	13	9	6	3.9	2.9
03-Aug	13:00	SA82	"	2.9	100	90	80	72	60	52	35	26	19	15	11	8.4	7.5
03-Aug	15:30	SA83	"	2.9	100	79	65	52	39	30	17	13	10	8	7	5.3	4.7
05-Aug	16:00	SA84	"	3.5	100	78	71	59	49	41	27	21	16	12	10	7.8	6.1
06-Aug	15:45	SA85	"	1.6	100	70	50	37	28	23	13	9	7	6	4	3.6	2.7
10-Aug	15:30	SA86	"	1.5	100	65	51	38	28	22	13	10	8	7	6	4.5	3.5
16-Aug	9:00	SA87	"	2.0	100	80	61	48	40	28	16	12	9	7	6	4.5	3.4
17-Aug	10:00	SA88	"	0.8	100	59	37	27	22	18	12	8	6	5	3	2.5	1.9
18-Aug	9:00	SA89	"	1.6	97	76	61	47	38	29	18	13	10	8	6	4.9	3.7
22-Aug	16:00	SA90	N/A	2.9	100	88	70	59	45	38	25	18	13	10	8	5.7	4.1
23-Aug	10:30	SA91	"	1.8	100	82	57	42	33	27	17	12	9	7	5	3.5	2.4
24-Aug	15:30	SA92	"	1.4	100	83	60	48	36	29	17	12	8	6	5	3.4	2.4
25-Aug	11:00	SA93	"	0.8	100	77	58	44	34	28	17	12	9	7	5	3.5	2.4
26-Aug	9:00	SA94	"	3.7	100	65	43	32	24	20	13	9	7	5	4	3.0	2.4
27-Aug	12:30	SA95	"	4.4	100	76	61	52	39	32	21	16	12	9	7	5.6	4.4
02-Sep	12:20	SA96	"	1.2	100	77	62	48	39	34	23	16	12	9	7	4.7	3.3
06-Sep	10:15	SA97	"	1.3	100	63	54	49	38	31	20	13	10	7	5	3.7	2.5
Average	-	-	-	2.1	100	78	59	47	34	26	15	11	8	7	5	4.2	3.2

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - Sept 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB/RO/ME

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
11-Jul	16:00	SA54	"	3.1	100	80	62	49	35	25	15	12	10	8	6	4.3	3.3
11-Jul	21:30	SA55	"	2.3	100	87	63	46	35	26	16	12	10	7	6	4.6	3.4
12-Jul	3:00	SA56	"	1.5	100	76	49	34	19	7	2	2	2	2	1	1.2	0.9
12-Jul	9:00	SA57	"	2.0	100	71	46	34	17	11	5	4	4	3	3	2.2	1.9
12-Jul	21:00	SA58	"	3.7	100	84	60	52	40	33	23	19	15	13	10	7.9	5.9

13-Jul	3:00	SA59	"	2.5	100	80	60	47	33	24	15	12	9	8	6	4.9	3.9
13-Jul	9:00	SA60	N/A	2.0	100	72	47	39	26	19	11	9	8	7	5	4.3	3.6
13-Jul	22:00	SA61	"	2.1	100	75	55	40	28	21	13	10	8	6	5	4.2	3.5
14-Jul	4:45	SA62	"	3.7	100	82	65	53	37	29	18	14	11	8	6	4.6	3.5
14-Jul	10:30	SA63	"	1.7	100	81	49	35	24	17	10	8	7	6	5	3.9	3.3
14-Jul	21:00	SA64	"	1.8	100	78	51	34	22	15	8	6	5	4	3	2.2	1.8
15-Jul	3:00	SA65	"	2.3	100	58	38	19	8	5	2	2	1	1	1	0.7	0.6
15-Jul	23:00	SA66	"	6.6	100	81	71	65	61	57	46	38	30	23	18	15.1	12.6
16-Jul	4:30	SA67	"	2.1	100	73	50	36	22	15	6	5	4	3	3	1.9	1.6
16-Jul	8:30	SA68	"	2.1	100	70	49	36	23	11	5	3	3	2	2	1.5	1.2
16-Jul	21:00	SA69	"	1.3	100	62	41	27	15	9	5	4	3	3	2	1.9	1.6
17-Jul	2:00	SA70	N/A	2.1	100	70	55	44	30	21	11	8	5	4	3	1.9	1.6
17-Jul	15:45	SA71	"	1.7	100	67	40	28	14	7	3	3	2	2	2	1.6	1.6
17-Jul	20:30	SA72	"	2.6	100	67	58	45	29	19	10	9	8	6	5	4.2	3.9
18-Jul	16:45	SA73	"	1.3	100	73	48	36	24	15	8	6	4	4	3	2.3	2.0
19-Jul	11:00	SA74	"	2.1	100	81	58	42	25	17	9	7	6	5	4	3.4	3.1
19-Jul	14:30	SA75	"	1.8	100	89	68	52	33	19	8	6	5	4	3	2.6	2.5
21-Jul	9:00	SA76	"	1.2	100	64	46	29	13	5	3	2	2	2	2	1.5	1.5
21-Jul	14:30	SA77	"	0.8	100	67	39	24	13	6	2	1	1	1	1	1.0	1.0
23-Jul	11:30	SA78	"	1.2	100	87	70	58	42	34	19	13	9	7	6	4.3	3.6
24-Jul	15:00	SA79	"	1.9	100	90	72	61	51	42	27	20	15	12	9	7.1	5.5
30-Jul	NS	SA80	N/A	1.2	100	91	81	70	57	49	31	21	15	11	8	5.7	4.6
01-Aug	4:30	SA81	"	0.7	100	75	62	55	48	43	28	19	13	9	6	3.9	2.9
03-Aug	13:00	SA82	"	2.9	100	90	80	72	60	52	35	26	19	15	11	8.4	7.5
03-Aug	15:30	SA83	"	2.9	100	79	65	52	39	30	17	13	10	8	7	5.3	4.7
05-Aug	16:00	SA84	"	3.5	100	78	71	59	49	41	27	21	16	12	10	7.8	6.1
06-Aug	15:45	SA85	"	1.6	100	70	50	37	28	23	13	9	7	6	4	3.6	2.7
10-Aug	15:30	SA86	"	1.5	100	65	51	38	28	22	13	10	8	7	6	4.5	3.5
16-Aug	9:00	SA87	"	2.0	100	80	61	48	40	28	16	12	9	7	6	4.5	3.4
17-Aug	10:00	SA88	"	0.8	100	59	37	27	22	18	12	8	6	5	3	2.5	1.9
18-Aug	9:00	SA89	"	1.6	97	76	61	47	38	29	18	13	10	8	6	4.9	3.7
22-Aug	16:00	SA90	N/A	2.9	100	88	70	59	45	38	25	18	13	10	8	5.7	4.1
23-Aug	10:30	SA91	"	1.8	100	82	57	42	33	27	17	12	9	7	5	3.5	2.4
24-Aug	15:30	SA92	"	1.4	100	83	60	48	36	29	17	12	8	6	5	3.4	2.4
25-Aug	11:00	SA93	"	0.8	100	77	58	44	34	28	17	12	9	7	5	3.5	2.4
26-Aug	9:00	SA94	"	3.7	100	65	43	32	24	20	13	9	7	5	4	3.0	2.4
27-Aug	12:30	SA95	"	4.4	100	76	61	52	39	32	21	16	12	9	7	5.6	4.4
02-Sep	12:20	SA96	"	1.2	100	77	62	48	39	34	23	16	12	9	7	4.7	3.3
06-Sep	10:15	SA97	"	1.3	100	63	54	49	38	31	20	13	10	7	5	3.7	2.5
08-Sep	8:20	SA98	"	1.2	100	82	58	50	41	35	23	16	11	8	6	4.6	3.3
09-Sep	7:40	SA99	"	1.0	100	73	50	42	29	22	13	9	6	5	4	2.8	2.1
Average	-	-	-	2.1	100	78	59	47	34	26	15	11	8	7	5	4.1	3.2

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to SA41 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to July 1, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.6%

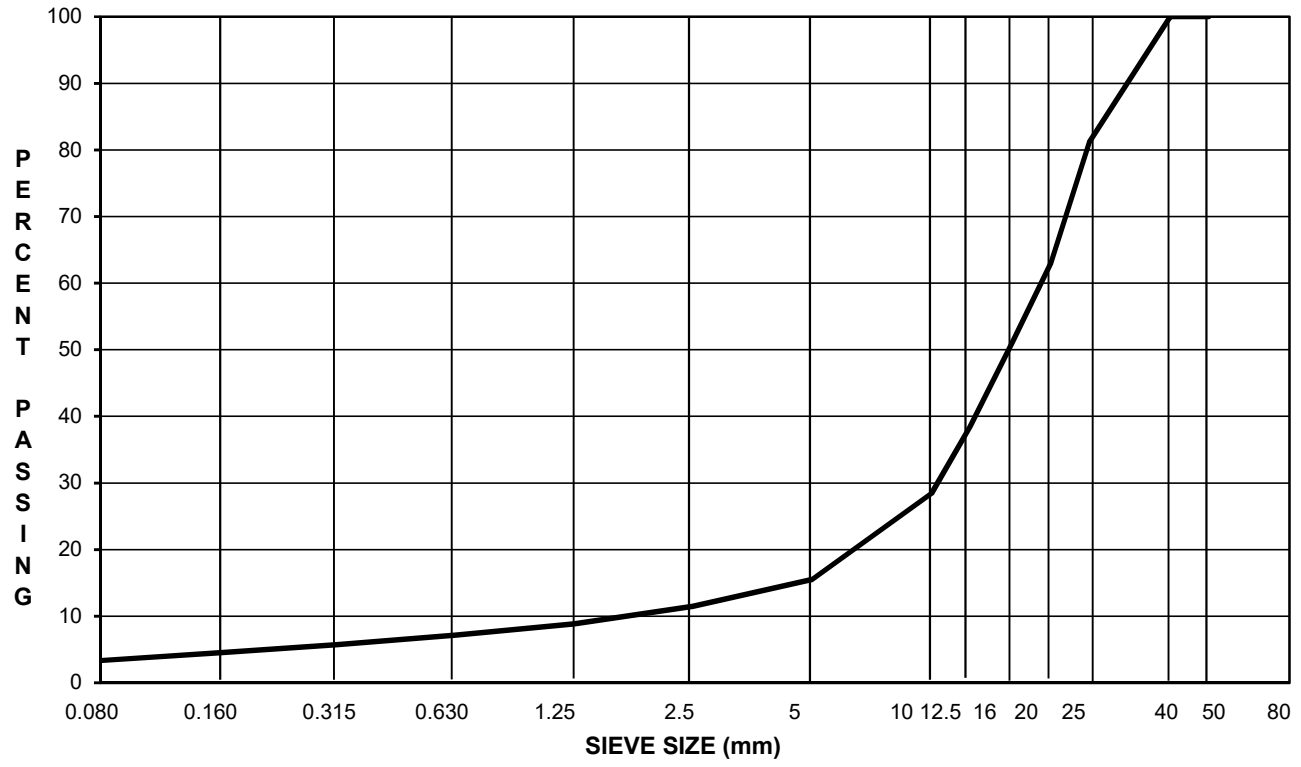
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**81**	**63**	**51**	**38**	**28**	**16**	**11**	**9**	**7**	**6**	**4.5**	**3.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - July 1, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
Average	-	-	-	2.3	100	81	63	51	38	28	16	11	9	7	6	4.5	3.3

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to SA49 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to July 6, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.6%

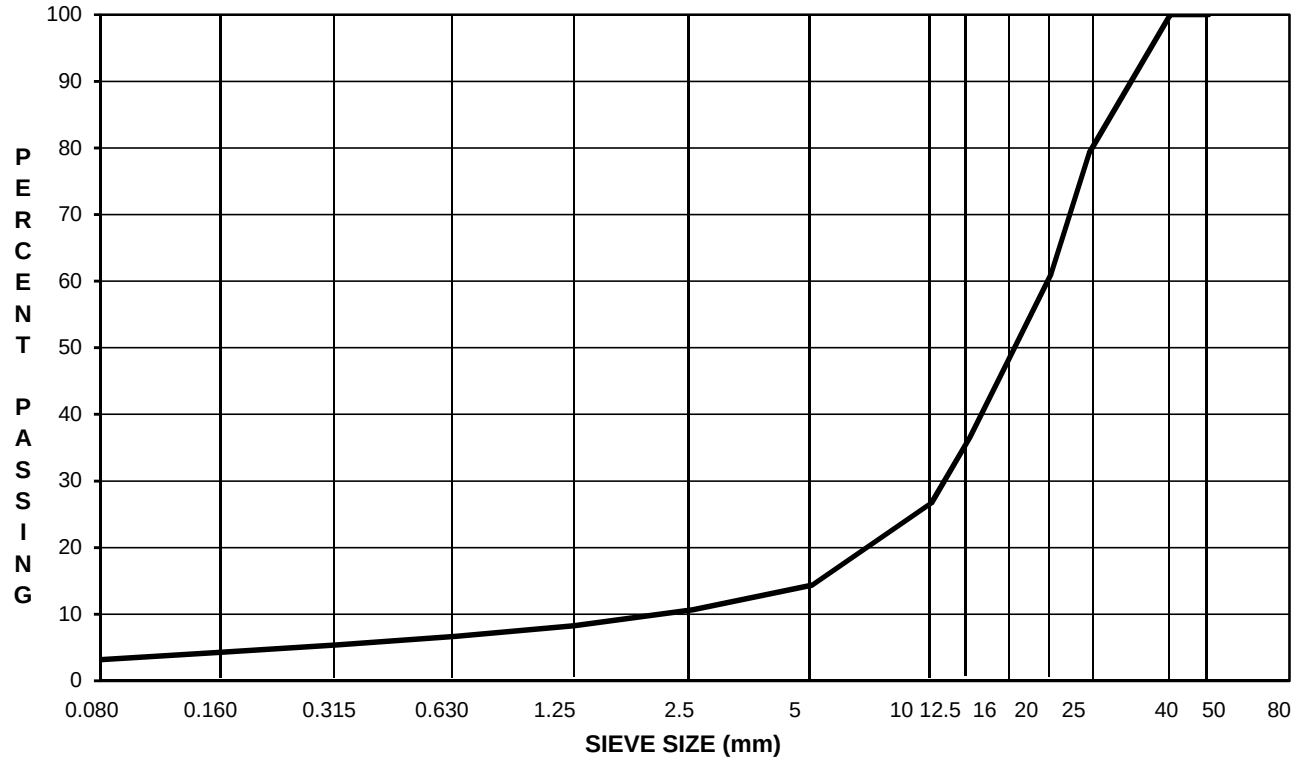
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**79**	**61**	**49**	**37**	**27**	**14**	**11**	**8**	**7**	**5**	**4.3**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - July 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
Average	-	-	-	2.2	100	79	61	49	37	27	14	11	8	7	5	4.3	3.2

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to SA52 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to July 10, 2018
Client:	JDS	Sampled By:	JP/JB Tested By: JP/JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.1%

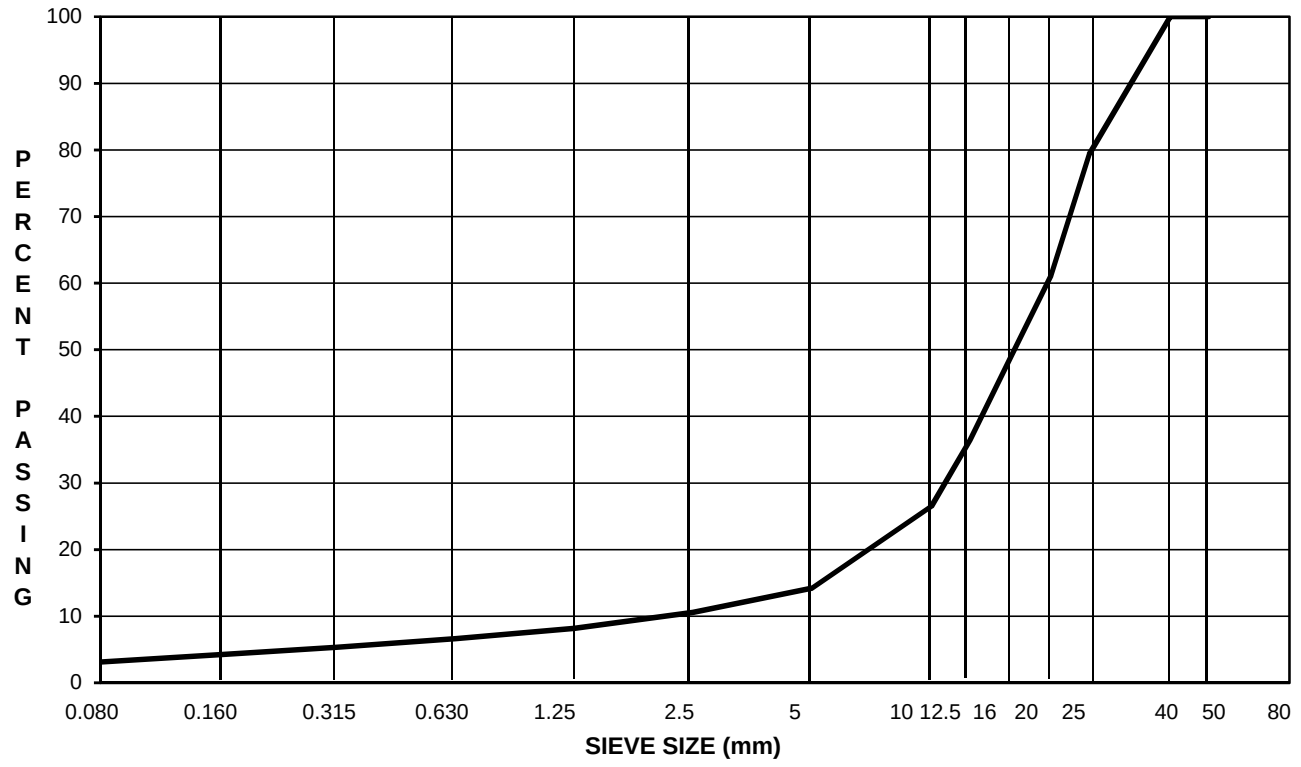
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**79**	**61**	**49**	**36**	**27**	**14**	**11**	**8**	**7**	**5**	**4.2**	**3.1**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - July 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
Average	-	-	-	2.1	100	79	61	49	36	27	14	11	8	7	5	4.2	3.1

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to SA67 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to July 16, 2018
Client:	JDS	Sampled By:	JP/JB/RO Tested By: JP/JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.3%

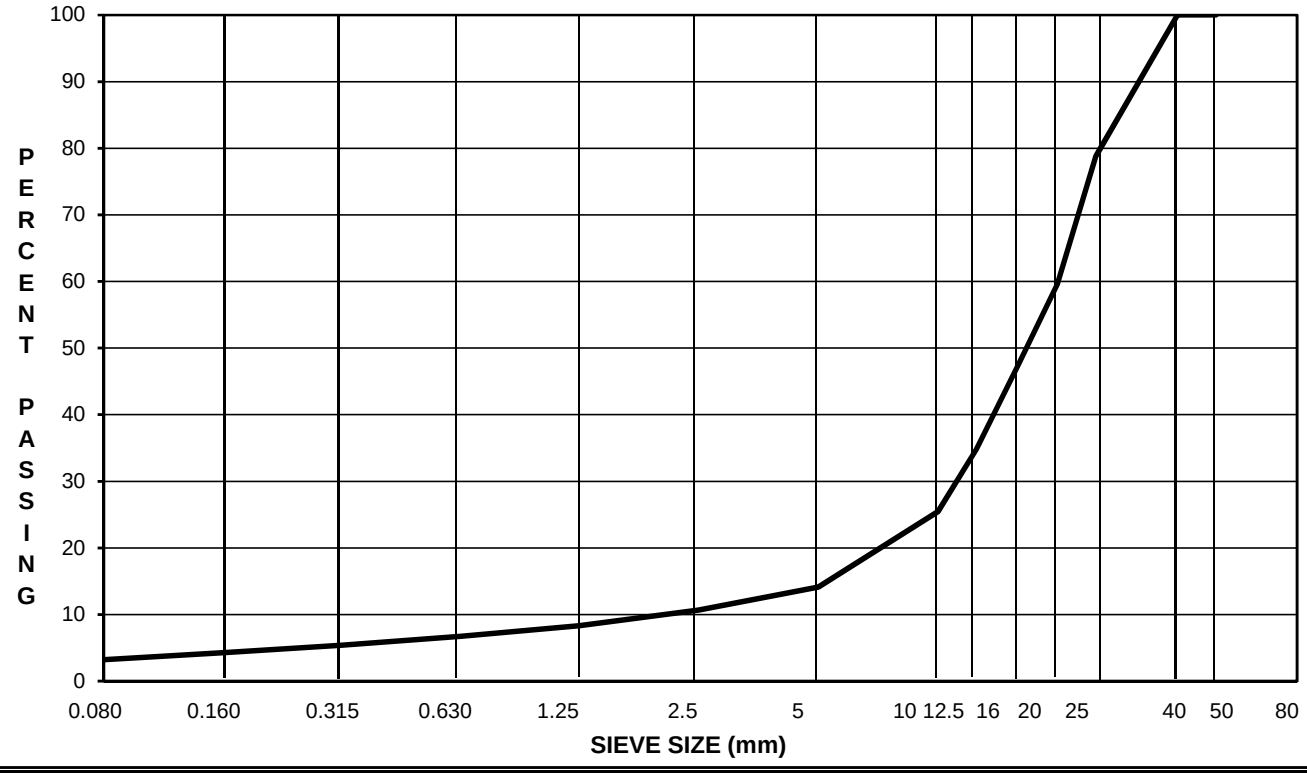
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**79**	**60**	**48**	**35**	**25**	**14**	**11**	**8**	**7**	**5**	**4.3**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - July 16, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB/RO

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
11-Jul	16:00	SA54	"	3.1	100	80	62	49	35	25	15	12	10	8	6	4.3	3.3
11-Jul	21:30	SA55	"	2.3	100	87	63	46	35	26	16	12	10	7	6	4.6	3.4
12-Jul	3:00	SA56	"	1.5	100	76	49	34	19	7	2	2	2	2	1	1.2	0.9
12-Jul	9:00	SA57	"	2.0	100	71	46	34	17	11	5	4	4	3	3	2.2	1.9
12-Jul	21:00	SA58	"	3.7	100	84	60	52	40	33	23	19	15	13	10	7.9	5.9

13-Jul	3:00	SA59	"	2.5	100	80	60	47	33	24	15	12	9	8	6	4.9	3.9
13-Jul	9:00	SA60	N/A	2.0	100	72	47	39	26	19	11	9	8	7	5	4.3	3.6
13-Jul	22:00	SA61	"	2.1	100	75	55	40	28	21	13	10	8	6	5	4.2	3.5
14-Jul	4:45	SA62	"	3.7	100	82	65	53	37	29	18	14	11	8	6	4.6	3.5
14-Jul	10:30	SA63	"	1.7	100	81	49	35	24	17	10	8	7	6	5	3.9	3.3
14-Jul	21:00	SA64	"	1.8	100	78	51	34	22	15	8	6	5	4	3	2.2	1.8
15-Jul	3:00	SA65	"	2.3	100	58	38	19	8	5	2	2	1	1	1	0.7	0.6
15-Jul	23:00	SA66	"	6.6	100	81	71	65	61	57	46	38	30	23	18	15.1	12.6
16-Jul	4:30	SA67	"	2.1	100	73	50	36	22	15	6	5	4	3	3	1.9	1.6
Average	-	-	-	2.3	100	79	60	48	35	25	14	11	8	7	5	4.3	3.2

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA04 to S85 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	June 8 to Aug 6, 2018
Client:	JDS Energy & Mining	Sampled By:	JP/JB Tested By: JP/JB
Attention:	Clint Abel / Roman Bilobrowka	Specification:	See remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.2%

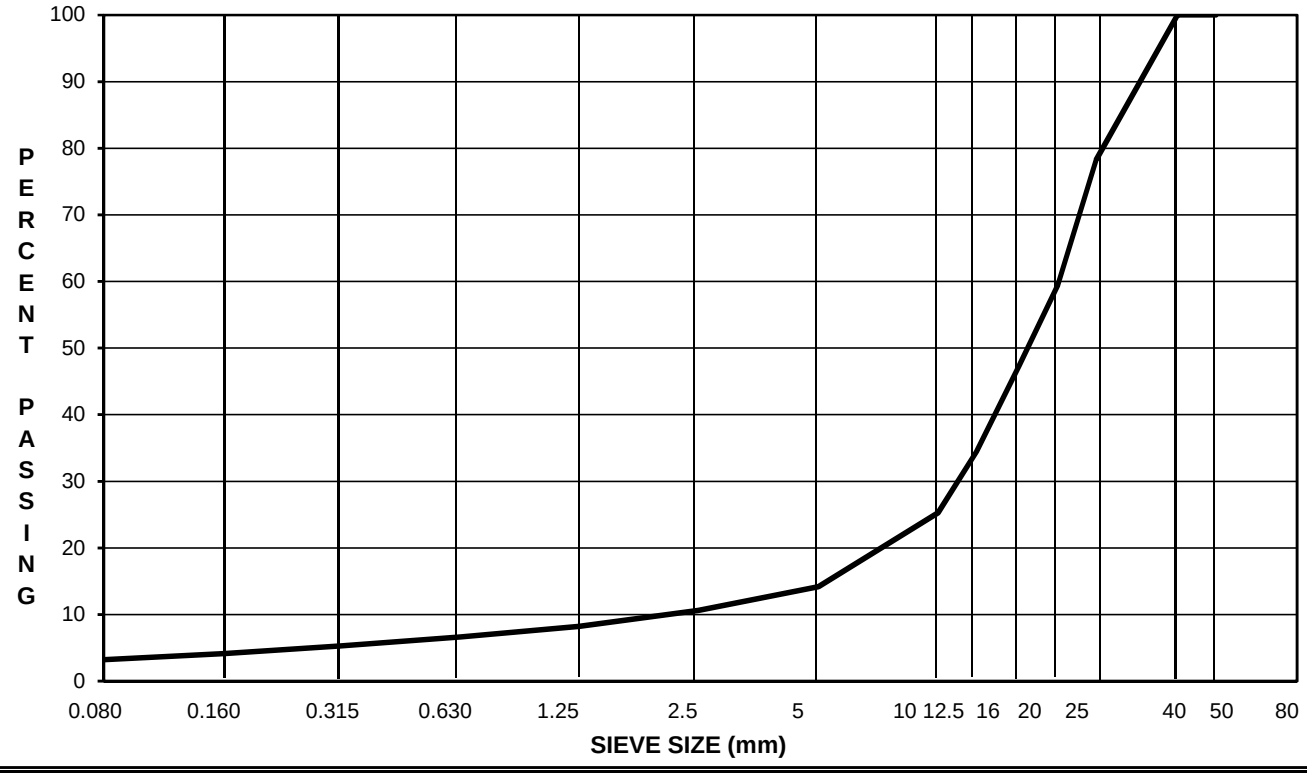
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**78**	**59**	**47**	**34**	**25**	**14**	**11**	**8**	**7**	**5**	**4.2**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - Aug 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB/RO/ME

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
11-Jul	16:00	SA54	"	3.1	100	80	62	49	35	25	15	12	10	8	6	4.3	3.3
11-Jul	21:30	SA55	"	2.3	100	87	63	46	35	26	16	12	10	7	6	4.6	3.4
12-Jul	3:00	SA56	"	1.5	100	76	49	34	19	7	2	2	2	2	1	1.2	0.9
12-Jul	9:00	SA57	"	2.0	100	71	46	34	17	11	5	4	4	3	3	2.2	1.9
12-Jul	21:00	SA58	"	3.7	100	84	60	52	40	33	23	19	15	13	10	7.9	5.9

13-Jul	3:00	SA59	"	2.5	100	80	60	47	33	24	15	12	9	8	6	4.9	3.9
13-Jul	9:00	SA60	N/A	2.0	100	72	47	39	26	19	11	9	8	7	5	4.3	3.6
13-Jul	22:00	SA61	"	2.1	100	75	55	40	28	21	13	10	8	6	5	4.2	3.5
14-Jul	4:45	SA62	"	3.7	100	82	65	53	37	29	18	14	11	8	6	4.6	3.5
14-Jul	10:30	SA63	"	1.7	100	81	49	35	24	17	10	8	7	6	5	3.9	3.3
14-Jul	21:00	SA64	"	1.8	100	78	51	34	22	15	8	6	5	4	3	2.2	1.8
15-Jul	3:00	SA65	"	2.3	100	58	38	19	8	5	2	2	1	1	1	0.7	0.6
15-Jul	23:00	SA66	"	6.6	100	81	71	65	61	57	46	38	30	23	18	15.1	12.6
16-Jul	4:30	SA67	"	2.1	100	73	50	36	22	15	6	5	4	3	3	1.9	1.6
16-Jul	8:30	SA68	"	2.1	100	70	49	36	23	11	5	3	3	2	2	1.5	1.2
16-Jul	21:00	SA69	"	1.3	100	62	41	27	15	9	5	4	3	3	2	1.9	1.6
17-Jul	2:00	SA70	"	2.1	100	70	55	44	30	21	11	8	5	4	3	1.9	1.6
17-Jul	15:45	SA71	"	1.7	100	67	40	28	14	7	3	3	2	2	2	1.6	1.6
17-Jul	20:30	SA72	"	2.6	100	67	58	45	29	19	10	9	8	6	5	4.2	3.9
18-Jul	16:45	SA73	"	1.3	100	73	48	36	24	15	8	6	4	4	3	2.3	2.0
19-Jul	11:00	SA74	"	2.1	100	81	58	42	25	17	9	7	6	5	4	3.4	3.1
19-Jul	14:30	SA75	"	1.8	100	89	68	52	33	19	8	6	5	4	3	2.6	2.5
21-Jul	9:00	SA76	"	1.2	100	64	46	29	13	5	3	2	2	2	2	1.5	1.5
21-Jul	14:30	SA77	"	0.8	100	67	39	24	13	6	2	1	1	1	1	1.0	1.0
23-Jul	11:30	SA78	"	1.2	100	87	70	58	42	34	19	13	9	7	6	4.3	3.6
24-Jul	15:00	SA79	"	1.9	100	90	72	61	51	42	27	20	15	12	9	7.1	5.5
30-Jul	NS	SA80	N/A	1.2	100	91	81	70	57	49	31	21	15	11	8	5.7	4.6
01-Aug	4:30	SA81	"	0.7	100	75	62	55	48	43	28	19	13	9	6	3.9	2.9
03-Aug	13:00	SA82	"	2.9	100	90	80	72	60	52	35	26	19	15	11	8.4	7.5
03-Aug	15:30	SA83	"	2.9	100	79	65	52	39	30	17	13	10	8	7	5.3	4.7
05-Aug	16:00	SA84	"	3.5	100	78	71	59	49	41	27	21	16	12	10	7.8	6.1
06-Aug	15:45	SA85	"	1.6	100	70	50	37	28	23	13	9	7	6	4	3.6	2.7
Average	-	-	-	2.2	100	78	59	47	34	25	14	11	8	7	5	4.2	3.2

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	June 8 - Aug 6, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Stop belt sample Surge Bin (unless*)
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	38 mm Minus Overliner Drain Rock	Tested By:	JP/JB/RO/ME

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
08-Jun	17:25	SA04	N/A	2.9	100	85	64	49	36	26	12	10	8	7	6	4.7	3.3
09-Jun	10:25	SA05	"	2.4	100	79	63	52	32	21	8	7	6	5	5	3.4	2.3
09-Jun	15:30	SA06	"	1.8	100	82	61	45	35	22	9	7	6	5	5	3.6	2.7
10-Jun	8:00	SA07	"	2.0	100	76	62	49	33	21	8	6	5	5	4	3.3	2.3
10-Jun	13:45	SA08	"	3.2	100	91	76	66	56	48	33	25	18	14	10	7.8	5.6
10-Jun	15:45	SA09	"	3.2	100	92	74	60	43	29	15	12	10	8	6	4.6	3.1
11-Jun	8:05	SA10	"	3.8	100	87	67	57	46	39	26	19	15	11	9	6.6	4.6
11-Jun	10:45	SA11	"	2.4	100	74	48	35	22	14	6	4	4	3	3	2.1	1.4
12-Jun	8:05	SA12	"	2.8	100	88	73	62	49	40	24	17	12	9	6	4.6	3.4
12-Jun	11:30	SA13	"	2.5	100	74	64	56	46	37	21	16	12	10	8	6.0	4.4
12-Jun	15:40	SA14	"	2.7	100	85	66	57	46	36	23	17	13	10	7	5.7	4.2
13-Jun	11:55	SA15	N/A	1.8	100	83	68	55	43	31	16	11	8	6	5	3.8	2.8
13-Jun	14:30	SA16	"	2.7	100	85	67	59	47	39	23	17	12	9	6	4.4	3.3
14-Jun	8:30	SA17	"	2.9	100	82	69	57	47	41	30	23	17	13	10	7.7	5.6
14-Jun	13:30	SA18	"	1.2	100	88	65	46	30	19	6	4	4	3	3	2.3	1.7
15-Jun	14:20	SA19	"	2.0	100	86	77	65	52	39	22	15	10	8	6	4.2	2.8
16-Jun	8:00	SA20	"	1.3	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
16-Jun	12:00	SA21	"	2.1	100	80	60	48	35	24	11	8	6	5	5	3.9	3.1
17-Jun	8:15	SA22	"	1.4	100	88	72	57	41	27	9	6	5	4	3	2.8	2.1
17-Jun	17:00	SA23	"	2.0	100	83	67	54	40	31	16	12	9	7	6	4.6	3.4
18-Jun	9:45	SA24	"	2.1	100	91	70	56	40	28	15	11	9	7	6	4.6	3.4
19-Jun	15:45	SA25	"	2.2	100	89	69	57	44	34	22	16	11	8	6	4.4	3.1
19-Jun	10:45	SA26	"	2.2	100	81	64	53	42	33	21	16	13	10	8	6.7	4.9
20-Jun	8:55	SA27	"	2.7	100	87	63	55	42	34	22	16	12	9	8	6.0	4.4
20-Jun	17:00	SA28	"	2.1	100	82	65	51	42	30	16	11	9	7	6	4.6	3.3
21-Jun	10:25	SA29	"	1.5	100	88	69	56	45	36	21	16	12	10	8	7.0	5.6
24-Jun	14:50	SA30	N/A	1.5	100	76	63	47	32	17	5	4	3	3	2	2.1	1.6
25-Jun	8:15	SA31	"	2.1	100	75	60	47	33	22	10	7	5	4	4	3.1	2.4
25-Jun	13:45	SA32	"	1.6	100	87	59	44	31	18	5	3	2	2	2	1.6	1.2
27-Jun	9:30	SA33	"	1.6	100	87	70	61	52	42	28	23	18	15	12	10.4	8.7
28-Jun	10:15	SA34	"	2.5	100	67	57	51	38	27	15	12	9	7	6	4.9	3.6
28-Jun	15:45	SA35	"	3.4	100	78	63	54	44	38	26	19	14	11	8	6.7	5.2
29-Jun	10:10	SA36	"	3.9	100	73	54	47	34	27	16	12	10	8	6	5.1	3.9
29-Jun	15:00	SA37	"	1.5	100	71	53	41	27	17	5	4	3	3	2	2.1	1.6
30-Jun	11:00	SA38	"	2.8	100	72	58	50	40	33	23	18	14	11	9	7.2	5.2
30-Jun	14:00	SA39	"	1.7	100	59	38	28	21	13	5	4	4	3	3	2.4	1.8
01-Jul	11:00	SA40	N/A	1.2	100	74	49	35	18	8	2	1	1	1	1	1.0	0.7
01-Jul	13:20	SA41	"	1.9	100	71	51	37	28	22	12	9	7	6	5	3.8	2.9
02-Jul	8:30	SA42	"	1.4	100	73	47	36	23	15	4	3	3	2	2	1.7	1.2
02-Jul	10:45	SA43	"	2.0	100	74	58	48	35	22	9	6	5	4	4	2.9	2.2
02-Jul	15:45	SA44	"	3.3	100	77	57	49	39	31	20	16	13	11	9	7.2	5.4
03-Jul	8:45	SA45	"	2.8	100	75	56	45	34	27	15	12	10	8	6	5.2	4.1
03-Jul	11:30	SA46	"	1.6	100	69	56	49	37	28	14	9	6	5	4	2.9	2.3
05-Jul	11:00	SA47	"	0.9	100	66	41	29	11	4	1	1	1	1	1	0.9	0.8
06-Jul	8:50	SA48	"	1.3	100	55	32	22	9	3	2	2	2	1	1	1.2	1.1
06-Jun	14:00	SA49	"	1.1	100	75	63	50	33	18	6	5	4	3	3	2.5	1.9
08-Jul	8:45	SA50	N/A	1.5	100	82	65	54	37	24	10	7	6	5	4	3.8	3.0
09-Jul	8:30	SA51	"	1.2	100	76	58	44	26	13	2	2	2	2	2	1.4	1.2
10-Jul	9:00	SA52	"	1.7	100	79	57	44	31	22	12	9	7	6	5	3.6	2.8
10-Jul	23:00	SA53	"	2.8	100	85	70	58	46	40	26	19	14	11	8	5.8	4.1
11-Jul	16:00	SA54	"	3.1	100	80	62	49	35	25	15	12	10	8	6	4.3	3.3
11-Jul	21:30	SA55	"	2.3	100	87	63	46	35	26	16	12	10	7	6	4.6	3.4
12-Jul	3:00	SA56	"	1.5	100	76	49	34	19	7	2	2	2	2	1	1.2	0.9
12-Jul	9:00	SA57	"	2.0	100	71	46	34	17	11	5	4	4	3	3	2.2	1.9
12-Jul	21:00	SA58	"	3.7	100	84	60	52	40	33	23	19	15	13	10	7.9	5.9

13-Jul	3:00	SA59	"	2.5	100	80	60	47	33	24	15	12	9	8	6	4.9	3.9
13-Jul	9:00	SA60	N/A	2.0	100	72	47	39	26	19	11	9	8	7	5	4.3	3.6
13-Jul	22:00	SA61	"	2.1	100	75	55	40	28	21	13	10	8	6	5	4.2	3.5
14-Jul	4:45	SA62	"	3.7	100	82	65	53	37	29	18	14	11	8	6	4.6	3.5
14-Jul	10:30	SA63	"	1.7	100	81	49	35	24	17	10	8	7	6	5	3.9	3.3
14-Jul	21:00	SA64	"	1.8	100	78	51	34	22	15	8	6	5	4	3	2.2	1.8
15-Jul	3:00	SA65	"	2.3	100	58	38	19	8	5	2	2	1	1	1	0.7	0.6
15-Jul	23:00	SA66	"	6.6	100	81	71	65	61	57	46	38	30	23	18	15.1	12.6
16-Jul	4:30	SA67	"	2.1	100	73	50	36	22	15	6	5	4	3	3	1.9	1.6
16-Jul	8:30	SA68	"	2.1	100	70	49	36	23	11	5	3	3	2	2	1.5	1.2
16-Jul	21:00	SA69	"	1.3	100	62	41	27	15	9	5	4	3	3	2	1.9	1.6
17-Jul	2:00	SA70	"	2.1	100	70	55	44	30	21	11	8	5	4	3	1.9	1.6
17-Jul	15:45	SA71	"	1.7	100	67	40	28	14	7	3	3	2	2	2	1.6	1.6
17-Jul	20:30	SA72	"	2.6	100	67	58	45	29	19	10	9	8	6	5	4.2	3.9
18-Jul	16:45	SA73	"	1.3	100	73	48	36	24	15	8	6	4	4	3	2.3	2.0
19-Jul	11:00	SA74	"	2.1	100	81	58	42	25	17	9	7	6	5	4	3.4	3.1
19-Jul	14:30	SA75	"	1.8	100	89	68	52	33	19	8	6	5	4	3	2.6	2.5
21-Jul	9:00	SA76	"	1.2	100	64	46	29	13	5	3	2	2	2	2	1.5	1.5
21-Jul	14:30	SA77	"	0.8	100	67	39	24	13	6	2	1	1	1	1	1.0	1.0
23-Jul	11:30	SA78	"	1.2	100	87	70	58	42	34	19	13	9	7	6	4.3	3.6
24-Jul	15:00	SA79	"	1.9	100	90	72	61	51	42	27	20	15	12	9	7.1	5.5
30-Jul	NS	SA80	N/A	1.2	100	91	81	70	57	49	31	21	15	11	8	5.7	4.6
01-Aug	4:30	SA81	"	0.7	100	75	62	55	48	43	28	19	13	9	6	3.9	2.9
03-Aug	13:00	SA82	"	2.9	100	90	80	72	60	52	35	26	19	15	11	8.4	7.5
03-Aug	15:30	SA83	"	2.9	100	79	65	52	39	30	17	13	10	8	7	5.3	4.7
05-Aug	16:00	SA84	"	3.5	100	78	71	59	49	41	27	21	16	12	10	7.8	6.1
06-Aug	15:45	SA85	"	1.6	100	70	50	37	28	23	13	9	7	6	4	3.6	2.7
10-Aug	15:30	SA86	"	1.5	100	65	51	38	28	22	13	10	8	7	6	4.5	3.5
		SA87	"	2.0	100	80	61	48	40	28	16	12	9	7	6	4.5	3.4
Average	-	-	-	2.2	100	78	59	47	34	25	14	11	8	7	5	4.2	3.2

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	PLS Sump - 150 mm below grade
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 10, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	PLS Sump - 150 mm deep (SW corner)	Moisture Content:	2.2%

Aggregate Gradation (% Passing)

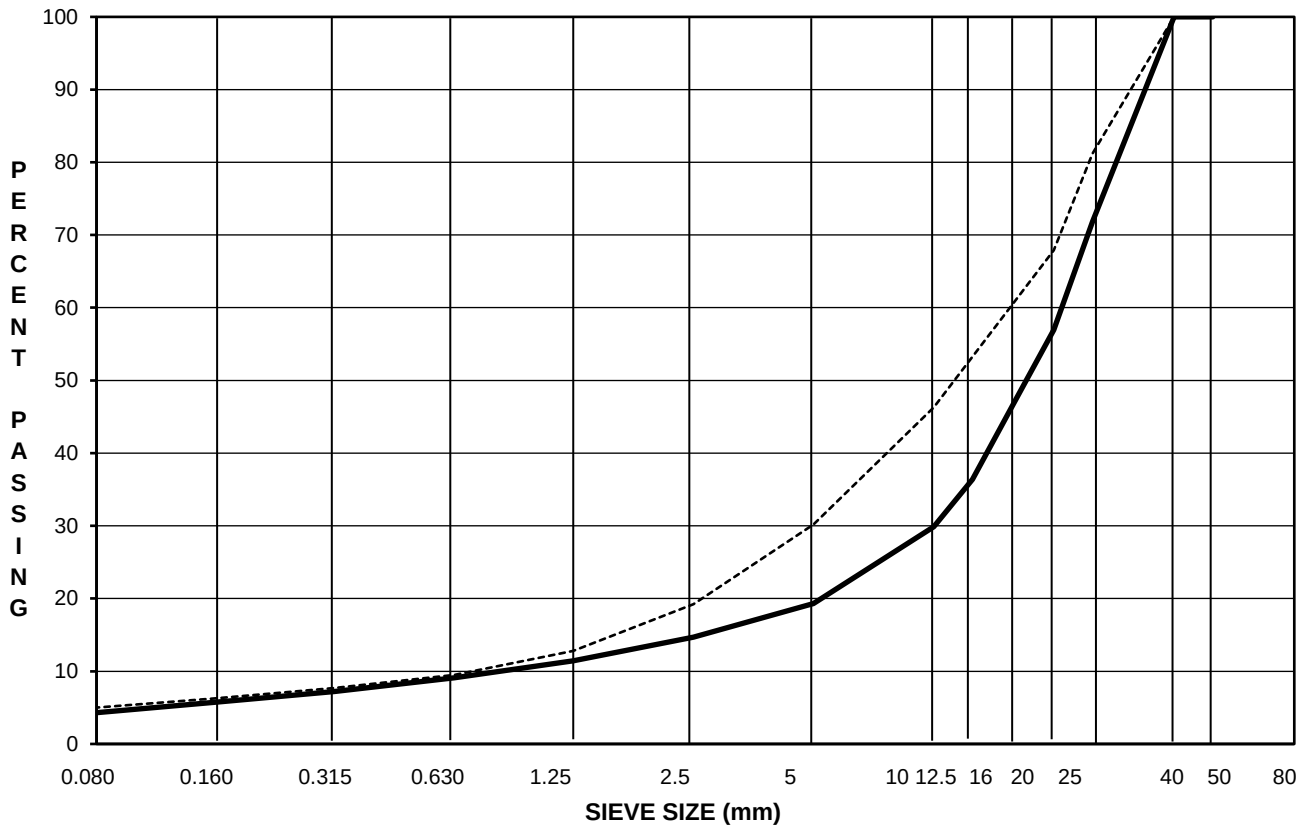
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**72**	**57**	**47**	**36**	**30**	**19**	**15**	**11**	**9**	**7**	**5.7**	**4.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability

Reviewed By: ISSUED FOR REVIEW P.Eng.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	PLS Sump - Grade
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 10, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm minus Overliner Drain Rock	Fracture (2 faces):	N/A
Location:	PLS Sump - Grade (SW corner)	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

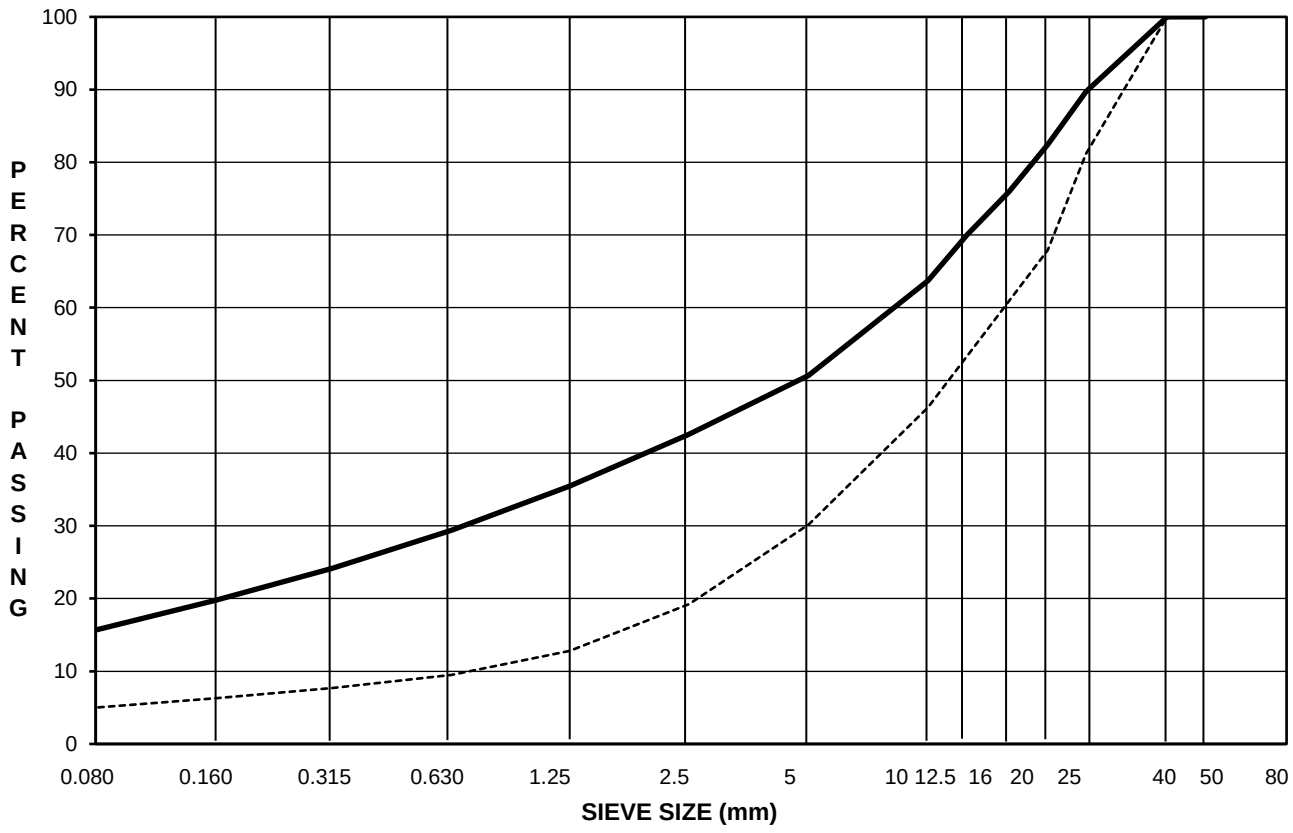
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**90**	**82**	**76**	**70**	**64**	**51**	**43**	**35**	**29**	**24**	**19.8**	**15.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA112
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 13, 2019
Client:	JDS	Sampled By:	Jeff (Nuway) Tested By: JPC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Stockpile	Moisture Content:	1.5%

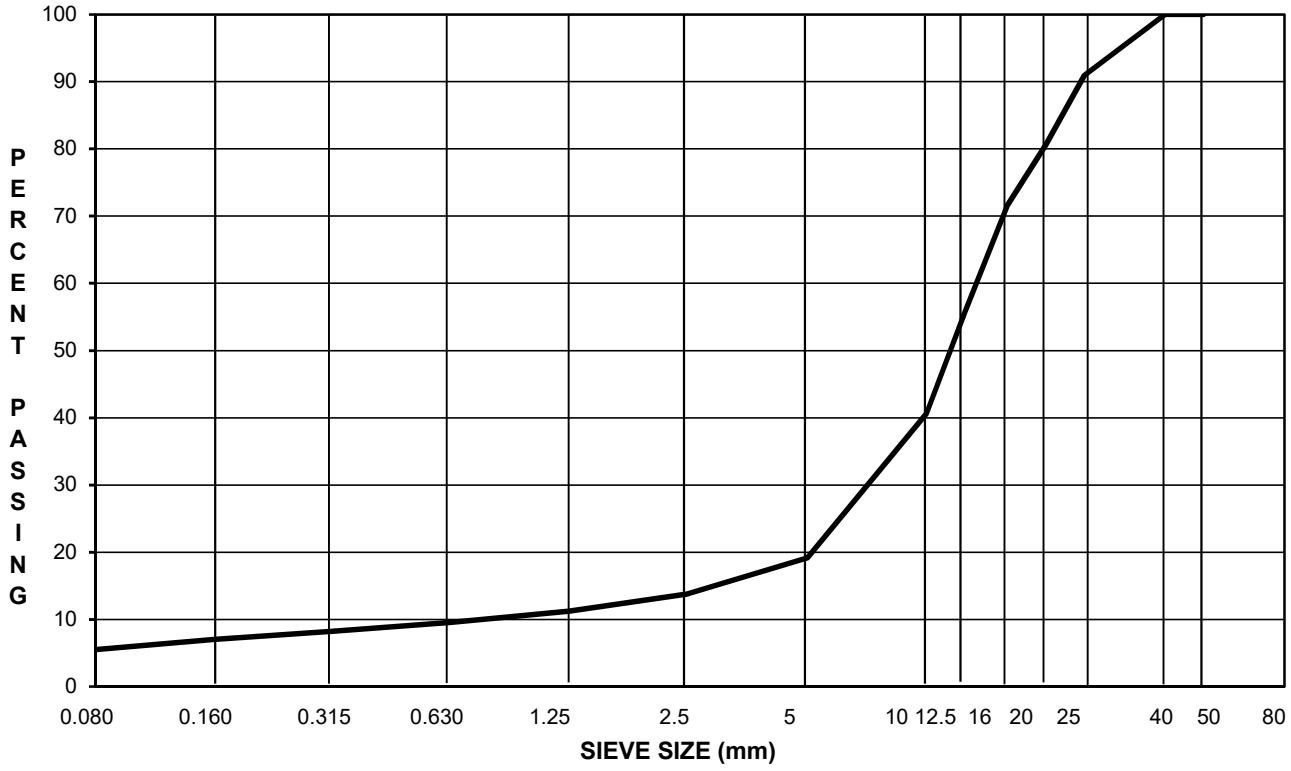
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**91**	**81**	**72**	**56**	**41**	**19**	**14**	**11**	**10**	**8**	**7.0**	**5.5**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA113		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 14, 2019		
Client:	JDS	Sampled By:	JPC	Tested By:	JPC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Waste Rock Crush)	Fracture (2 faces):	N/A		
Location:	Stockpile	Moisture Content:	1.3%		

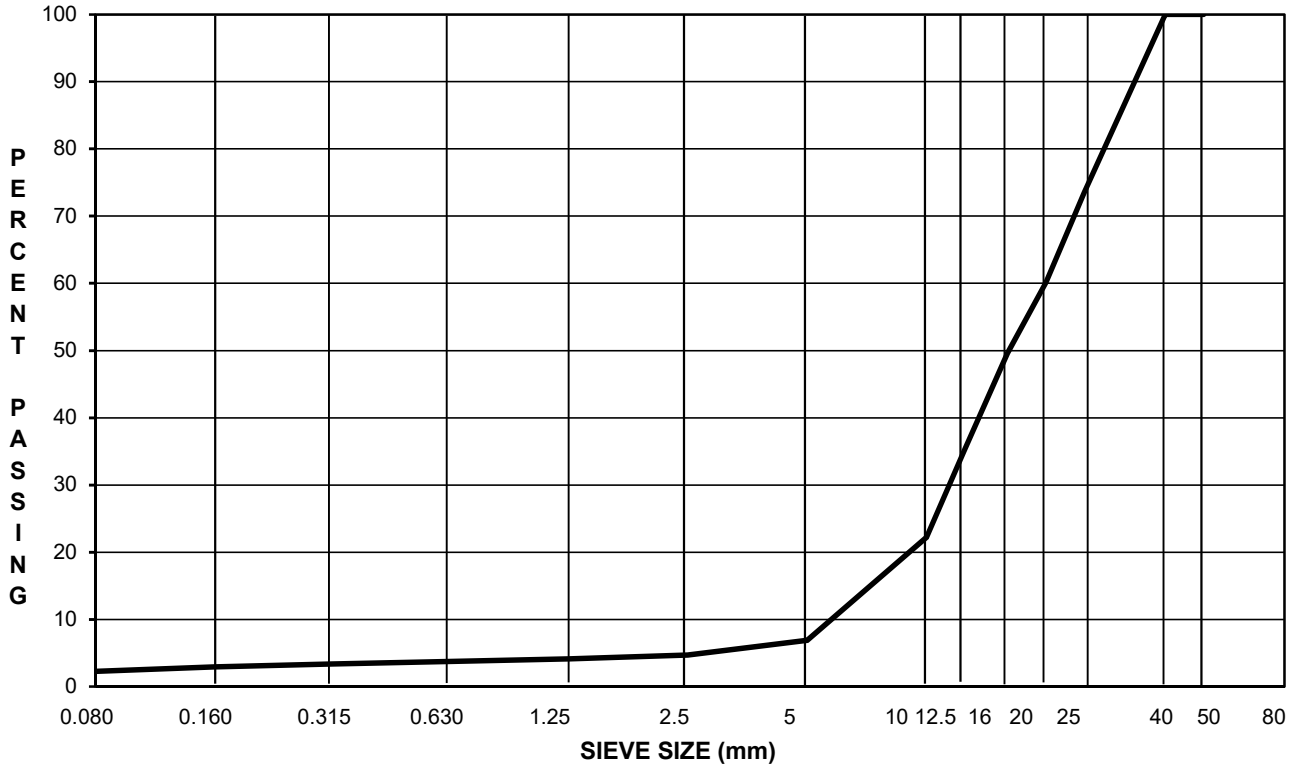
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**74**	**60**	**50**	**35**	**22**	**7**	**5**	**4**	**4**	**3**	**2.9**	**2.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA114		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 17, 2019		
Client:	JDS	Sampled By:	JPC	Tested By:	JPC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Belt	Moisture Content:	1.8%		

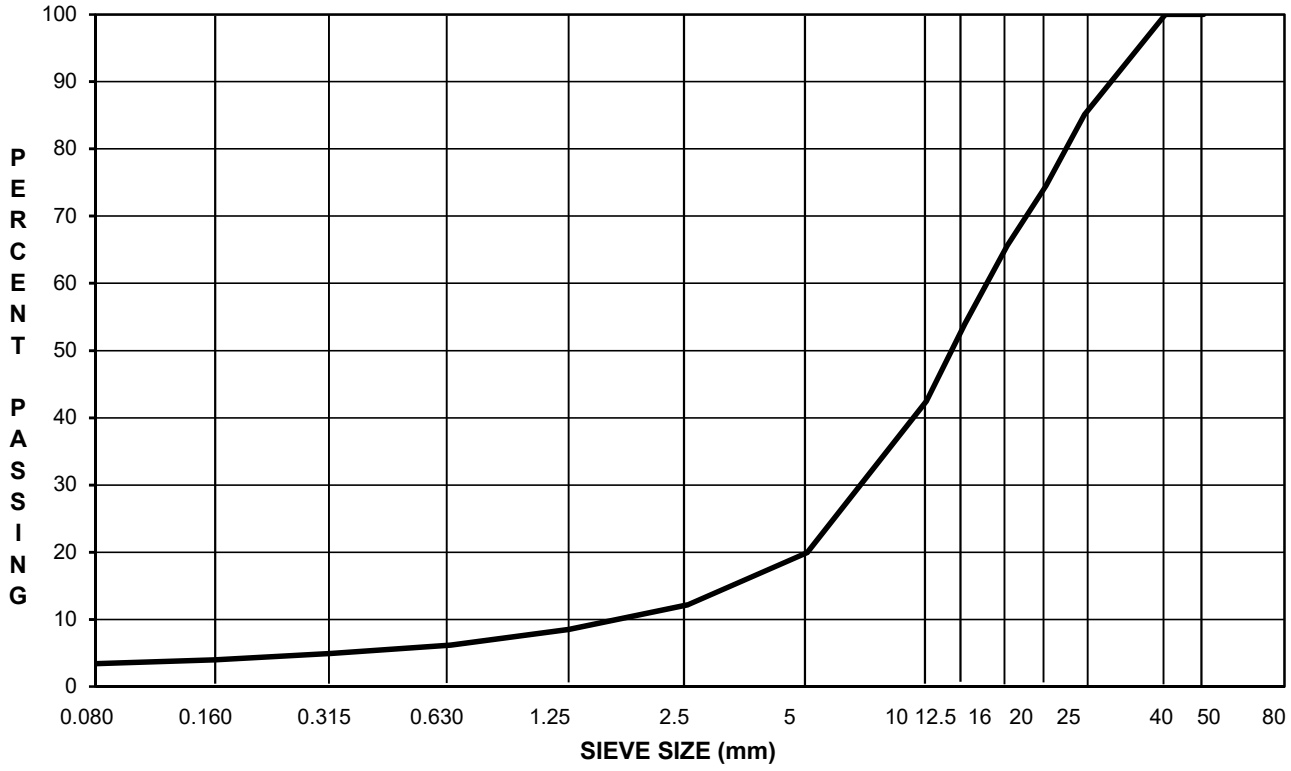
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**85**	**74**	**66**	**54**	**43**	**20**	**12**	**9**	**6**	**5**	**4.0**	**3.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: ISSUED FOR REVIEW P.Eng.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA115		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 25, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Belt	Moisture Content:	1.6%		

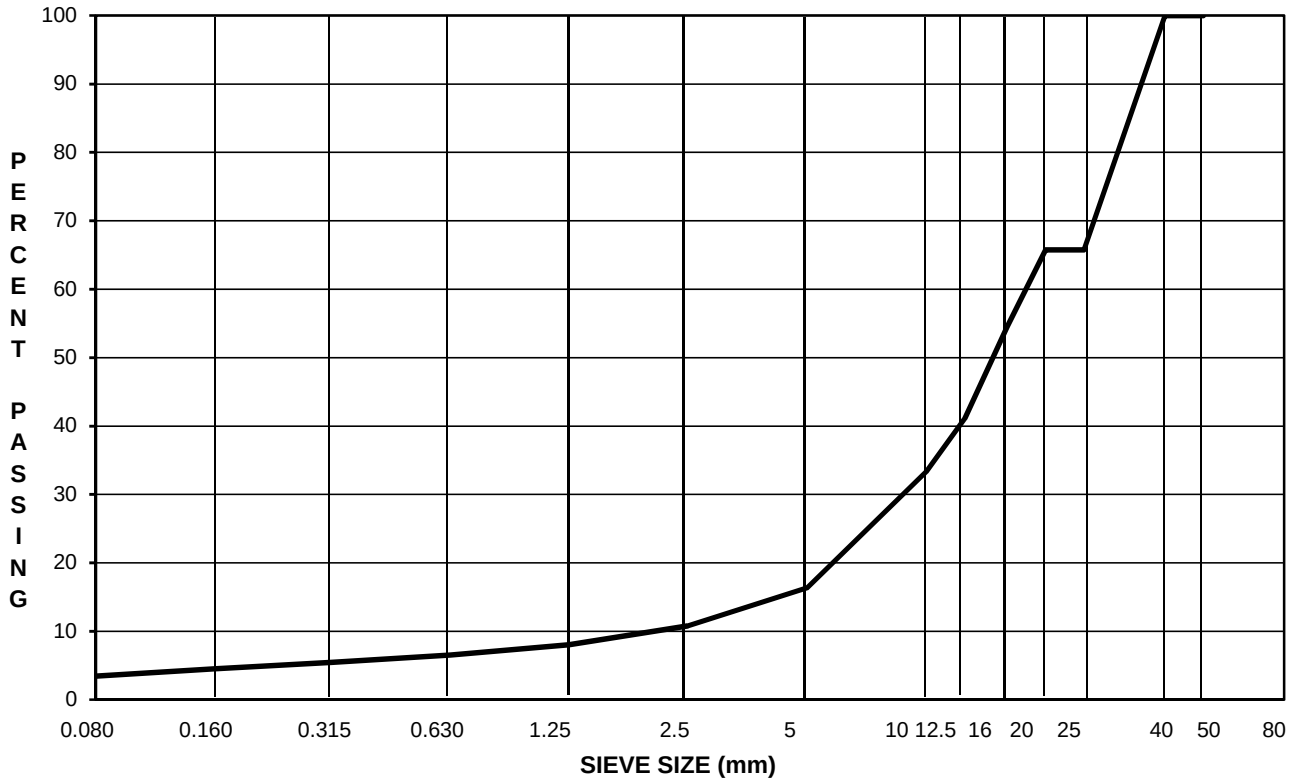
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**66**	**66**	**55**	**41**	**33**	**16**	**11**	**8**	**7**	**5**	**4.5**	**3.5**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: ISSUED FOR REVIEW P.Eng.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA116		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 26, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Stockpile	Moisture Content:	1.4%		

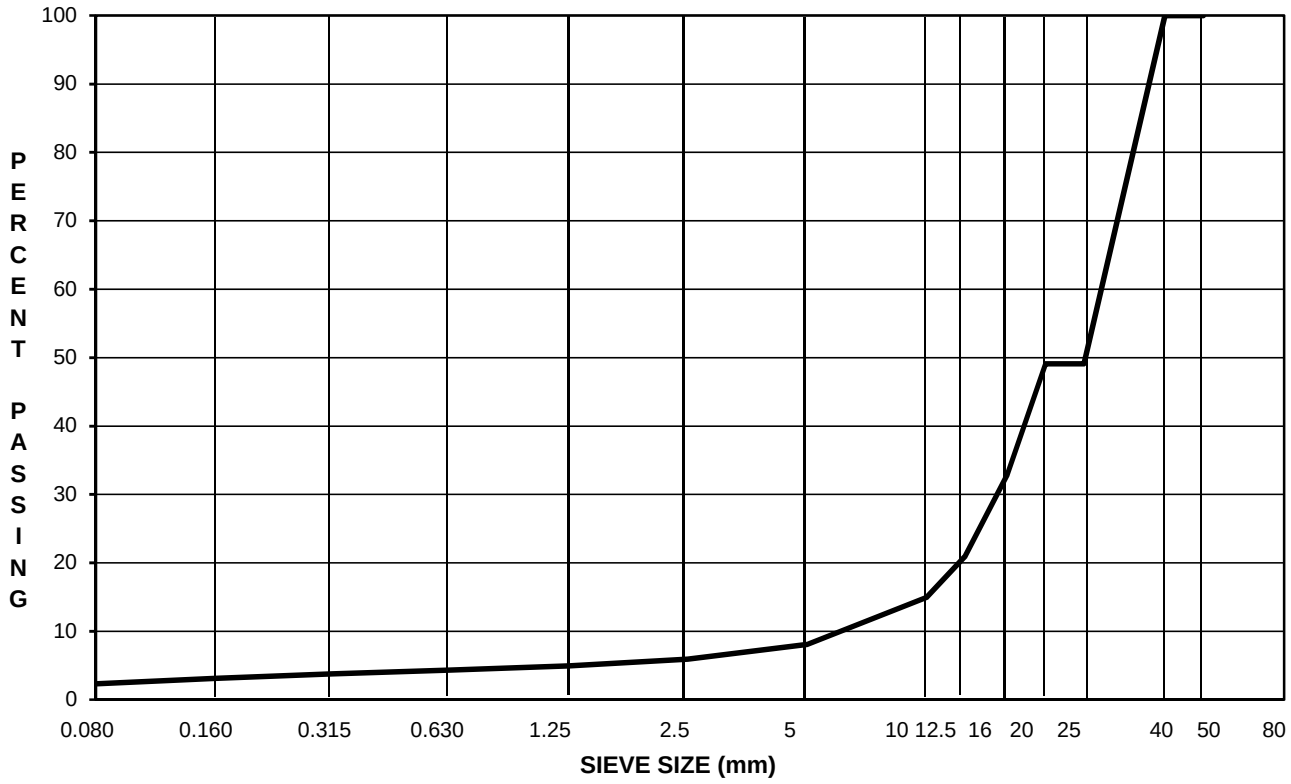
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**49**	**49**	**33**	**21**	**15**	**8**	**6**	**5**	**4**	**4**	**3.1**	**2.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA117		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 27, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Belt	Moisture Content:	2.0%		

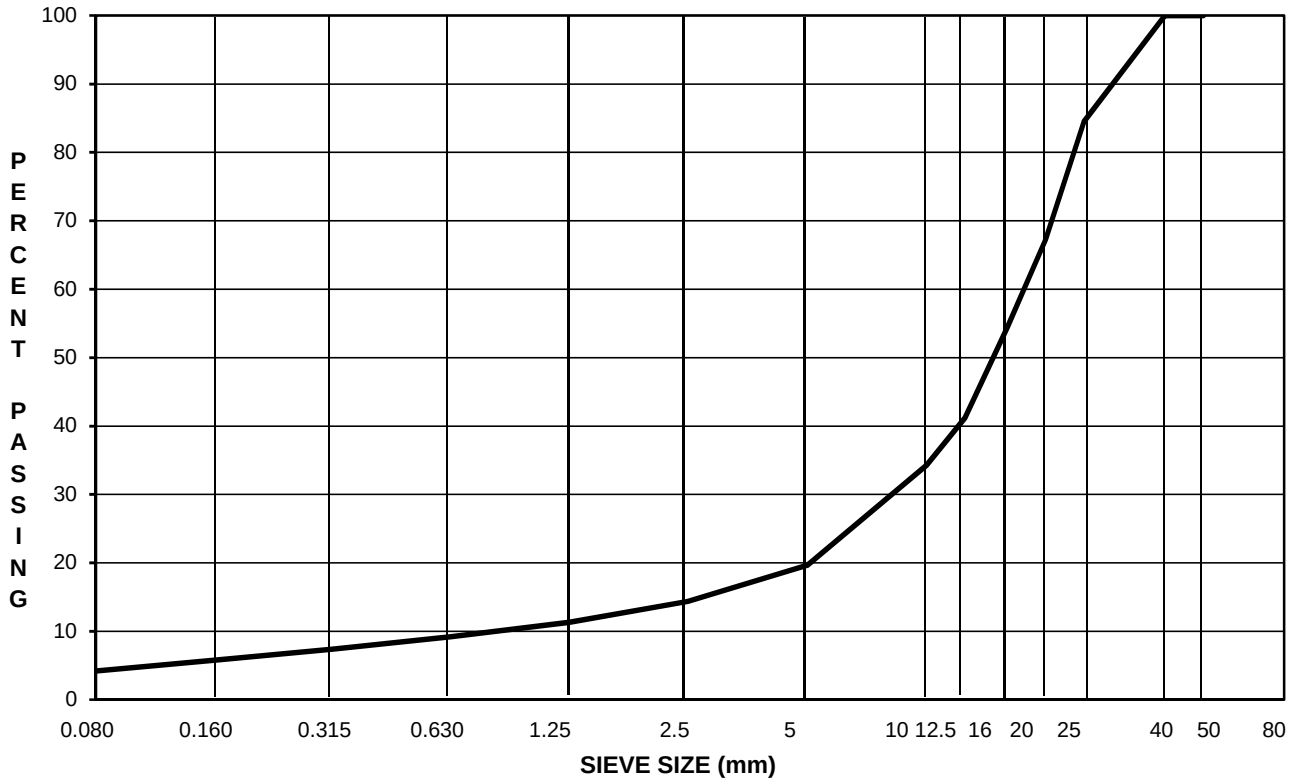
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**84**	**67**	**54**	**41**	**34**	**20**	**14**	**11**	**9**	**7**	**5.8**	**4.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA118		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	April 28, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Stockpile	Moisture Content:	0.8%		

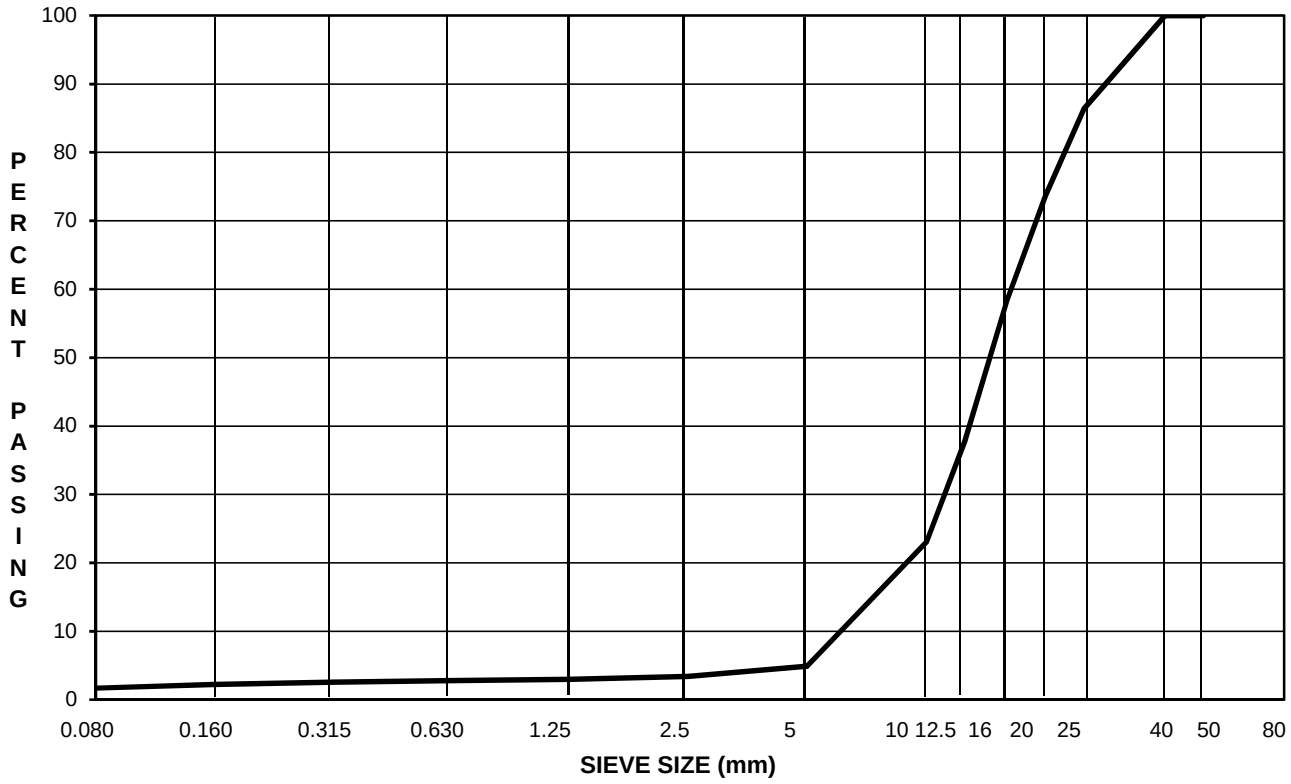
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**86**	**74**	**58**	**38**	**23**	**5**	**3**	**3**	**3**	**3**	**2.2**	**1.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA119		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 15, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01	Moisture Content:	1.0%		

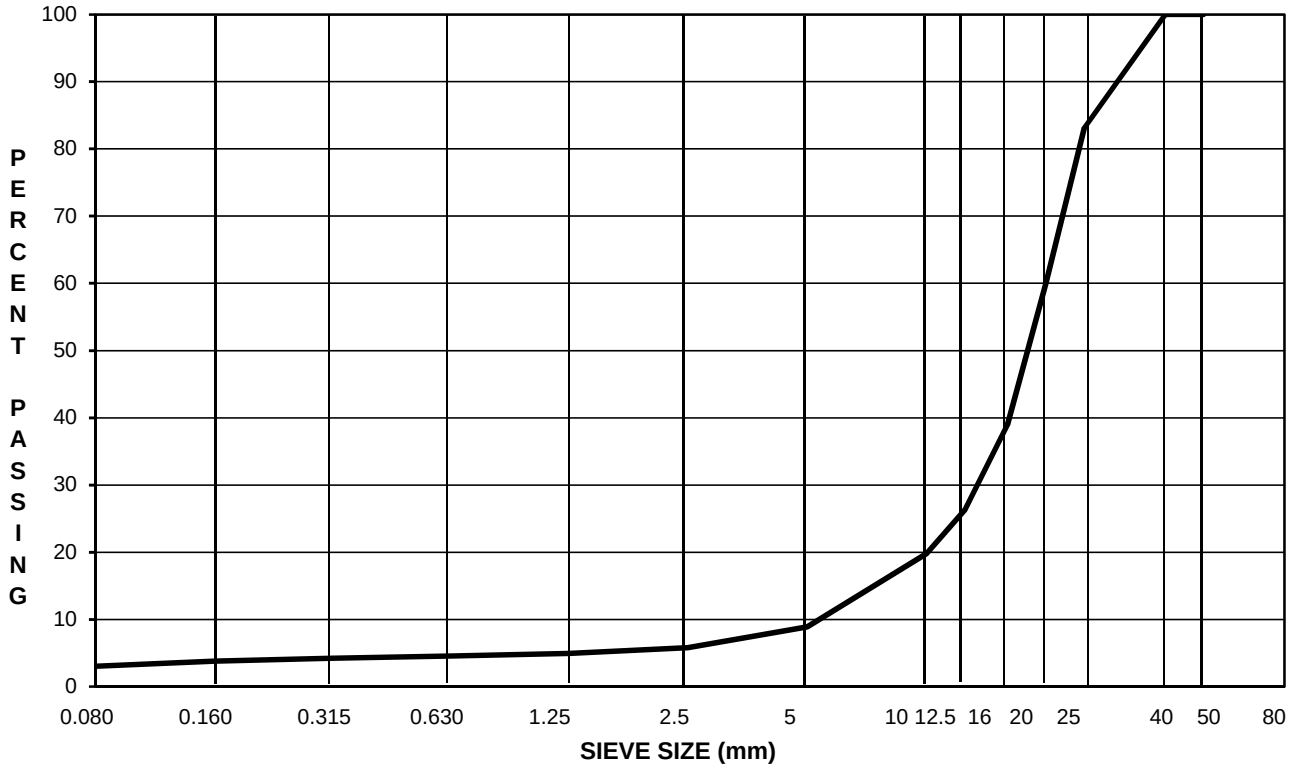
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**83**	**60**	**39**	**26**	**20**	**9**	**6**	**5**	**5**	**4**	**3.8**	**3.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA120		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 16, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01	Moisture Content:	1.4%		

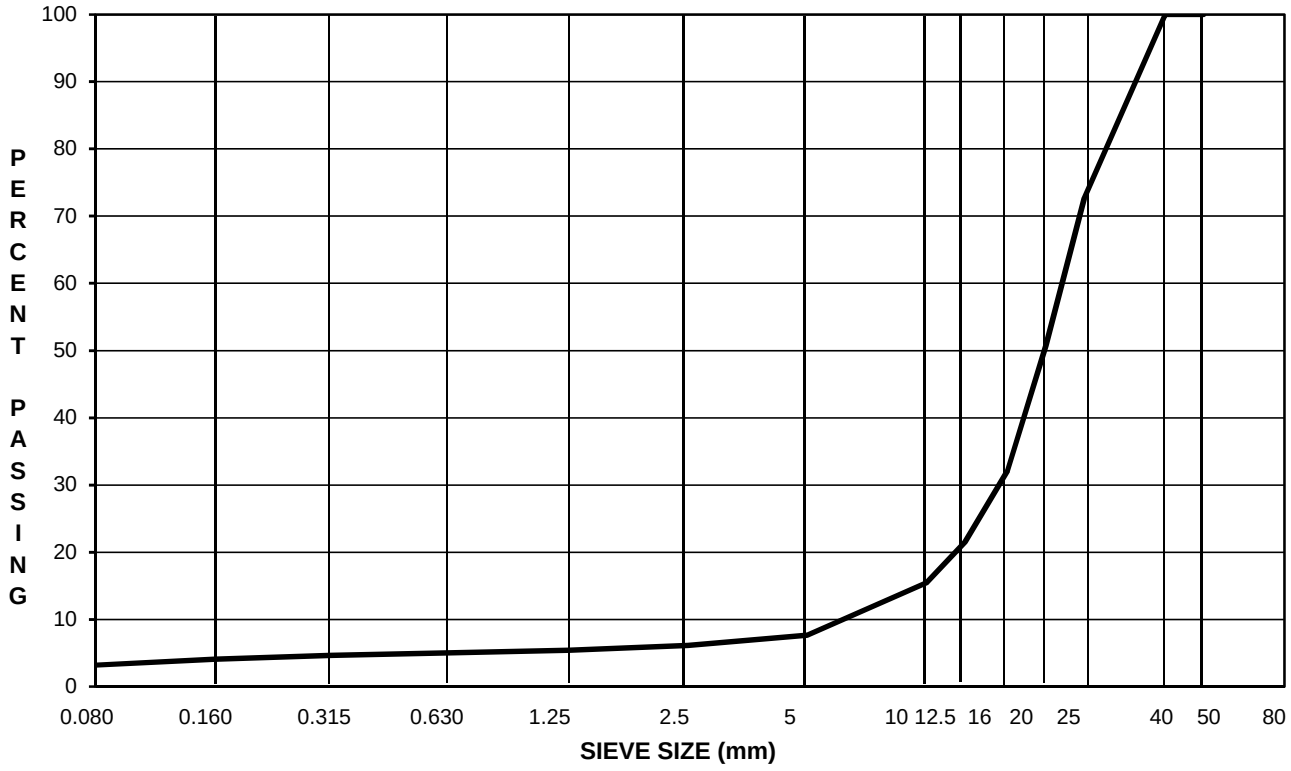
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**73**	**51**	**32**	**22**	**15**	**8**	**6**	**5**	**5**	**5**	**4.1**	**3.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA121		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 18, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01	Moisture Content:	0.9%		

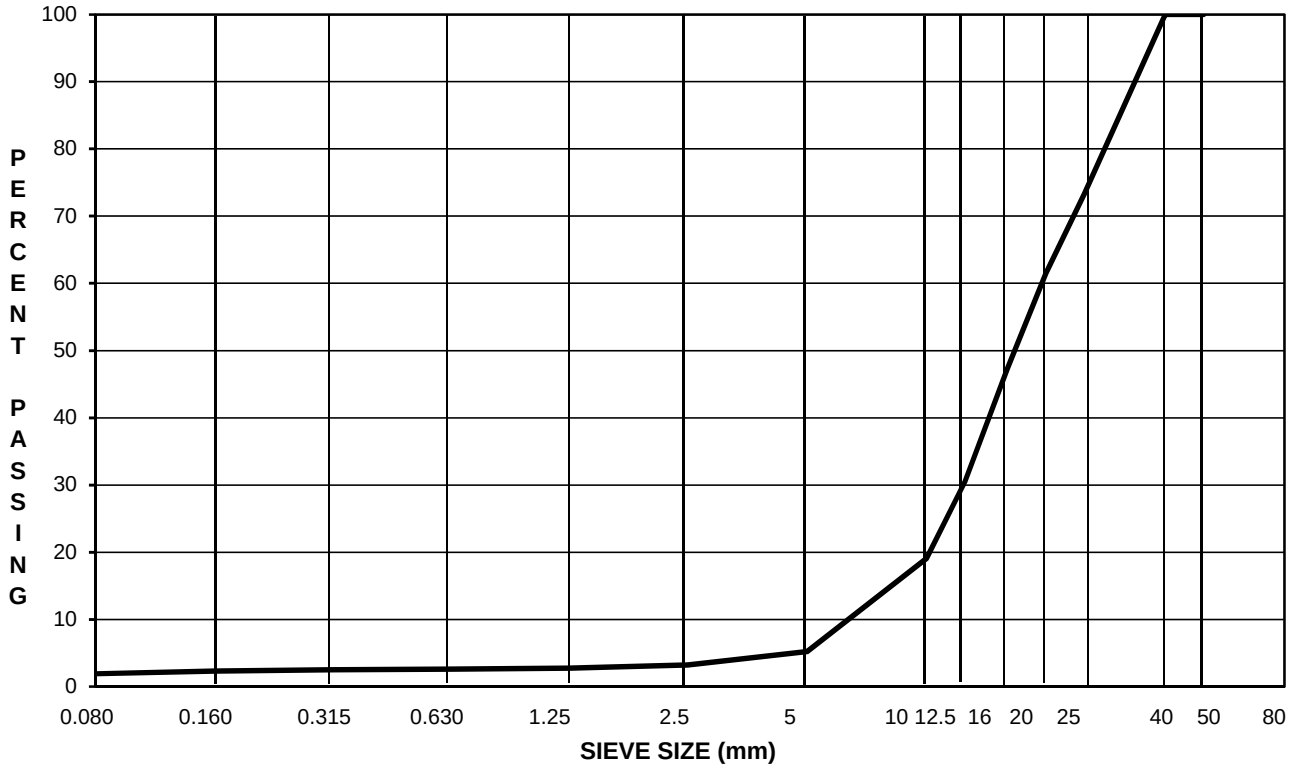
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**73**	**62**	**47**	**30**	**19**	**5**	**3**	**3**	**3**	**3**	**2.3**	**1.9**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA122		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 19, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01, Stockpile	Moisture Content:	1.2%		

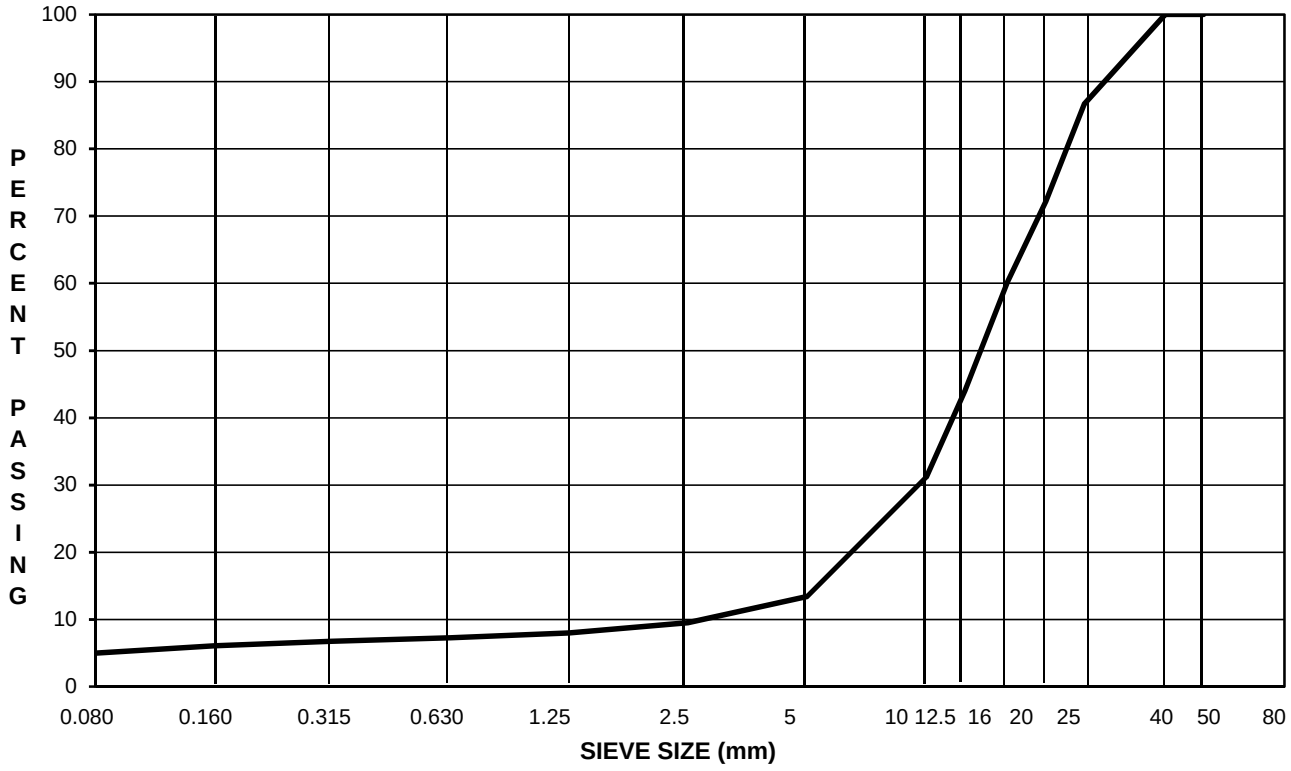
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**87**	**72**	**60**	**44**	**31**	**13**	**10**	**8**	**7**	**7**	**6.1**	**5.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA123		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 20, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01, Belt	Moisture Content:	0.8%		

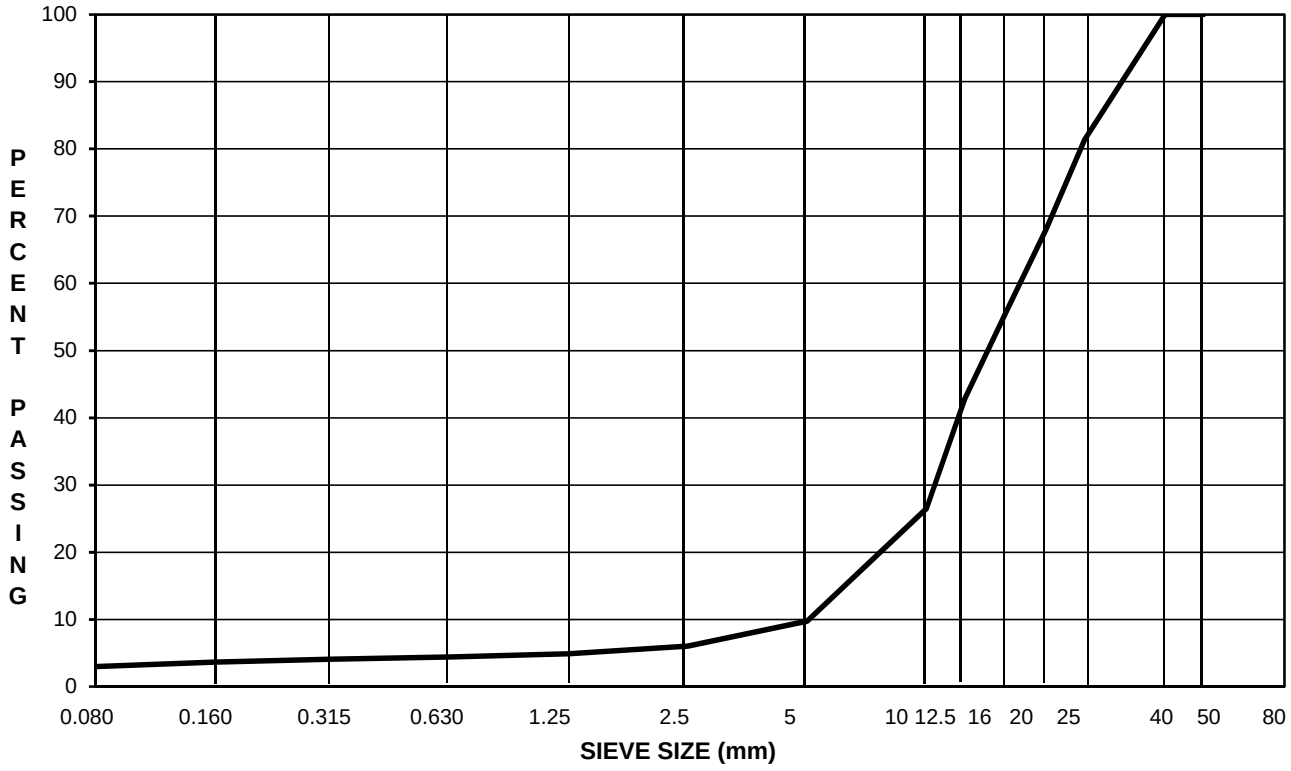
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**81**	**68**	**56**	**43**	**27**	**10**	**6**	**5**	**4**	**4**	**3.7**	**3.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA123 Eagle Pup		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 20, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01, Stockpile	Moisture Content:	1.6%		

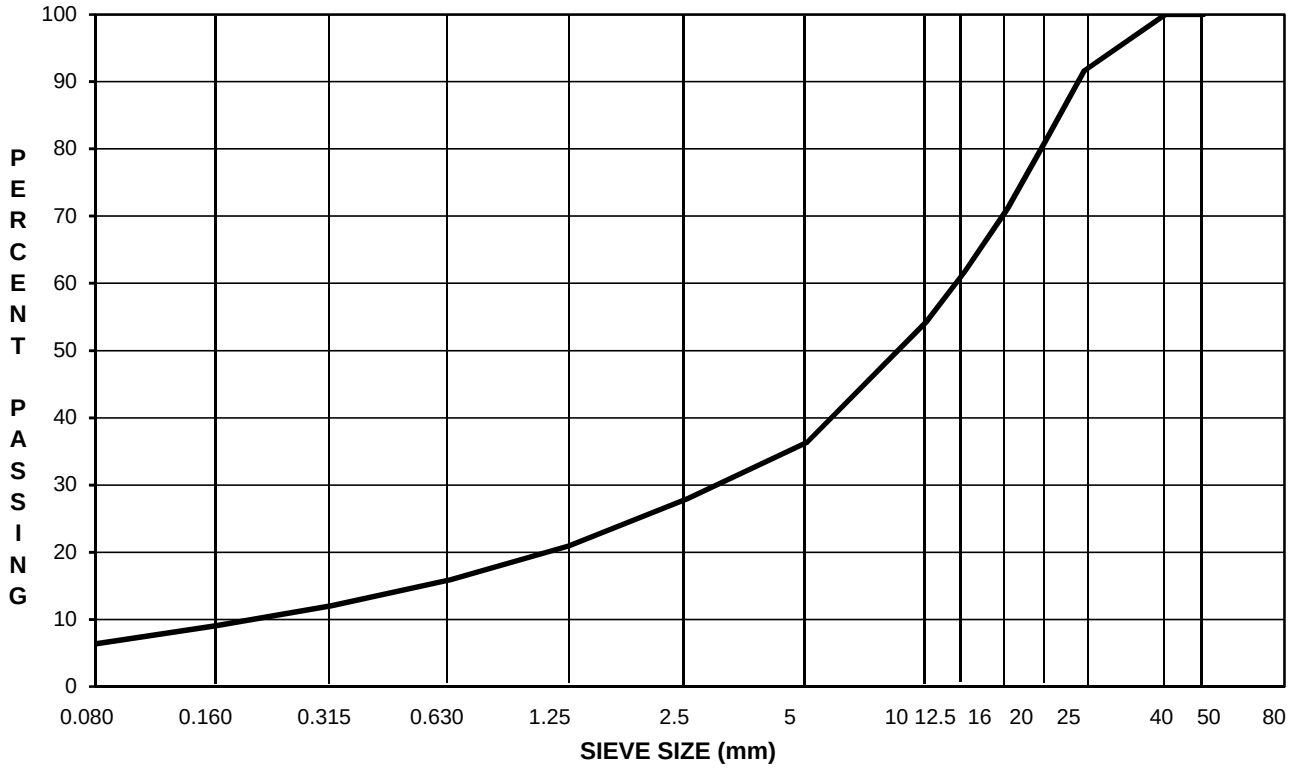
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**92**	**81**	**71**	**62**	**54**	**36**	**28**	**21**	**16**	**12**	**9.0**	**6.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA124		
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 21, 2019		
Client:	JDS	Sampled By:	JRC	Tested By:	JRC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks		
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A		
Location:	Block # 1285-01, Belt	Moisture Content:	1.0%		

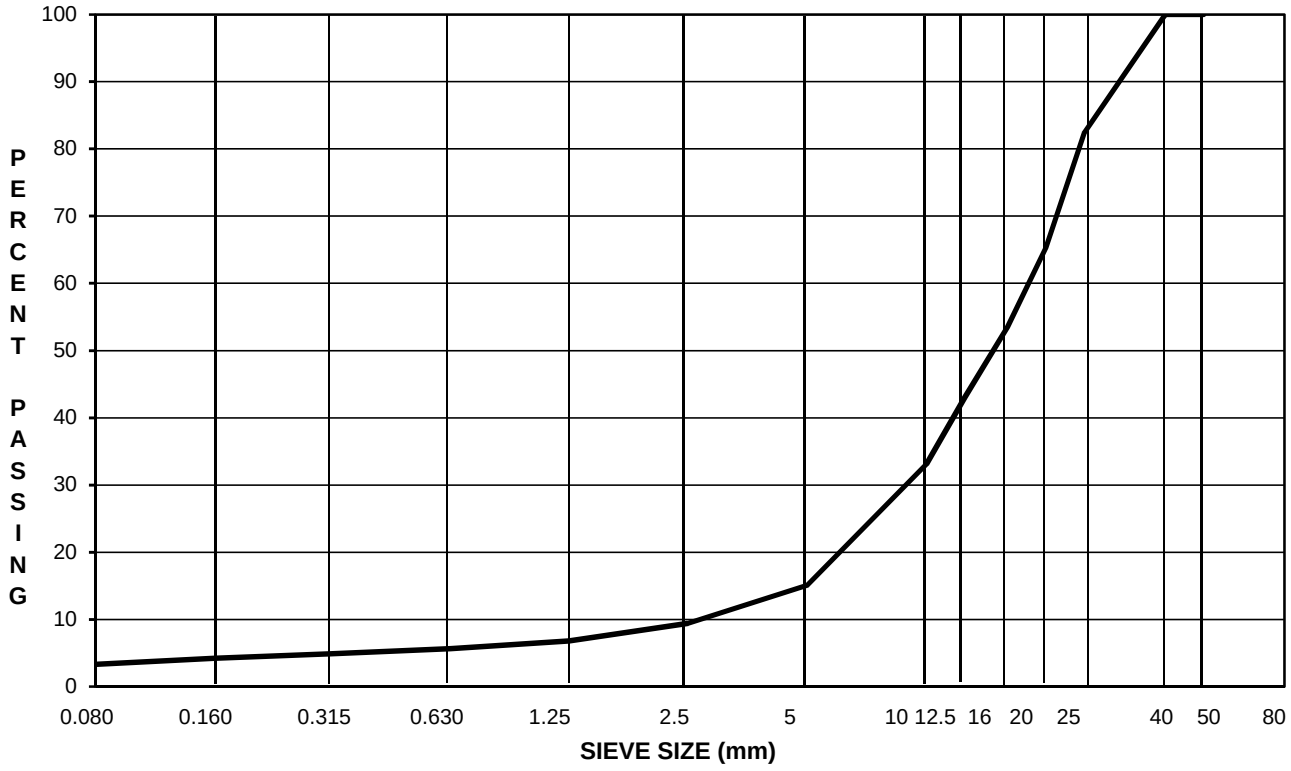
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**82**	**65**	**53**	**43**	**33**	**15**	**9**	**7**	**6**	**5**	**4.2**	**3.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA125
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 22, 2019
Client:	JDS	Sampled By:	JRC Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.6%

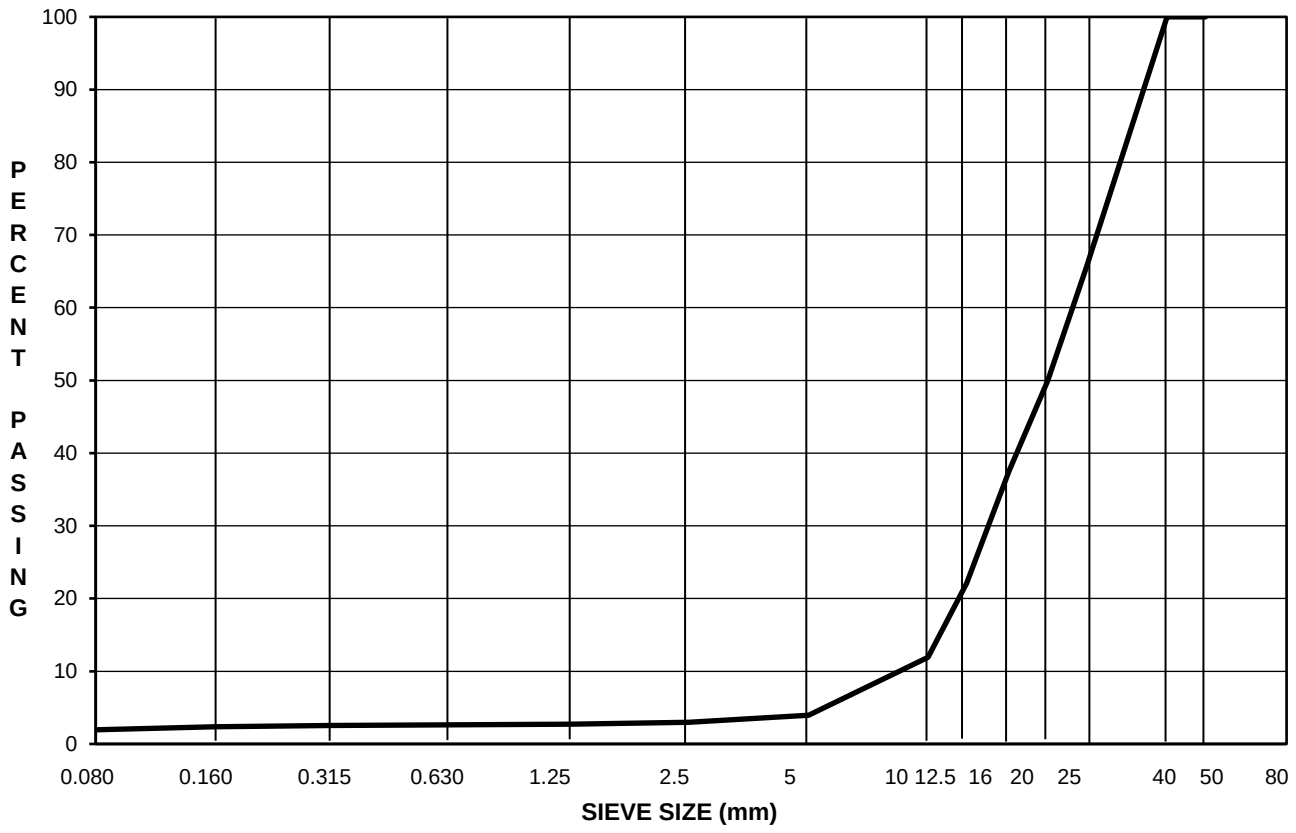
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**65**	**50**	**38**	**22**	**12**	**4**	**3**	**3**	**3**	**3**	**2.4**	**1.9**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA126
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 23, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.7%

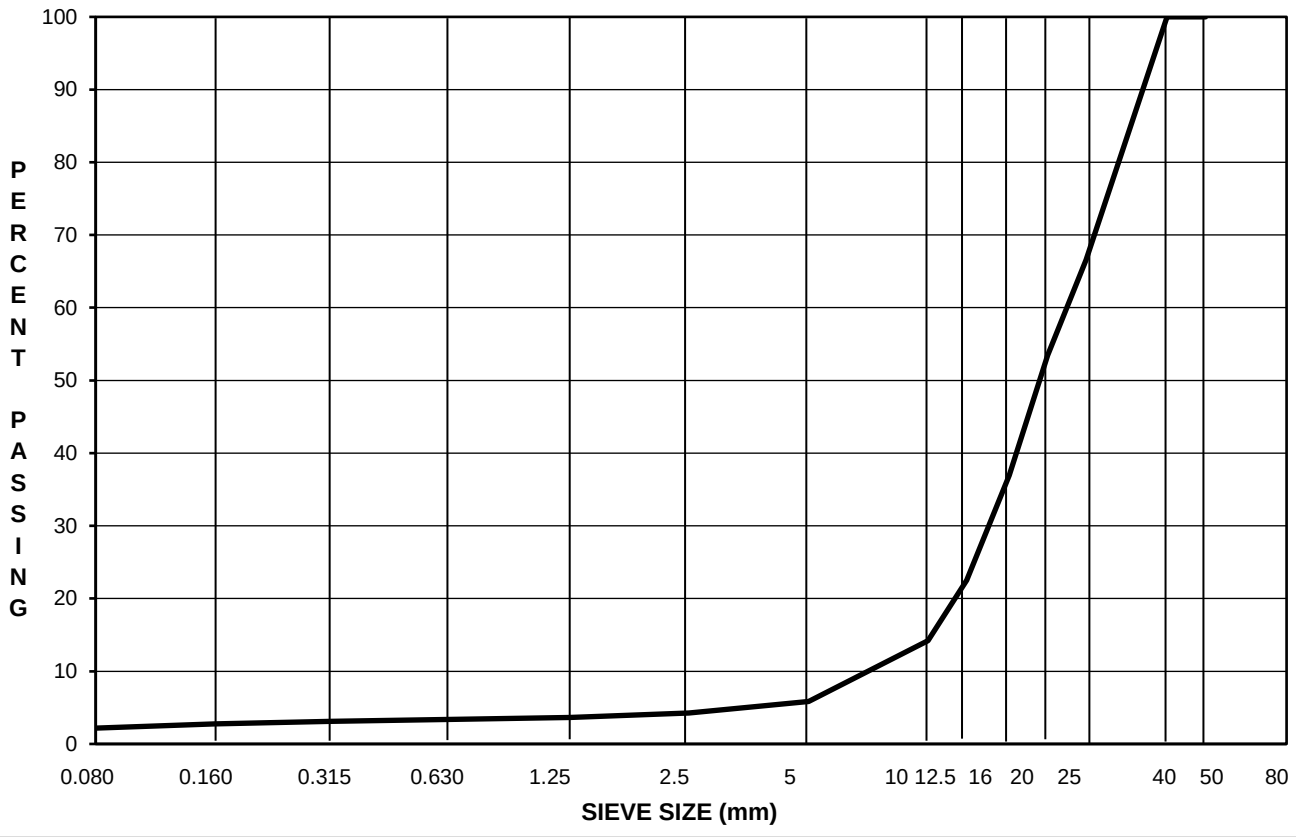
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**67**	**53**	**37**	**23**	**14**	**6**	**4**	**4**	**3**	**3**	**2.8**	**2.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA127
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 24, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.4%

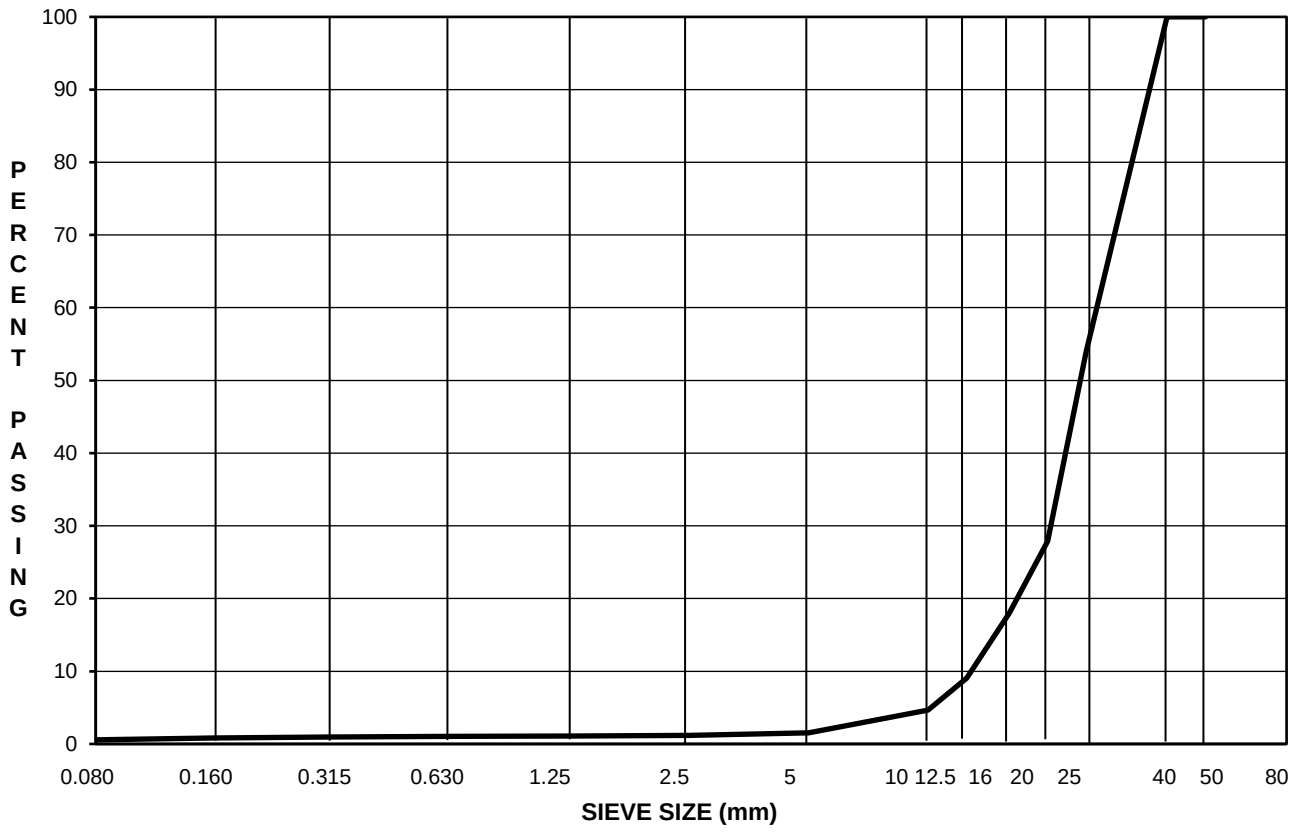
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**54**	**28**	**18**	**9**	**5**	**2**	**1**	**1**	**1**	**1**	**0.8**	**0.6**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA127
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 25, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.2%

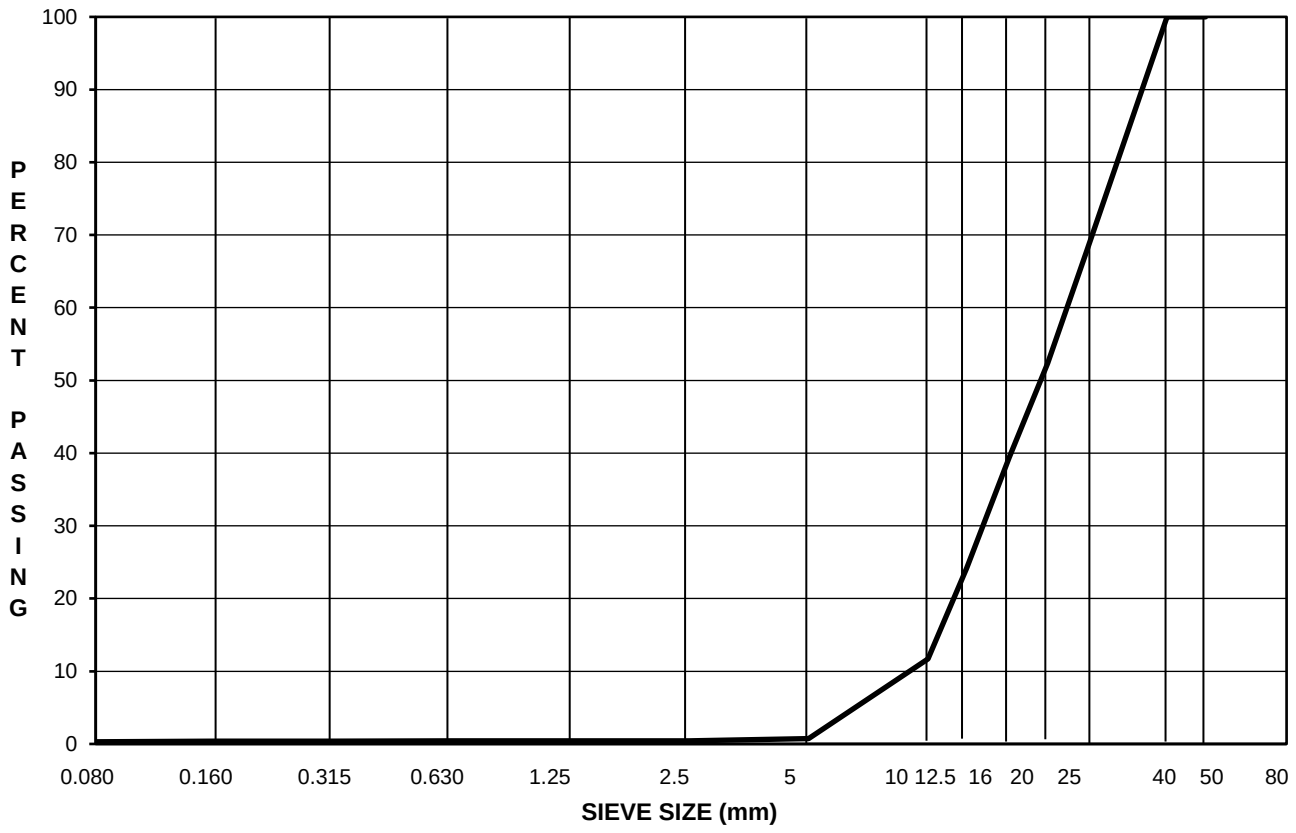
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**68**	**52**	**39**	**24**	**12**	**1**	**0**	**0**	**0**	**0**	**0.4**	**0.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Reviewed By: ISSUED FOR REVIEW P.Eng.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA129
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 26, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	1.3%

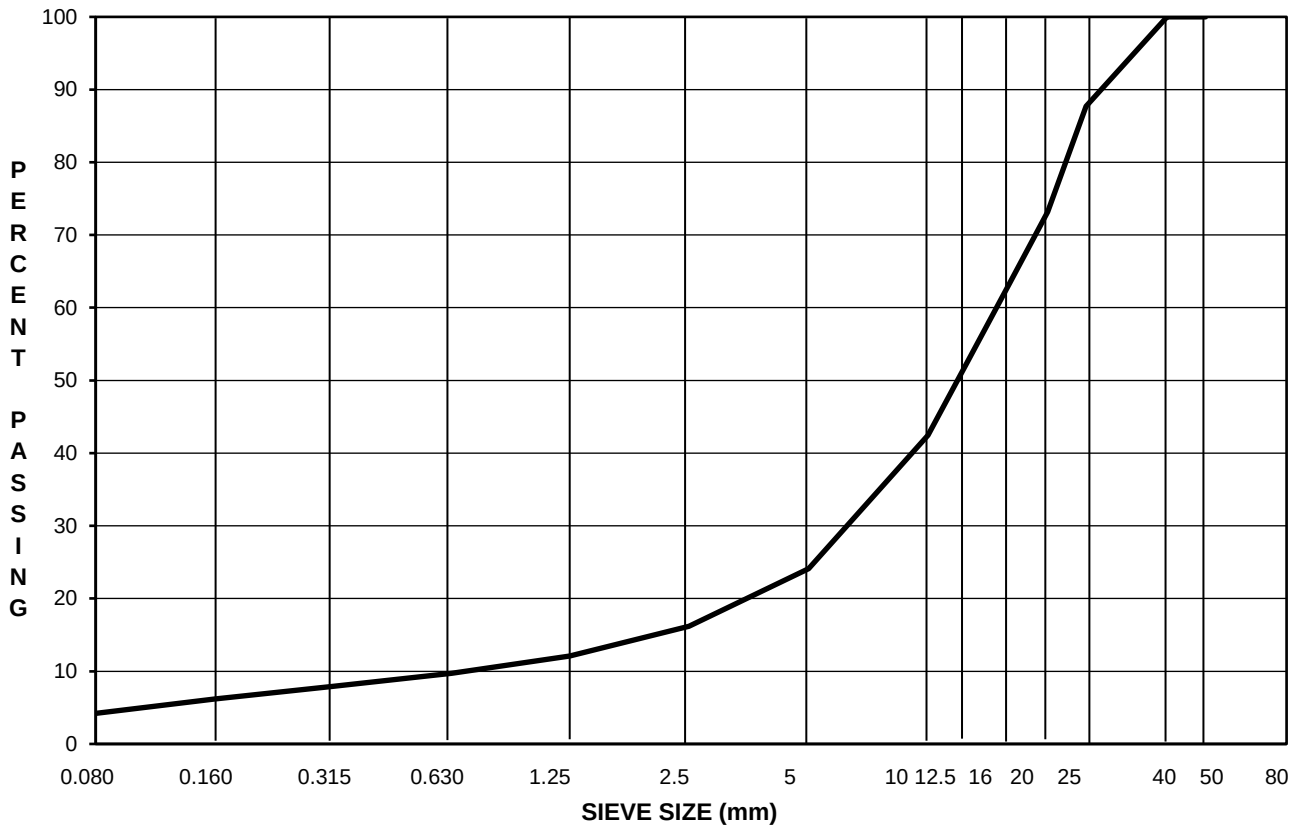
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**88**	**73**	**63**	**52**	**42**	**24**	**16**	**12**	**10**	**8**	**6.2**	**4.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA130
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 28, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	0.5%

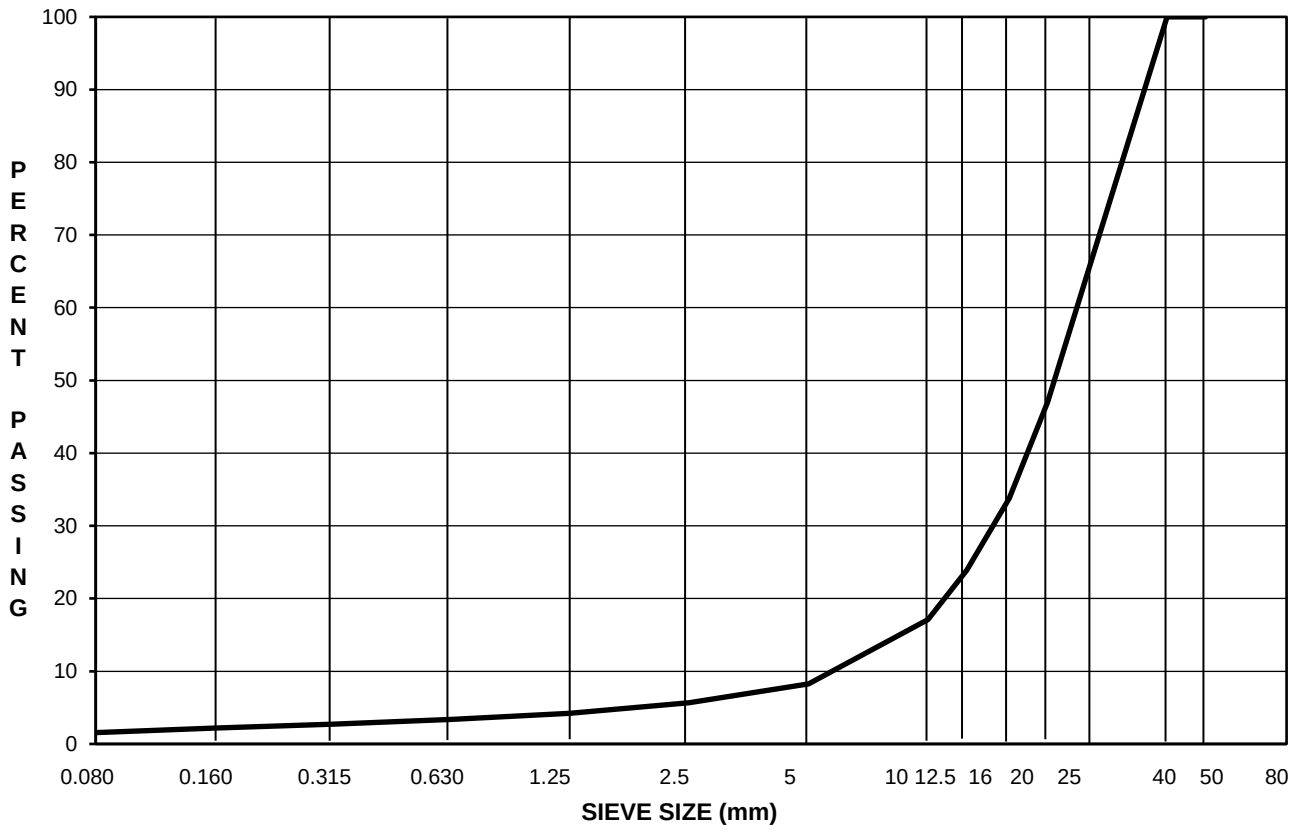
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**64**	**47**	**34**	**24**	**17**	**8**	**6**	**4**	**3**	**3**	**2.2**	**1.6**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA131
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 30, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	1.3%

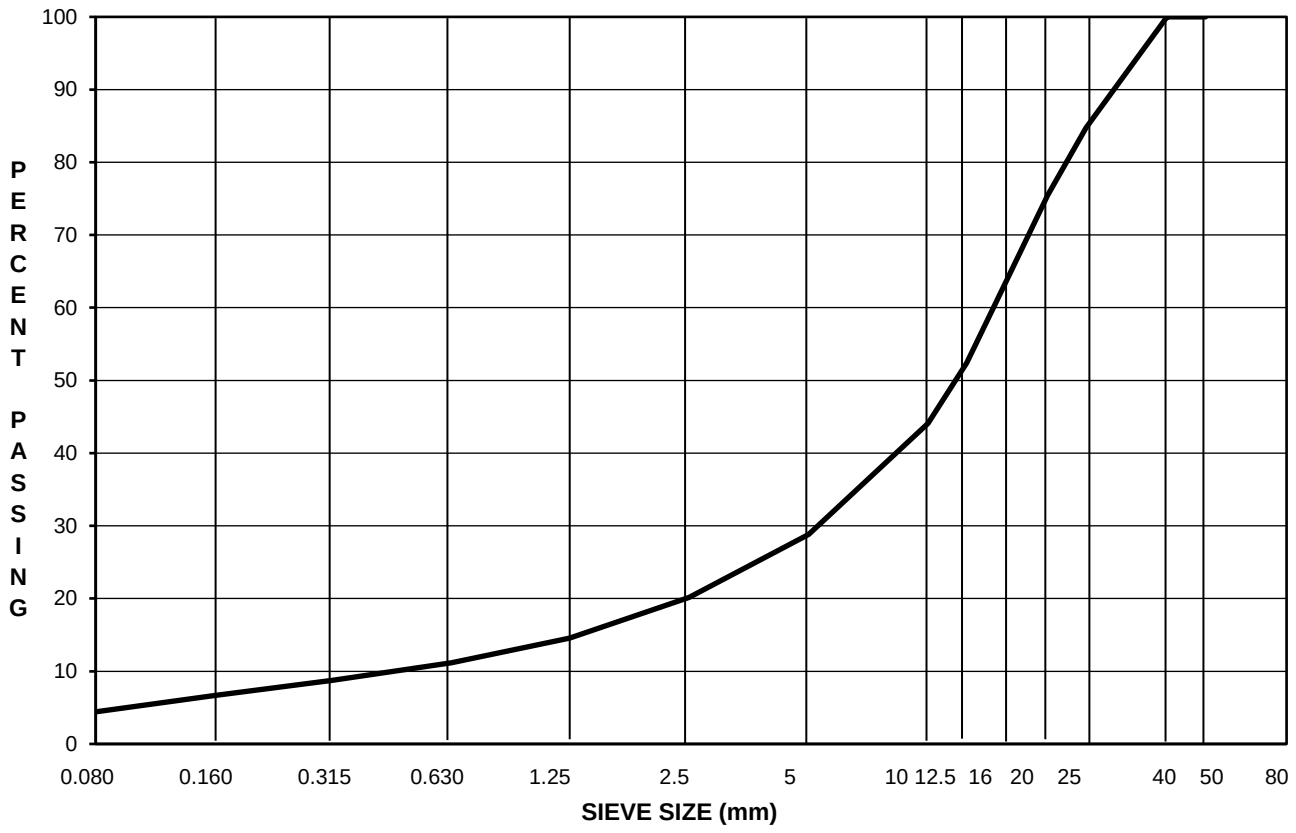
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**85**	**75**	**65**	**52**	**44**	**29**	**20**	**15**	**11**	**9**	**6.7**	**4.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA132
Project No.:	704-ENG.WARC03235-07	Date Sampled:	May 31, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	1.9%

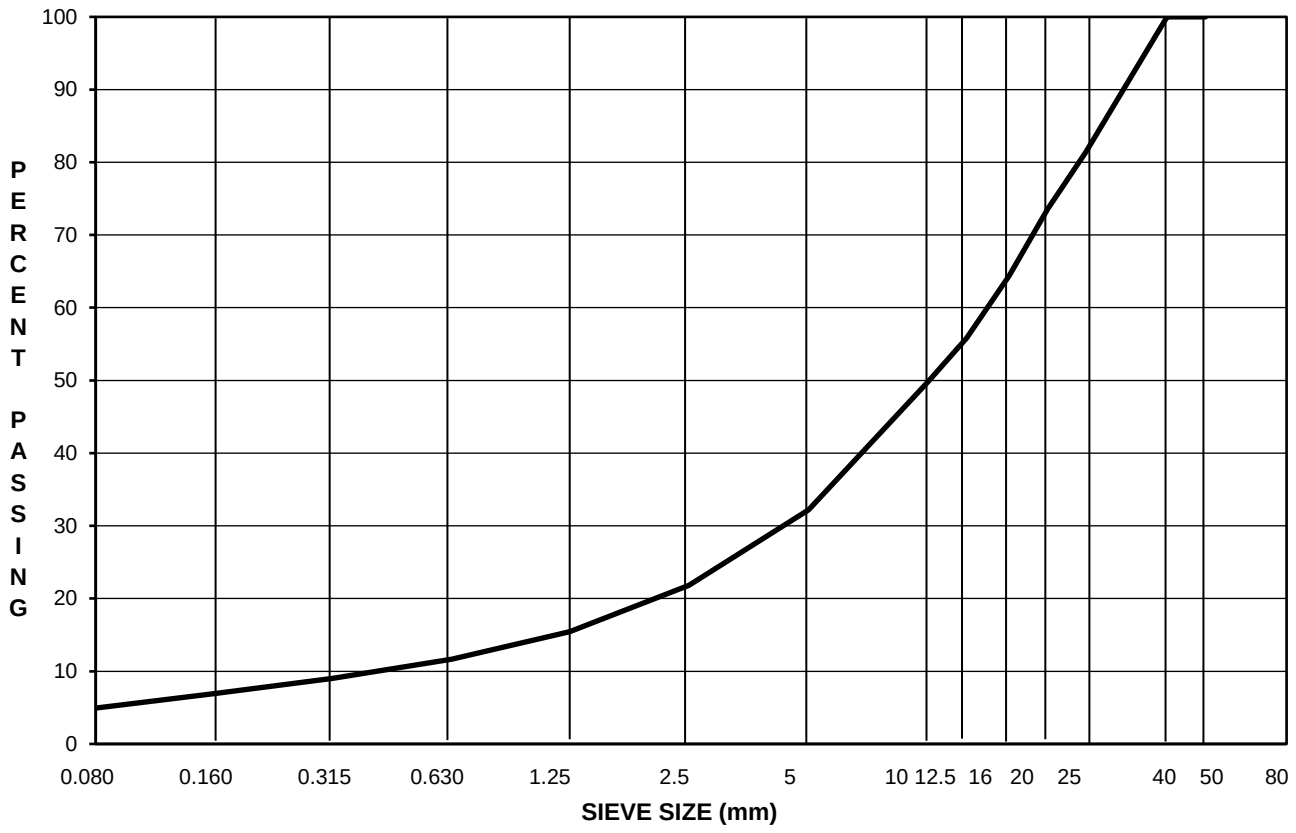
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**81**	**74**	**64**	**56**	**50**	**32**	**22**	**15**	**12**	**9**	**6.9**	**4.9**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA133
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 2, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	2.5%

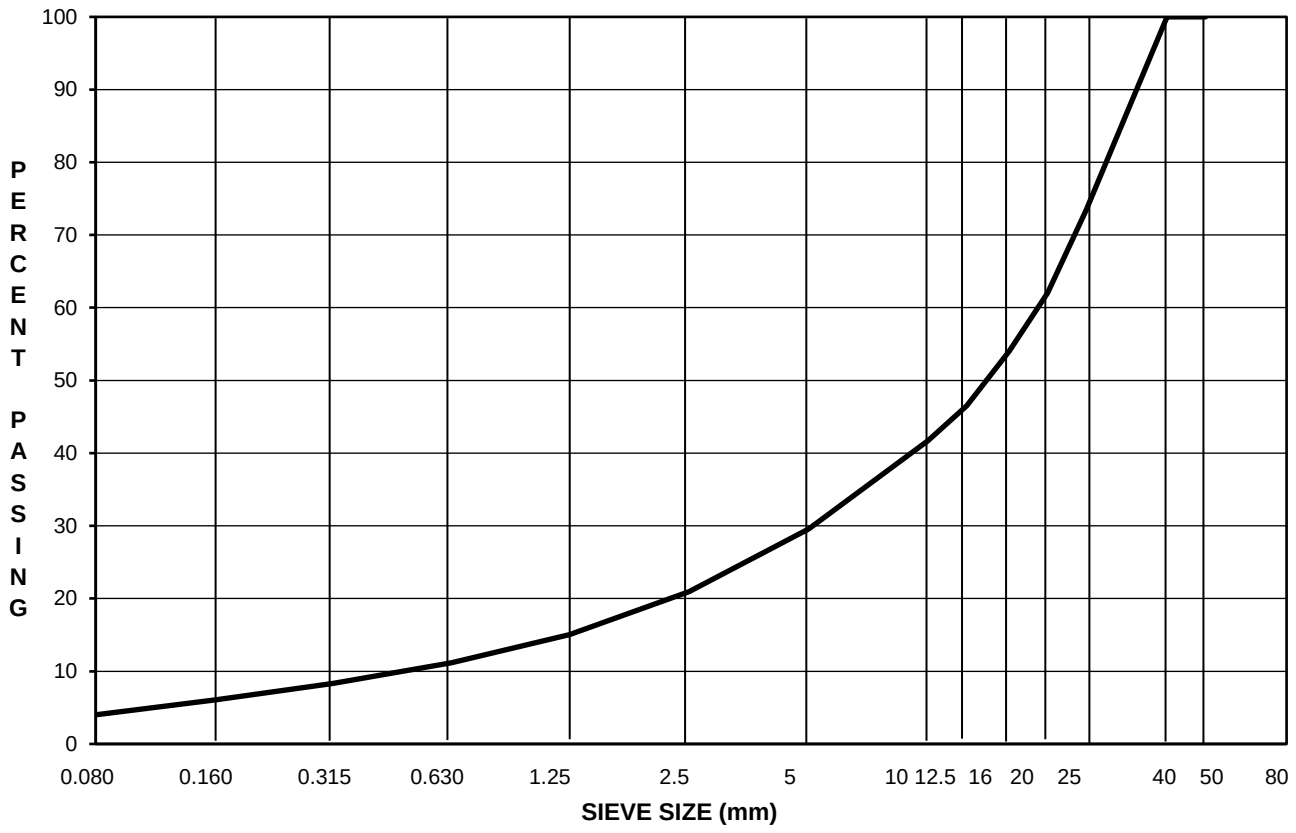
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**73**	**62**	**54**	**46**	**42**	**30**	**21**	**15**	**11**	**8**	**6.1**	**4.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA134
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 3, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	2.8%

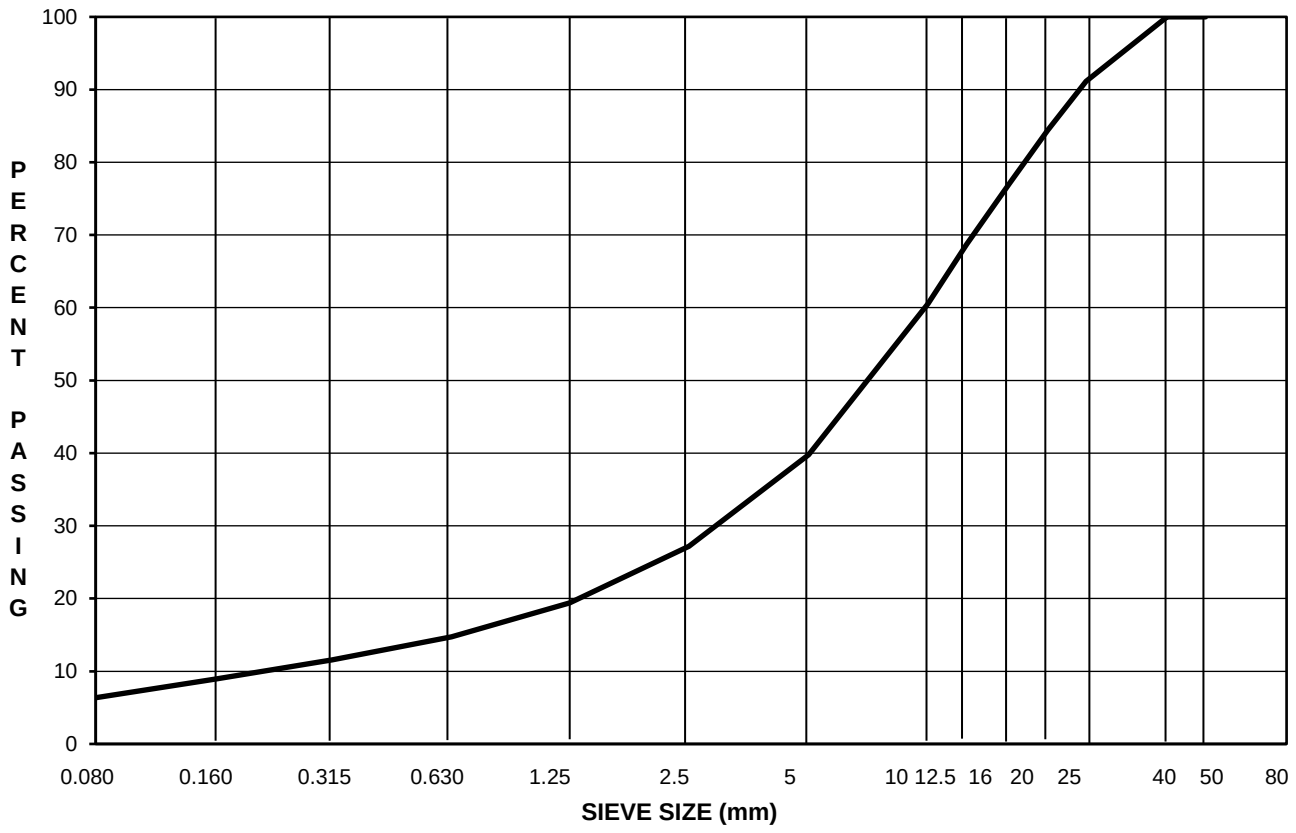
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**91**	**84**	**77**	**69**	**61**	**40**	**27**	**19**	**15**	**12**	**8.9**	**6.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA135
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 4, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	2.8%

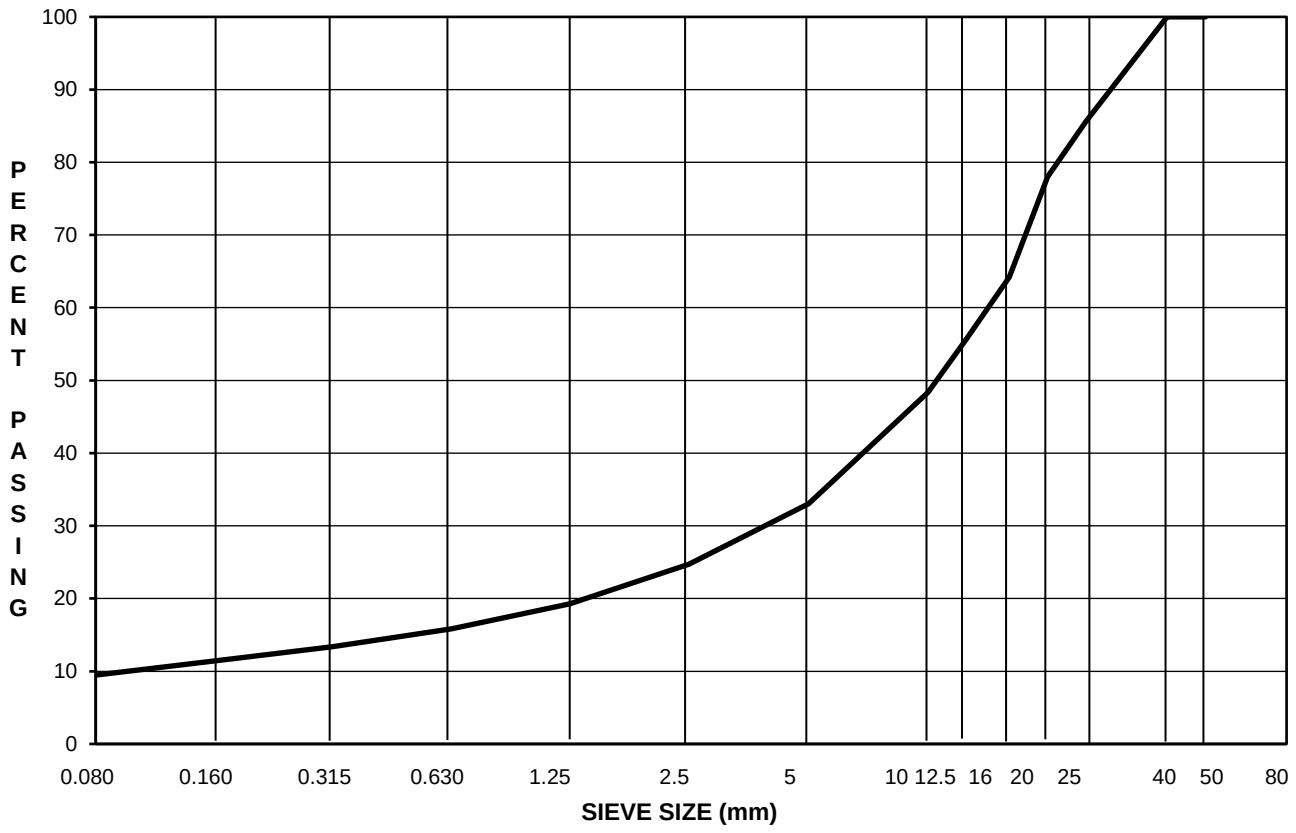
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**86**	**78**	**64**	**56**	**48**	**33**	**25**	**19**	**16**	**13**	**11.4**	**9.5**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA136
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 4, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Pile	Moisture Content:	2.7%

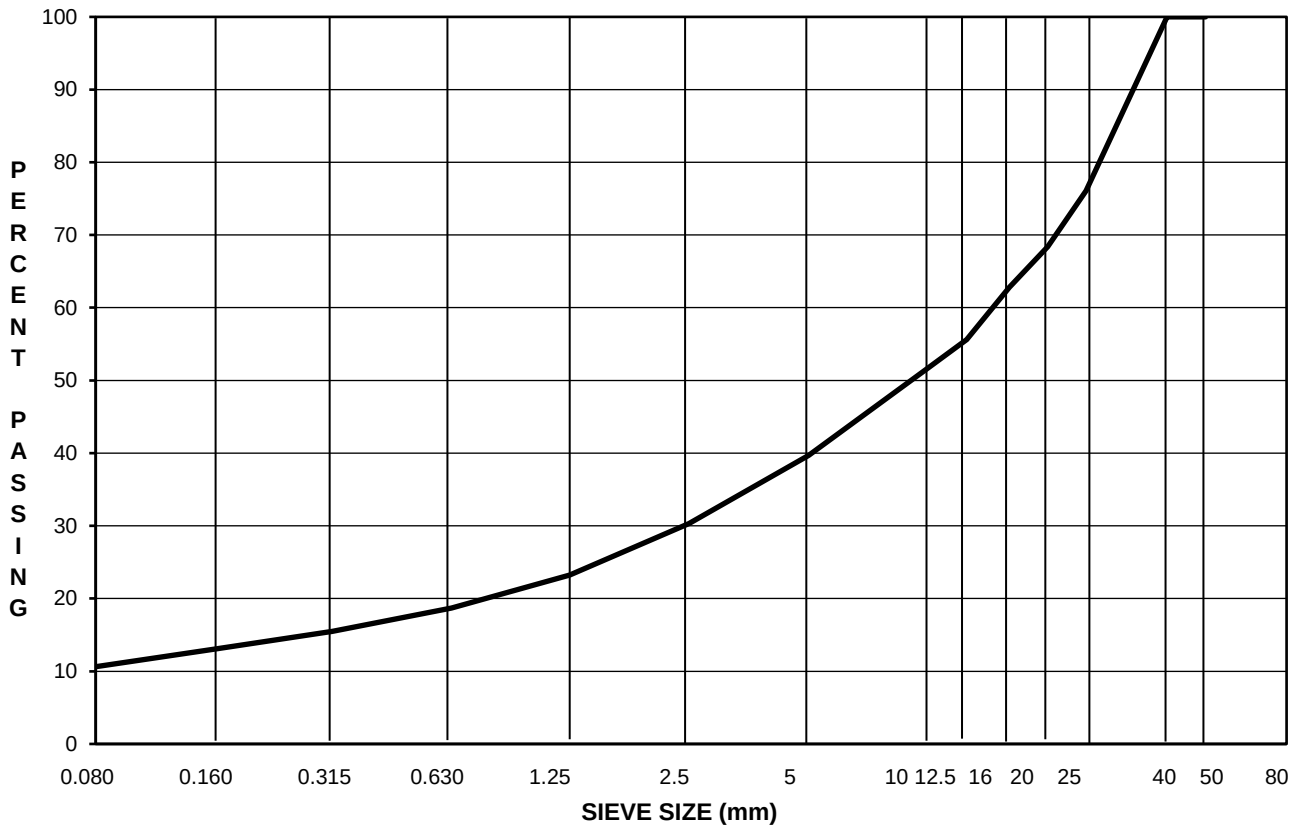
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**76**	**68**	**63**	**56**	**52**	**40**	**30**	**23**	**19**	**15**	**13.1**	**10.6**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA137
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 5, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush) N/S	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.9%

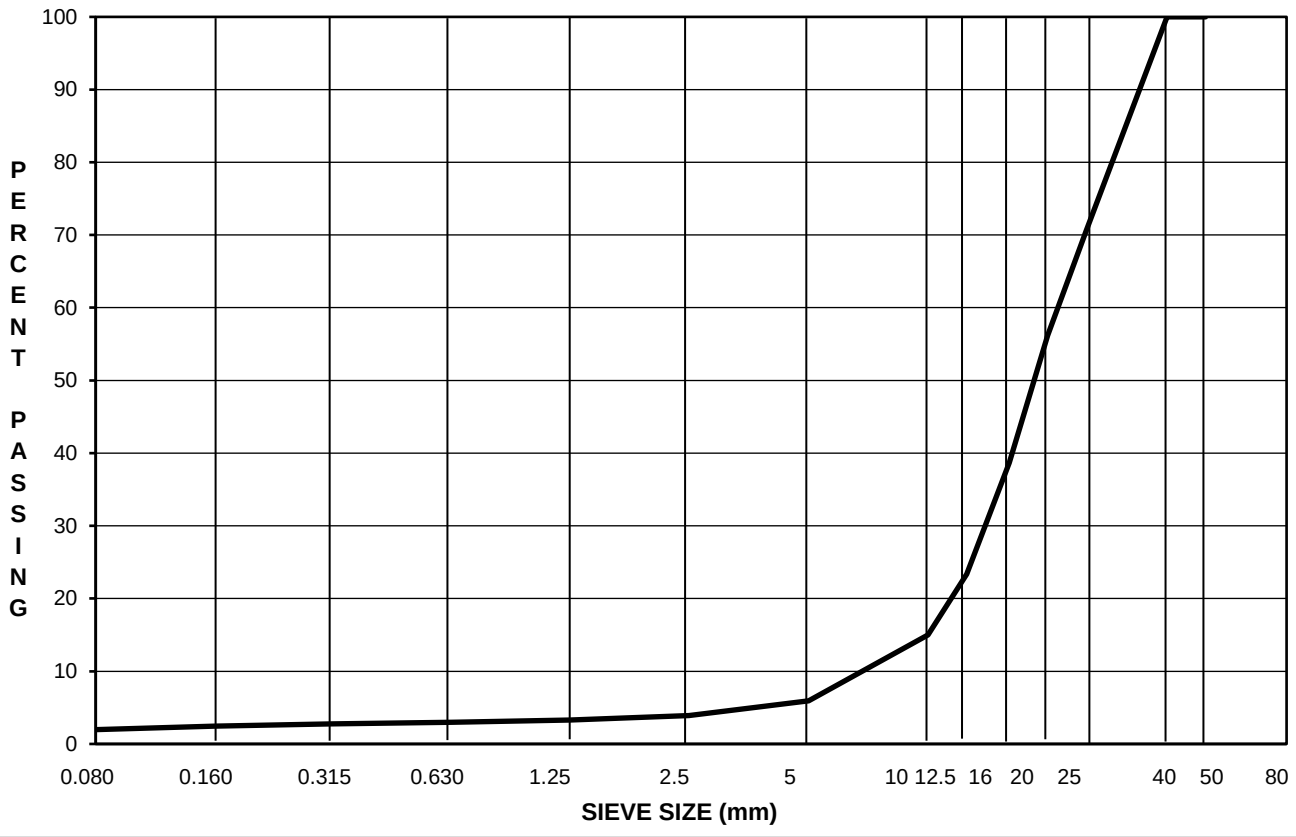
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**71**	**56**	**39**	**23**	**15**	**6**	**4**	**3**	**3**	**3**	**2.4**	**2.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA138
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 5, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush) D/S	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.7%

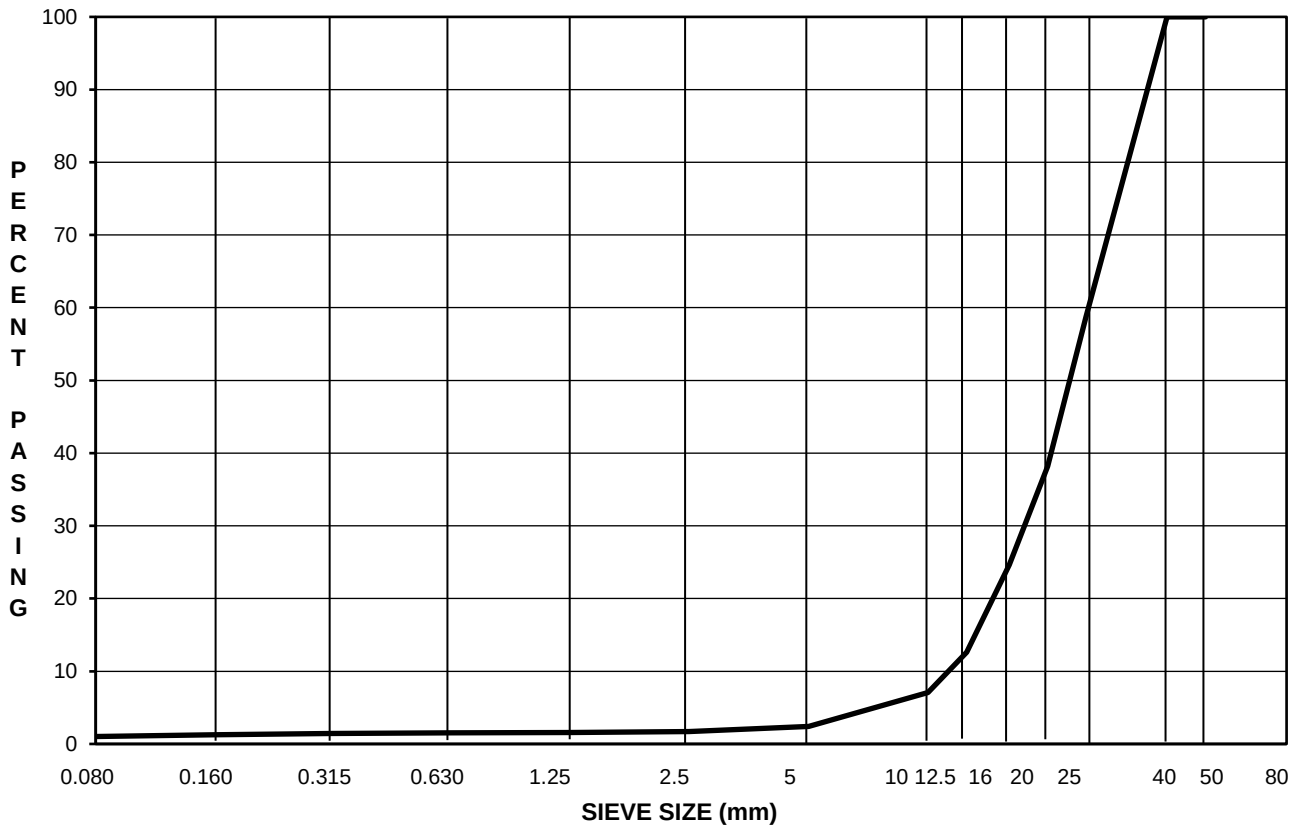
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**59**	**38**	**25**	**13**	**7**	**2**	**2**	**2**	**2**	**1**	**1.3**	**1.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA139
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 6, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush) D/S	Fracture (2 faces):	N/A
Location:	Pile, south on out of spec pile	Moisture Content:	5.2%

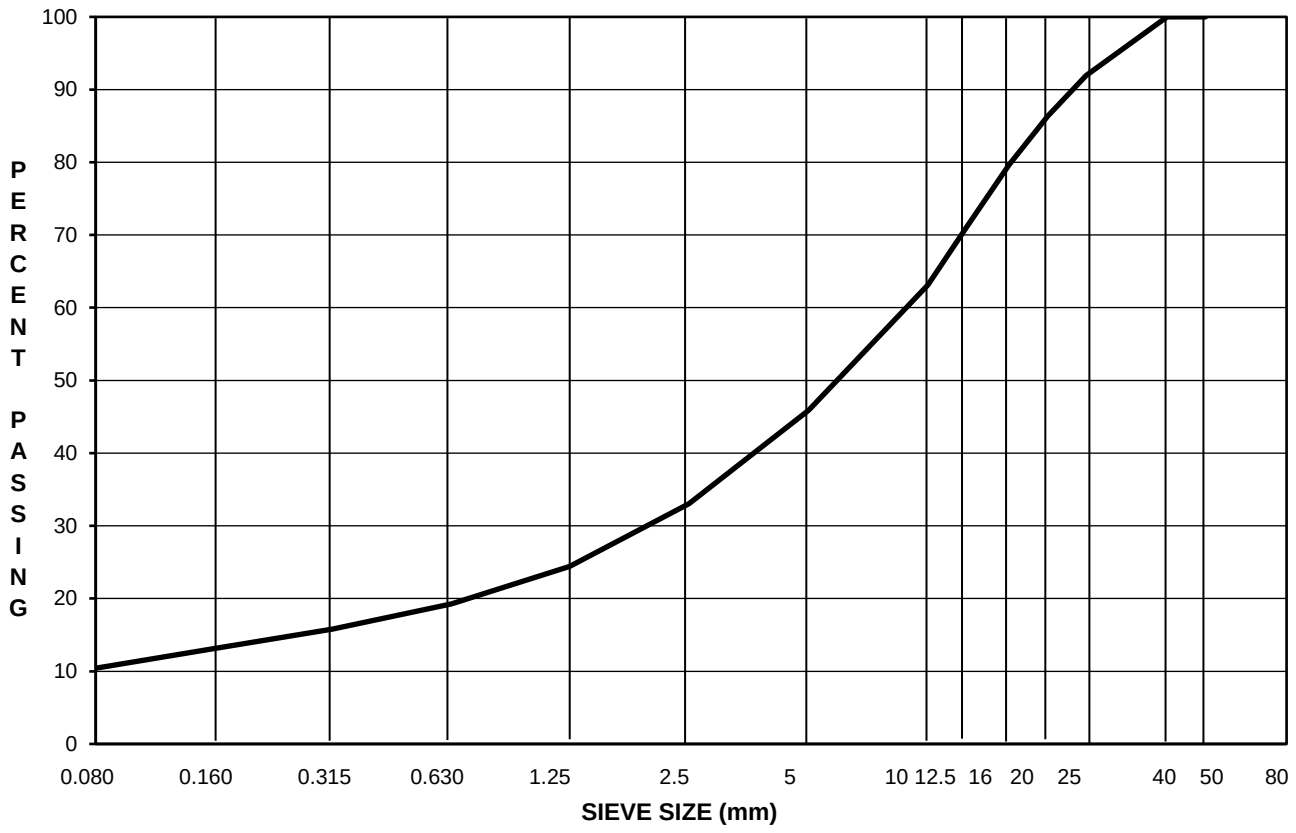
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**92**	**86**	**80**	**71**	**63**	**46**	**33**	**24**	**19**	**16**	**13.2**	**10.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA139
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 6, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush) D/S	Fracture (2 faces):	N/A
Location:	Pile, middle of out of spec pile	Moisture Content:	4.9%

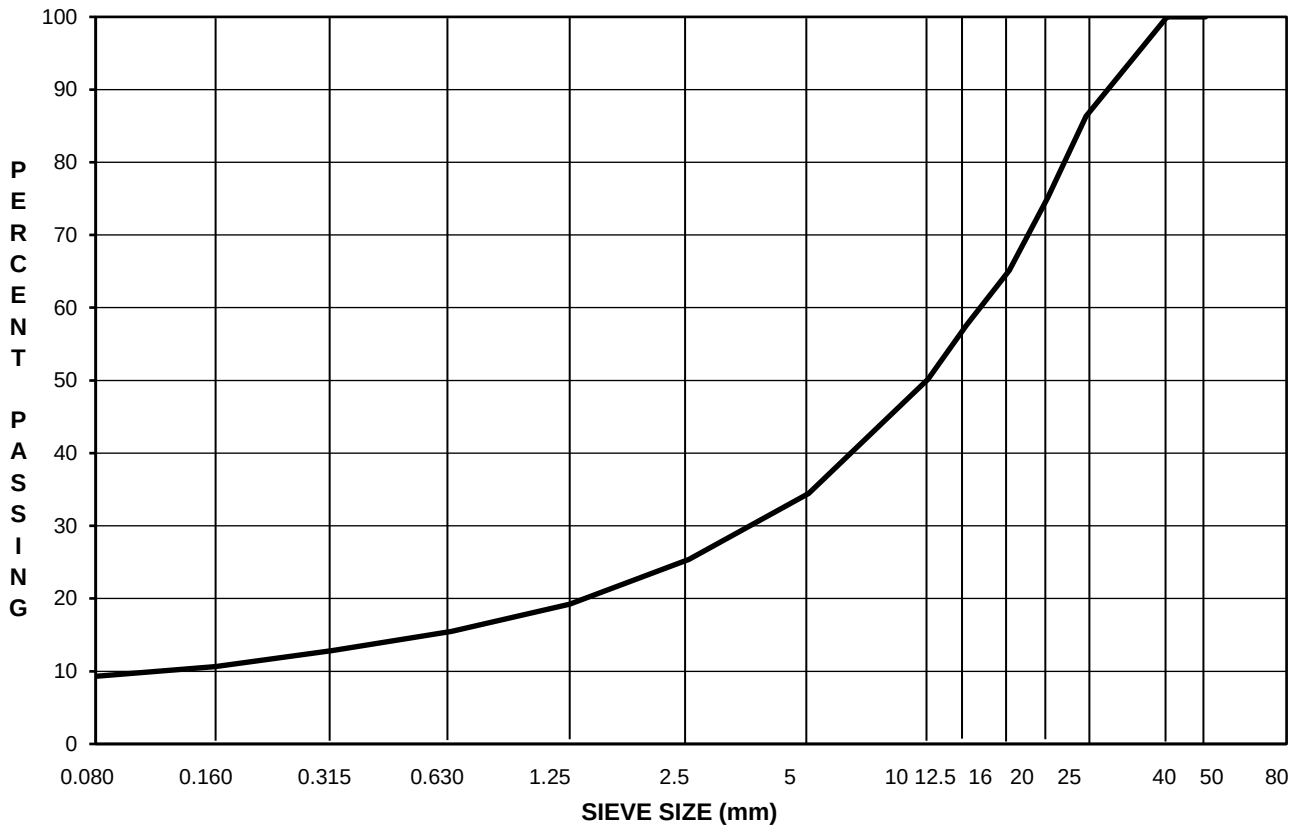
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**86**	**75**	**65**	**58**	**50**	**34**	**25**	**19**	**15**	**13**	**10.6**	**9.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA139
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 6, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush) D/S	Fracture (2 faces):	N/A
Location:	Pile, north on out of spec pile	Moisture Content:	5.2%

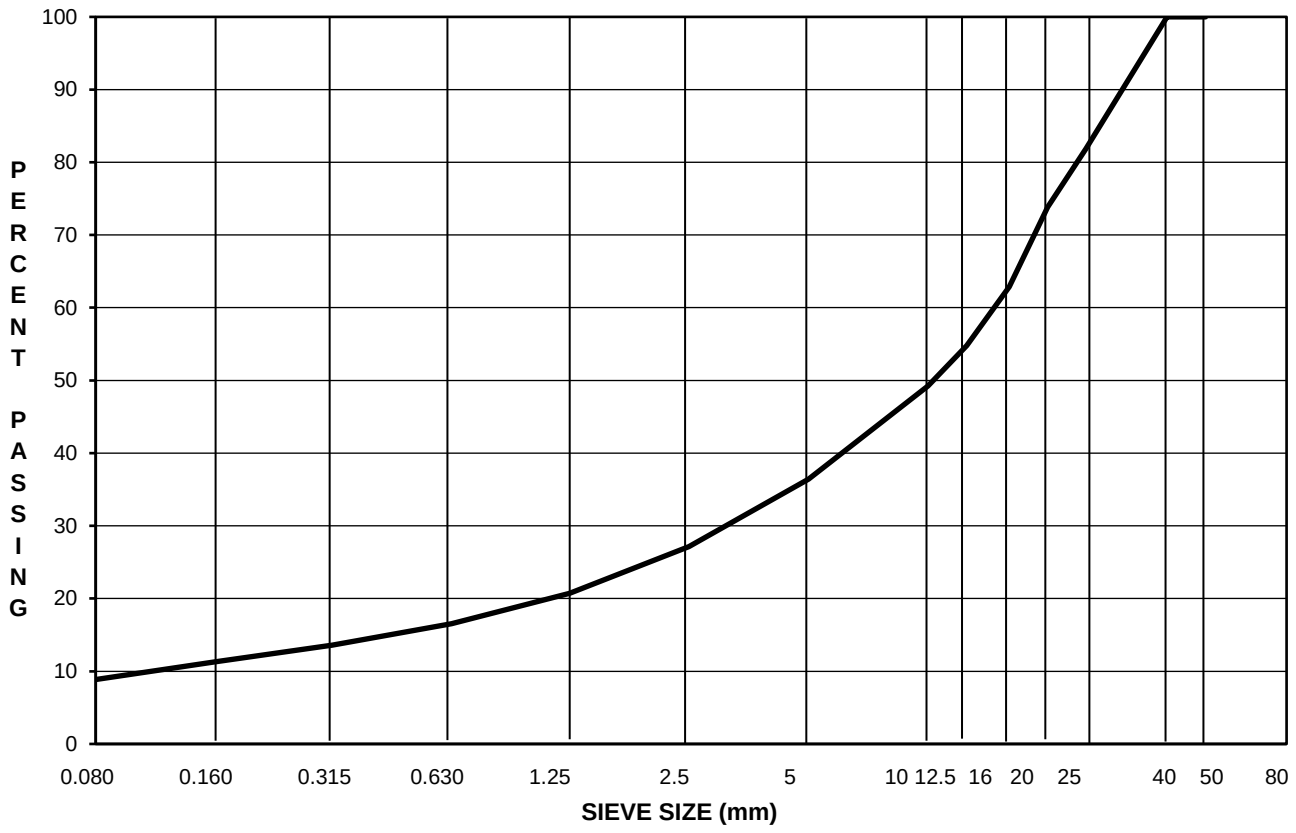
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**82**	**74**	**63**	**55**	**49**	**36**	**27**	**21**	**17**	**14**	**11.3**	**8.9**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA142
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 9, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.2%

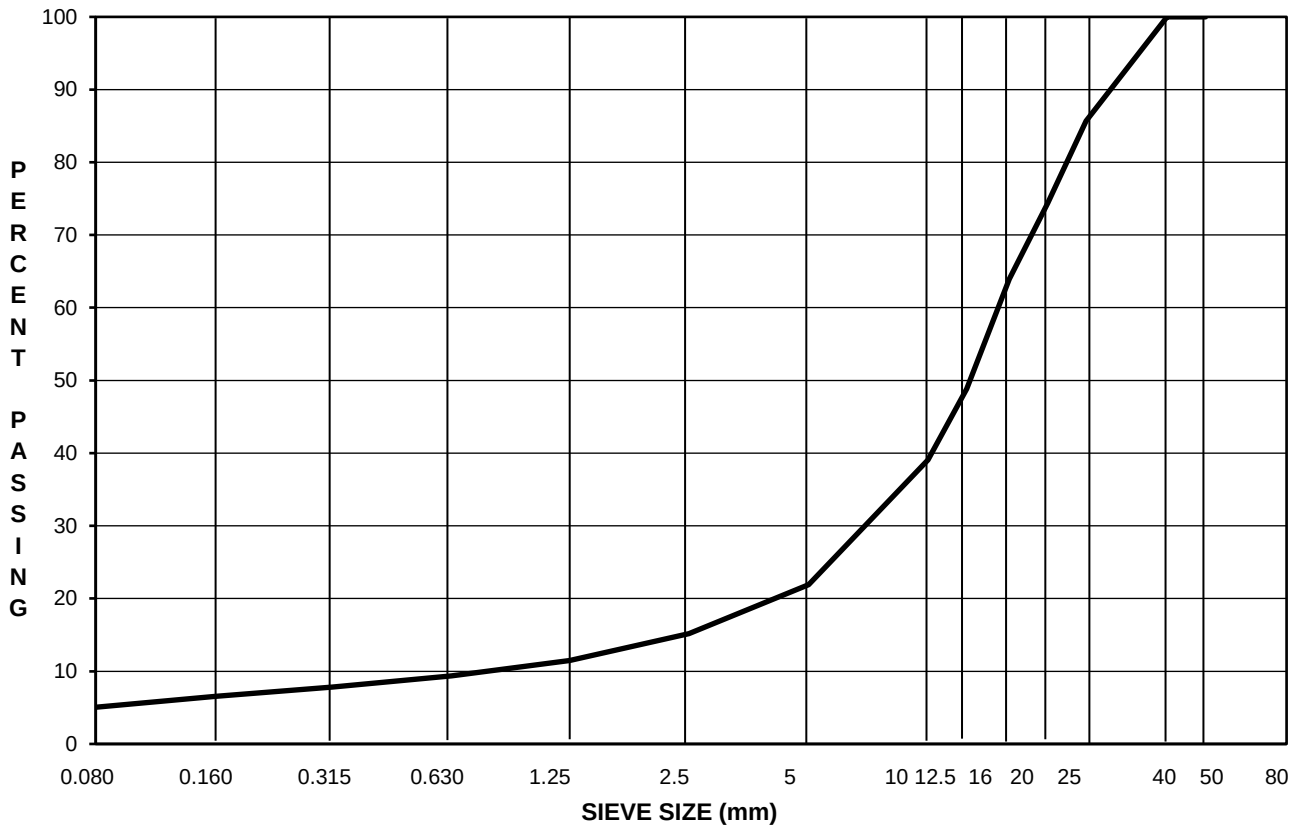
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**86**	**74**	**64**	**49**	**39**	**22**	**15**	**11**	**9**	**8**	**6.5**	**5.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA143
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 10, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.6%

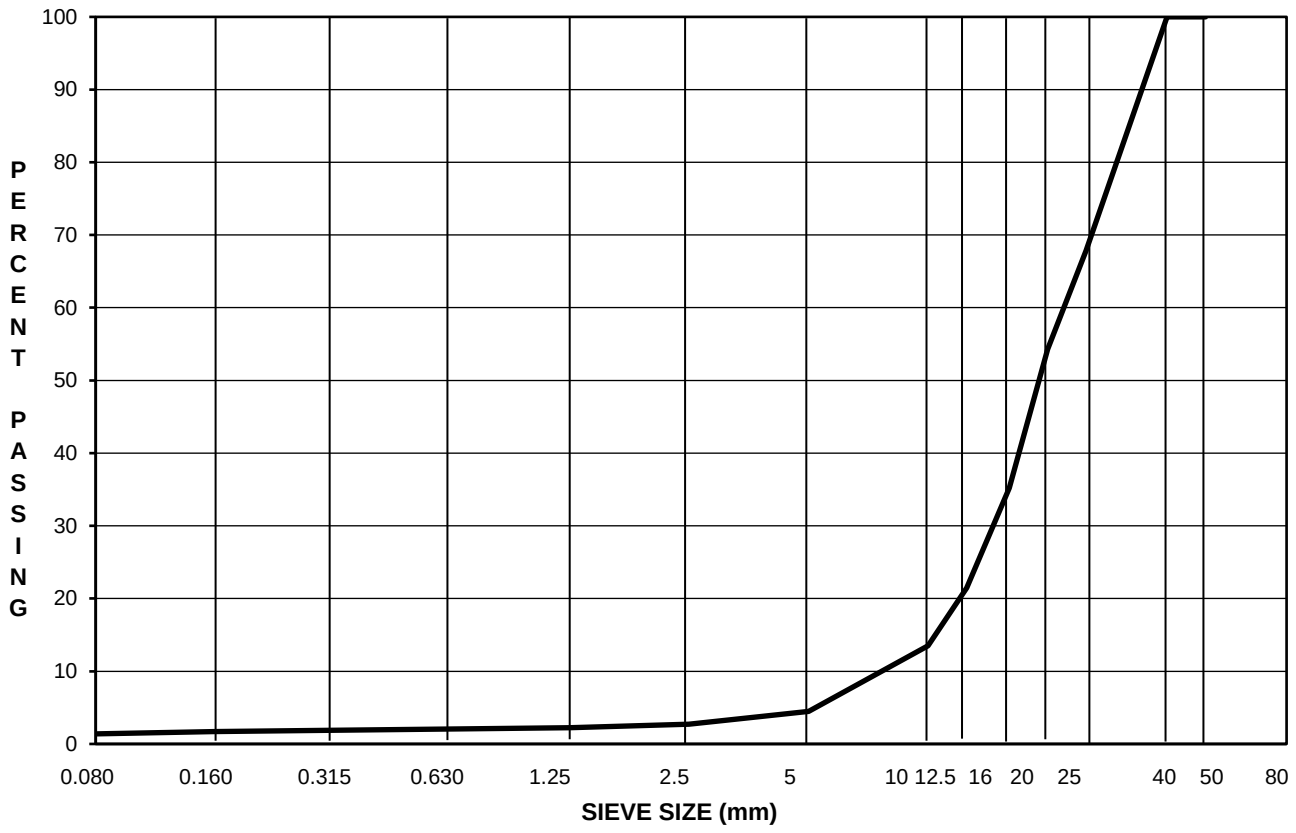
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														**5**
Lower Limit														**0**
Test Result	**100**	**100**	**68**	**54**	**35**	**21**	**13**	**4**	**3**	**2**	**2**	**2**	**1.7**	**1.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA144
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 11, 2019
Client:	JDS	Sampled By:	AS Tested By: AS
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.5%

Aggregate Gradation (% Passing)

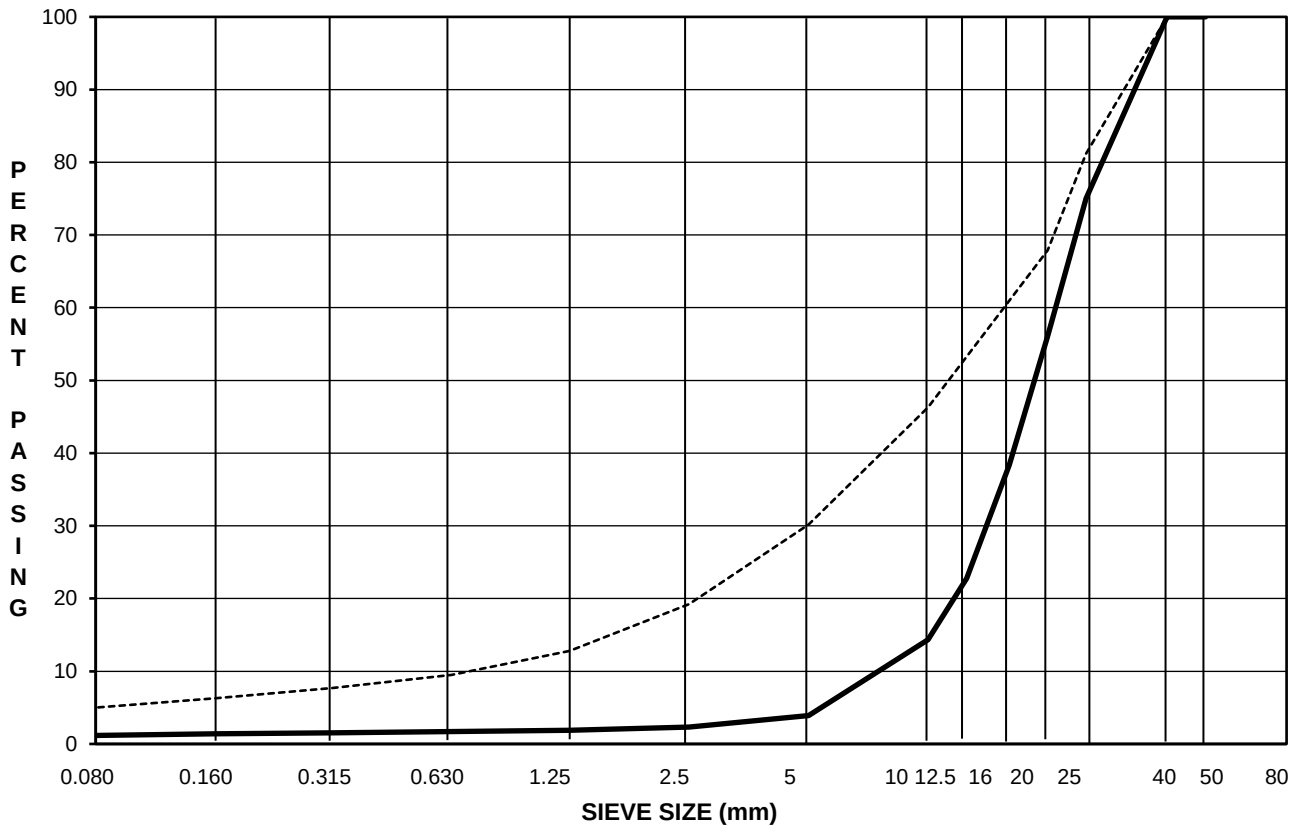
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**75**	**56**	**38**	**23**	**14**	**4**	**2**	**2**	**2**	**2**	**1.4**	**1.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA145
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 12, 2019
Client:	JDS	Sampled By:	AS Tested By: SD
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.4%

Aggregate Gradation (% Passing)

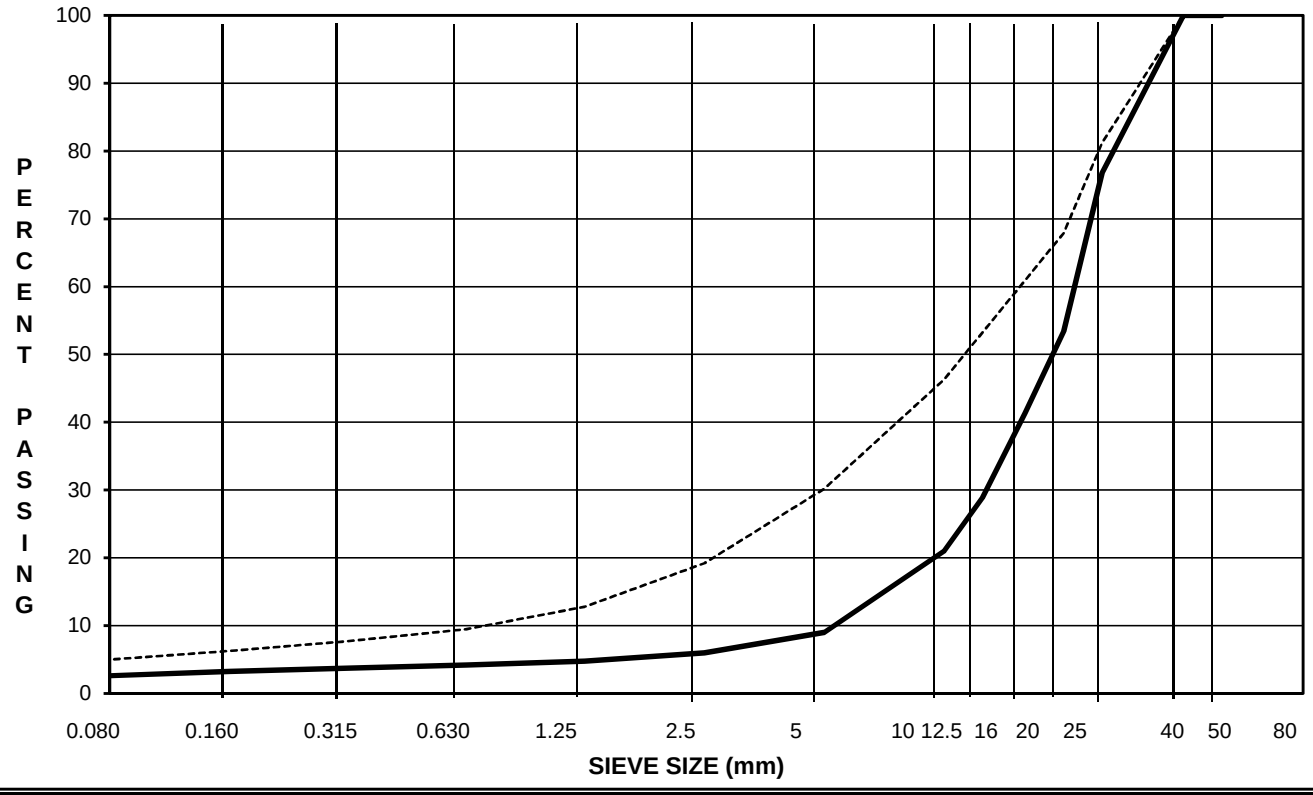
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**77**	**53**	**41**	**29**	**21**	**9**	**6**	**5**	**4**	**4**	**3.2**	**2.6**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

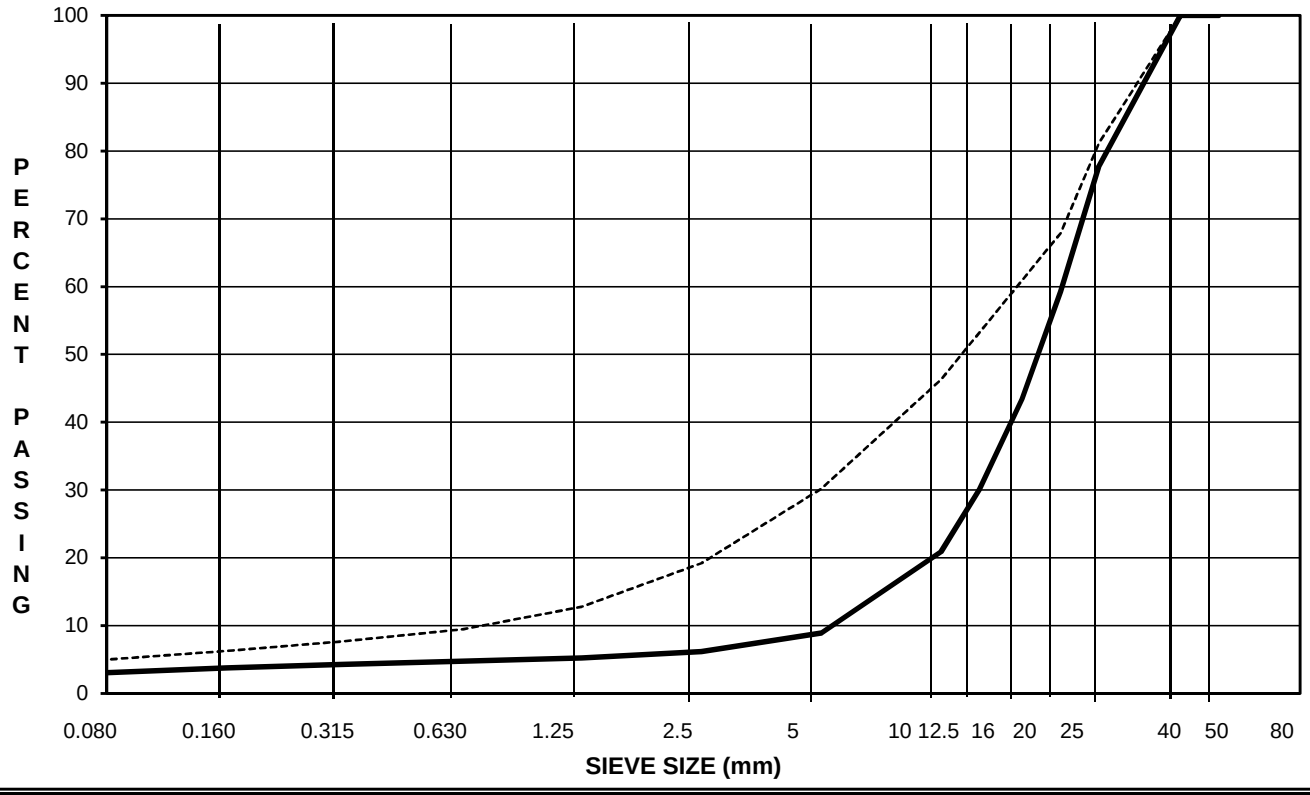
Project:	Eagle Gold Project	Sample Number:	SA147
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 15, 2019
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.0%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**78**	**59**	**43**	**30**	**21**	**9**	**6**	**5**	**5**	**4**	**3.8**	**3.1**

Remarks: 100% passing 38 mm
5% max passing No, 200 (080)
Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA149
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 16, 2019
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.0%

Aggregate Gradation (% Passing)

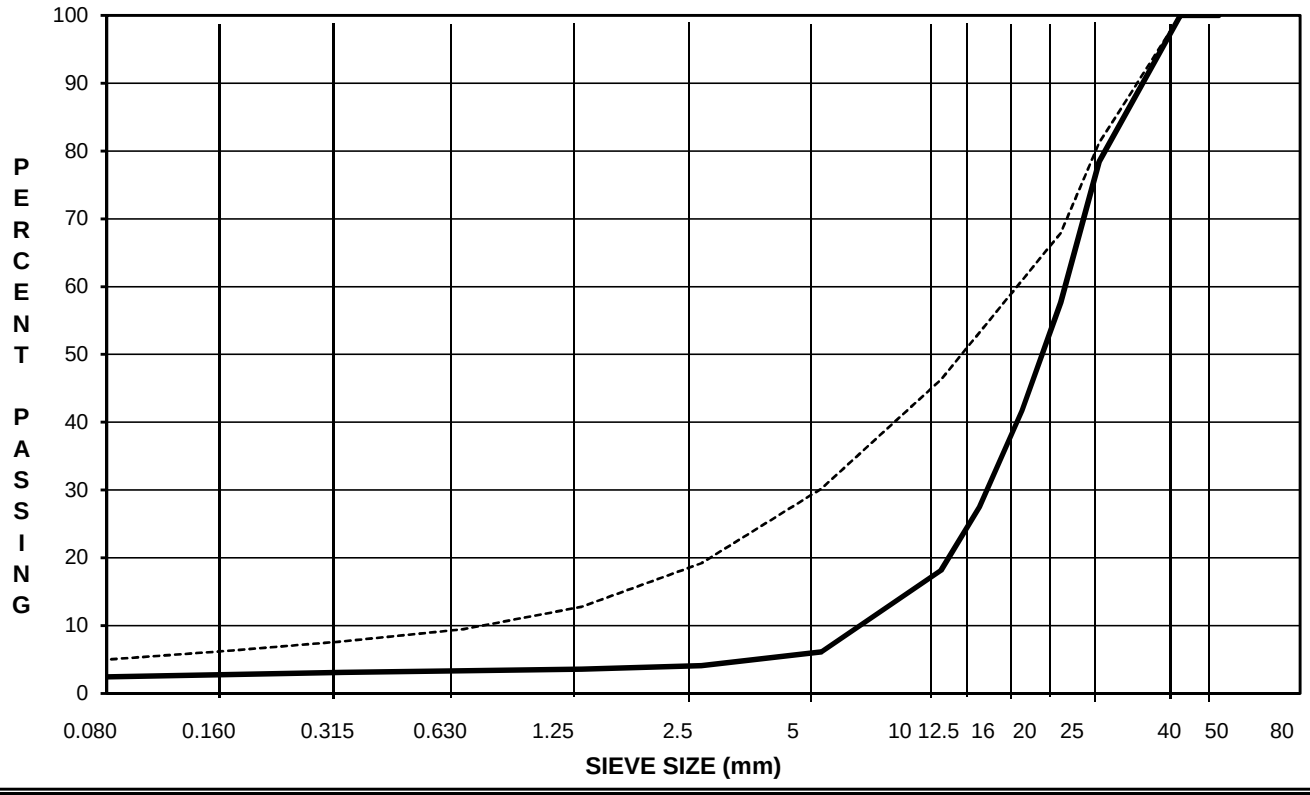
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**78**	**58**	**42**	**27**	**18**	**6**	**4**	**4**	**3**	**3**	**2.8**	**2.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA149
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 17, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.7%

Aggregate Gradation (% Passing)

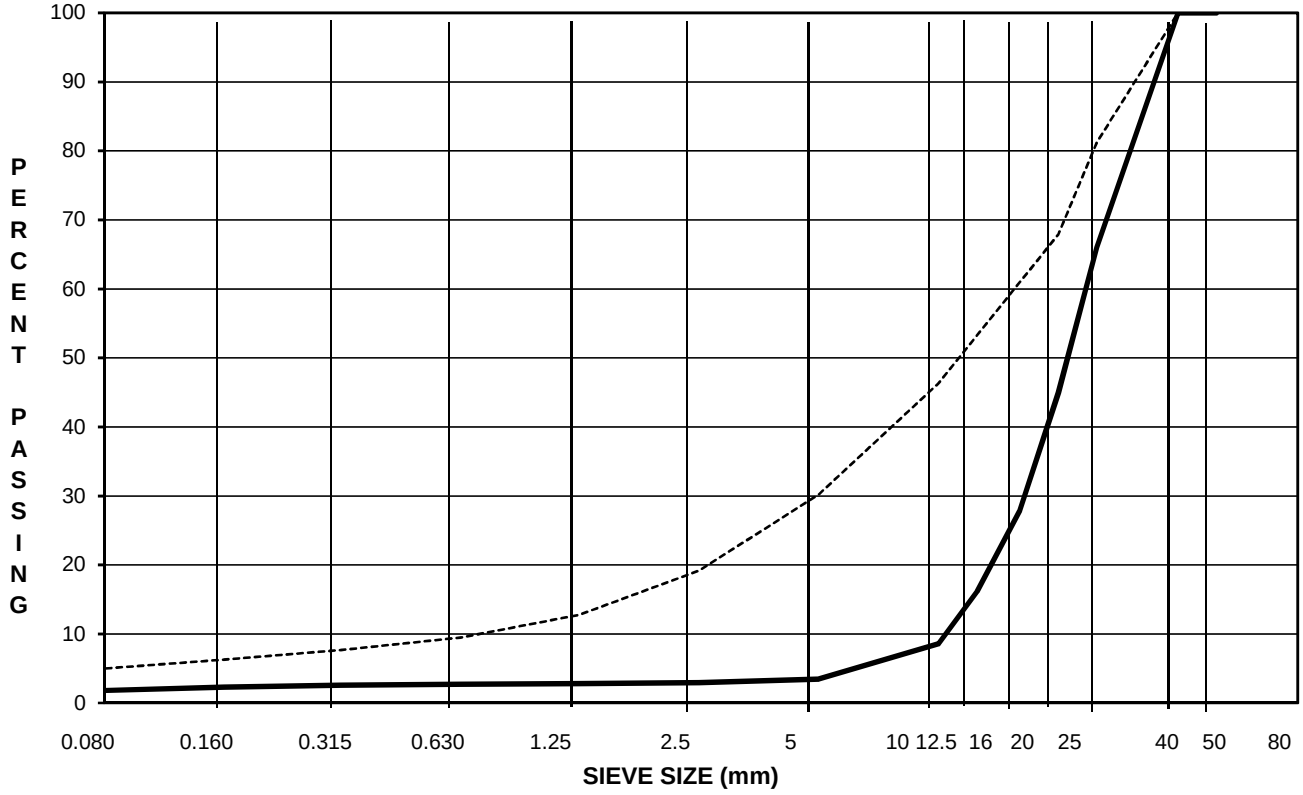
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**66**	**45**	**28**	**16**	**9**	**3**	**3**	**3**	**3**	**3**	**2.3**	**1.8**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limit

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA150
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 18, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.4%

Aggregate Gradation (% Passing)

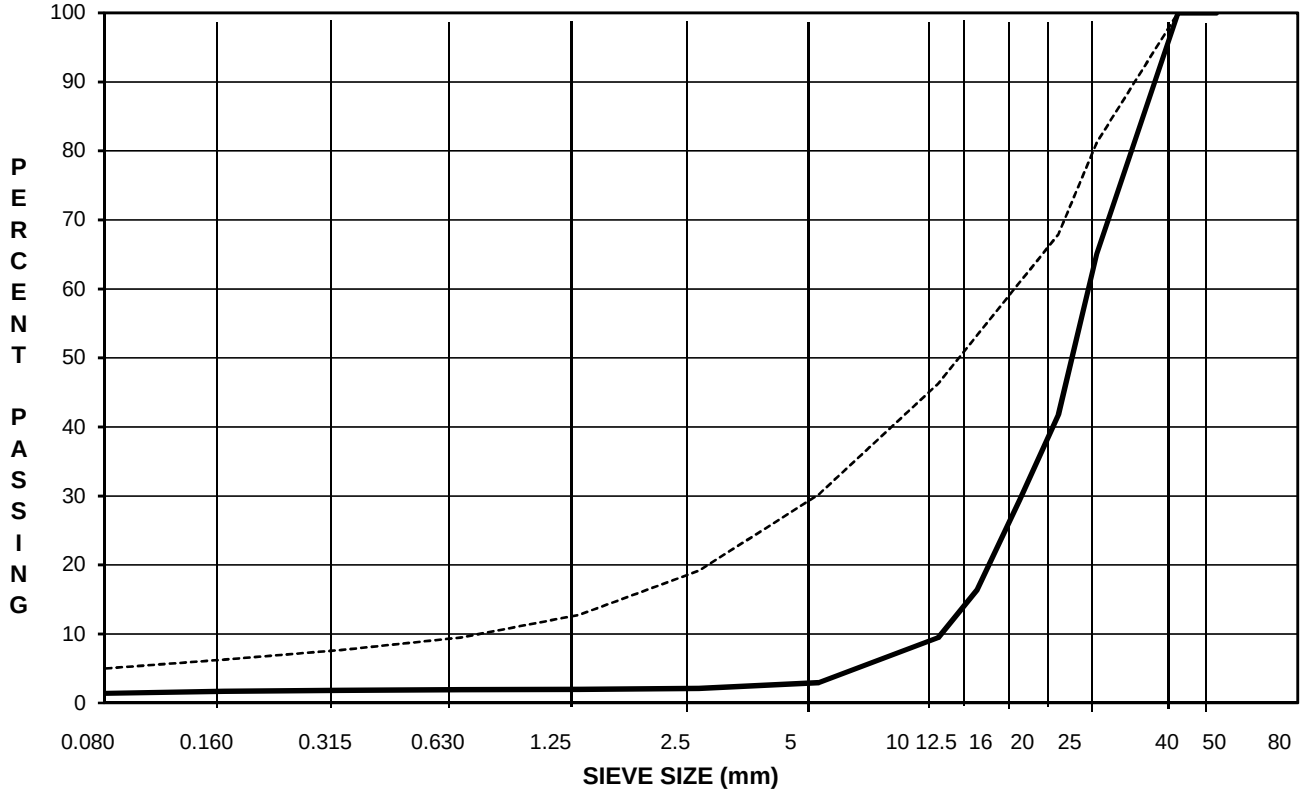
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**65**	**42**	**29**	**16**	**9**	**3**	**2**	**2**	**2**	**2**	**1.7**	**1.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limit

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

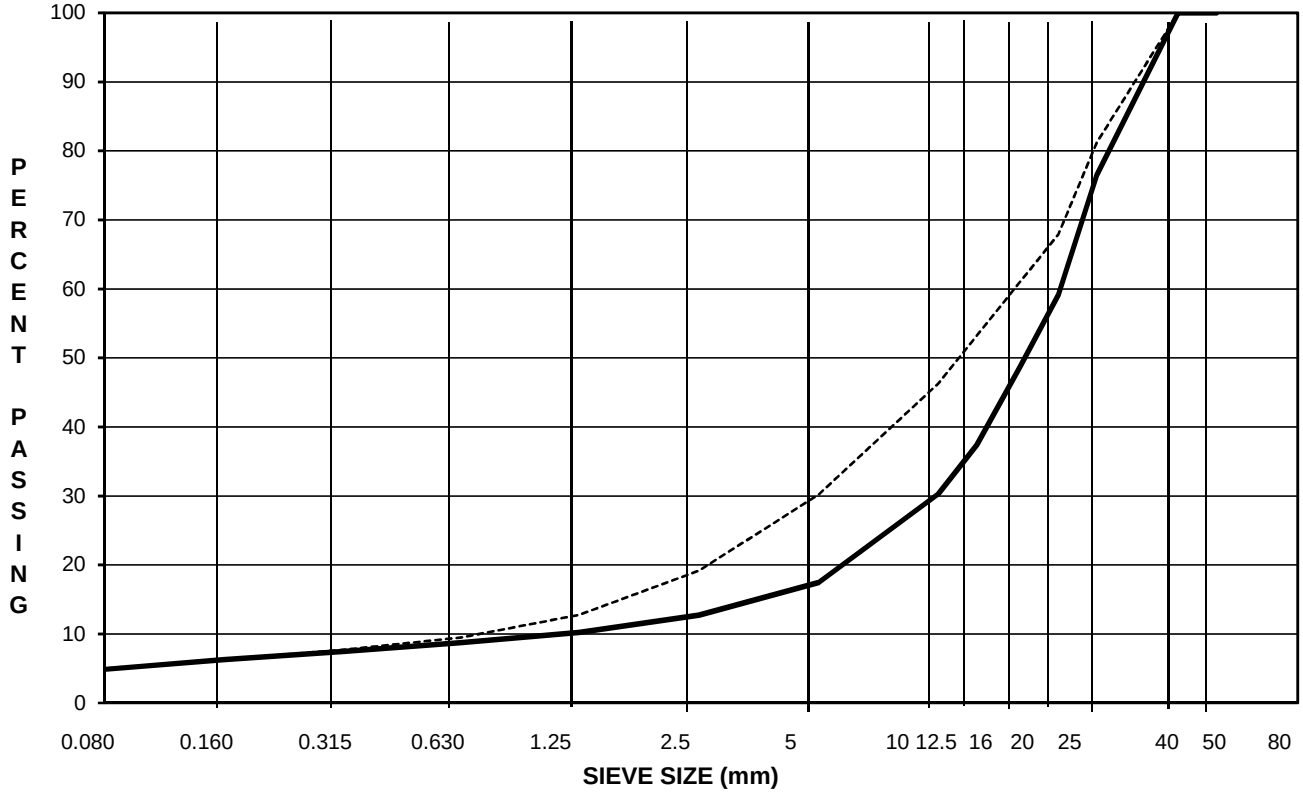
Project:	Eagle Gold Project	Sample Number:	SA151
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 19, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.2%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**77**	**59**	**49**	**37**	**30**	**17**	**13**	**10**	**9**	**7**	**6.3**	**4.9**

Remarks: 100% passing 38 mm
5% max passing No, 200 (080)
Upper limit is based off of permability limit

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA152
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 20, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.2%

Aggregate Gradation (% Passing)

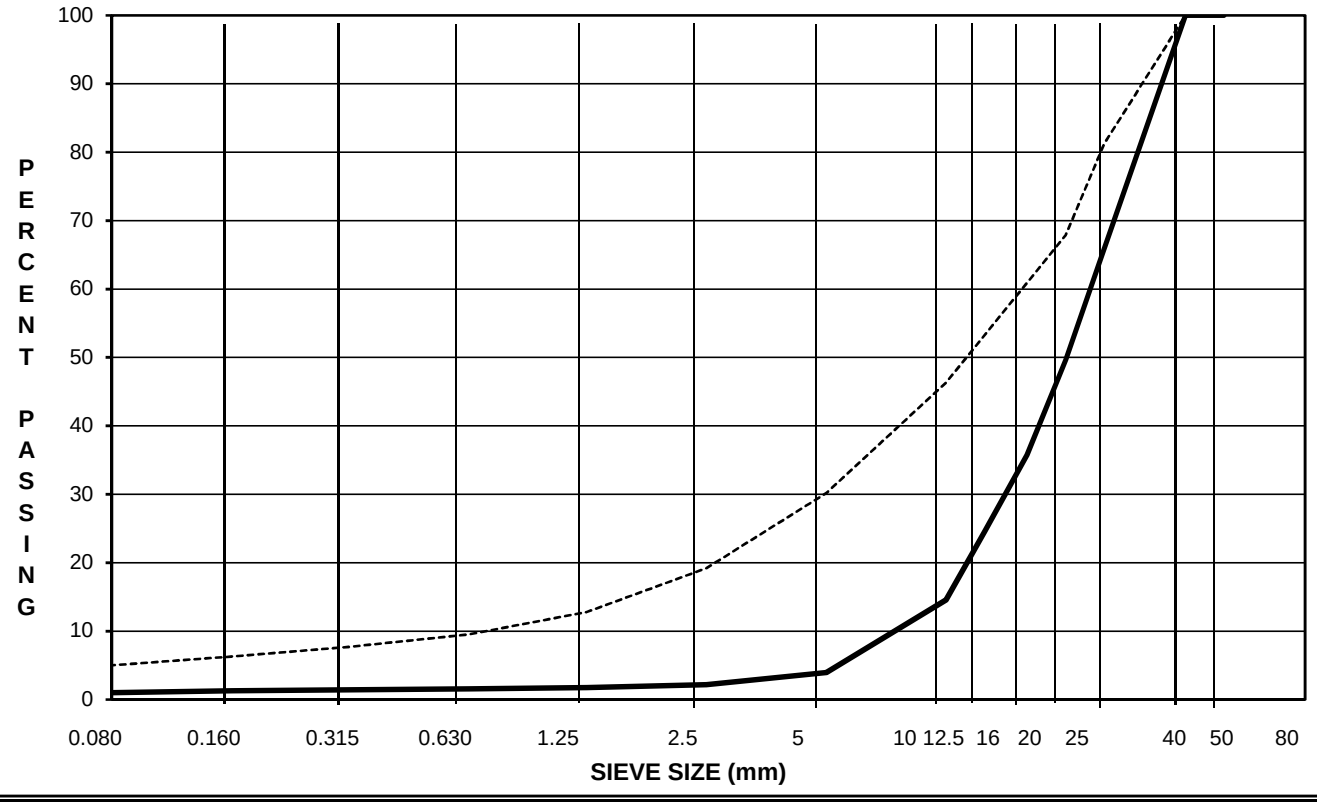
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**66**	**50**	**36**	**24**	**15**	**4**	**2**	**2**	**2**	**1**	**1.3**	**1.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limit

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA153
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 21, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.4%

Aggregate Gradation (% Passing)

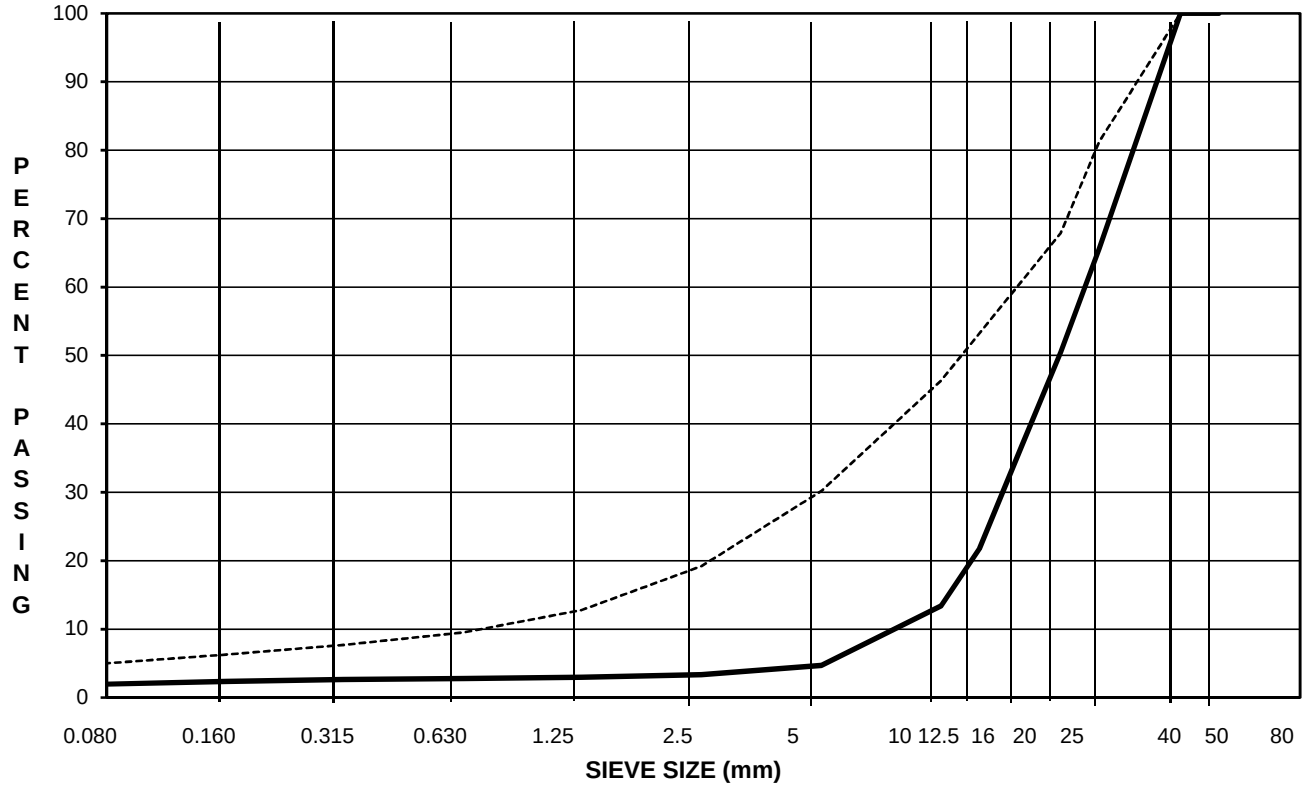
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**66**	**50**	**37**	**22**	**13**	**5**	**3**	**3**	**3**	**3**	**2.4**	**2.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA154 8:30
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 22, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.8%

Aggregate Gradation (% Passing)

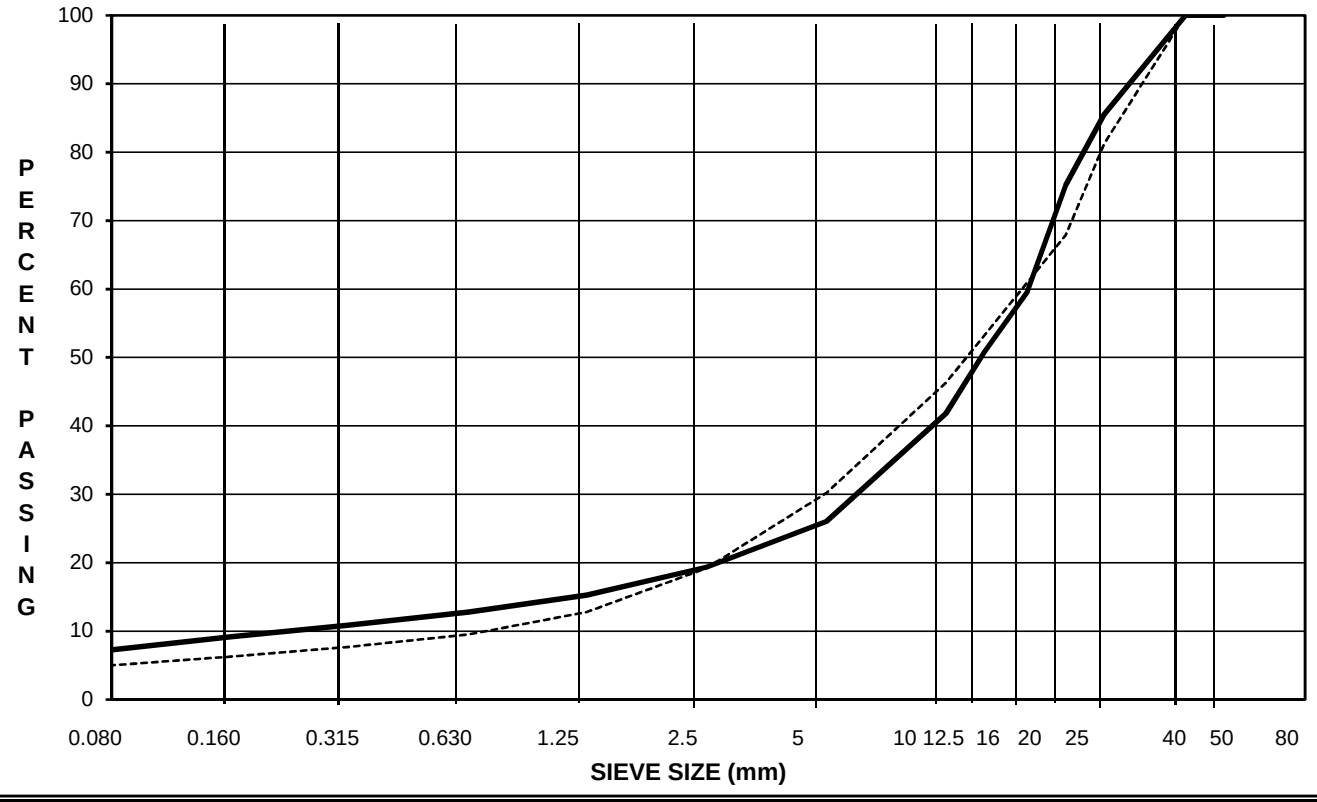
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**86**	**75**	**59**	**51**	**42**	**26**	**19**	**15**	**13**	**11**	**9.2**	**7.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA155 14:10
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 22, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.8%

Aggregate Gradation (% Passing)

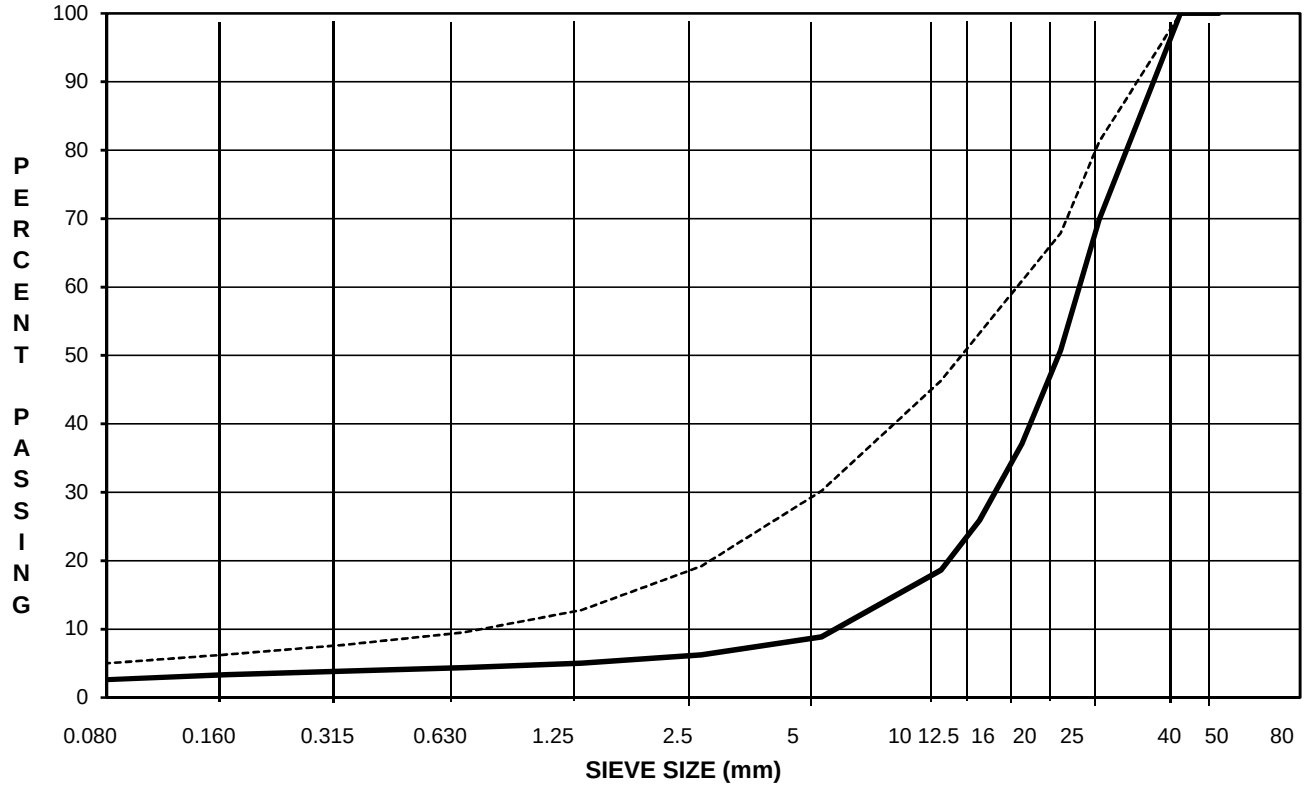
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**70**	**51**	**37**	**26**	**19**	**9**	**6**	**5**	**4**	**4**	**3.3**	**2.6**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA156 2:00
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 23, 2019
Client:	JDS	Sampled By:	Night Shift Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.7%

Aggregate Gradation (% Passing)

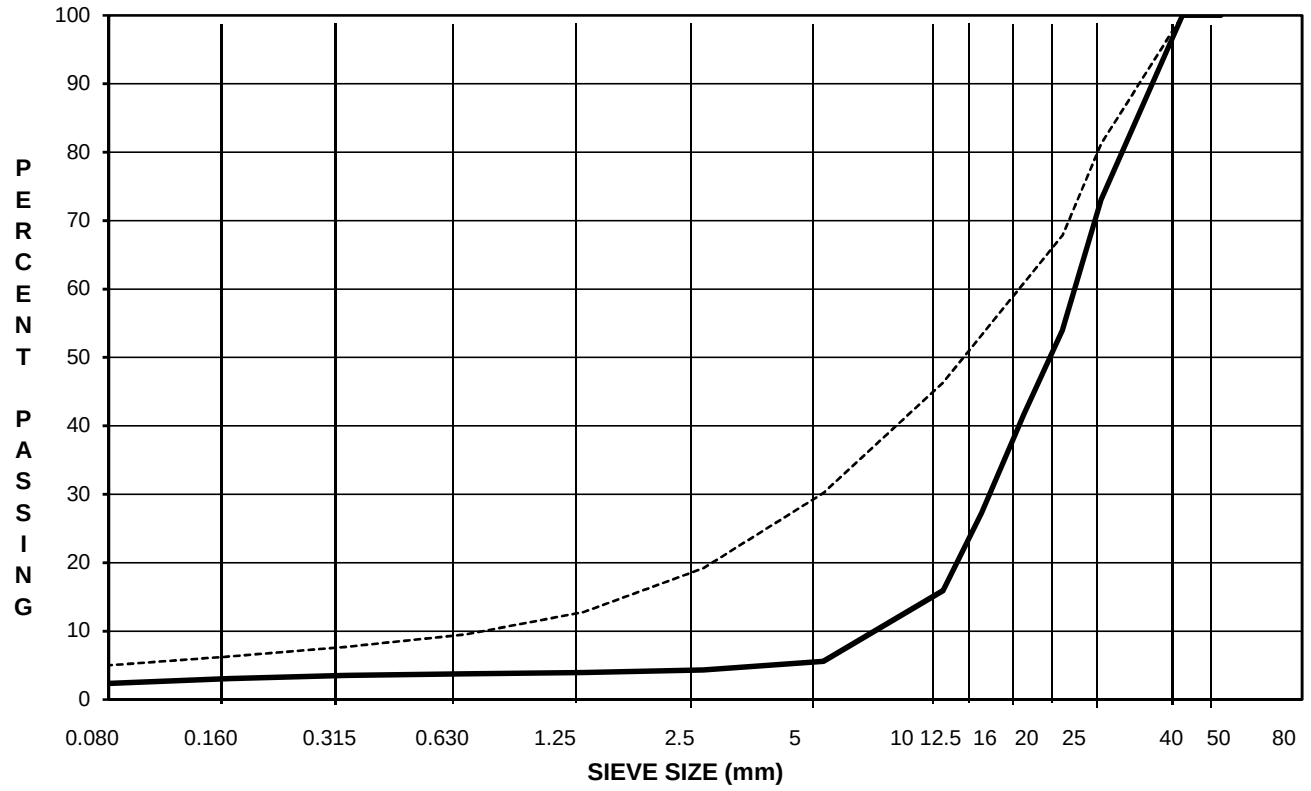
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**73**	**54**	**42**	**27**	**16**	**6**	**4**	**4**	**4**	**4**	**3.1**	**2.4**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA157 8:30
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 23, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.2%

Aggregate Gradation (% Passing)

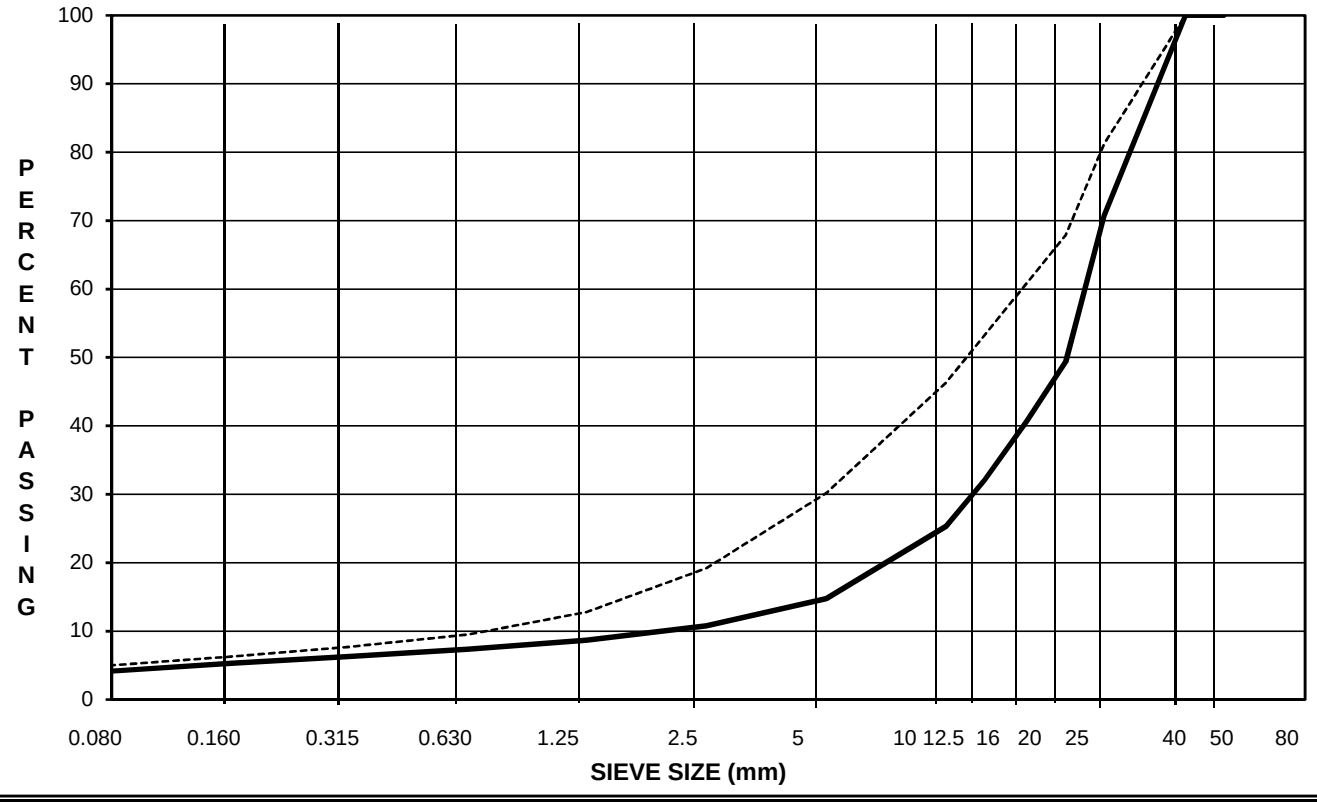
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**71**	**49**	**41**	**32**	**25**	**15**	**11**	**9**	**7**	**6**	**5.3**	**4.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA159
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 26, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.4%

Aggregate Gradation (% Passing)

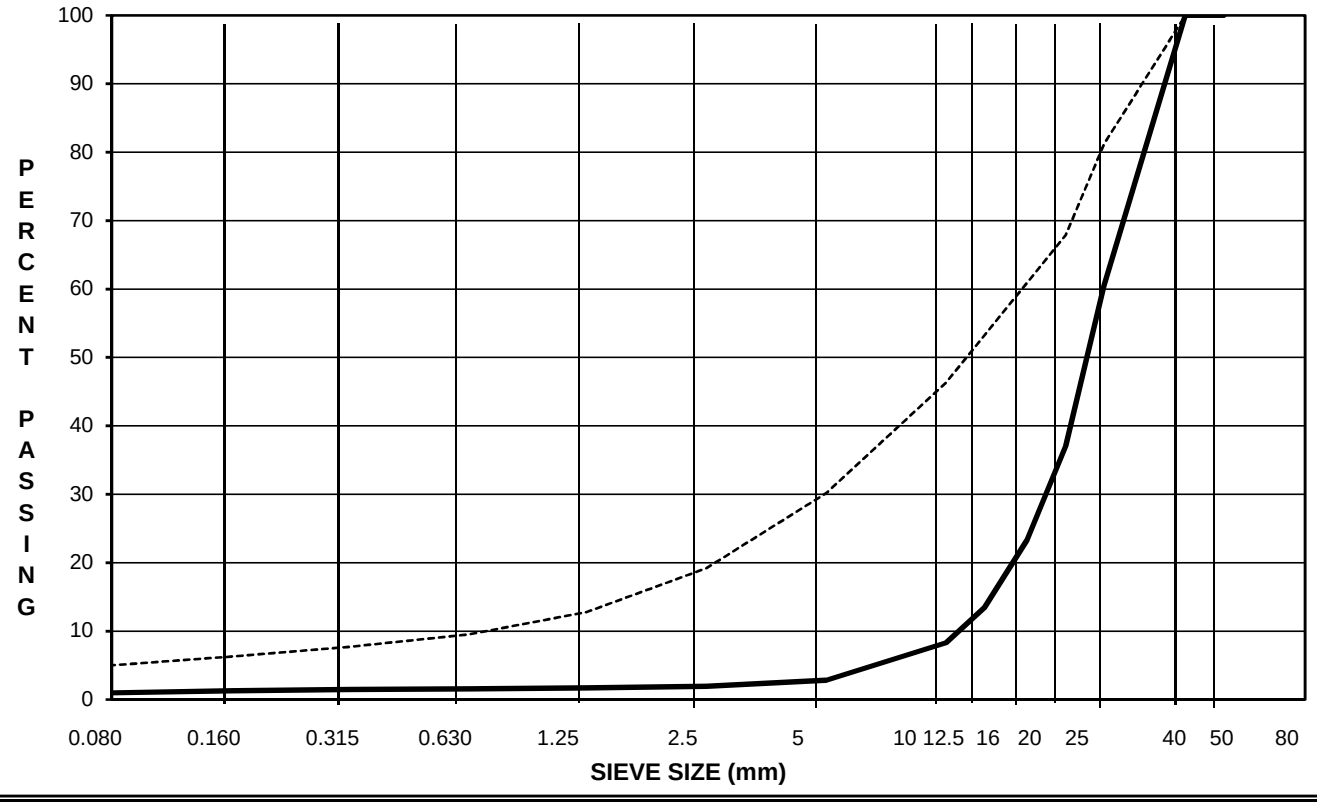
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**60**	**37**	**23**	**13**	**8**	**3**	**2**	**2**	**2**	**1**	**1.3**	**1.0**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA160 2:30
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 27, 2019
Client:	JDS	Sampled By:	Nightshift Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.5%

Aggregate Gradation (% Passing)

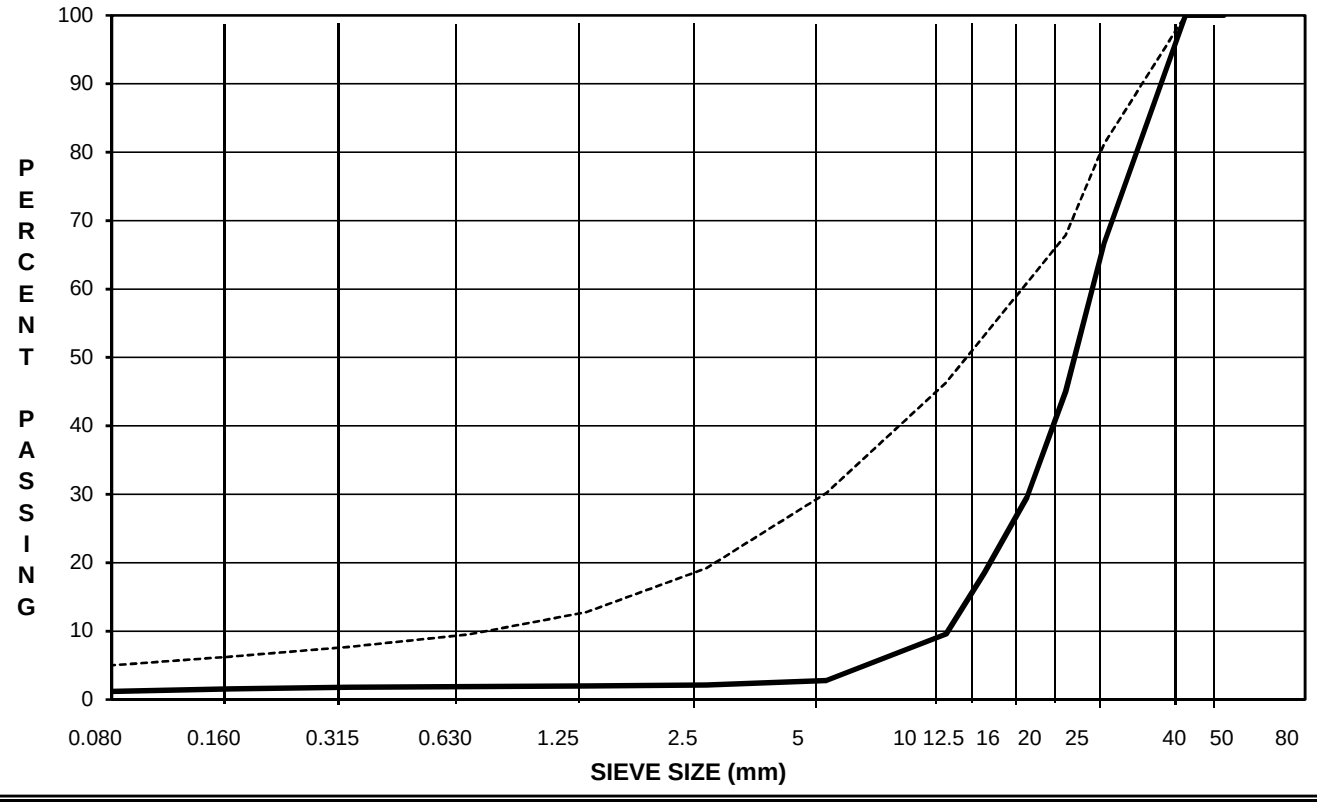
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**67**	**45**	**30**	**19**	**10**	**3**	**2**	**2**	**2**	**2**	**1.6**	**1.2**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA161 10:00
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 27, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.9%

Aggregate Gradation (% Passing)

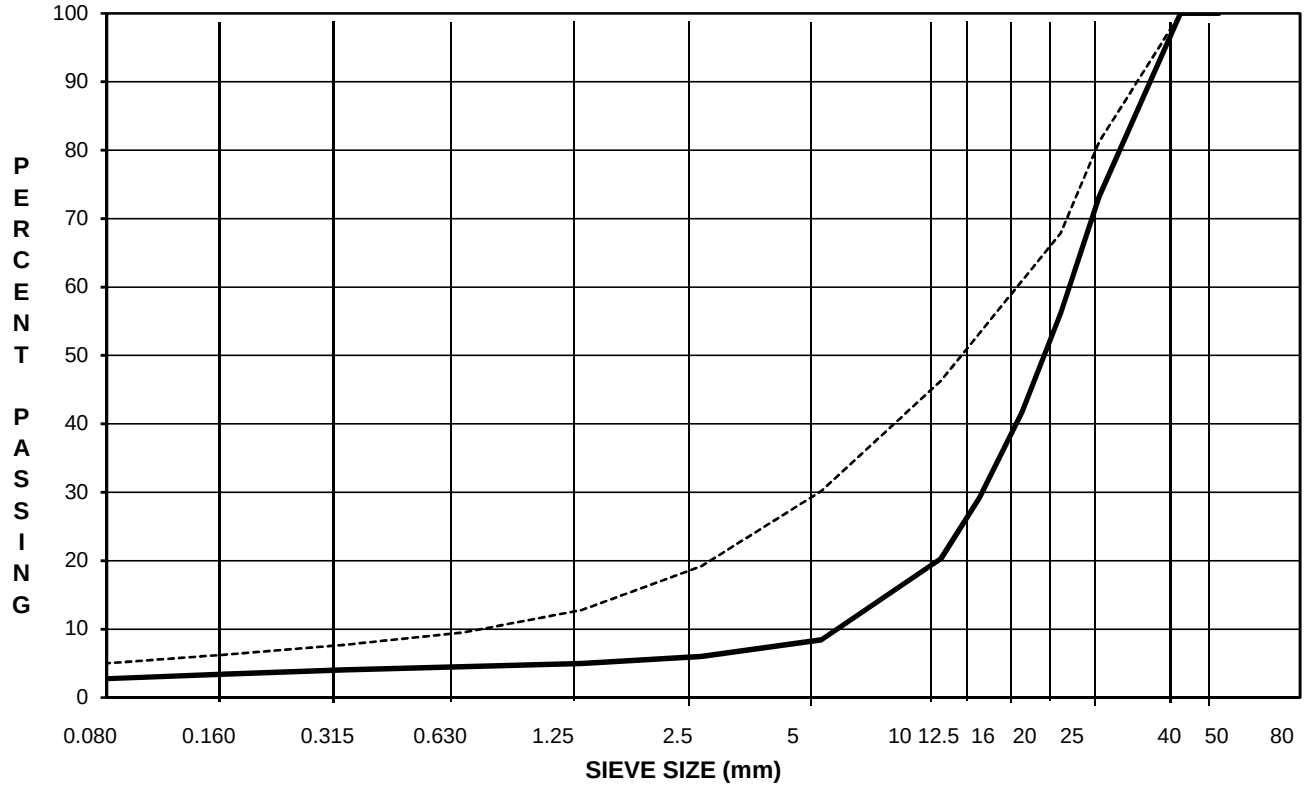
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**73**	**56**	**42**	**29**	**20**	**8**	**6**	**5**	**4**	**4**	**3.4**	**2.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA162 11:45
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 28, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	1.6%

Aggregate Gradation (% Passing)

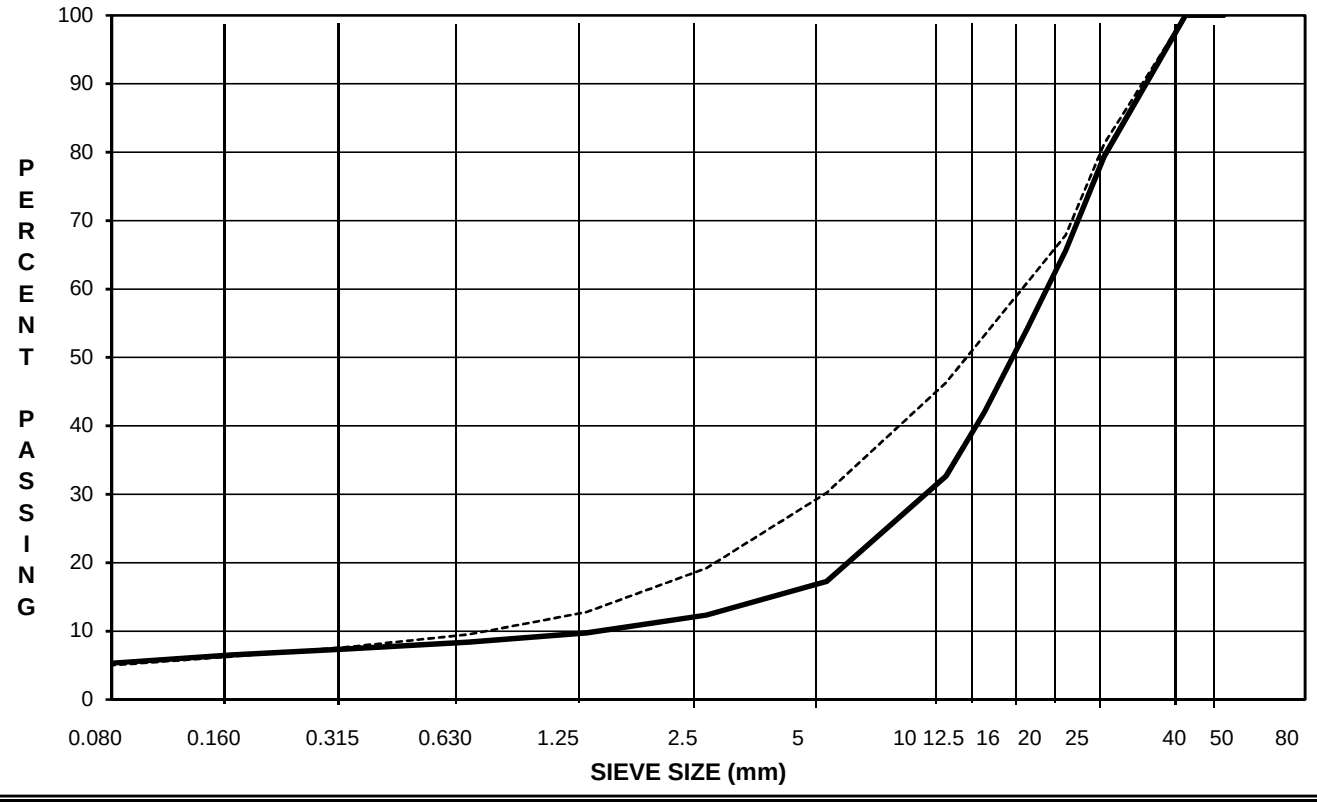
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**79**	**66**	**54**	**42**	**33**	**17**	**12**	**10**	**8**	**7**	**6.5**	**5.3**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA163 15:50
Project No.:	704-ENG.WARC03235-07	Date Sampled:	June 28, 2019
Client:	JDS	Sampled By:	JC Tested By: JC
Attention:	Mike Blusson & Calvin Goldschmidt	Specification:	See remarks
Description:	38 mm Minus ODF (Ore Crush)	Fracture (2 faces):	N/A
Location:	Block # 1285-01, Belt	Moisture Content:	0.9%

Aggregate Gradation (% Passing)

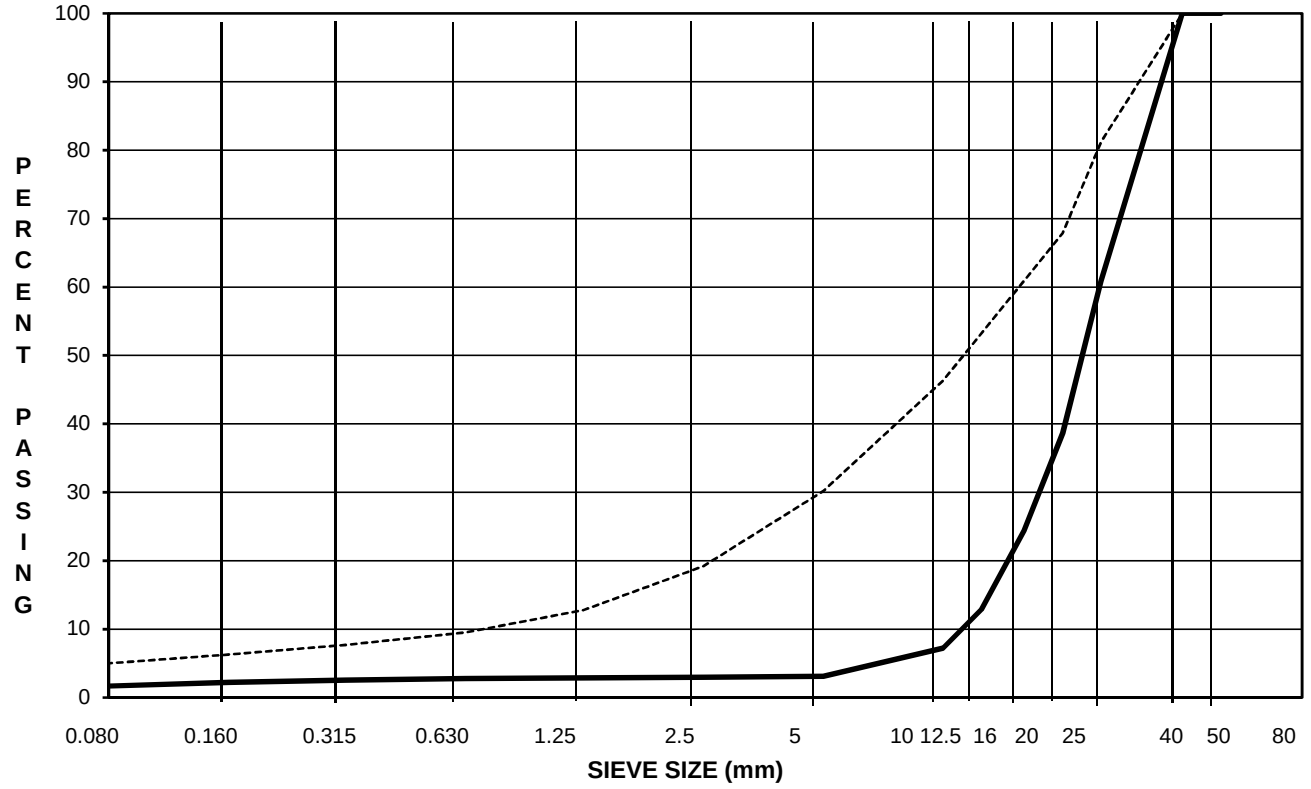
Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit	100	100	81.2	67.9			46.3	30.2	19.2	12.8	9.5	7.7	6.3	**5**
Lower Limit														**0**
Test Result	**100**	**100**	**61**	**39**	**24**	**13**	**7**	**3**	**3**	**3**	**3**	**3**	**2.2**	**1.7**

Remarks: 100% passing 38 mm

5% max passing No, 200 (080)

Upper limit is based off of permability limi

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	**SA1 to SA3 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 28 to 29, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	38 mm Minus Drain Rock
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.3%

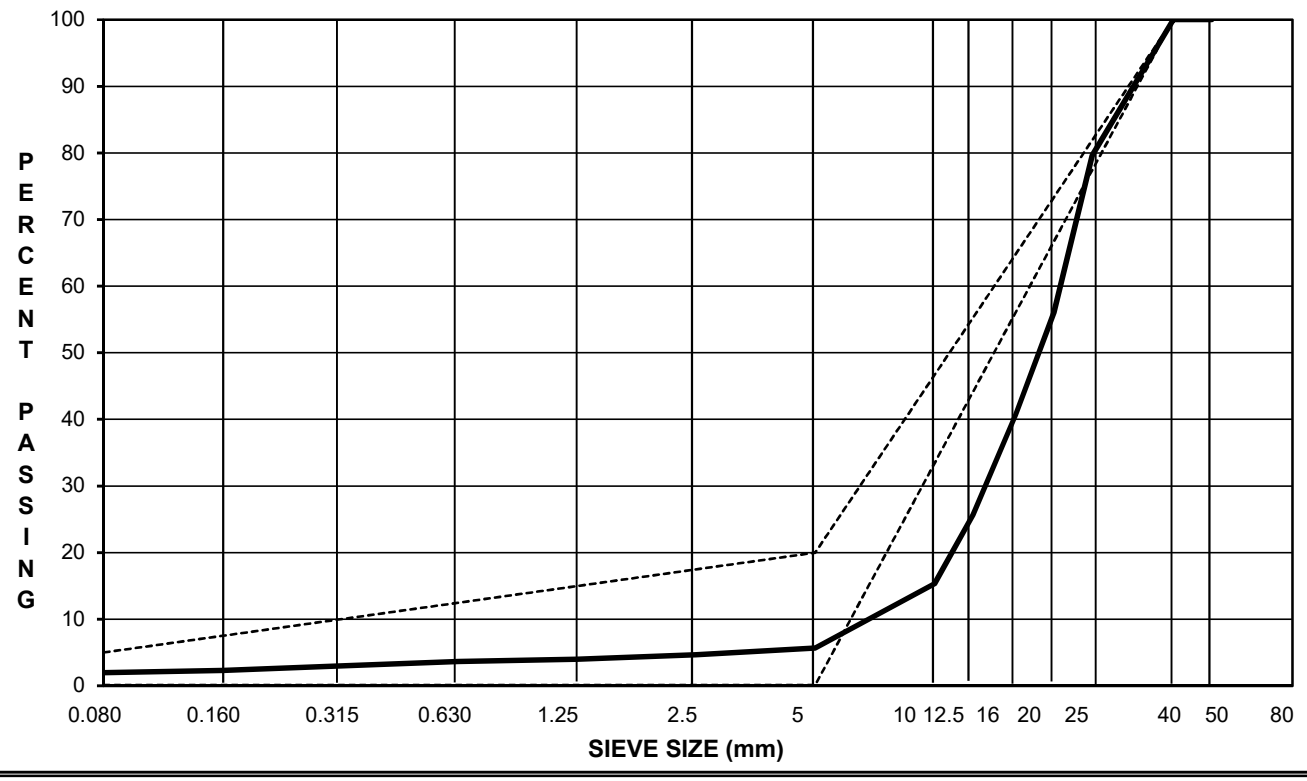
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**80**	**56**	**41**	**26**	**15**	**6**	**5**	**4**	**4**	**3**	**2.3**	**2.0**

Remarks: _____

_____

Reviewed By: _____ C.E.T.



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TETRA TECH

Material 5 Gradation

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	May 19 - 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Crusher Discharge Belt
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	20mm Concrete Mix Gradiation	Tested By:	JMP/JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
19-May	10:00	SA1	N/A	1.8	100	100	86	66	38	19	4	4	3	3	2.9	2.0
19-May	13:00	SA2	"	1.2	100	90	77	52	32	8	8	8	8	8	7.8	7.8
20-May	8:00	SA3	"	1.2	100	88	69	39	23	5	3	3	3	2	2.0	1.7
20-May	11:15	SA4	"	1.1	100	87	69	37	21	4	3	2	2	2	1.6	1.3
20-May	15:00	SA5	"	1.4	100	87	68	44	26	7	5	4	4	3	2.6	2.0
21-May	8:00	SA6	"	2.1	100	91	71	43	24	7	5	5	4	4	2.8	2.0
21-May	11:00	SA7	"	2.1	100	89	69	44	22	4	3	3	2	2	1.7	1.4
21-May	15:00	SA8	"	2.6	100	96	80	58	43	12	10	8	7	5	3.8	2.7
23-May	7:45	SA9	"	0.9	100	84	60	32	15	2	1	1	1	1	1.0	1.0
23-May	14:50	SA10	N/A	1.4	100	87	63	41	25	8	5	4	4	3	2.7	2.0
24-May	8:45	SA11	"	1.5	100	88	63	43	21	5	4	4	3	3	2.2	1.8
24-May	10:50	SA12	"	2.5	100	86	60	40	21	7	6	5	5	4	3.0	2.5
24-May	14:00	SA13	"	1.2	100	89	69	44	22	4	3	3	2	2	1.7	1.4
25-May	8:50	SA14	"	1.7	100	93	78	60	42	15	8	6	5	4	3.1	2.5
25-May	11:00	SA15	"	1.6	100	91	76	61	43	15	9	6	5	4	3.2	2.5
26-May	8:45	SA16	"	0.6	100	85	52	26	10	1	1	1	1	1	1.2	1.1
26-May	13:00	SA17	"	2.3	100	88	72	55	34	14	11	10	8	7	5.2	4.0
26-May	15:00	SA18	"	1.4	100	95	78	59	33	6	4	4	4	3	2.6	2.1
27-May	8:15	SA19	"	1.3	100	82	56	39	18	3	3	2	2	2	1.8	1.5
27-May	11:40	SA20	N/A	5.4	100	86	59	34	16	2	2	2	2	2	1.6	1.6
27-May	14:00	SA21	"	1.8	100	88	64	44	25	7	6	5	5	4	3.0	2.4
27-May	15:45	SA22	"	1.5	100	70	48	29	13	5	5	5	4	4	2.8	2.6
28-May	10:10	SA23	"	1.3	100	99	78	57	35	12	10	10	10	9	8.5	8.0
Average	-	-	-	1.7	100	89	68	46	26	8	5	5	4	4	3.0	2.5

SIEVE ANALYSIS REPORT

ASTM C136 & C117

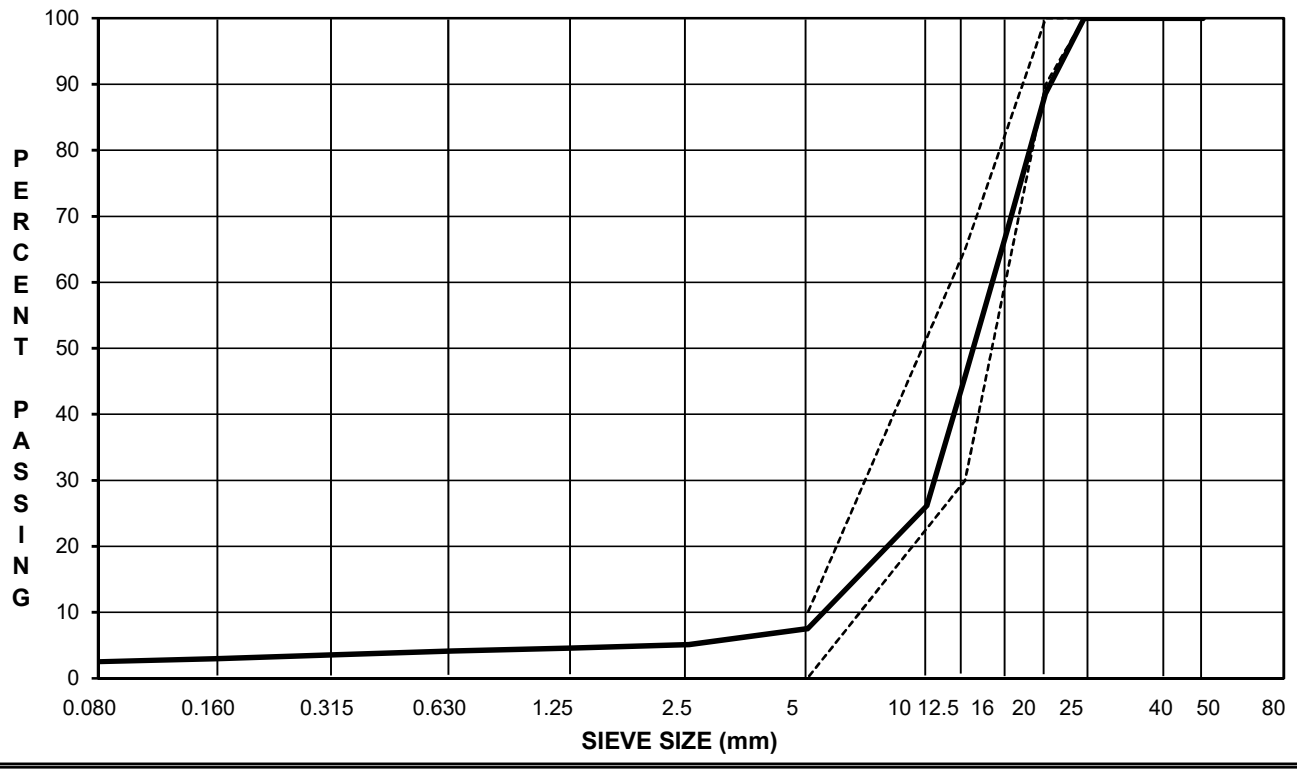
Project:	Eagle Gold Project	Sample Number:	**SA1 to SA23 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 19 to 28, 2018
Client:	JDS	Sampled By:	JMP/JB Tested By: JMP/JB
Attention:	Mr. Clint Abel	Specification:	25 mm Minus Concrete Mix Agg.
Description:	20 mm Concrete Mix Gradation	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	1.7%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit			100	100		65		10						
Lower Limit			100	90		30		0.1						
Test Result	**100**	**100**	**100**	**89**	**68**	**46**	**26**	**8**	**5**	**5**	**4**	**4**	**3.0**	**2.5**

Remarks: _____

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

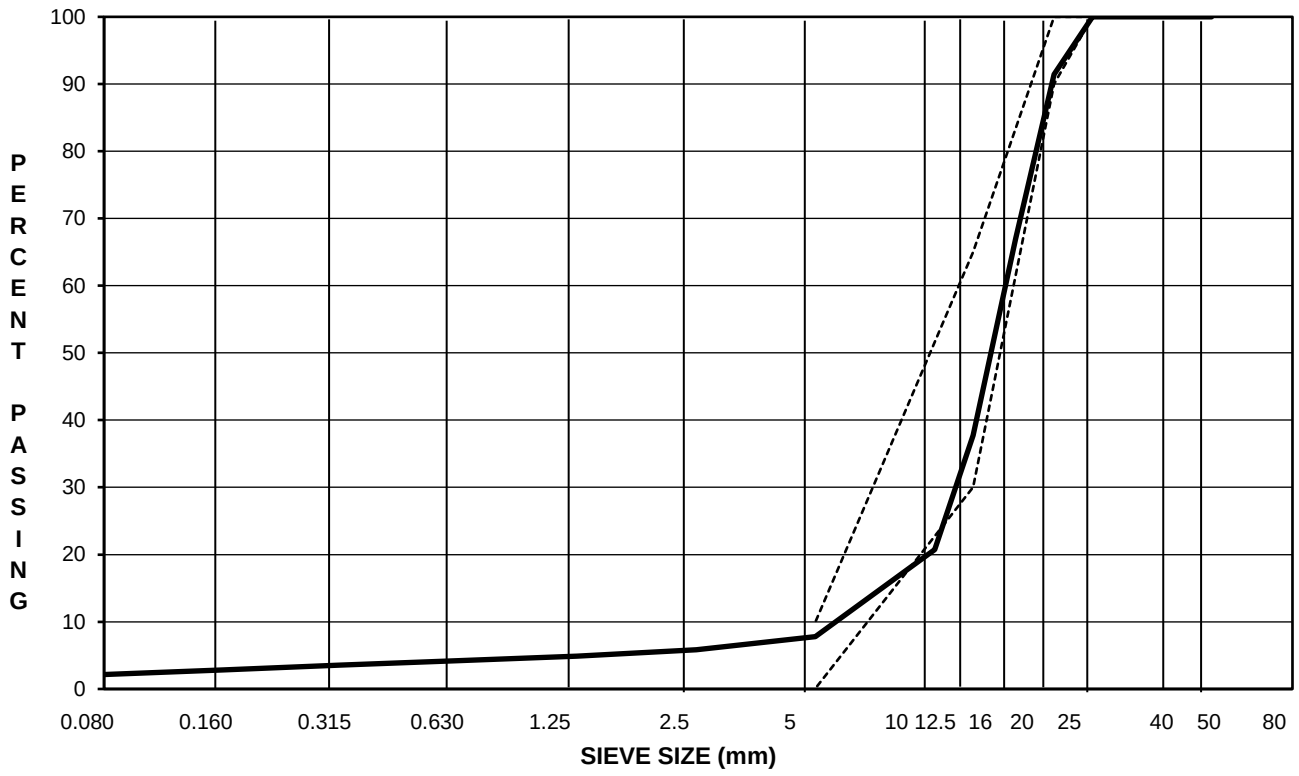
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA52 AVERAGE**
Project No.:	704-ENG.WARC03235-01	Date Sampled:	Production average 2017-2018
Client:	JDS	Sampled By:	JSB/JMP Tested By: JB/JP
Attention:	Mr. Roman Bilobrowka	Specification:	Concrete coarse Agg.
Description:	20 mm Concrete Mix Gradation	Fracture (2 faces):	
Location:	Crusher Discharge Belt	Moisture Content:	1.6%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit			100	100		65		10						
Lower Limit			100	90		30		0.1						
Test Result	**100**	**100**	**100**	**91**	**67**	**38**	**21**	**8**	**6**	**5**	**4**	**4**	**2.9**	**2.1**

Remarks: In spec

Reviewed By: C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Dublin Gulch Mine
Services:	Geotechnical QC Testing
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)
Aggregate Type:	20mm Concrete Mix Gradiation
Sampled From:	Crusher Discharge Belt
Conctractor:	Nuway Crushing
Soils Technician:	JSB/RO/JMP

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
14-Sep	9:45	SA1	-	1.8	100	100	92	58	32	8	6	5	5	5	3.5	2.6
15-Sep	9:45	SA2	-	1.9	100	100	85	51	23	7	5	5	5	4	3	2.6
15-Sep	16:00	SA3	-	1.6	100	100	80	34	11	2	2	2	2	2	1.4	1.1
16-Sep	10:00	SA4	-	1.6	100	100	76	36	15	3	2	2	2	2	1.7	1.3
17-Sep	8:20	SA5	-	1.2	100	100	56	20	7	3	3	3	2	2	1.9	1.5
17-Sep	10:40	SA6	-	1.1	100	100	68	24	9	3	3	3	3	2	2.1	1.8
18-Sep	8:20	SA7	-	1.1	100	90	52	18	5	2	2	2	2	2	1.5	1.2
18-Sep	10:40	SA8	-	2.1	100	96	85	54	40	21	15	11	9	7	5.2	3.7
18-Sep	14:15	SA9	-	1.3	100	95	78	43	24	7	4	4	4	3	2.8	2.2
18-Sep	16:45	SA10	-	1	100	93	70	28	9	2	2	2	2	1	1.3	1.1
19-Sep	8:20	SA11	-	1.2	100	90	61	25	11	3	2	2	2	2	1.8	1.4
19-Sep	10:30	SA12	-	1.2	100	93	55	25	10	3	2	2	2	2	1.8	1.5
20-Sep	10:30	SA13	-	1.5	100	90	56	20	8	3	2	2	2	2	1.7	1.3
21-Sep	8:20	SA14	-	1.9	100	93	67	36	26	16	11	8	7	5	3.9	2.8
21-Sep	2:00	SA15	-	2.4	100	91	68	44	21	16	12	9	7	6	4.8	3.3
21-Sep	4:40	SA16	-	2.5	100	95	77	57	43	27	19	14	10	10	7.0	5.0
28-Sep	17:00	SA17		1.2	100	91	52	15	4	2	2	2	2	2	1.8	1.3
29-Sep	10:00	SA18		1.8	100	98	63	26	11	4	4	4	3	3	2.1	1.4
29-Sep	16:50	SA19		1.6	100	91	63	37	20	9	6	5	4	3	2.5	1.7
30-Sep	14:00	SA20		0.8	100	86	34	10	4	1	1	1	1	1	0.9	0.7
01-Oct	11:30	SA21		1.2	100	98	63	21	7	3	3	3	2	2	1.8	1.3
02-Oct	14:45	SA22		1.6	100	90	61	31	13	5	4	3	3	3	2.0	1.4
03-Oct	9:45	SA23		1.1	100	84	54	20	6	1	1	1	1	1	0.7	0.6
03-Oct	13:45	SA24		1.1	100	83	55	23	12	2	2	2	2	2	1.3	1.0
04-Oct	10:00	SA25		1.7	100	92	75	54	29	9	6	5	4	4	2.8	2.2
04-Oct	13:00	SA26		1.6	100	86	61	38	20	10	7	6	5	4	2.7	1.9
04-Oct	15:00	SA27		2.2	100	93	75	55	40	22	16	12	8	6	3.8	2.2
05-Oct	11:00	SA28		1.1	100	93	59	32	16	3	3	3	2	2	1.8	1.4
05-Oct	13:30	SA29		1.9	100	88	63	45	27	12	9	7	6	5	3.3	2.5
05-Oct	16:30	SA30		0.9	100	92	57	27	10	1	1	1	1	1	0.9	0.7
11-Oct	9:00	SA31		1.5	100	86	63	37	16	4	4	3	3	3	2.1	1.6
11-Oct	10:30	SA32		1.7	100	91	74	51	30	10	7	6	5	4	3.3	2.3
11-Oct	13:30	SA33		2.4	100	86	71	54	40	21	15	12	9	7	5	3.2
11-Oct	15:15	SA34		2.4	100	91	73	54	41	24	17	13	10	7	5.3	3.6
11-Oct	16:30	SA35		2.0	100	95	76	52	31	12	8	7	6	5	3.7	2.6
12-Oct	8:15	SA36		2.3	100	89	60	32	15	4	4	4	4	3	2.8	2.3
12-Oct	10:15	SA37		3.3	100	94	80	60	43	21	16	13	11	9	6.8	5.2
12-Oct	13:30	SA38		1.7	100	91	71	46	29	11	7	5	5	4	3.1	2.2
12-Oct	15:00	SA39		1.5	100	87	66	37	18	4	4	4	4	3	2.9	2.1
12-Oct	16:30	SA40		1.3	100	87	61	32	14	3	3	2	2	2	2.0	1.5
13-Oct	8:45	SA41		1.5	100	84	56	23	10	3	3	3	3	2	2.4	1.8
13-Oct	10:00	SA42		1.5	100	85	56	24	10	3	3	3	3	2	2.0	1.7
13-Oct	11:15	SA43		2.3	100	95	80	51	27	9	8	7	6	5	4.1	3.3
13-Oct	14:30	SA44		1.6	100	91	73	47	26	6	4	3	3	3	2.4	1.9
19-May	10:00	SA45	N/A	1.2	100	86	66	38	19	4	4	3	3	3	2.9	2.0
19-May	13:00	SA46	"	1.2	100	90	77	52	32	8	8	8	8	8	7.8	7.8
20-May	8:00	SA47	"	1.2	100	88	69	39	23	5	3	3	3	2	2.0	1.7
20-May	11:15	SA48	"	1.1	100	87	69	37	21	4	3	2	2	2	1.6	1.3
20-May	15:00	SA49	"	1.4	100	87	68	44	26	7	5	4	4	3	2.6	2.0
21-May	8:00	SA50	"	2.1	100	91	71	43	24	7	5	5	4	4	2.8	2.0

21-May	11:00	SA51	"	2.1	100	90	70	46	29	11	8	7	6	4	3.1	2.3
21-May	15:00	SA52	"	2.6	100	96	80	58	43	12	10	8	7	5	3.8	2.7
Average	-	-	-	1.6	100	91	67	38	21	8	6	5	4	4	2.9	2.1

SIEVE ANALYSIS REPORT

ASTM C136 & C117

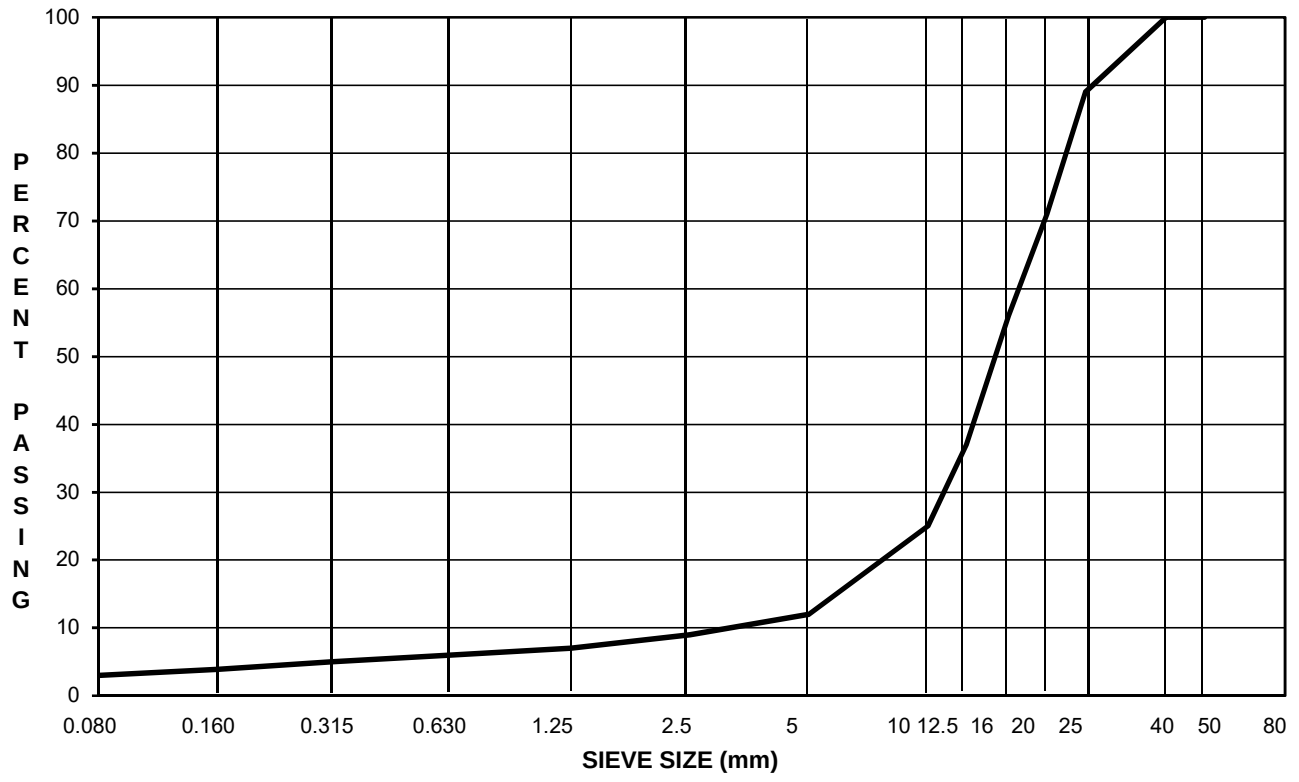
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA2 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	October 14, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	See Remarks
Description:	20 mm Concrete Mix Gradation	Fracture (2 faces):	
Location:	Crusher Discharge Belt	Moisture Content:	2.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**89**	**71**	**56**	**37**	**25**	**12**	**9**	**7**	**6**	**5**	**3.9**	**3.0**

Remarks: 100% Passing 38 mm; Less than 20% Passing No. 4 (5000); Less than 5% Passing No. 200 (80)

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Dublin Gulch Mine
Services:	Geotechnical QC Testing
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)
Aggregate Type:	38mm Minus Drain Rock
Sampled From:	Crusher Discharge Belt
Conctractor:	Nuway Crushing
Soils Technician:	JSB

		Sample				% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	40.000	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
14-Oct	13:30	SA1	-	2.2	100	87	74	58	37	25	12	9	7	6	5	3.5	2.8
	14:30	SA2	-	2.6	100	90.2	67.2	53.7	37.2	25.4	12.1	9.4	7.9	6.9	5.6	4.3	3.1
Average	-	-	-	2.4	100	89	71	56	37	25	12	9	7	6	5	3.9	3.0

SIEVE ANALYSIS REPORT

ASTM C136 & C117

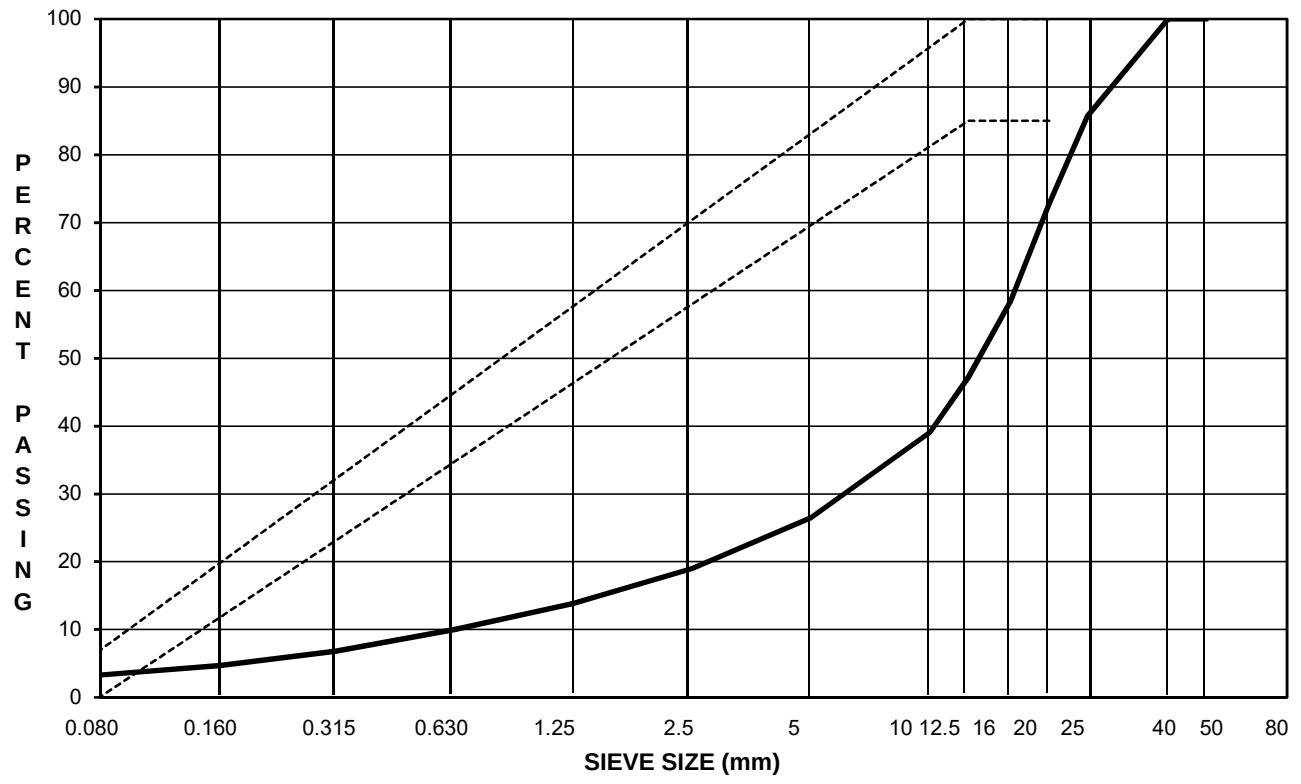
Project:	Dublin Gulch Project	Sample Number:	**SA1**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	October 16, 2017
Client:	JDS	Sampled By:	JSB Tested By: RM
Attention:	Mr. Roman Bilobrowka	Specification:	BGC Specification
Description:	Select Drain Fill	Fracture (2 faces):	
Location:	Steiner Deposit	Moisture Content:	0.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit				100		100								7
Lower Limit				85		85								0.1
Test Result	**100**	**100**	**86**	**73**	**58**	**47**	**39**	**27**	**19**	**14**	**10**	**7**	**4.7**	**3.3**

Remarks: SDF Spec: 20 mm - 100% passing; 12.5 mm - 85 - 100%; No. 200 - 0-7%

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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

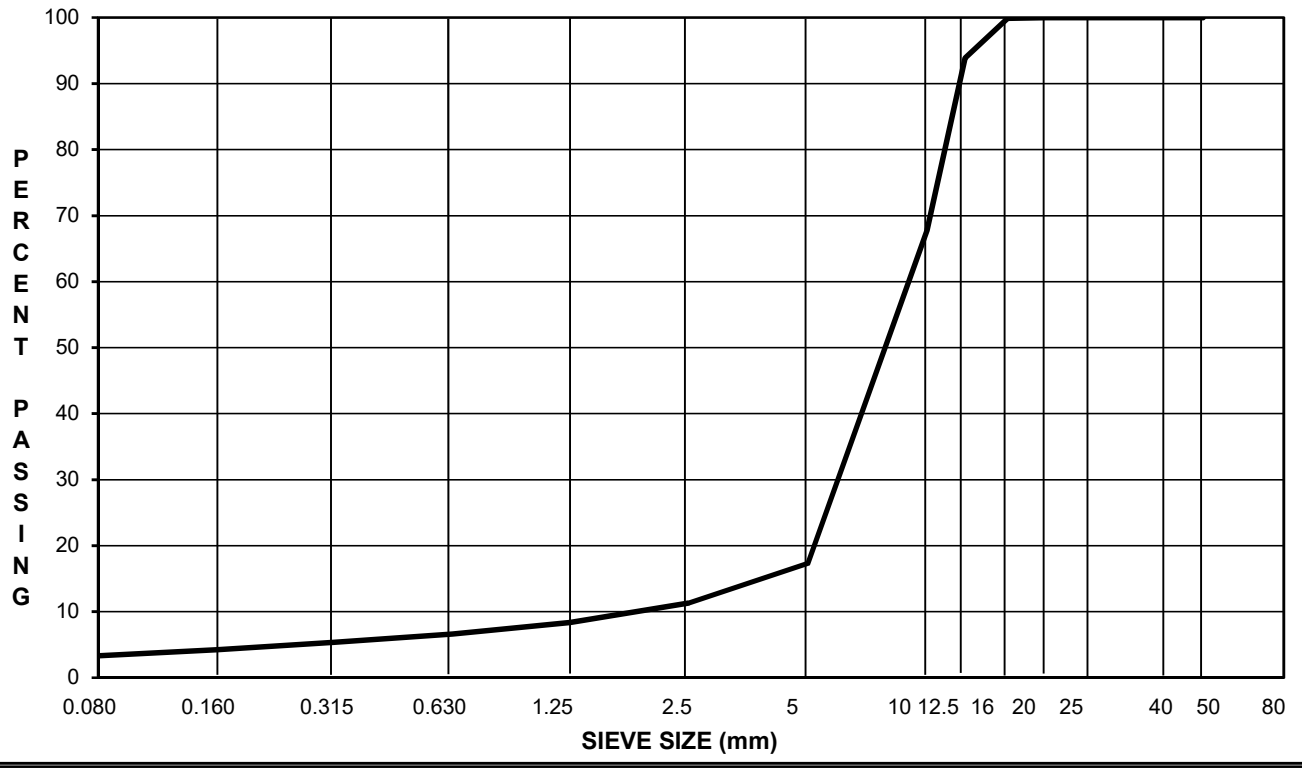
Project:	Dublin Gulch Project	Sample Number:	**SA1A, SA1B & SA1C AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 29, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Roman Bilobrowka	Specification:	See remarks
Description:	Select Drain Fill	Fracture (2 faces):	N/A
Location:	2017 Stockpile	Moisture Content:	3.1%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**94**	**68**	**17**	**11**	**8**	**7**	**5**	**4.2**	**3.3**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	May 25 - 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	2017 Stockpile
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Select Drain Fill 2017 Stockpile	Tested By:	JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
25-May	15:00	SA1 - A	N/A	2.8	100	100	100	95	72	13	8	6	5	5	3.6	2.8
26-May	15:05	SA1 - B	"	2.7	100	100	100	97	74	21	13	9	7	5	4.2	3.4
28-May	15:10	SA1 - C	"	3.7	100	100	100	90	58	17	13	9	7	6	4.9	3.8
28-May																
28-May																
29-May																
29-May																
Average	-	-	-	3.1	100	100	100	94	68	17	11	8	7	5	4.2	3.3

SIEVE ANALYSIS REPORT

ASTM C136 & C117

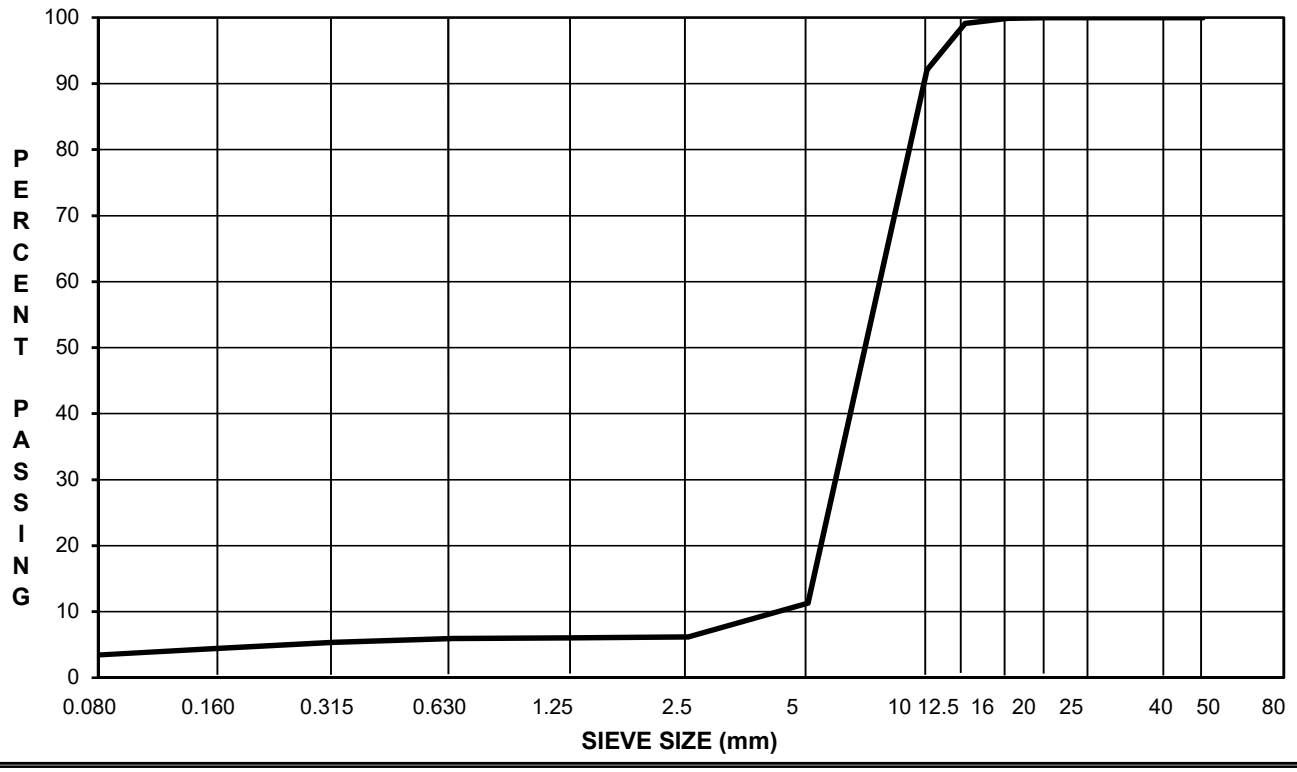
Project:	Eagle Gold Project	Sample Number:	**SA1 to SA5 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 25, to 28, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	See remarks
Description:	12.5 mm Minus SDF	Fracture (2 faces):	N/A
Location:	Crusher Discharge Belt	Moisture Content:	2.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**99**	**92**	**11**	**6**	**6**	**6**	**5**	**4.5**	**3.4**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	May 25 - 28, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Screen Deck Discharge Stockpile
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Select Drain Fill	Tested By:	JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
25-May	9:30	SA1	N/A	6.7	100	100	100	99	89	13	9	9	9	7	5.7	4.2
26-May	16:25	SA2	"	2.1	100	100	100	100	96	11	6	6	6	6	5.0	3.7
28-May	9:00	SA3	"	1.7	100	100	100	99	93	12	5	5	5	5	4.0	3.0
28-May	14:10	SA4	"	1.7	100	100	99	98	92	8	3	3	3	3	2.8	2.2
28-May	16:20	SA5	"	2.3	100	100	100	99	89	14	7	7	7	6	4.9	4.0
Average	-	-	-	2.9	100	100	100	99	92	11	6	6	6	5	4.5	3.4

SIEVE ANALYSIS REPORT

ASTM C136 & C117

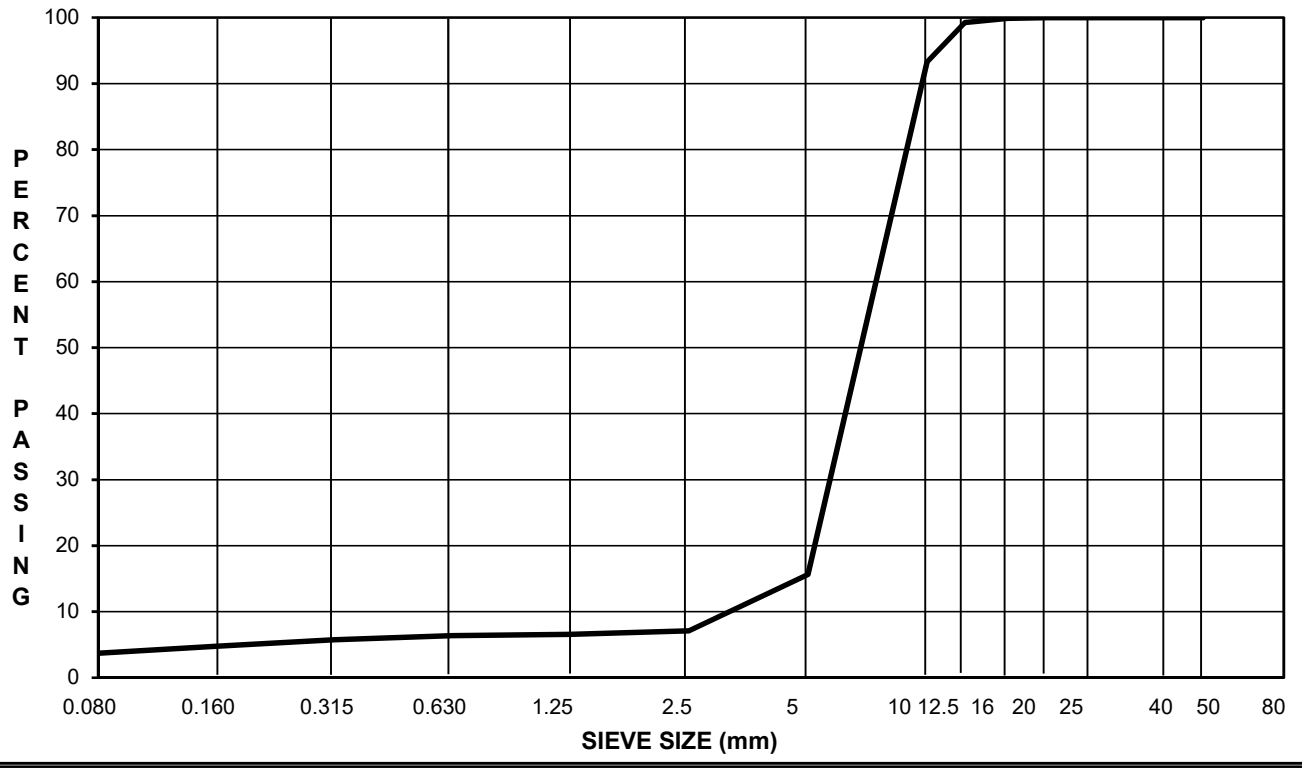
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA9 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 25 to 31, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Roman Bilobrowka	Specification:	See remarks
Description:	12.5 mm Minus Select Drain Fill	Fracture (2 faces):	N/A
Location:		Moisture Content:	3.0%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**99**	**93**	**16**	**7**	**7**	**6**	**6**	**4.8**	**3.7**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Eagle Gold Project	Dates:	May 25 - 31, 2018
Services:	2018 Geotechnical QC Services	Sampled From:	Screen Deck Discharge Stockpile
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)	Contractor:	Nuway Crushing Ltd.
Aggregate Type:	12.5 mm Minus Select Drain Fill	Tested By:	JB

		Sample			% PASSING (mm)											
Date	Time	No.	% F.F.	% M.	25.000	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
25-May	9:30	SA1	N/A	6.7	100	100	100	99	89	13	9	9	9	7	5.7	4.2
26-May	16:25	SA2	"	2.1	100	100	100	100	96	11	6	6	6	6	5.0	3.7
28-May	9:00	SA3	"	1.7	100	100	100	99	93	12	5	5	5	5	4.0	3.0
28-May	14:10	SA4	"	1.7	100	100	99	98	92	8	3	3	3	3	2.8	2.2
28-May	16:20	SA5	"	2.3	100	100	100	99	89	14	7	7	7	6	4.9	4.0
29-May	8:50	SA6	"	3.2	100	100	100	99	92	33	13	11	10	9	6.6	4.8
29-May	13:30	SA7	"	4.3	100	100	100	100	97	23	8	7	7	7	5.5	4.3
30-May	13:15	SA8	"	3.2	100	100	99	99	96	9	5	5	5	5	4.2	3.2
31-May	10:30	SA9	"	1.7	100	100	100	100	95	19	7	6	5	5	4.6	4.0
Average	-	-	-	3.0	100	100	100	99	93	16	7	7	6	6	4.8	3.7

SIEVE ANALYSIS REPORT

ASTM C136 & C117

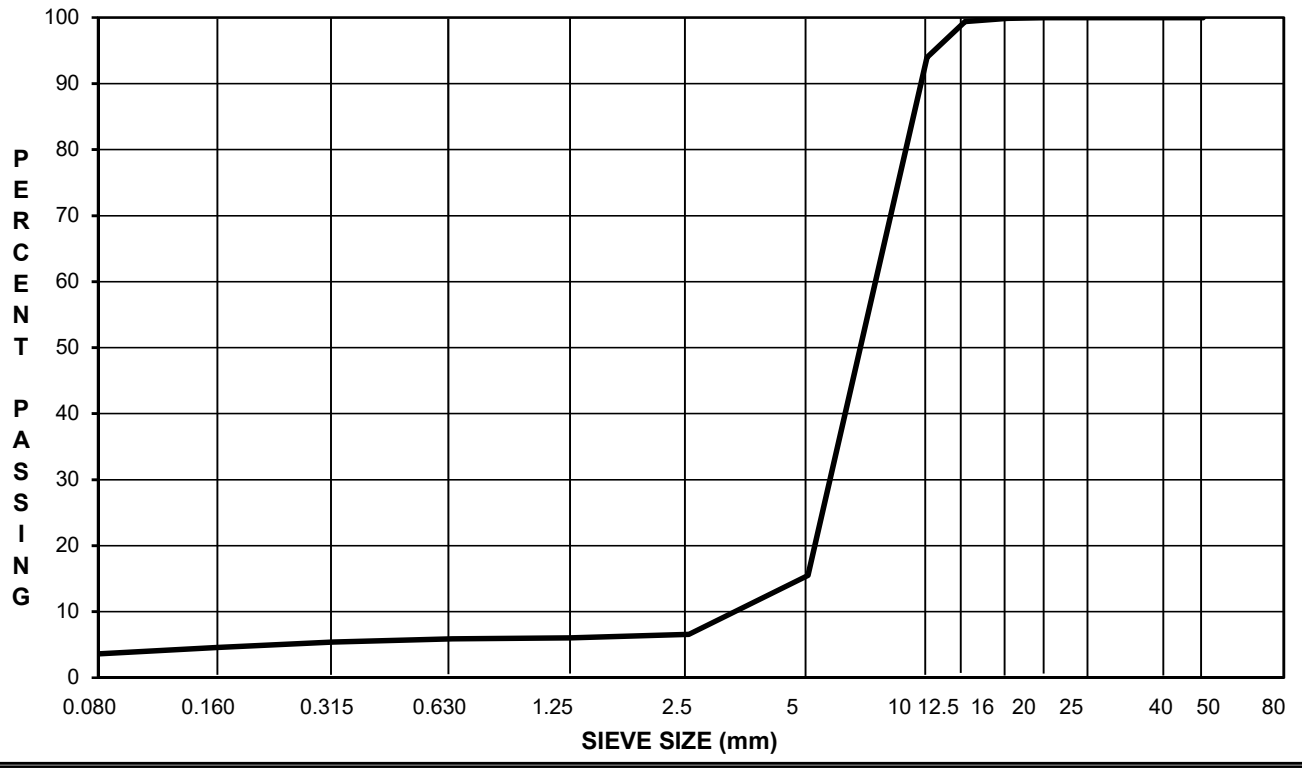
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA14 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 25 to June 4, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Roman Bilobrowka	Specification:	See remarks
Description:	12.5 mm Minus Select Drain Fill	Fracture (2 faces):	N/A
Location:	Screened Stockpile	Moisture Content:	2.6%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**99**	**94**	**15**	**7**	**6**	**6**	**5**	**4.6**	**3.6**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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ASTM C136 & C117

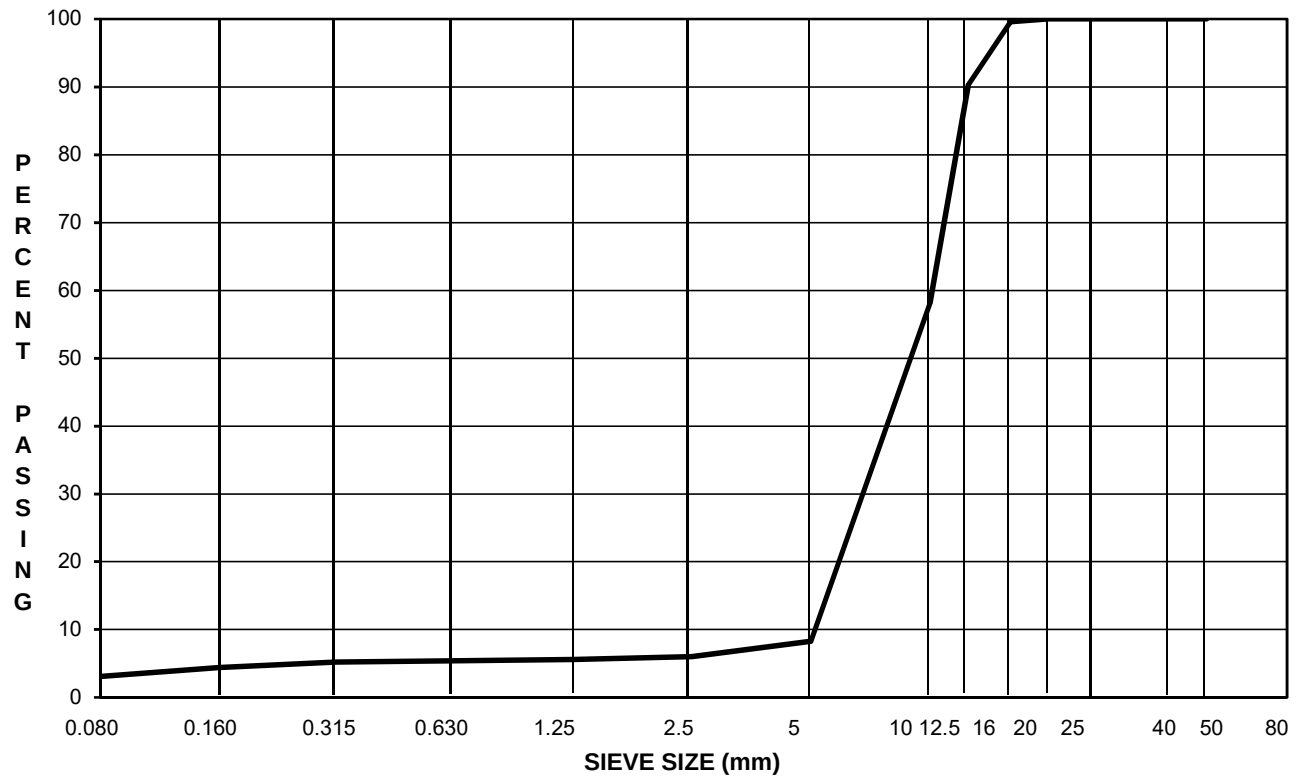
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA16 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 21, 2017
Client:	JDS	Sampled By:	JSB/RO Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	See remarks
Description:	Select Drain Fill	Fracture (2 faces):	
Location:		Moisture Content:	2.2%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**90**	**58**	**8**	**6**	**6**	**5**	**5**	**4.4**	**3.1**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

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SIEVE ANALYSIS REPORT

ASTM C136 & C117

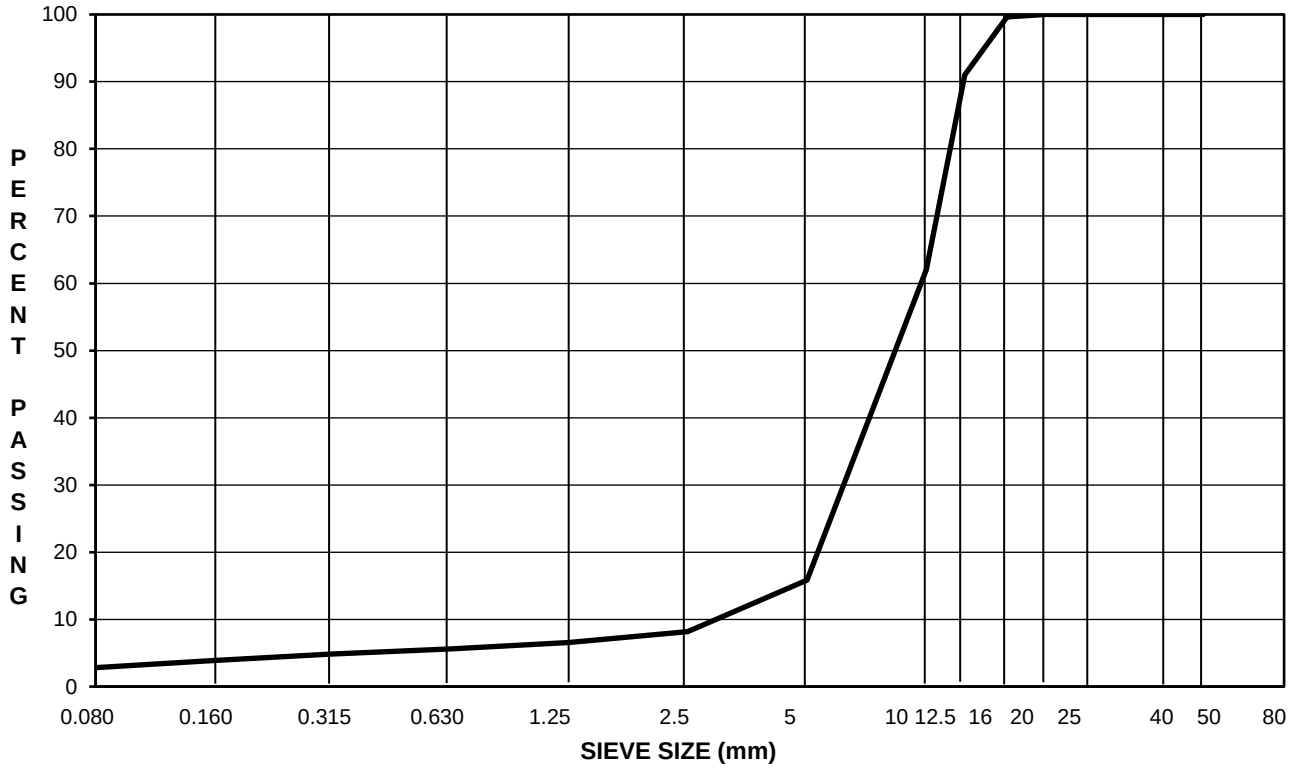
Project:	Dublin Gulch Project	Sample Number:	**SA1 to SA24 AVERAGE**
Project No.:	704-ENG.WARC03532-01	Date Sampled:	October 3, 2017
Client:	JDS	Sampled By:	JSB/RO Tested By: JB/RO
Attention:	Mr. Roman Bilobrowka	Specification:	See remarks
Description:	Select Drain Fill	Fracture (2 faces):	
Location:		Moisture Content:	2.1%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**91**	**62**	**16**	**8**	**7**	**6**	**5**	**3.9**	**2.8**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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TETRA TECH

Summary - Grainsize Analysis

Project:	Dublin Gulch Mine
Services:	Geotechnical
Client:	Victoria Gold (Strata Gold, JDS Energy and Mining)
Aggregate Type:	Underground Pipe Bedding Material & Select Drain Fill
Sampled From:	Crusher Discharge Belt
Conctractor:	Nuway Crushing
Soils Technician:	JSB/RO

Date	Time	Sample No.	% F.F.	% M.	20.000	16.000	12.500	10.000	5.000	2.500	1.250	0.630	0.315	0.160	0.080
14-Sep	9:45	SA1	-	2.5	100	100	100	95	32	11	9	8	7	5.1	3.5
15-Sep	9:45	SA2	-	3.6	100	100	100	96	45	23	16	14	12	9.5	6.8
15-Sep	16:00	SA3	-	2.1	100	100	99	93	13	7	7	6	6	5.3	4.1
16-Sep	10	SA4	-	2.6	100	100	99	92	22	11	9	8	8	6.4	5.1
17-Sep	8:20	SA5	-	1.2	100	100	87	44	5	2	2	2	2	1.2	0.4
17-Sep	10:40	SA6	-	1.2	100	100	83	37	33	3	3	3	3	2.3	1.2
18-Sep	8:20	SA7	-	1.3	100	99	80	28	21	2	2	2	2	1.7	1.4
18-Sep	10:40	SA8	-	1.5	100	100	92	58	6	3	3	3	3	2.6	2.1
18-Sep	14:15	SA9	-	1.5	100	100	88	49	4	3	3	3	2	2.2	1.9
18-Sep	16:45	SA10	-	2.4	100	100	91	59	17	12	10	8	6	5.0	3.8
19-Sep	8:25	SA11	-	2.3	100	100	89	45	5	4	4	4	4	3.1	2.4
19-Sep	10:30	SA12	-	2.3	100	100	93	66	25	16	12	9	7	6.0	4.5
20-Sep	8:50	SA13	-	4.0	100	98	88	46	4	4	3	3	3	2.8	2.2
21-Sep	8:20	SA14	-	1.8	100	98	76	32	4	4	4	4	3	3.0	2.3
21-Sep	14:00	SA15	-	2.4	100	100	82	59	7	5	5	5	4	3.6	2.4
21-Sep	16:40	SA16	-	2.1	100	100	90	58	8	6	6	5	5	4.4	3.1
28-Sep	17:00	SA17		1.6	100	100	88	51	4	3	3	3	3	2.6	2.0
29-Sep	10:00	SA18		2.9	100	100	97	84	37	21	14	10	8	5.5	3.7
29-Sep	16:50	SA19		2.5	100	100	88	54	7	7	7	6	6	4.3	2.7
30-Sep	14:00	SA20		1.3	100	100	90	54	4	2	2	2	2	1.7	1.5
1-Oct	11:30	SA21		1.8	100	100	97	74	11	7	6	5	5	3.5	2.4
2-Oct	14:45	SA22		3.3	100	100	99	90	51	34	23	16	11	7.3	4.9
3-Oct	9:45	SA23		1.6	100	100	93	58	5	3	3	2	2	1.9	1.6
3-Oct	13:45	SA24		1.4	100	100	96	69	11	5	4	3	3	2.4	1.7
Average	-	-	-	2.1	100	100	91	62	16	8	7	6	5	3.9	2.8

SIEVE ANALYSIS REPORT

ASTM C136 & C117

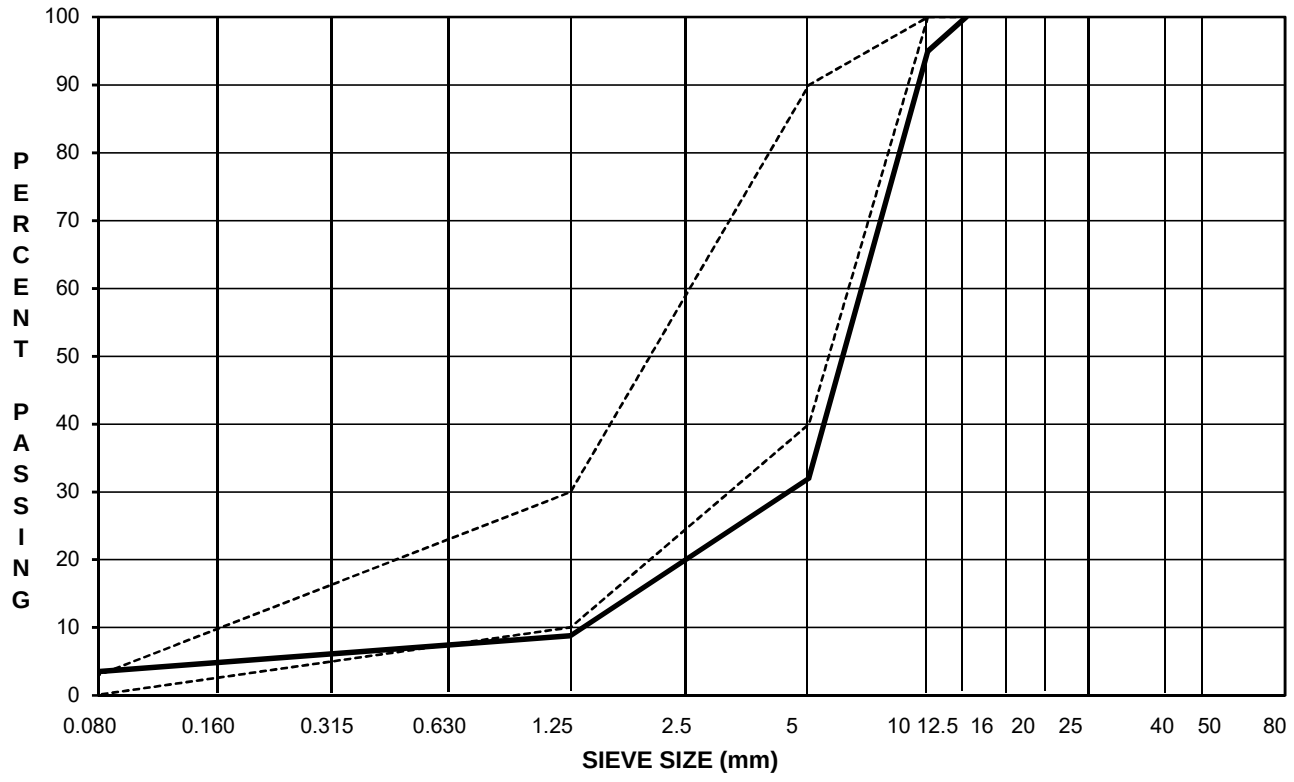
Project:	Dublin Gulch Project	Sample Number:	SA1 - 0945 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 14, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	2.5%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	100	80
Upper Limit						100	100	90		30				3
Lower Limit							100	40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**95**	**32**	**11**	**9**	**8**	**7**	**5.1**	**3.5**

Remarks: Only specified sieves have been plotted

Reviewed By: C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

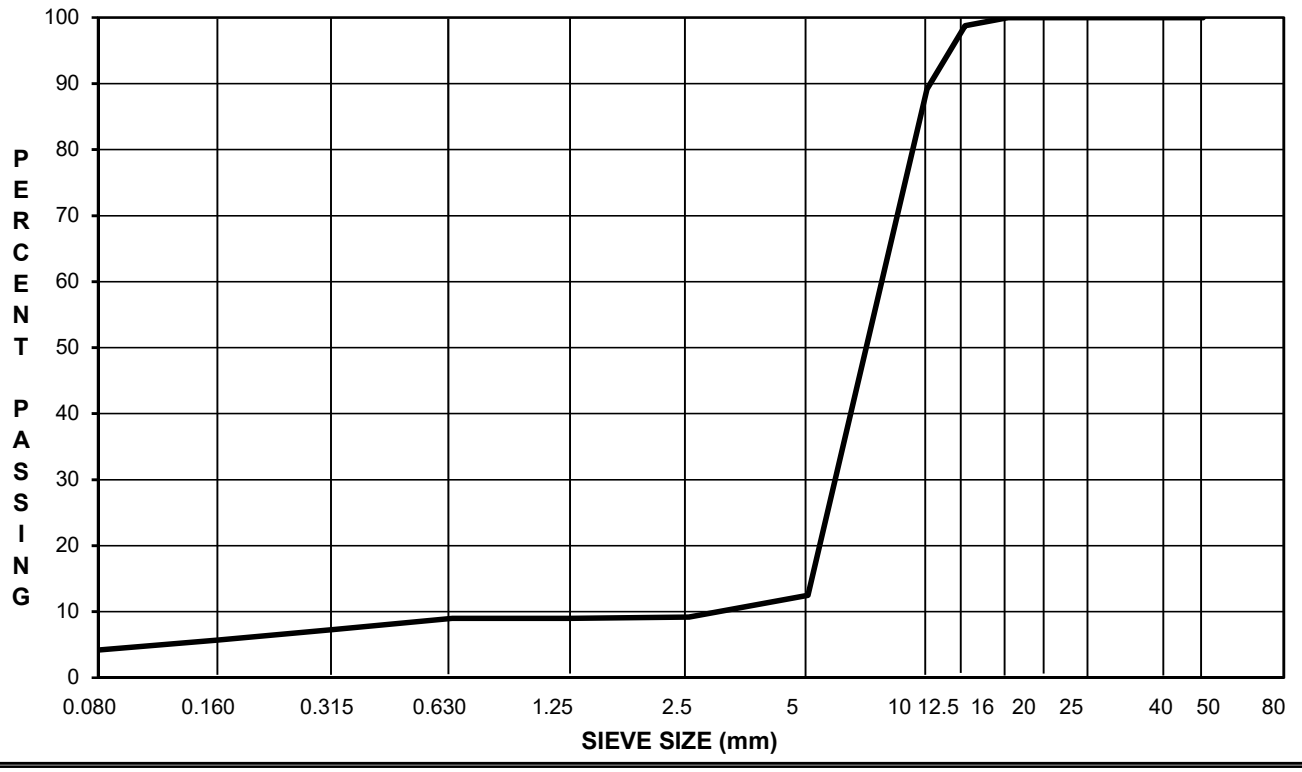
Project:	Eagle Gold Project	Sample Number:	SA1 - 16:00 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 25, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	Mr. Clint Abel	Specification:	See Remarks
Description:	Underground Pipe Bedding Material	Fracture (2 faces):	N/A
Location:	Select Drain Fill	Moisture Content:	2.1%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**100**	**99**	**89**	**13**	**9**	**9**	**9**	**7**	**5.7**	**4.2**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Dublin Gulch Project	Sample Number:	SA6 - 1040 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 17, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	UPBM Spec
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	1.2%

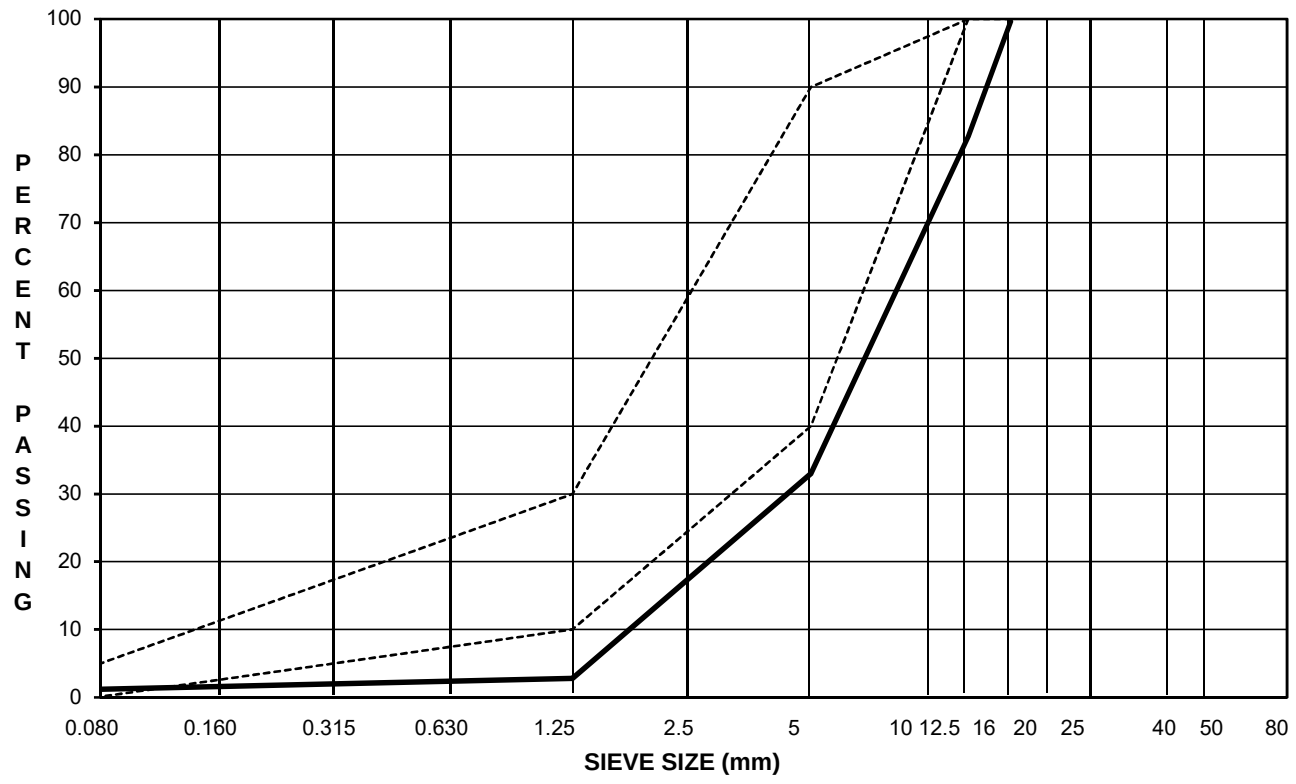
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit					100	100		90		30				5
Lower Limit						100		40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**83**	**37**	**33**	**3**	**3**	**3**	**3**	**2.3**	**1.2**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Only specified sieves have been plotted

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Dublin Gulch Project	Sample Number:	SA7 - 0820 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 18, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	UPBM Spec Shown (See remarks)
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	1.3%

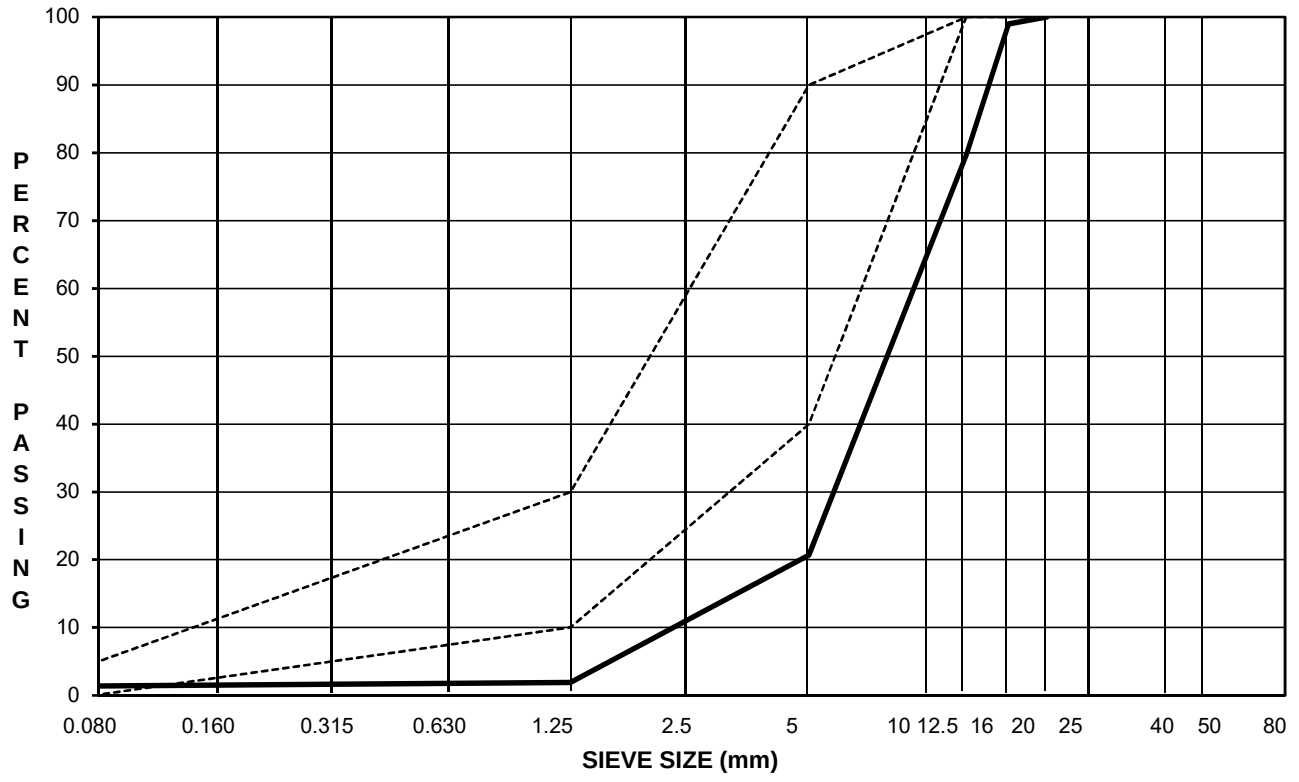
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit				100	100	100		90		30				5
Lower Limit						100		40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**99**	**80**	**28**	**21**	**2**	**2**	**2**	**2**	**1.7**	**1.4**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Only specified sieves have been plotted

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Dublin Gulch Project	Sample Number:	SA8 - 1040 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 18, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	UPBM Spec Shown (See remarks)
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	1.5%

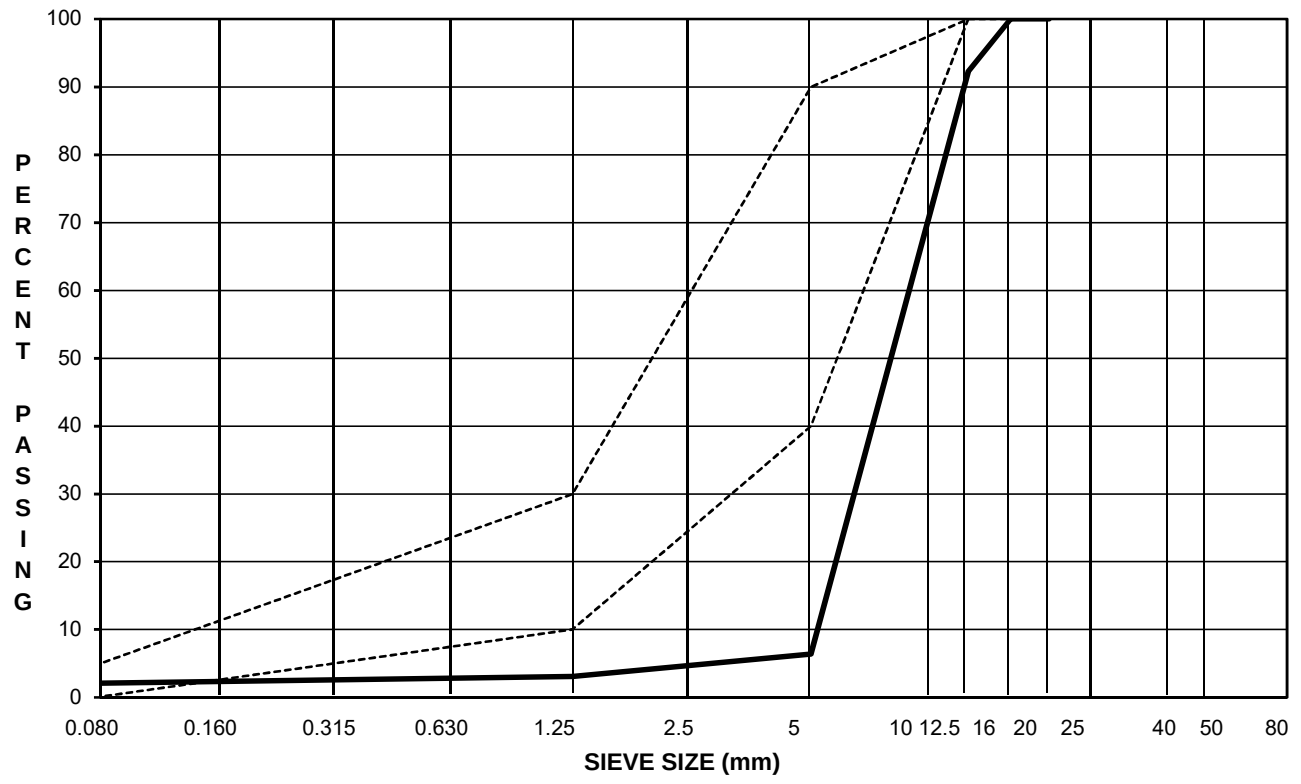
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit				100	100	100		90		30				5
Lower Limit						100		40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**92**	**58**	**6**	**3**	**3**	**3**	**3**	**2.6**	**2.1**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Only specified sieves have been plotted

Reviewed By: C.E.T.



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SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Dublin Gulch Project	Sample Number:	SA9 - 1415 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 18, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	UPBM Spec Shown (See remarks)
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	1.5%

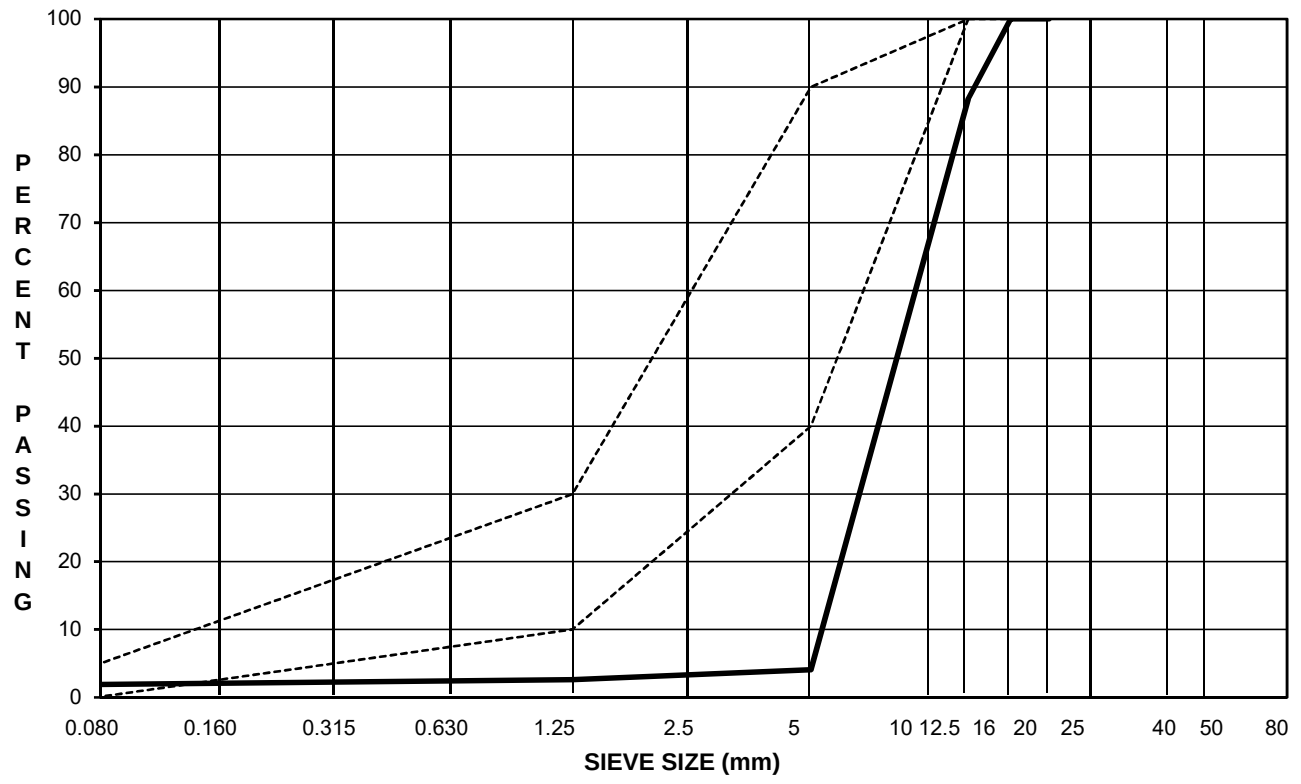
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit				100	100	100		90		30				5
Lower Limit						100		40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**88**	**49**	**4**	**3**	**3**	**3**	**2**	**2.2**	**1.9**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Only specified sieves have been plotted

Reviewed By: C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Dublin Gulch Project	Sample Number:	SA10 - 1645 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	September 18, 2017
Client:	JDS	Sampled By:	JSB Tested By: JSB
Attention:	Mr. Roman Bilobrowka	Specification:	UPBM Spec Shown (See remarks)
Description:	Underground Pipe Bedding Material &	Fracture (2 faces):	
Location:	Select Drain Fill	Moisture Content:	2.4%

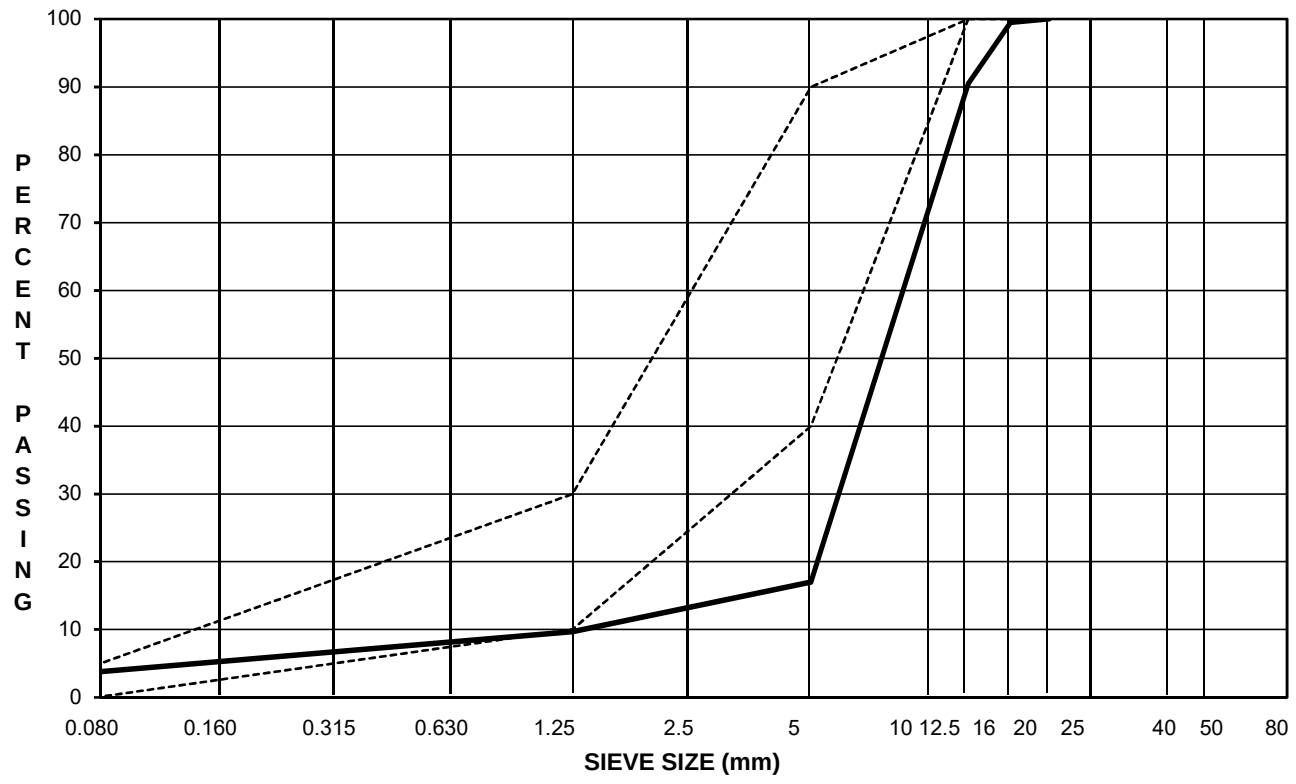
Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit				100	100	100		90		30				5
Lower Limit						100		40		10				0.1
Test Result	**100**	**100**	**100**	**100**	**100**	**91**	**59**	**17**	**12**	**10**	**8**	**6**	**5.0**	**3.8**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Only specified sieves have been plotted

Reviewed By: C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

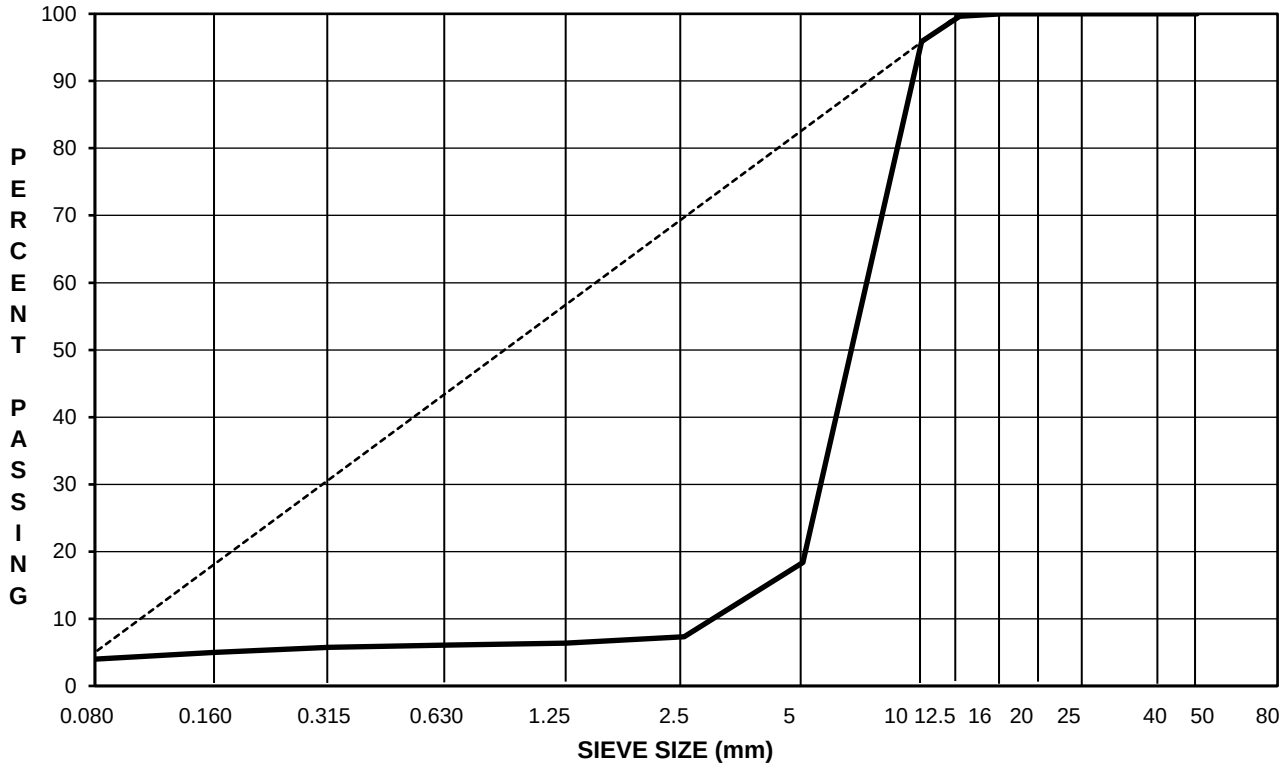
Project:	Eagle Gold Project	Sample Number:	SA19 - 15:45 hrs
Project No.:	704-ENG.WARC03235-01	Date Sampled:	June 23 2018
Client:	JDS	Sampled By:	JP/RM Tested By: JP
Attention:	Mr. Roy Morlan	Specification:	See Remarks
Description:	12.5 mm Select Drain Fill	Fracture (2 faces):	N/A
Location:	In Place check on drain	Moisture Content:	1.5%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit						100								5
Lower Limit														0
Test Result	**100**	**100**	**100**	**100**	**100**	**100**	**96**	**18**	**7**	**6**	**6**	**6**	**5.0**	**4.0**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

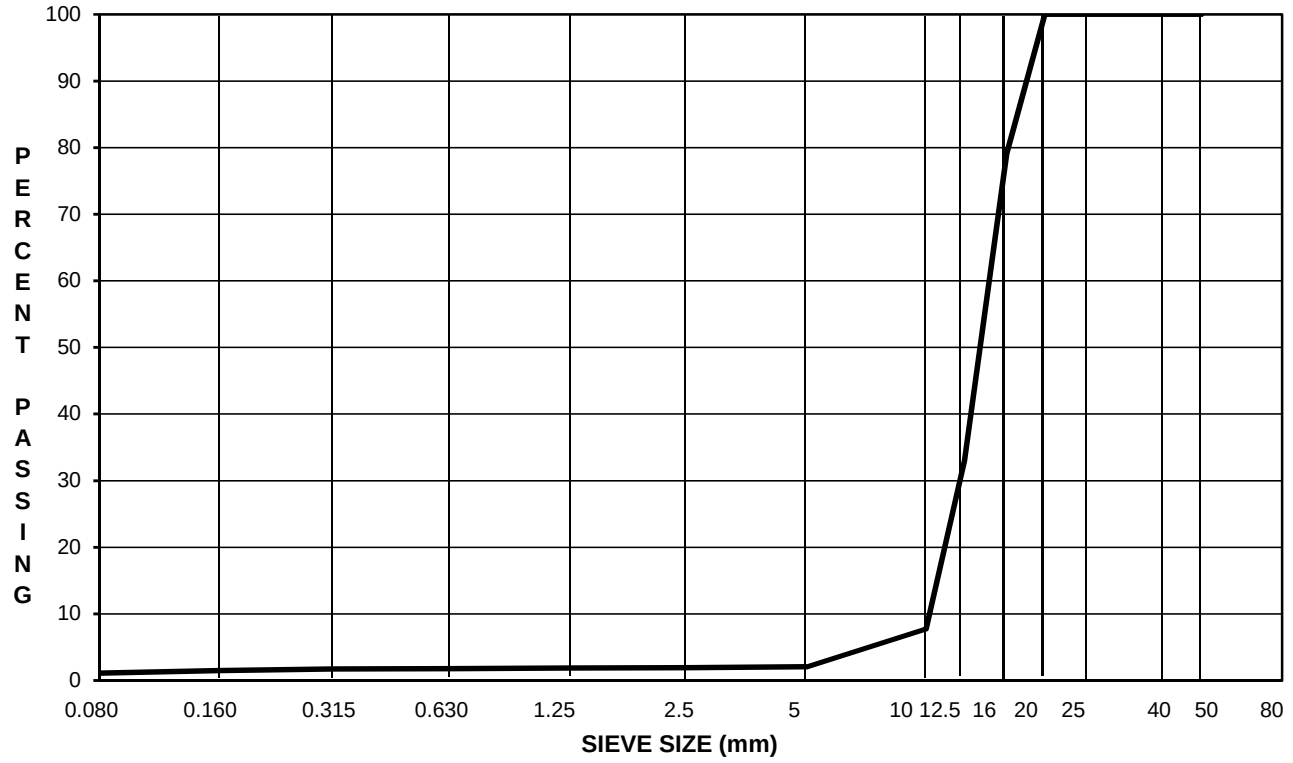
Project:	Eagle Gold Project	Sample Number:	SA20 - 10:05 hrs
Project No.:	704-ENG.WARC03235-01	Date Sampled:	October 5, 2018
Client:	JDS	Sampled By:	JB Tested By: JB
Attention:	R. Bilobrowka	Specification:	See Remarks
Description:	12.5 mm Select Drain Fill	Fracture (2 faces):	N/A
Location:	Eagle Pup Sourced Screener Discharge	Moisture Content:	1.3%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	**100**	**100**	**100**	**100**	**79**	**33**	**8**	**2**	**2**	**2**	**2**	**2**	**1.5**	**1.1**

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



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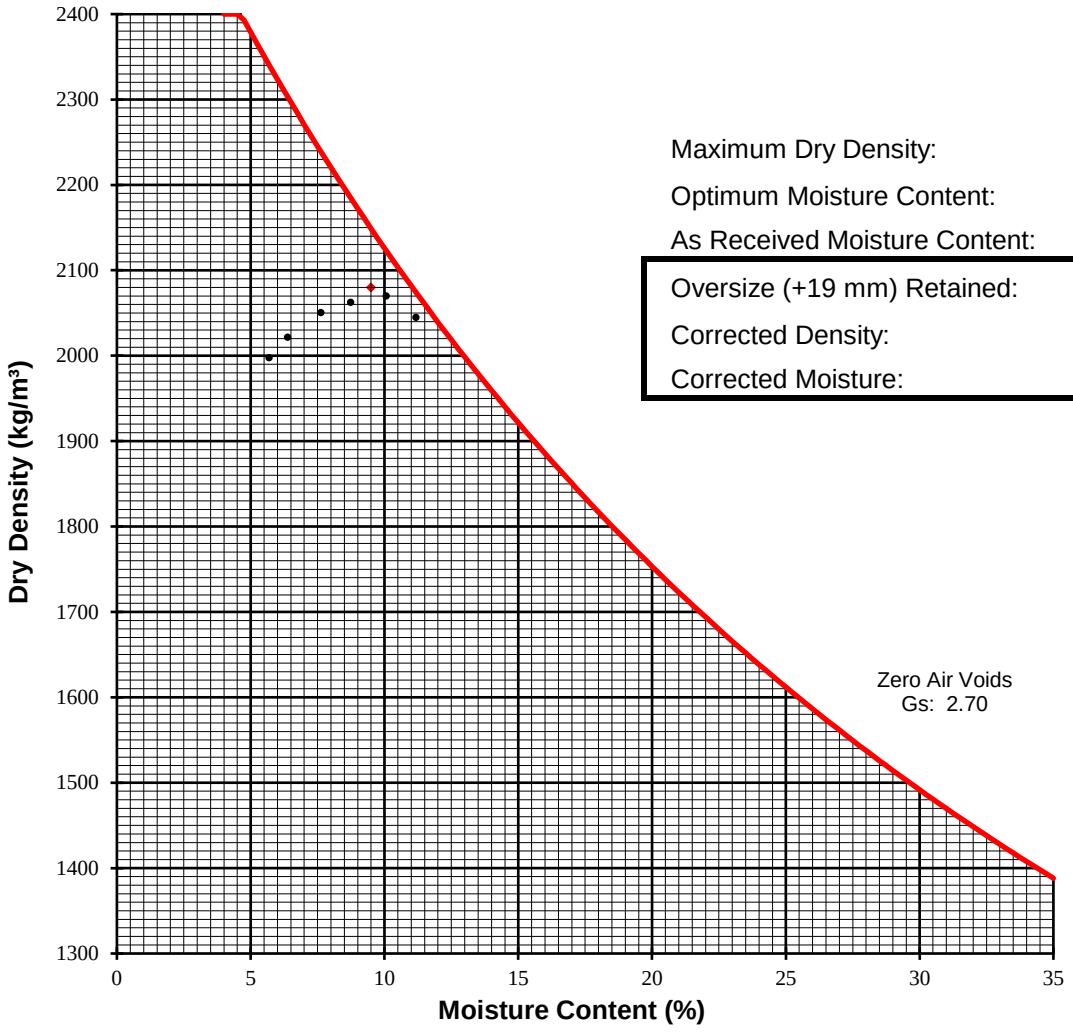
TETRA TECH

Proctors

MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	2018 Dublin Gulch Project	Sample No.:	Reject Sand PR1
Client:	JDS/BGC	Sampled By:	JMP
Attention:	Clint/Roy	Sample Date:	June 22 2018
Project No.:	WARC-03235-05	Test Date:	June 23 2018
Description:	Reject Sand, contains some gravel, some silt	Preparation:	Moist
Source:	NCL Dublin Gulch reject Stockpile	Compaction:	Manual



Maximum Dry Density:	**2080**	kg/m³
Optimum Moisture Content:	**9.5**	%
As Received Moisture Content:	**5.7**	%
Oversize (+19 mm) Retained:		%
Corrected Density:	**2080**	%
Corrected Moisture:	**9.5**	%

Remarks: Overliner drain fill reject sand 10mm minus

Reviewed By: _____ C.E.T.

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TETRA TECH

20 September 2017 Our Ref.: 1786144

JDS Energy & Mining Inc.
900-999 West Hastings St.
Vancouver, BC, Canada V6C 2W2

Attention: Mr. Richard Boehnke

RE: LABORATORY TEST RESULTS FOR JDS ENERGY & MINING INC. PROJECT – VICTORIA GOLD

Dear Mr. Boehnke:

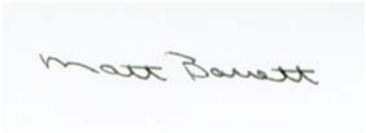
Golder Associates Inc. (Golder) has prepared this report to present the results of geotechnical laboratory testing conducted on samples submitted by the SGS for JDS Energy & Mining Inc. The samples were tested at Golder's Geotechnical Laboratory in Lakewood, Colorado. This report presents the results of Compression-Permeability testing on the Samples "Victoria Gold Comp 1" and "Victoria Gold Comp 2".

All assigned laboratory testing has been completed. Thank you for the opportunity to provide these laboratory testing services and we look forward to assisting you on future projects.

Should you have any questions or comments, please do not hesitate to call.

Sincerely,

GOLDER ASSOCIATES INC.



Matthew Barrett
Geotechnical Lab Manager

cc: File

mjb/MJB

Attachments (14 pages)

Golder Associates Inc.
9197 West 6th Ave, Building C Suite 100
Lakewood, CO 80215 USA
Tel: (303) 980-0540 Fax: (303) 985-2080 www.golder.com

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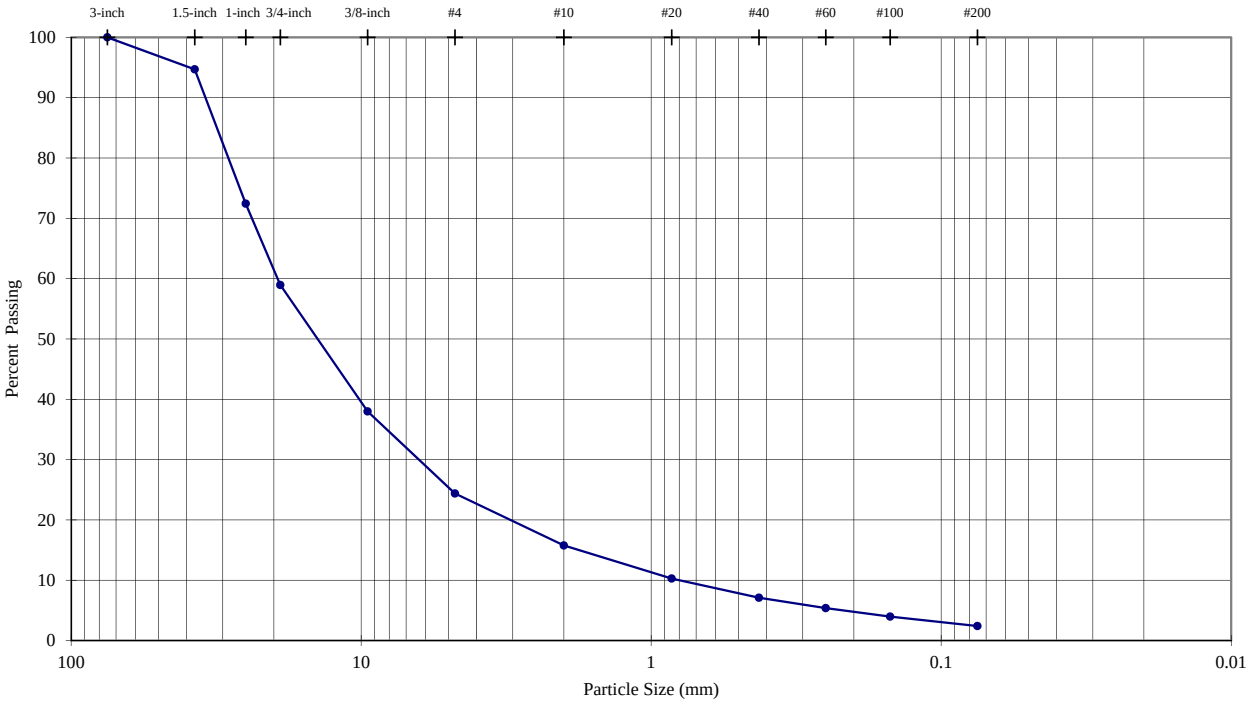
ATTACHMENTS

September-17 **1786144**

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

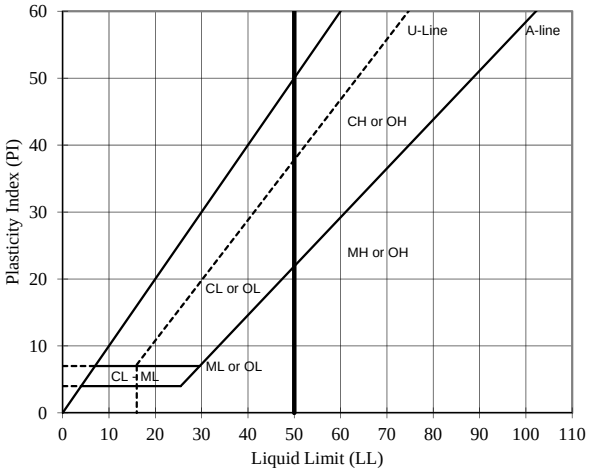
PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 1 (Pre-perm)** DEPTH (ft.): --
TYPE: **Pails**



Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**94.7**
1-inch	25.0	**72.4**
3/4-inch	19.0	**58.9**
3/8-inch	9.5	**38.0**
#4	4.75	**24.4**
#10	2.00	**15.8**
#20	0.850	**10.3**
#40	0.425	**7.1**
#60	0.250	**5.4**
#100	0.150	**4.0**
#200	0.075	**2.4**

Description	Percentage
Coarse Gravel	**41.06**
Fine Gravel	**34.56**
Coarse Sand	**8.62**
Medium Sand	**8.66**
Fine Sand	**4.70**
Silt or Clay Fines	**2.41**



USCS Description (ASTM D 2487):

Well-graded gravel with sand, dark yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GW

Notes: 0 g of particles up to 75 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

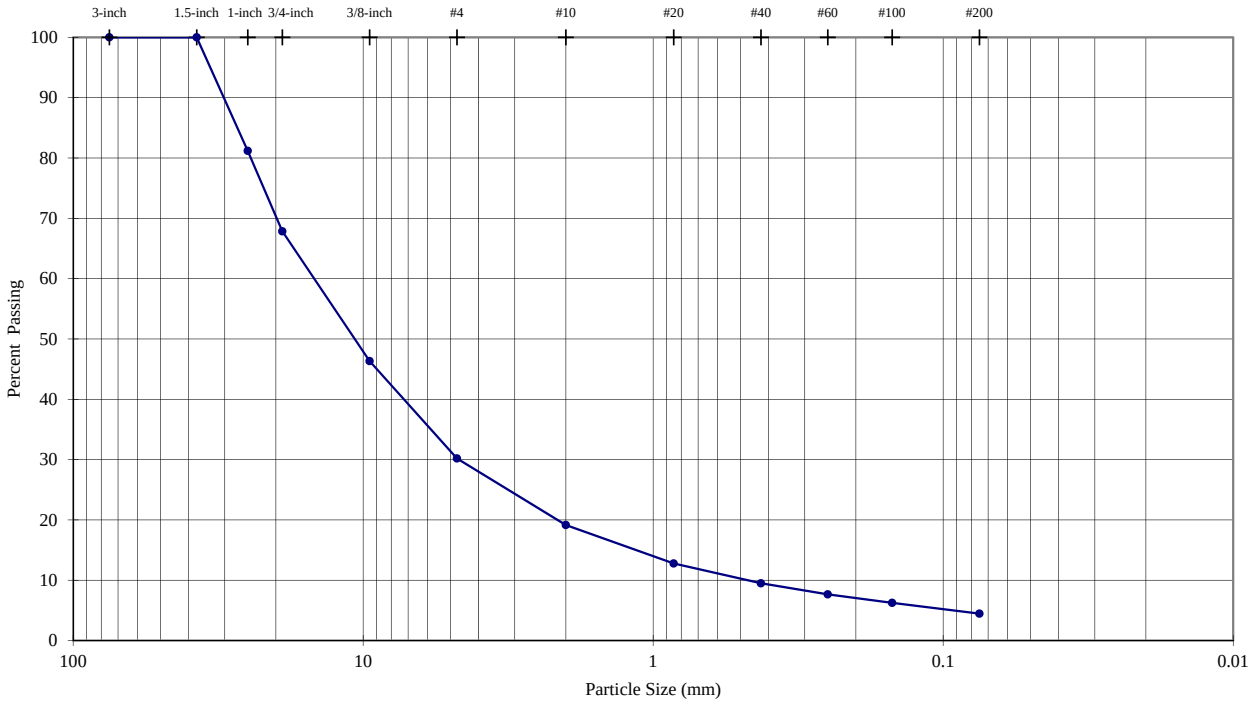
TECH	MGC
DATE	5-Sep-2017
REVIEW	MB

September-17 **1786144**

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

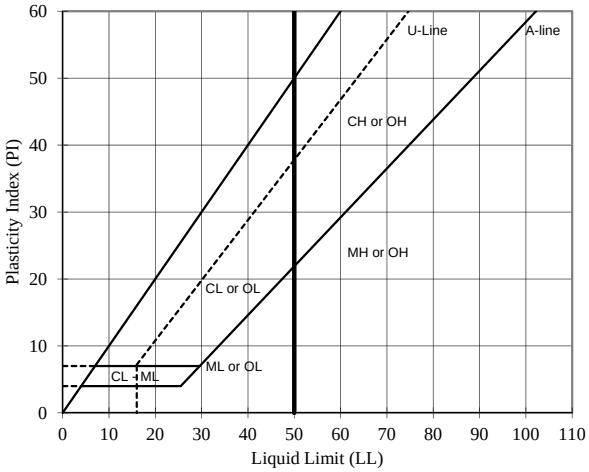
PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 1 (Post Perm)** DEPTH (ft.): --
TYPE: **Pails**



Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**100.0**
1-inch	25.0	**81.2**
3/4-inch	19.0	**67.9**
3/8-inch	9.5	**46.3**
#4	4.75	**30.2**
#10	2.00	**19.2**
#20	0.850	**12.8**
#40	0.425	**9.5**
#60	0.250	**7.7**
#100	0.150	**6.3**
#200	0.075	**4.5**

Description	Percentage
Coarse Gravel	**32.15**
Fine Gravel	**37.66**
Coarse Sand	**11.03**
Medium Sand	**9.66**
Fine Sand	**5.03**
Silt or Clay Fines	**4.46**



USCS Description (ASTM D 2487):

Poorly graded gravel with sand, dark yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GP

Notes: 0 g of particles up to 37.5 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

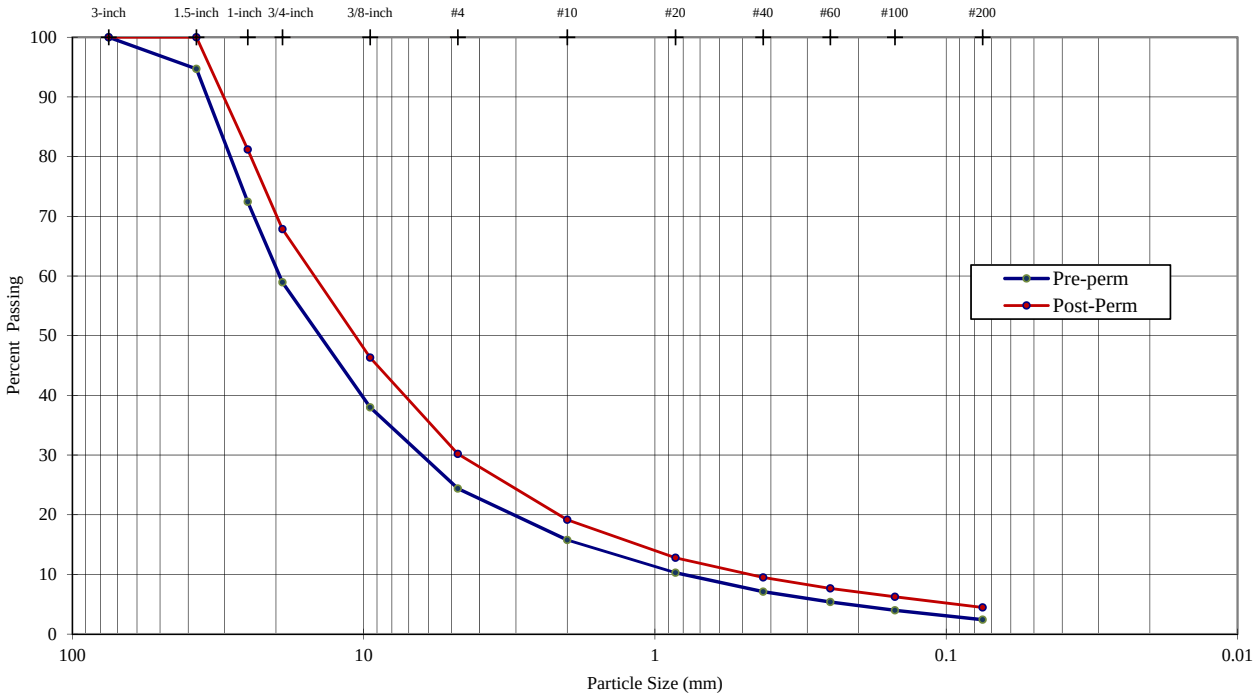
TECH	MGC
DATE	13-Sep-2017
REVIEW	MB

September-17 1786144

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 1** DEPTH (ft.): --
TYPE: **Pails**



Pre-Perm

Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing	Description	Percentage
3-inch	75.0	**100.0**		
1.5-inch	37.5	**94.7**	Coarse Gravel	**41.06**
1-inch	25.0	**72.4**		
3/4-inch	19.0	**58.9**		
3/8-inch	9.5	**38.0**	Fine Gravel	**34.56**
#4	4.75	**24.4**		
#10	2.00	**15.8**	Coarse Sand	**8.62**
#20	0.850	**10.3**	Medium Sand	**8.66**
#40	0.425	**7.1**		
#60	0.250	**5.4**	Fine Sand	**4.70**
#100	0.150	**4.0**		
#200	0.075	**2.4**		
			Silt or Clay Fines	**2.41**

Post-Perm

Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing	Description	Percentage
3-inch	75.0	**100.0**		
1.5-inch	37.5	**100.0**	Coarse Gravel	**32.15**
1-inch	25.0	**81.2**		
3/4-inch	19.0	**67.9**		
3/8-inch	9.5	**46.3**	Fine Gravel	**37.66**
#4	4.75	**30.2**		
#10	2.0	**19.2**	Coarse Sand	**11.03**
#20	0.850	**12.8**	Medium Sand	**9.66**
#40	0.425	**9.5**		
#60	0.250	**7.7**	Fine Sand	**5.03**
#100	0.150	**6.3**		
#200	0.075	**4.5**		
			Silt or Clay Fines	**4.46**

Pre-Perm

USCS Description (ASTM D 2487):

Well-graded gravel with sand, dark yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GW

Notes: 0 g of particles up to 75 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

TECH	MGC
DATE	5-Sep-2017
REVIEW	MB

RIGID-WALL COMPRESSION
CONSTANT-HEAD PERMEABILITY
10-INCH DIAMETER CELL

Project Title: JDS Energy/Geotech Lab Testing/BC
Project Number: 1786144 **Sample Identification:** Victoria Gold Comp 1
Dates Tested: 6-Sep-2017 **To:** 8-Sep-2017 **Depth (ft.):** --

Sample Setup

Initial Sample Height, in	9.441
Mold Diameter, in	10.00
Sample Area, in^2	78.54
Wet Sample Weight, g	21,240.3
Wet Sample Weight, lb.	46.83
Dry Sample Weight, g	20,976.9
Dry Sample Weight, lb.	46.25

Initial Sample Moisture Determination

Tare	V-1
Wet Weight and Tare, g	796.35
Dry Weight and Tare, g	787.52
Tare Weight, g	84.28
Moisture Content, %	1.3

Initial Sample Density and Void Ratio

Specific Gravity[1]	2.70
Initial Sample Volume, ft^3	0.429
Initial Wet Density, $lb./ft^3$	109.2
Initial Dry Density, $lb./ft^3$	107.8
Initial Void Ratio	0.56

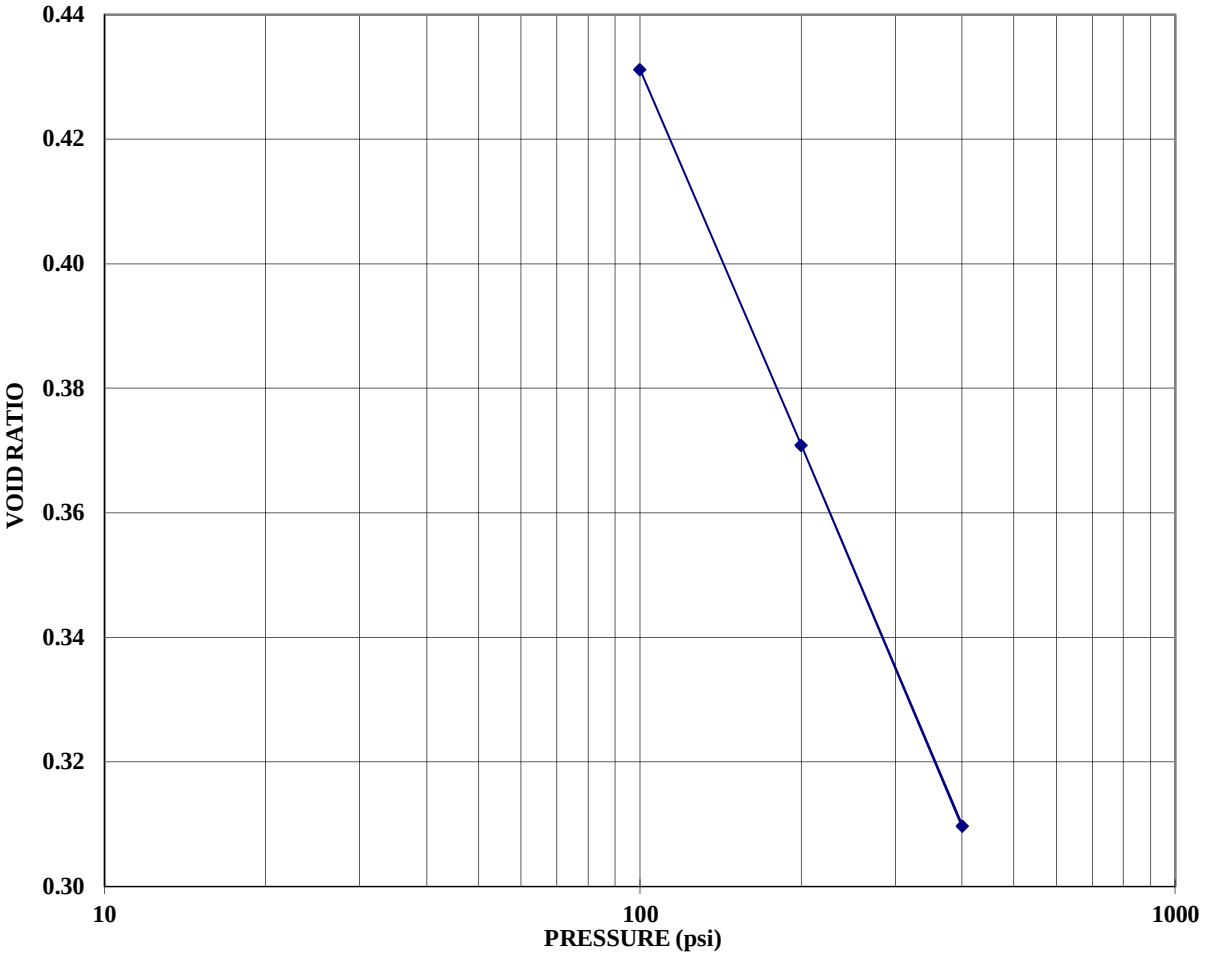
Final Sample Density and Void Ratio

Final Sample Height, in	7.911
Final Sample Volume, ft^3	0.360
Final Dry Density, $lb./ft^3$	128.6
Final Void Ratio	0.31

Load (psi)	Height (in)	Dry Density (pcf)	Void Ratio	Flow Rate (ml/sec)	Gradient	Permeability (cm/sec)	Porosity
100	8.645	117.7	0.43	28.12	0.04	1.5E+00	0.30
200	8.281	122.9	0.37	24.94	0.05	9.0E-01	0.27
400	7.911	128.6	0.31	10.93	0.06	3.4E-01	0.24

NOTES: [1]Specific Gravity = Assumed Value

NORMAL LOAD vs. VOID RATIO



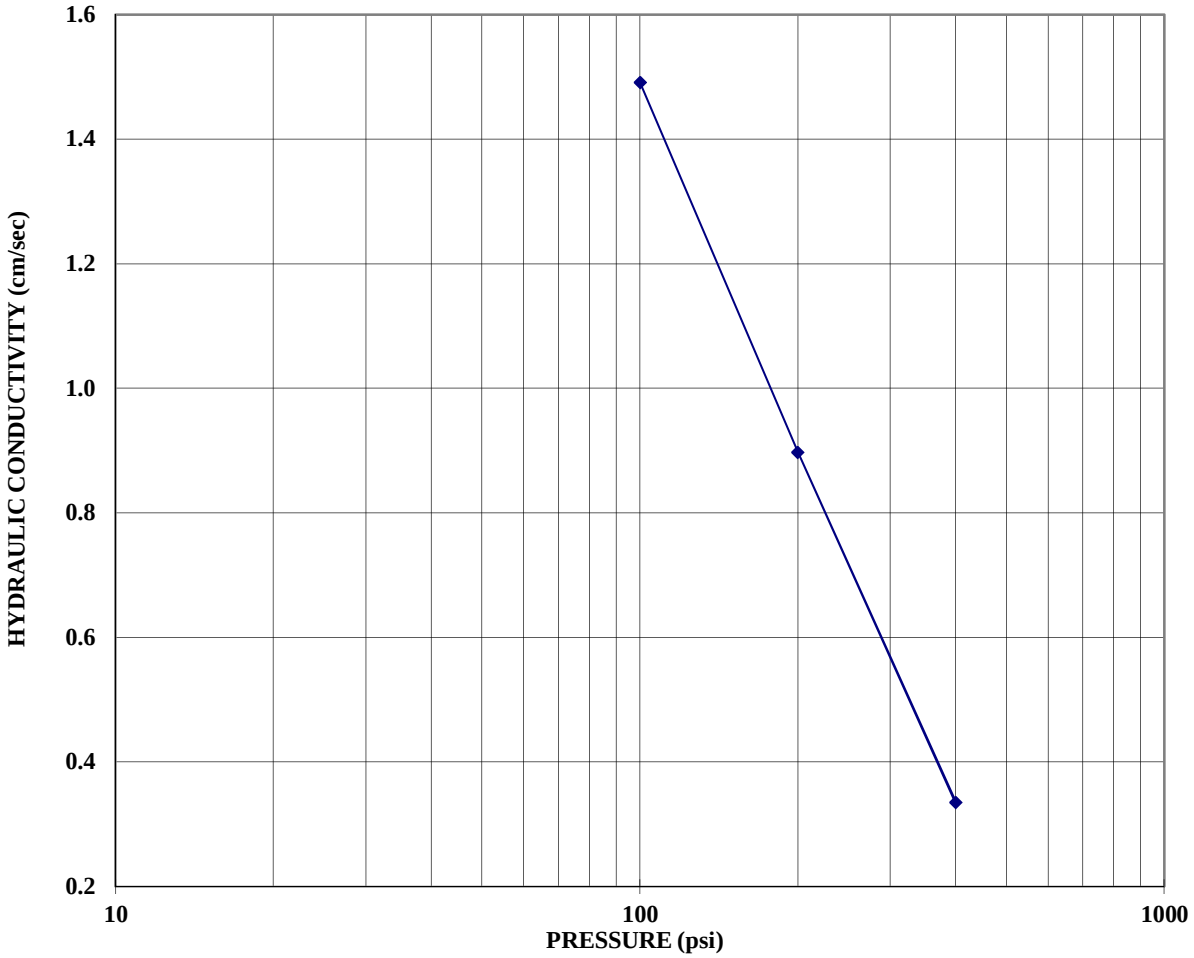
Sample Identification:	Victoria Gold Comp 1
USCS Description (ASTM D 2487):	Well-graded gravel with sand, dark yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

NORMAL LOAD vs. HYDRAULIC CONDUCTIVITY



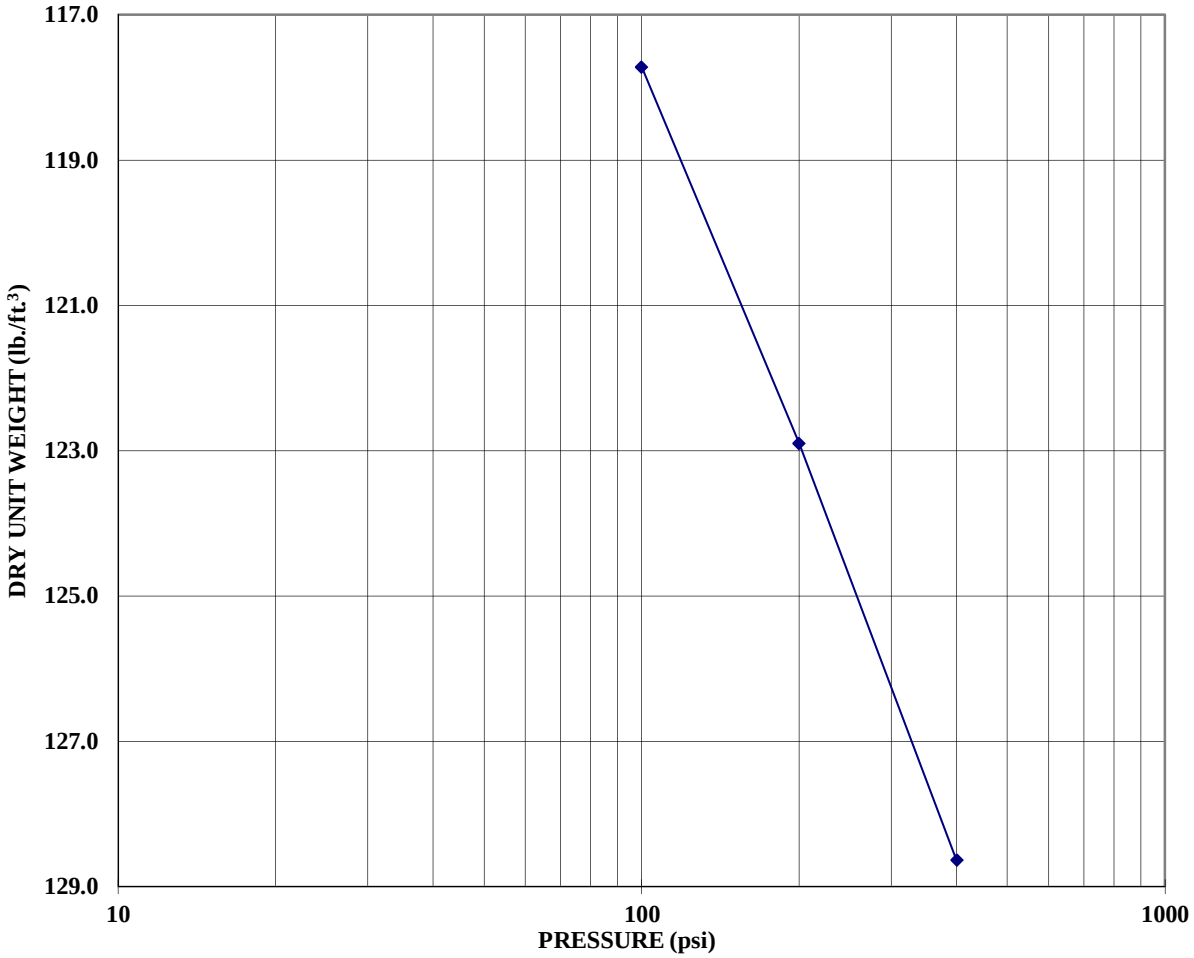
Sample Identification:	Victoria Gold Comp 1
USCS Description (ASTM D 2487):	Well-graded gravel with sand, dark yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

NORMAL LOAD vs. DENSITY



Sample Identification:	Victoria Gold Comp 1
USCS Description (ASTM D 2487):	Well-graded gravel with sand, dark yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

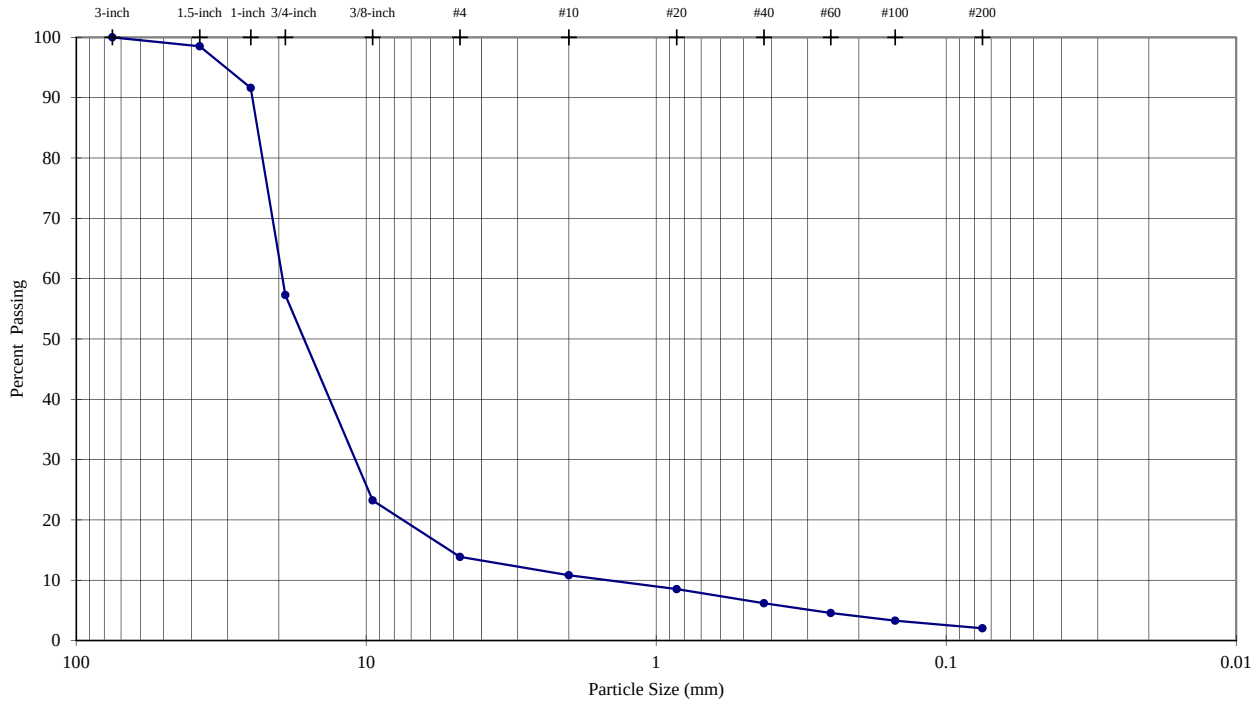
GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

September-17 **1786144**

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

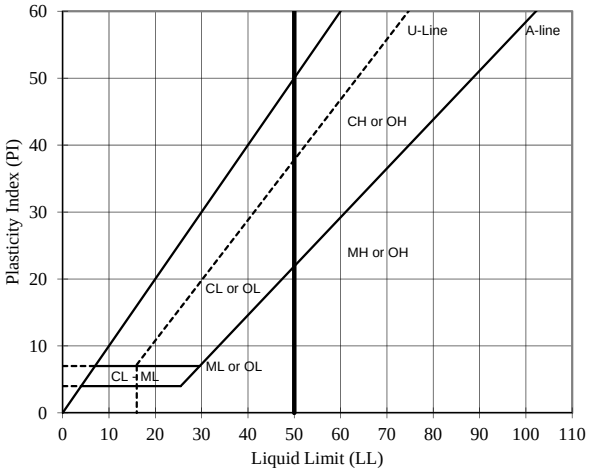
PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 2 (Pre-perm)** DEPTH (ft.): --
TYPE: **Pail**



Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**98.5**
1-inch	25.0	**91.6**
3/4-inch	19.0	**57.3**
3/8-inch	9.5	**23.2**
#4	4.75	**13.9**
#10	2.00	**10.8**
#20	0.850	**8.5**
#40	0.425	**6.2**
#60	0.250	**4.6**
#100	0.150	**3.3**
#200	0.075	**2.0**

Description	Percentage
Coarse Gravel	**42.71**
Fine Gravel	**43.42**
Coarse Sand	**3.04**
Medium Sand	**4.63**
Fine Sand	**4.16**
Silt or Clay Fines	**2.04**



USCS Description (ASTM D 2487):

Poorly graded gravel, yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GP

Notes: 0 g of particles up to 75 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

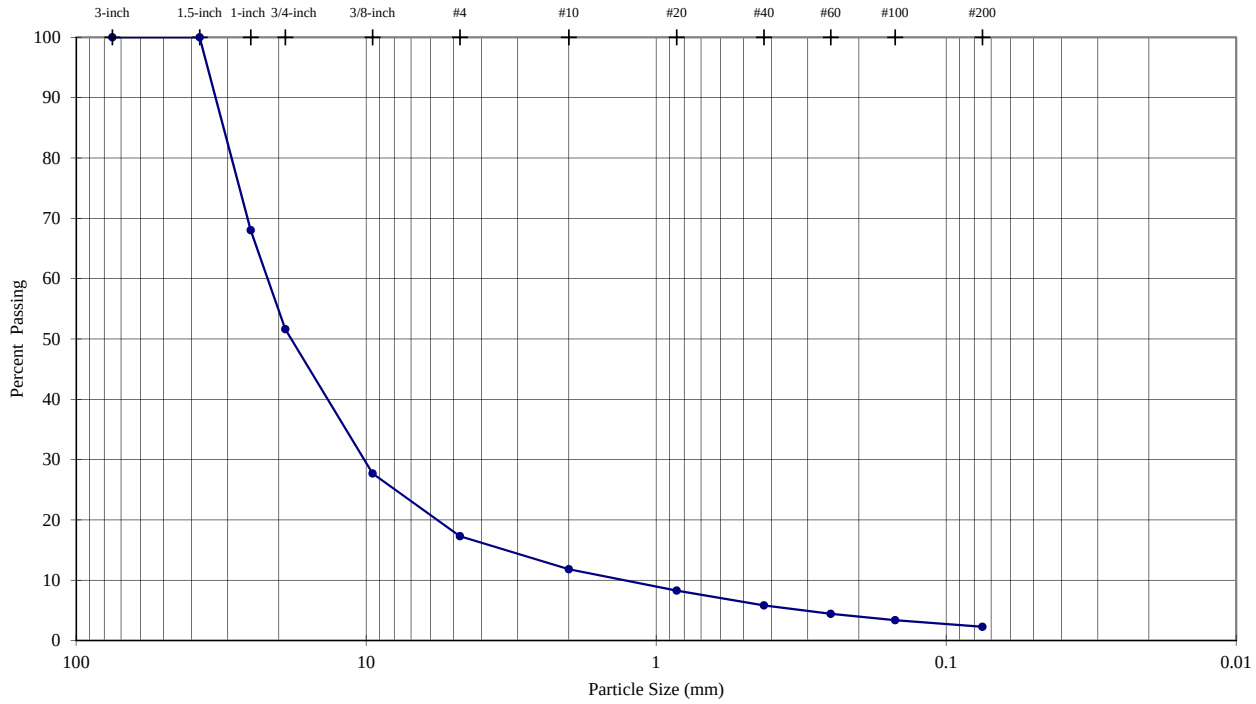
TECH	MGC
DATE	7-Sep-2017
REVIEW	MB

September-17 **1786144**

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

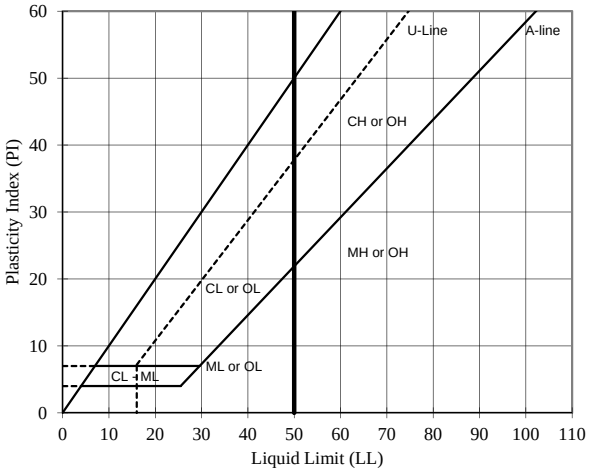
PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 2 (Post Perm)** DEPTH (ft.): --
TYPE: **Pail**



Sieve Analysis (Initial Separation on No. 4 Sieve)

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**100.0**
1-inch	25.0	**68.0**
3/4-inch	19.0	**51.6**
3/8-inch	9.5	**27.7**
#4	4.75	**17.3**
#10	2.00	**11.8**
#20	0.850	**8.3**
#40	0.425	**5.8**
#60	0.250	**4.4**
#100	0.150	**3.4**
#200	0.075	**2.3**

Description	Percentage
Coarse Gravel	**48.37**
Fine Gravel	**34.33**
Coarse Sand	**5.48**
Medium Sand	**6.00**
Fine Sand	**3.55**
Silt or Clay Fines	**2.28**



USCS Description (ASTM D 2487):

Poorly graded gravel, yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GP

Notes: 0 g of particles up to 37.5 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

TECH	MGC
DATE	13-Sep-2017
REVIEW	MB

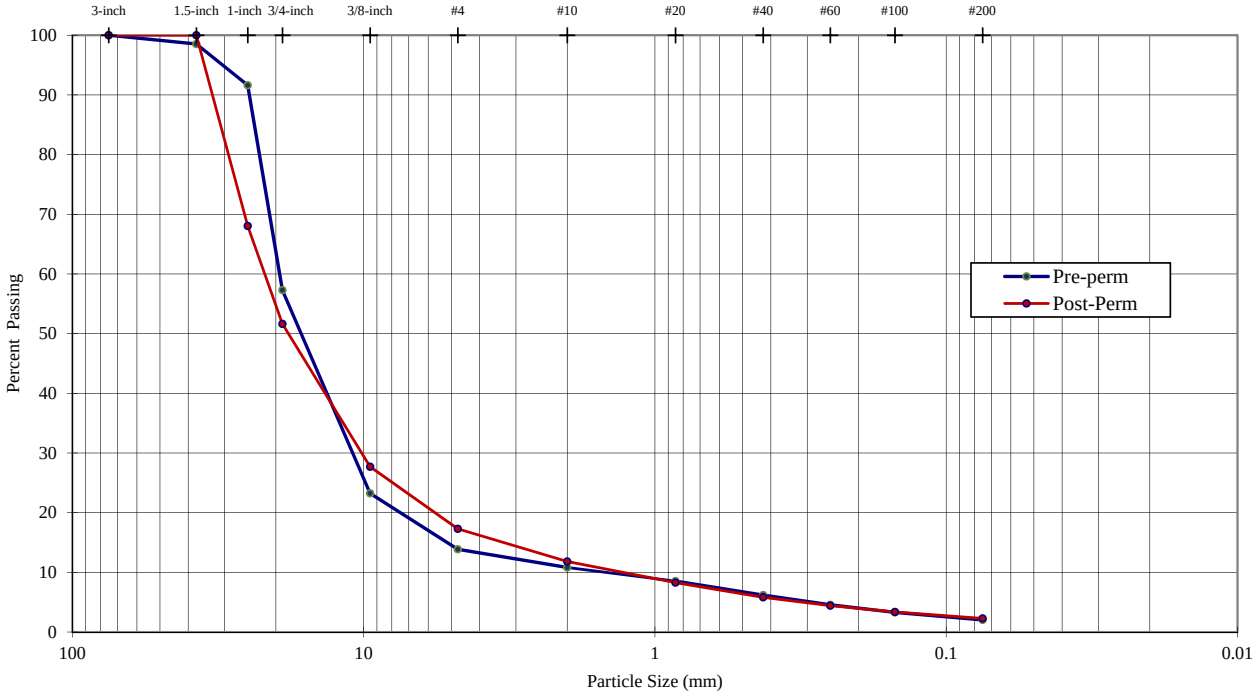
Golder Associates

September-17 **1786144**

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D422 & D4318

PROJECT NAME: **JDS Energy/Geotech Lab Testing/BC**
SAMPLE ID: **Victoria Gold Comp 2** DEPTH (ft.): --
TYPE: **Pail**



Pre-Perm

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**98.5**
1-inch	25.0	**91.6**
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3/8-inch	9.5	**23.2**
#4	4.75	**13.9**
#10	2.00	**10.8**
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Sieve Analysis (Initial Separation on No. 4 Sieve)

Description	Percentage
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Fine Gravel	**43.42**
Coarse Sand	**3.04**
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Post-Perm

Sieve	Particle Size (mm)	% Passing
3-inch	75.0	**100.0**
1.5-inch	37.5	**100.0**
1-inch	25.0	**68.0**
3/4-inch	19.0	**51.6**
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#4	4.75	**17.3**
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Sieve Analysis (Initial Separation on No. 4 Sieve)

Description	Percentage
Coarse Gravel	**48.37**
Fine Gravel	**34.33**
Coarse Sand	**5.48**
Medium Sand	**6.00**
Fine Sand	**3.55**
Silt or Clay Fines	**2.28**

Pre-Perm

USCS Description (ASTM D 2487):

Poorly graded gravel, yellowish brown, moist

LL	PL	PI	SpG
--	--	--	--

As-Received Moisture Content (%): --

USCS Group Symbol: GP

Notes: 0 g of particles up to 75 mm maximum size were removed from particle size analysis sample prior to testing
Particle size analysis sample was not mechanically dispersed; hydrometer test was not performed

TECH	MGC
DATE	7-Sep-2017
REVIEW	MB

RIGID-WALL COMPRESSION
CONSTANT-HEAD PERMEABILITY
10-INCH DIAMETER CELL

Project Title: JDS Energy/Geotech Lab Testing/BC
Project Number: 1786144 **Sample Identification:** Victoria Gold Comp 2
Dates Tested: 9-Sep-2017 **To:** 11-Sep-2017 **Depth (ft.):** --

Sample Setup

Initial Sample Height, in	11.507
Mold Diameter, in	10.00
Sample Area, in^2	78.54
Wet Sample Weight, g	22,572.9
Wet Sample Weight, lb.	49.77
Dry Sample Weight, g	22,367.8
Dry Sample Weight, lb.	49.32

Initial Sample Moisture Determination

Tare	TFB
Wet Weight and Tare, g	1,430.07
Dry Weight and Tare, g	1,420.51
Tare Weight, g	378.02
Moisture Content, %	0.9

Initial Sample Density and Void Ratio

Specific Gravity[1]	2.70
Initial Sample Volume, ft^3	0.523
Initial Wet Density, $lb./ft^3$	95.2
Initial Dry Density, $lb./ft^3$	94.3
Initial Void Ratio	0.79

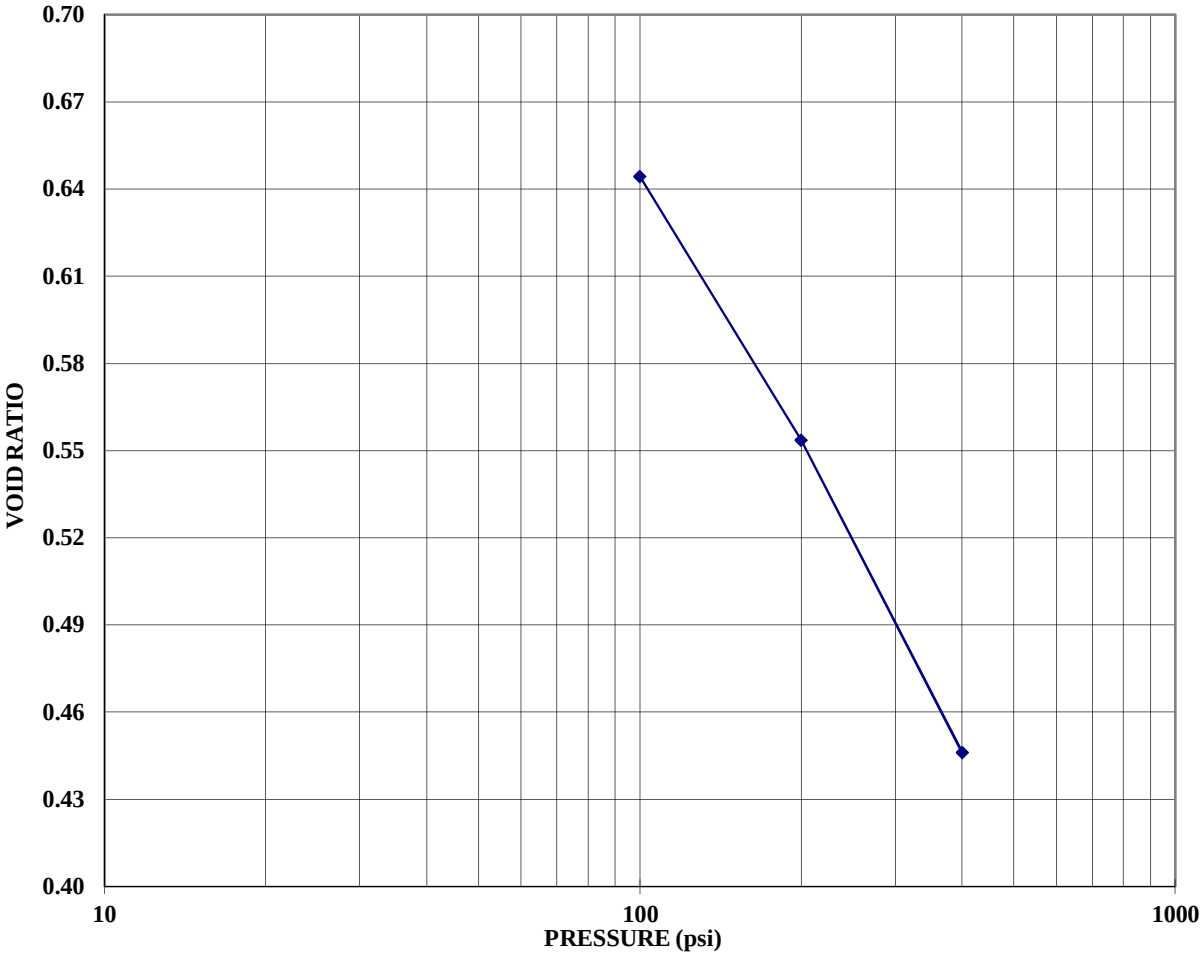
Final Sample Density and Void Ratio

Final Sample Height, in	9.314
Final Sample Volume, ft^3	0.423
Final Dry Density, $lb./ft^3$	116.5
Final Void Ratio	0.45

Load (psi)	Height (in)	Dry Density (pcf)	Void Ratio	Flow Rate (ml/sec)	Gradient	Permeability (cm/sec)	Porosity
100	10.591	102.5	0.64	153.80	0.02	1.7E+01	0.39
200	10.007	108.4	0.55	134.29	0.02	1.1E+01	0.36
400	9.314	116.5	0.45	107.58	0.04	6.4E+00	0.31

NOTES: [1]Specific Gravity = Assumed Value

NORMAL LOAD vs. VOID RATIO



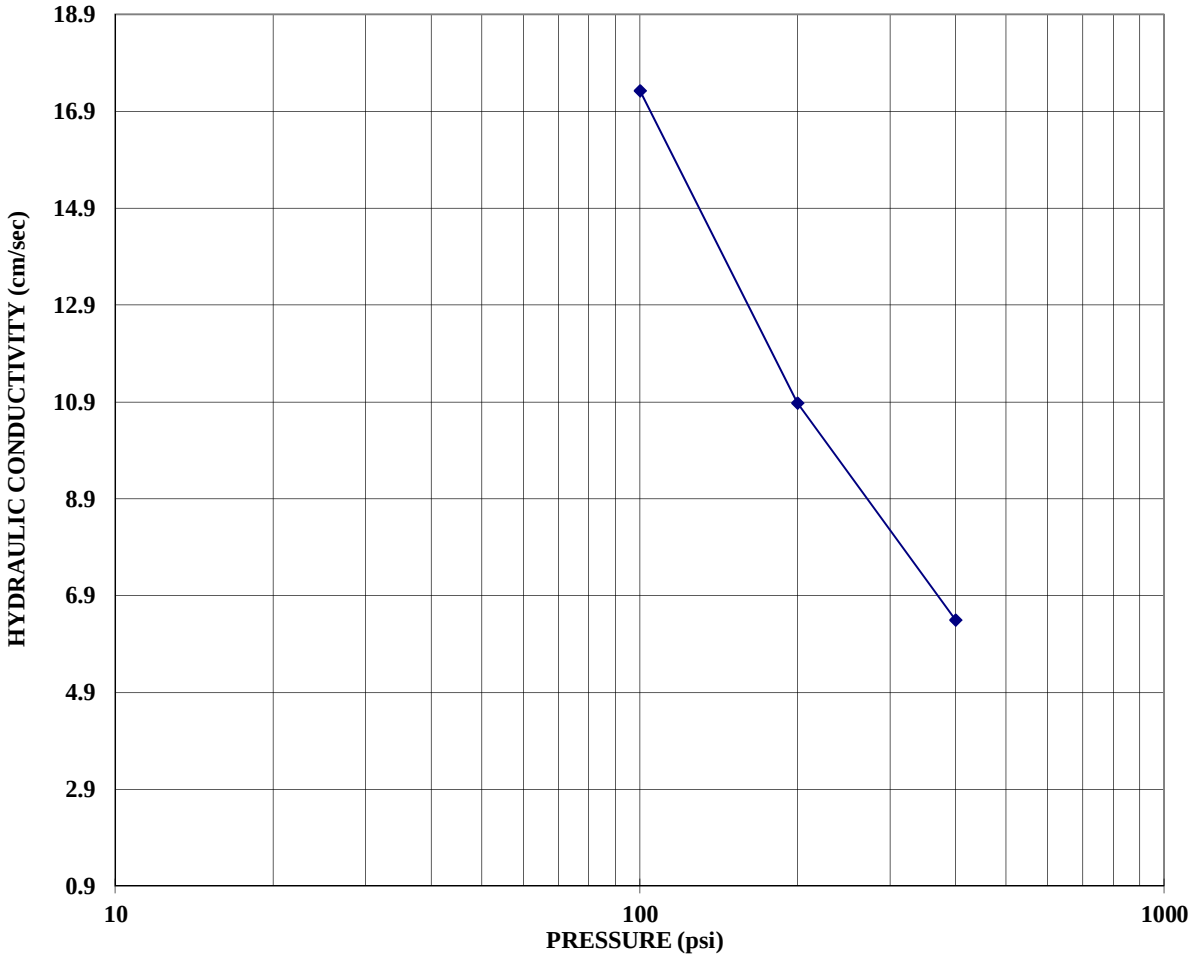
Sample Identification:	Victoria Gold Comp 2
USCS Description (ASTM D 2487):	Poorly graded gravel, yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

NORMAL LOAD vs. HYDRAULIC CONDUCTIVITY



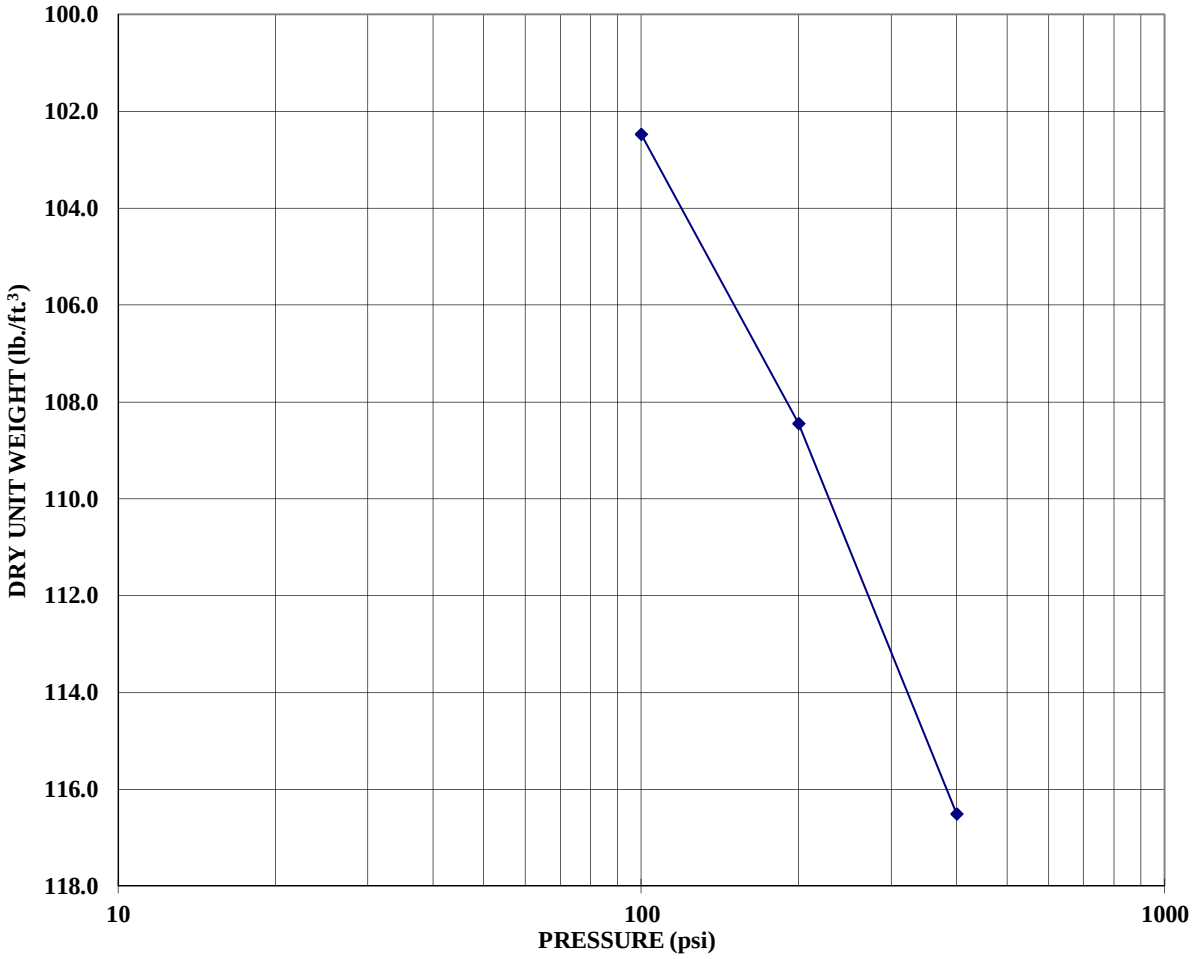
Sample Identification:	Victoria Gold Comp 2
USCS Description (ASTM D 2487):	Poorly graded gravel, yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

NORMAL LOAD vs. DENSITY



Sample Identification:	Victoria Gold Comp 2
USCS Description (ASTM D 2487):	Poorly graded gravel, yellowish brown, moist

JDS Energy/Geotech Lab Testing/BC
1786144

DATE	18-Sep-2017
TECH	MGC
REVIEW	MB

GOLDER ASSOCIATES INC.
LAKEWOOD, COLORADO

APPENDIX 5
QA Approvals

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 21, 2017
Construction:	JDS Mining	**Inspection Number:**	FND01
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 1, and 2, Survey drawings attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock in both Sections 1 and 2. Upon further excavation, parent rock fabric was observed and the area was approved. Some discontinuous areas of ice remain, and are impractical to remove. Sections 1 and 2 have been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: North area of Section 1 approved under FND01



Photo 2: North half of Section 2 approved under FND01. The area uphill of approximately the red line was approved. Note that in areas of stronger rock, the slope cannot be cleaned as easily as soft rock and initially appears to not be excavated to bedrock. These areas were investigated and were found to be sufficient.



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/20	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

EMBANKMENT SECTION 1 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/20	DWG No:	EMB-006-S1
SURVEYED:	C.B, C.M.	CHECKED:	
DRAWN:	C.B.	APPROVED:	

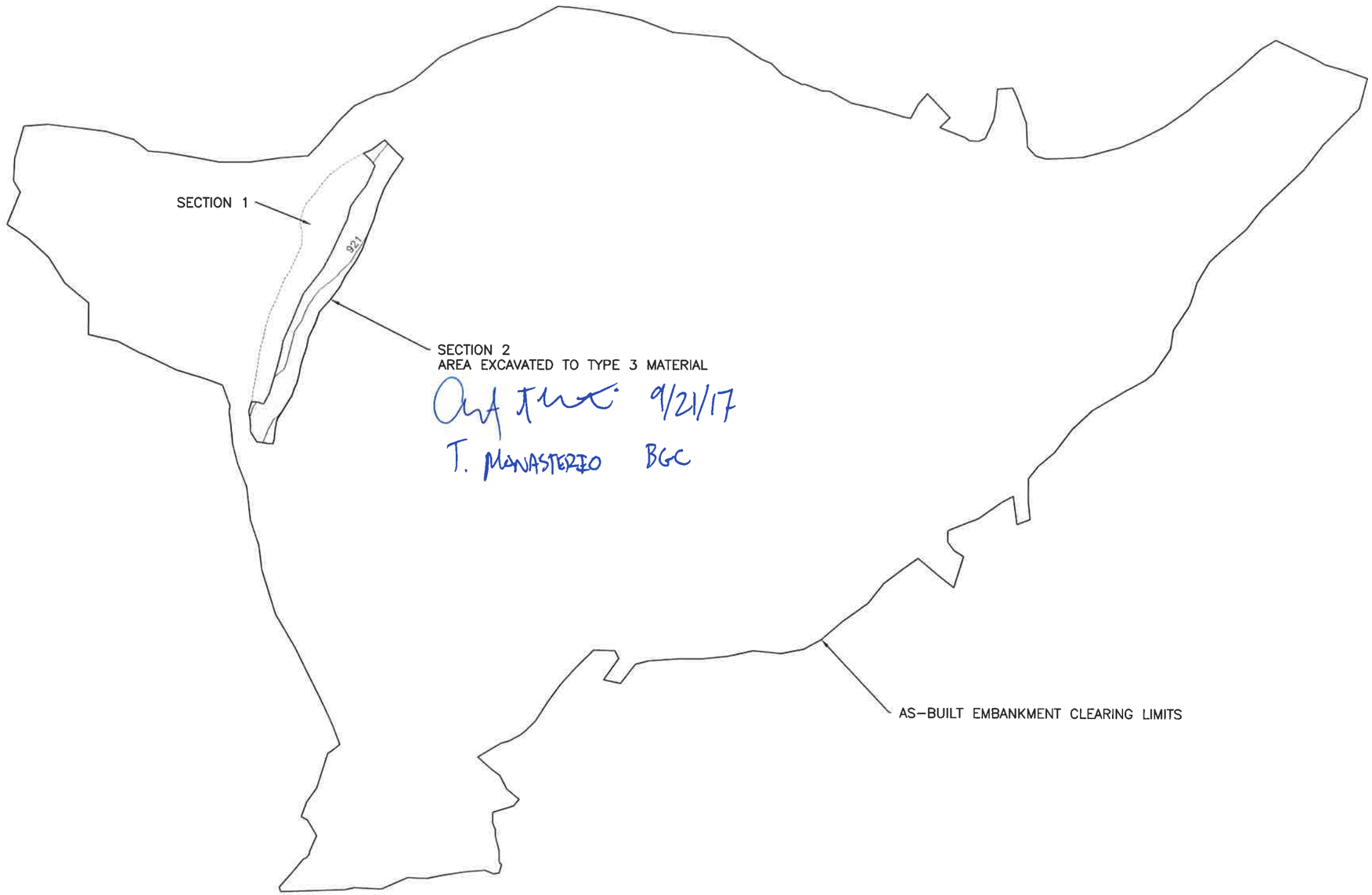
DRAWING FILE: 170920 EMBANKMENT SECTION 1 EXCAVATION TO TYPE 3 DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

N



9/21/17
T. MONASTERIO BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/21	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 2 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE: 17/09/21	DWG No: EMB-006-S2
SURVEYED: C.M.	CHECKED:
DRAWN: C.B.	APPROVED:

DRAWING FILE: 170921 EMBANKMENT SECTION 2 EXCAVATION TO TYPE 3 DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 23, 2017
Construction:	JDS Mining	**Inspection Number:**	FND02
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 3, Survey drawings attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock in both Sections 2 and 3. Excavation continued until parent rock fabric was observed and the area was approved. There is less ground ice in Section 3 than previously encountered, and mostly on the north side of the section. Section 3 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: North area of Section 1 approved under FND02.



Photo 2: Typical excavation to Type 3 bedrock as approved. Note the heterogeneity of the rock types encountered.

N



9/23/17

T. MONASTERIO BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/23	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 3 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/23	DWG No:	EMB-006-S3
SURVEYED:	C.M.	CHECKED:	
DRAWN:	C.B.	APPROVED:	

DRAWING FILE: 170923 EMB-006-S3 EMBANKMENT SECTION 3.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 28, 2017
Construction:	JDS Mining	**Inspection Number:**	FND03
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 4, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock. Excavation continued until parent rock fabric was observed and the area was approved. Again, ground ice was limited to the north third of the section. Ground temperatures in the north were -3 to 0°C; the south was much warmer, ranging from +2 to +5°C. Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 4 looking North, approved under FND03.



Out for Info. T. Monasterio 9/28/17 BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/26	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/26	DWG No:	EMB-006-S4
SURVEYED:	C.M.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170926 EMB-006-S4 EMBANKMENT SECTION 4.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 5, 2017
Construction:	JDS Mining	**Inspection Number:**	FND04
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 5, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC approved a portion of the west side of the ridge running down the center of Ann Gulch. Small areas which require additional cleaning or excavation near the bottom of the slope were excluded from this approval and will be attended to by Pelly and included in the next approval.
Ground ice was not encountered on the slope.
Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 5 looking North, approved under FND04.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 5, 2017
Construction:	JDS Mining	**Inspection Number:**	FND04
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 5, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC approved a portion of the west side of the ridge running down the center of Ann Gulch. Small areas which require additional cleaning or excavation near the bottom of the slope were excluded from this approval and will be attended to by Pelly and included in the next approval.
Ground ice was not encountered on the slope.
Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 5



RG
Ron Morlan
BGC
10-7-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/04	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/01	DWG No: EMB-006-S5
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171001 EMB-006-S5 EMBANKMENT SECTION 5.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 6, 2017
Construction:	JDS Mining	**Inspection Number:**	FND06
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 6, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
Excavation has reached bedrock. However, the abutment face will need to cleaned and stripped of loose soil/rock prior to construction next season. Benching or keying in lifts may also be required.
Ground ice was not encountered on the slope.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ **Excavation to Type 3 bedrock**
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 6



Roy Mosher
BGC
10-7-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/04	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/01	DWG No: EMB-006-S6
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171004 EMB-006-S6 EMBANKMENT SECTION 6.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 10, 2017
Construction:	JDS Mining	**Inspection Number:**	FND07
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

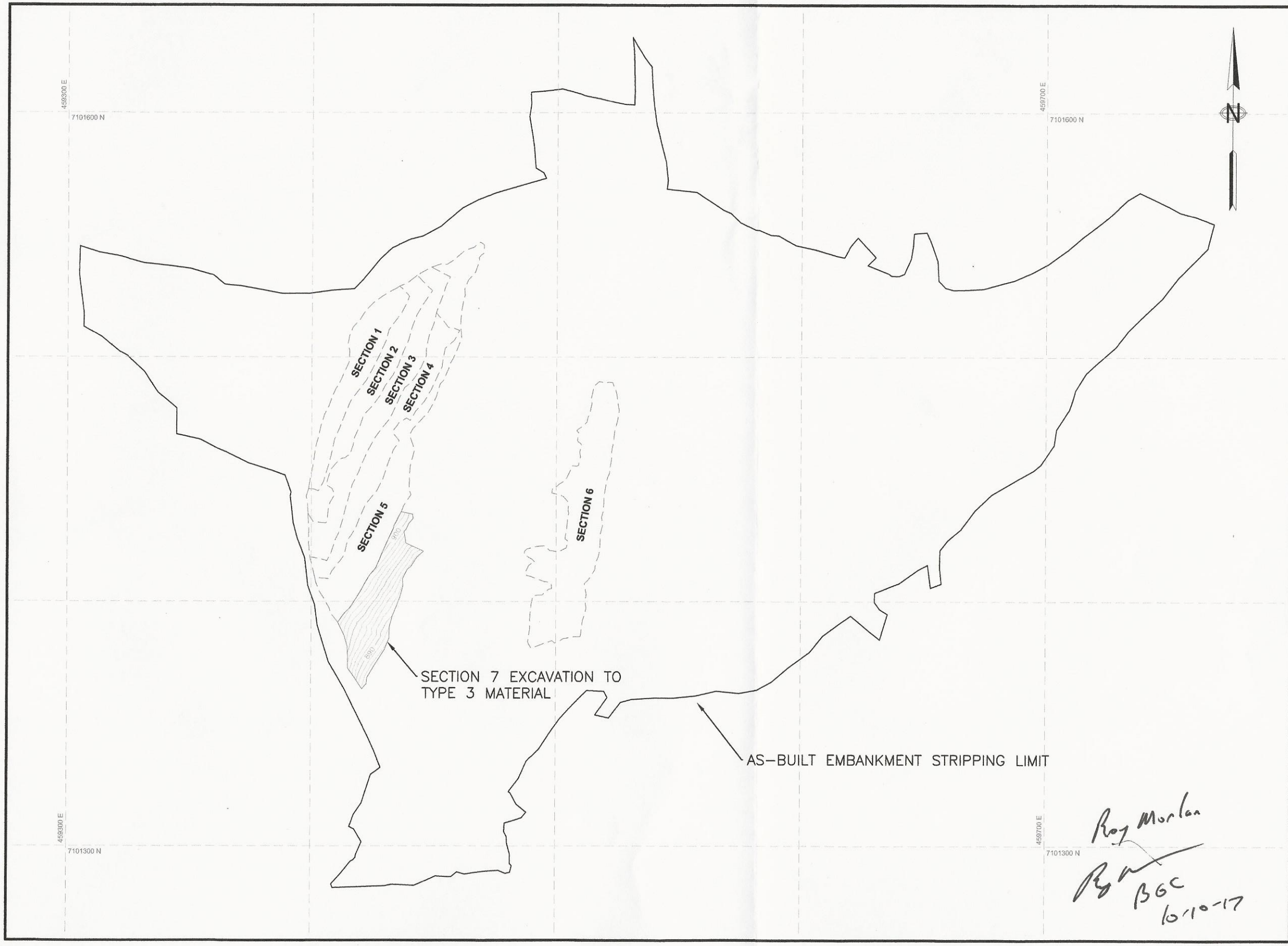
Pelly area(s) approved by this document: Section 7, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
Ground ice was not encountered on the slope.
Section 7 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS

Photo 1:.



Roy Morlan
BGC
10-10-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/07	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 7 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/06	DWG No: EMB-007-S7
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171007 EMB-007-S6 EMBANKMENT SECTION 7.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 18, 2017
Construction:	JDS Mining	**Inspection Number:**	FND08
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 8, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered on the northern ¼ of the approved area. It was removed to hard, competent bedrock. Ground temperature measurements are included in Ground Temperature Measurement Log Sec08-01.
- As with all other approved sections, Section 8 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 8 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

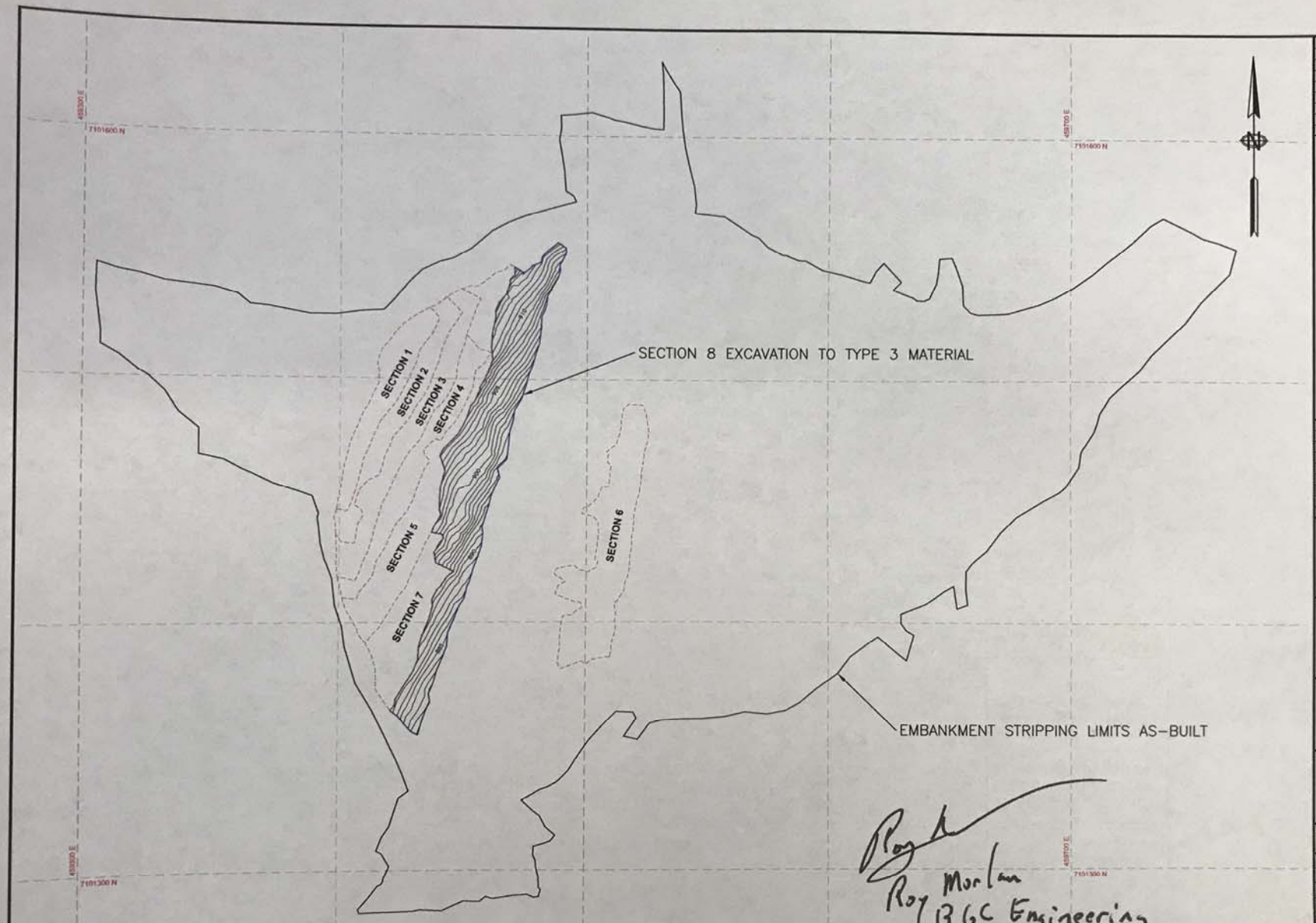
PHOTOGRAPHS


SW
W
NW
N
NE
240
270
300
330
0
30
330°NW (T)
8 N 459520 7101463 ±5m
906m
16 Oct 2017, 14:24

Photo 1:


W
NW
N
NE
0
270
300
330
0
30
60
348°N (T)
31 N 166021 0
0m
17 Oct 2017, 12:17

Photo 2:



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/17	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT SECTION 8 EXCAVATION TO TYPE 3 TOPOGRAPHY AS-BUILT

DRAWING SCALE: H 1:1500

DATE:	17/10/17	DWG No:	EMB-006-S8
SURVEYED:	C.M. & C.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 171017 EMB-006-S8 EMBANKMENT SECTION 8 ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Roy Morlan
BGC Engineering
Oct 18, 2017

See FND08 For Details of Approval

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	April 26, 2018
Construction:	JDS Mining	**Inspection Number:**	FND09
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 09, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Areas was cleared in October 2017. However, BGC was demobilized before approval could be signed. BGC has inspected this area on April 26 and has approved it.
- Section 09 will require surface cleaning as ice removal activities in April 2018 has generated mud from pulverization of the upper portion (5 to 20 cm) of type 3 foundation.
- Section 09 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

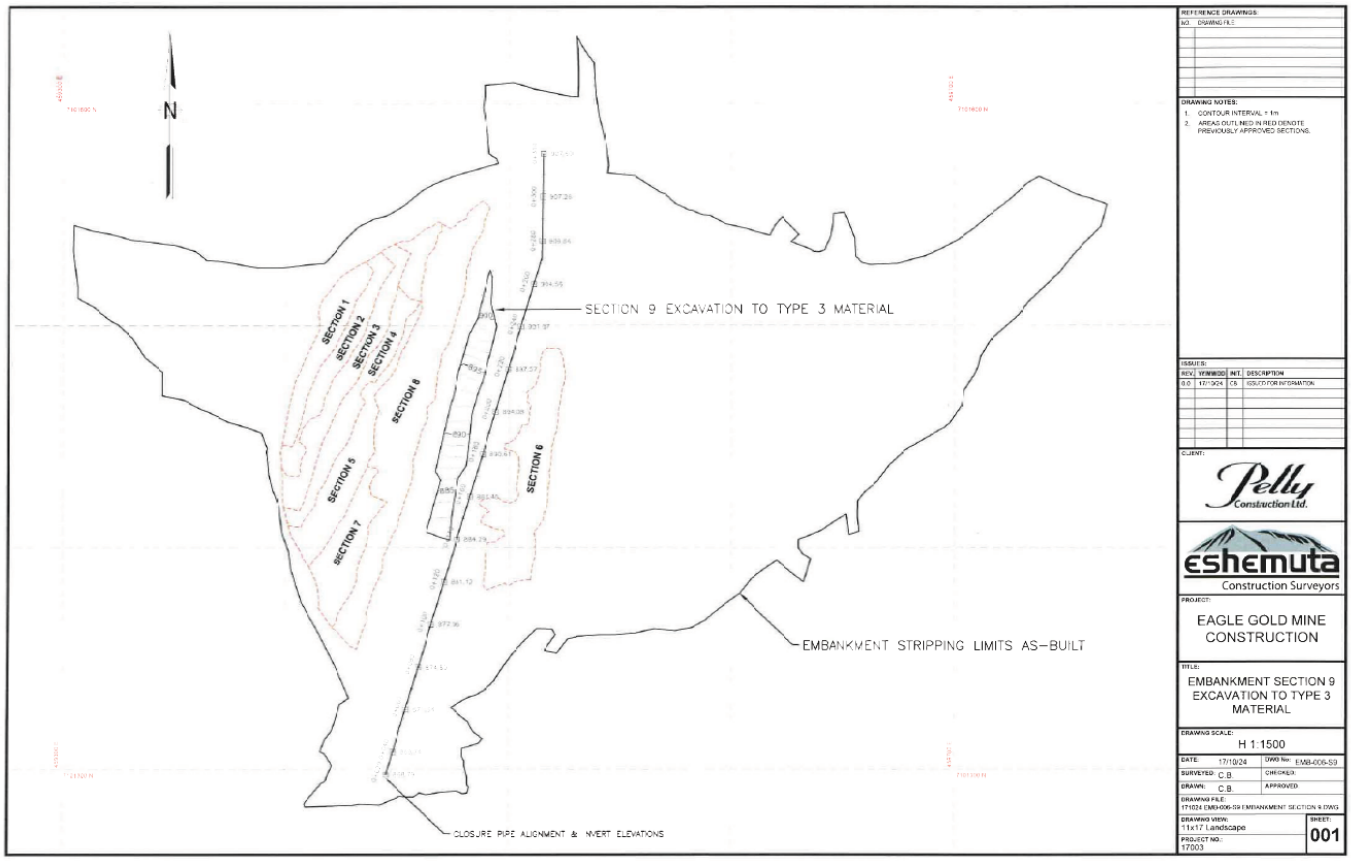
Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS



Photo 1: Section 9.


N
SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 8
SECTION 5
SECTION 7
SECTION 6
SECTION 9 EXCAVATION TO TYPE 3 MATERIAL
EMBANKMENT STRIPPING LIMITS AS-BUILT
CLOSURE PIPE ALIGNMENT & INVERT ELEVATIONS
REFERENCE DRAWINGS:
NO. DRAWING FILE:
DRAWING NOTES:
1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.
ISSUES:
REV. YR/MO/DD INT. DESCRIPTION
0.0 17/10/24 CS ISSUED FOR INFORMATION
CLIENT:
Pelly Construction Ltd.
eshemuta
Construction Surveyors
PROJECT:
EAGLE GOLD MINE CONSTRUCTION
TITLE:
EMBANKMENT SECTION 9 EXCAVATION TO TYPE 3 MATERIAL
DRAWING SCALE:
H 1:1500
DATE: 17/10/24
DWG No: EMB-006-S9
SURVEYED: C.B.
CHECKED:
DRAWN: C.B.
APPROVED:
DRAWING FILE:
17-024 EMB-006-S9 EMBANKMENT SECTION 9.DWG
DRAWING VIEW:
11x17 Landscape
PROJECT NO.:
17003
SHEET:
001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 2, 2018
Construction:	JDS Mining	**Inspection Number:**	FND10
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 10, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Foundation was over excavated in some areas between 30 to 50 cm as loose material at the surface was frozen to stronger material below and all material would be dislodged in one large frozen chunk. Type 3 foundation rock left had visible ice between joints in some sections. Ground temperature was measured between -1 C to 2C in Section 10.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 10 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 10 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS



Photo 1: Foundation excavation spoils.



Photo 2: Example of type 3 foundation with ice between the joints. In place strength will need to be re-evaluated after ice has thawed. Area may need additional cleaning of loose material after ice has thawed.

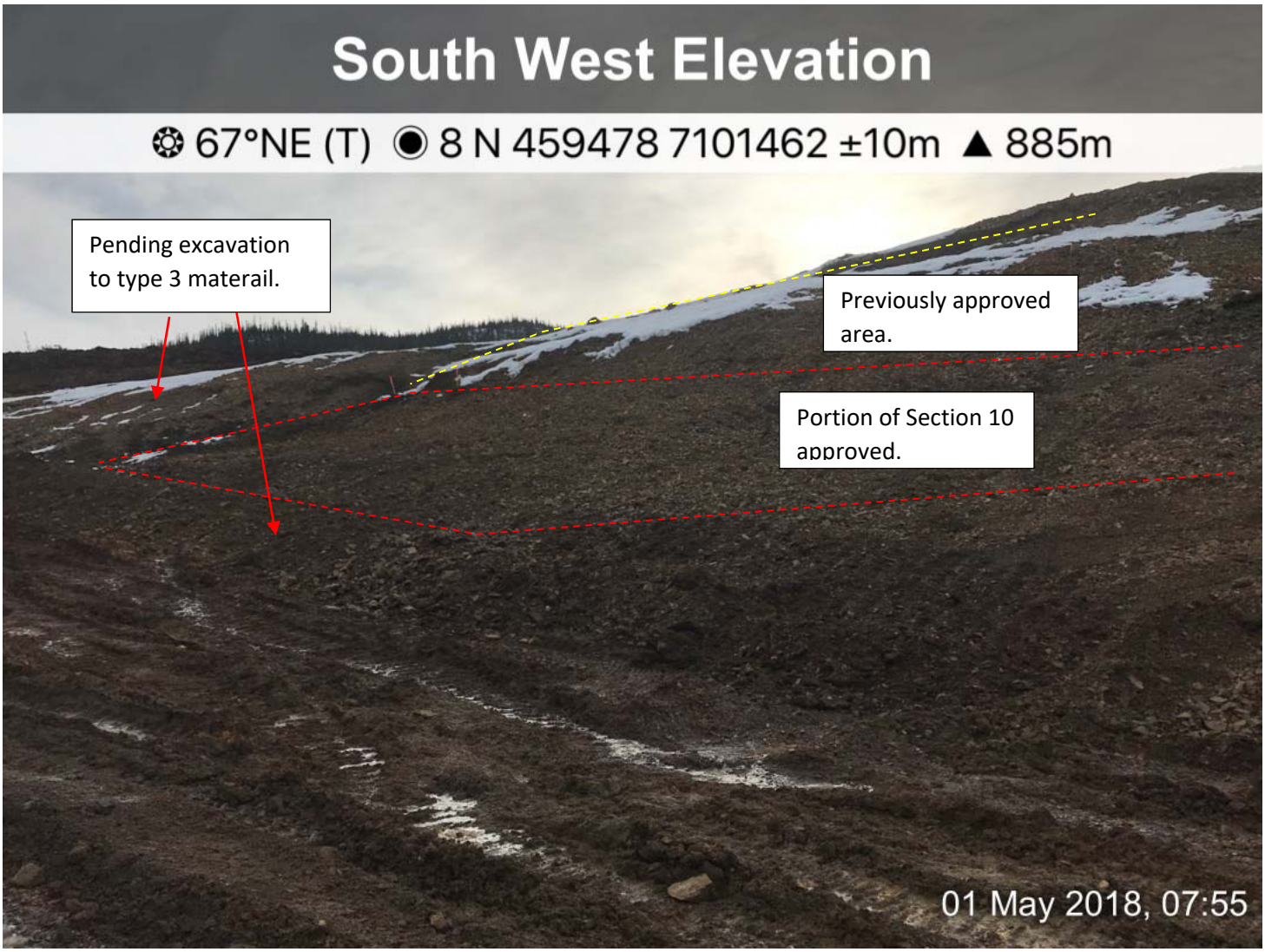


Photo 3: Portion of the area where type 3 foundation was approved in Section 10.

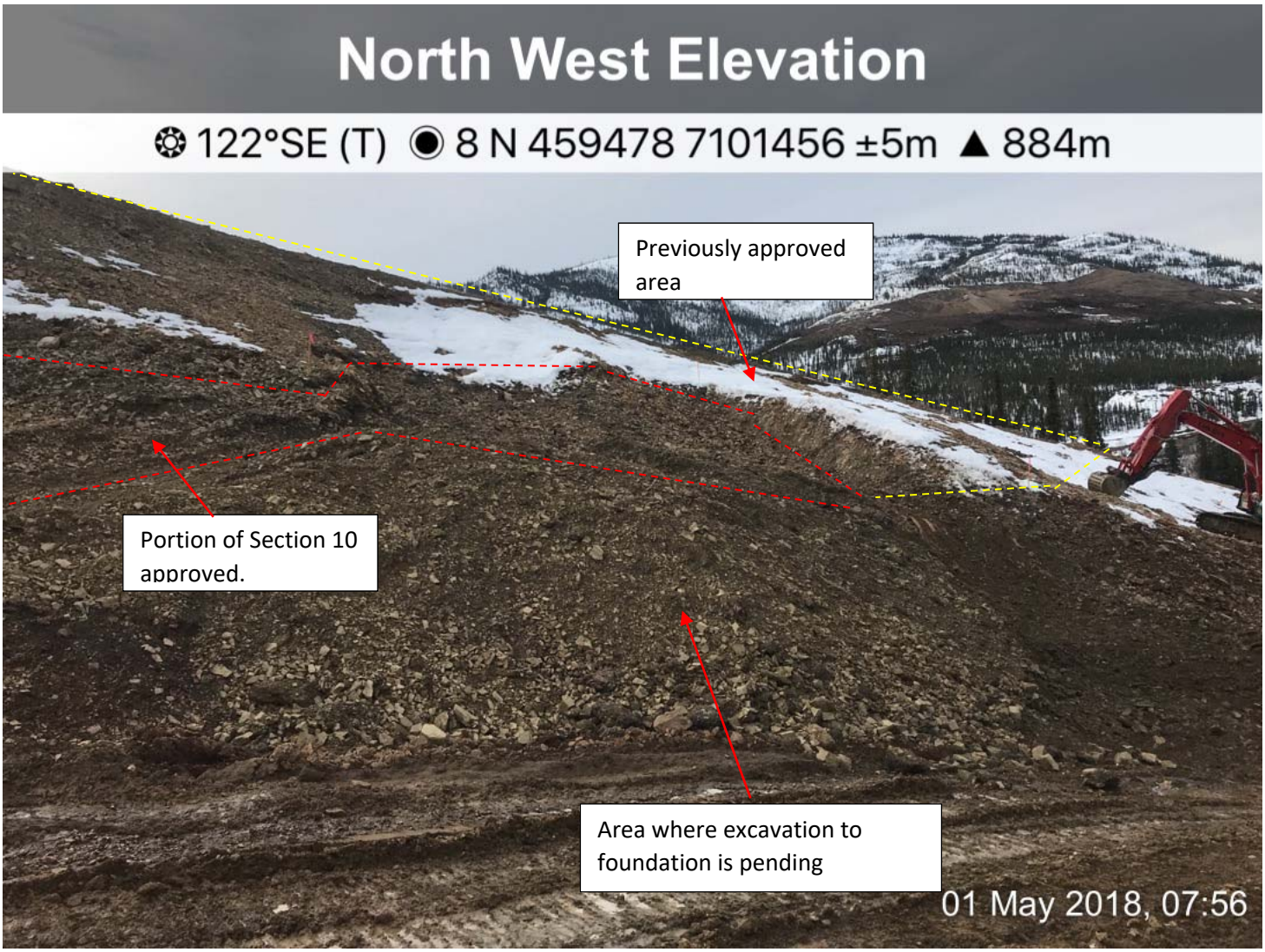
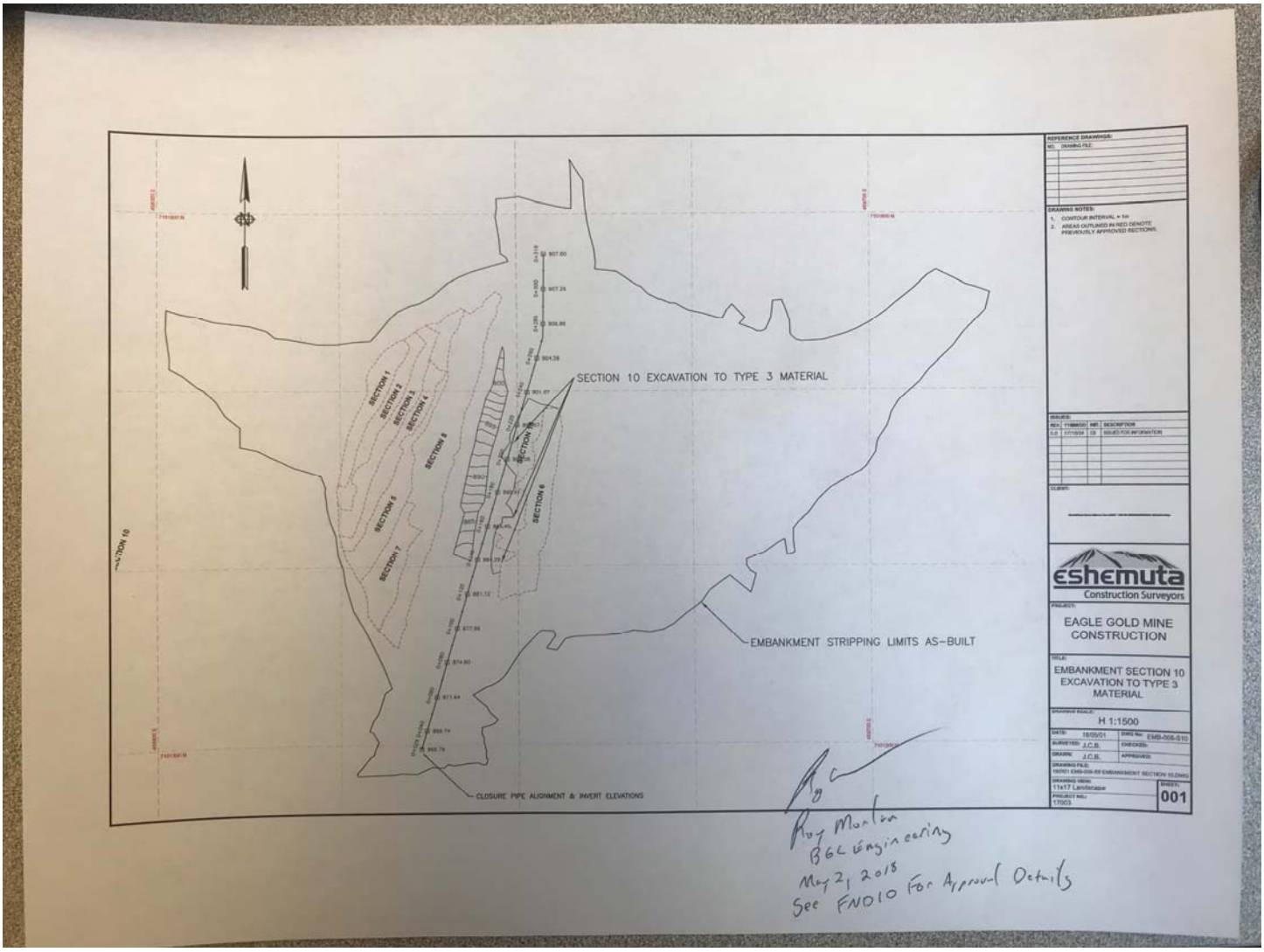


Photo 4: Remaining portion of Section 10 foundation approval.



Section 10 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 8, 2018
Construction:	JDS Mining	**Inspection Number:**	FND11
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 11, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 11 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 11 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

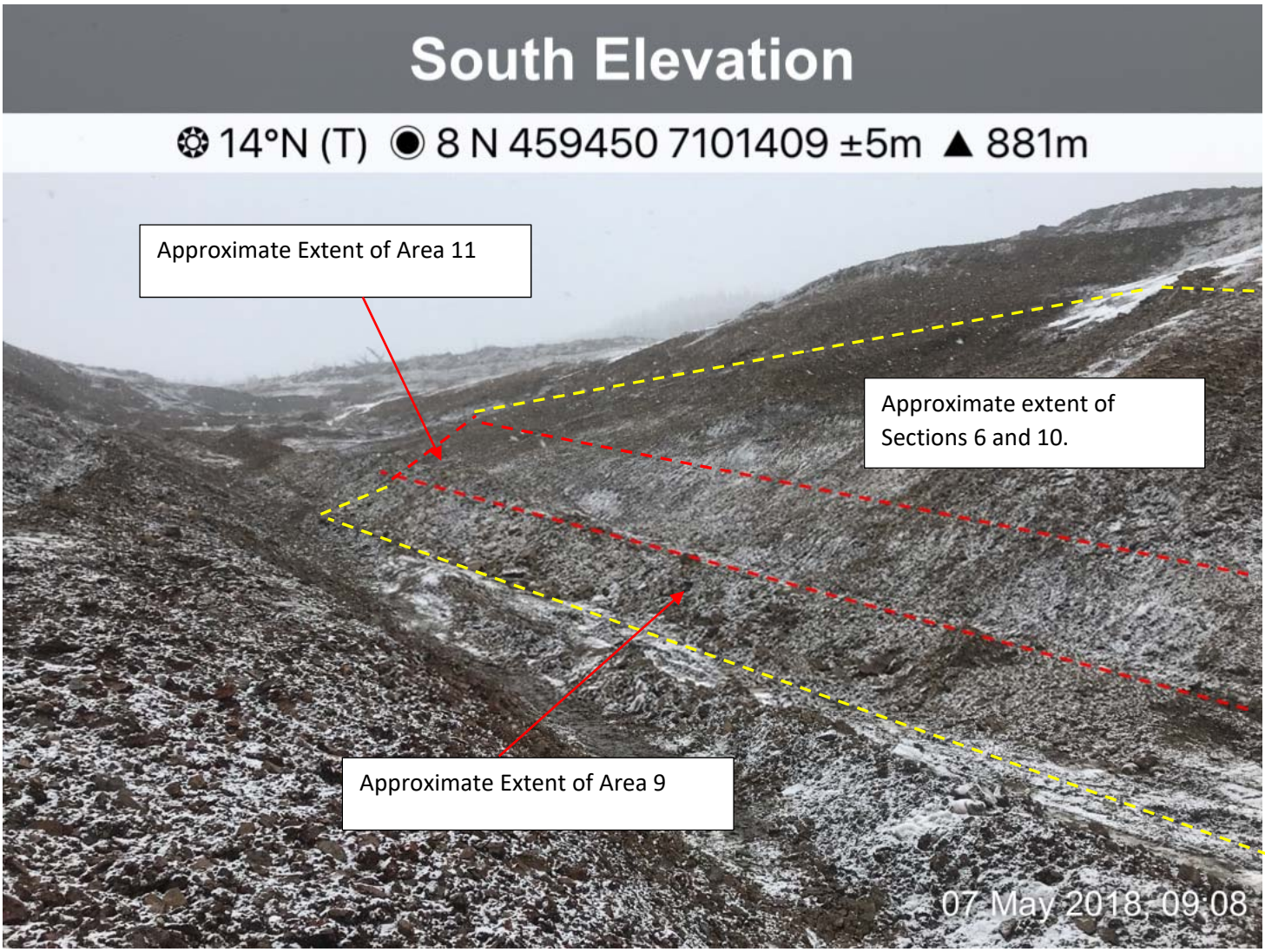


Photo 1: Photograph of a portion of Area 11.

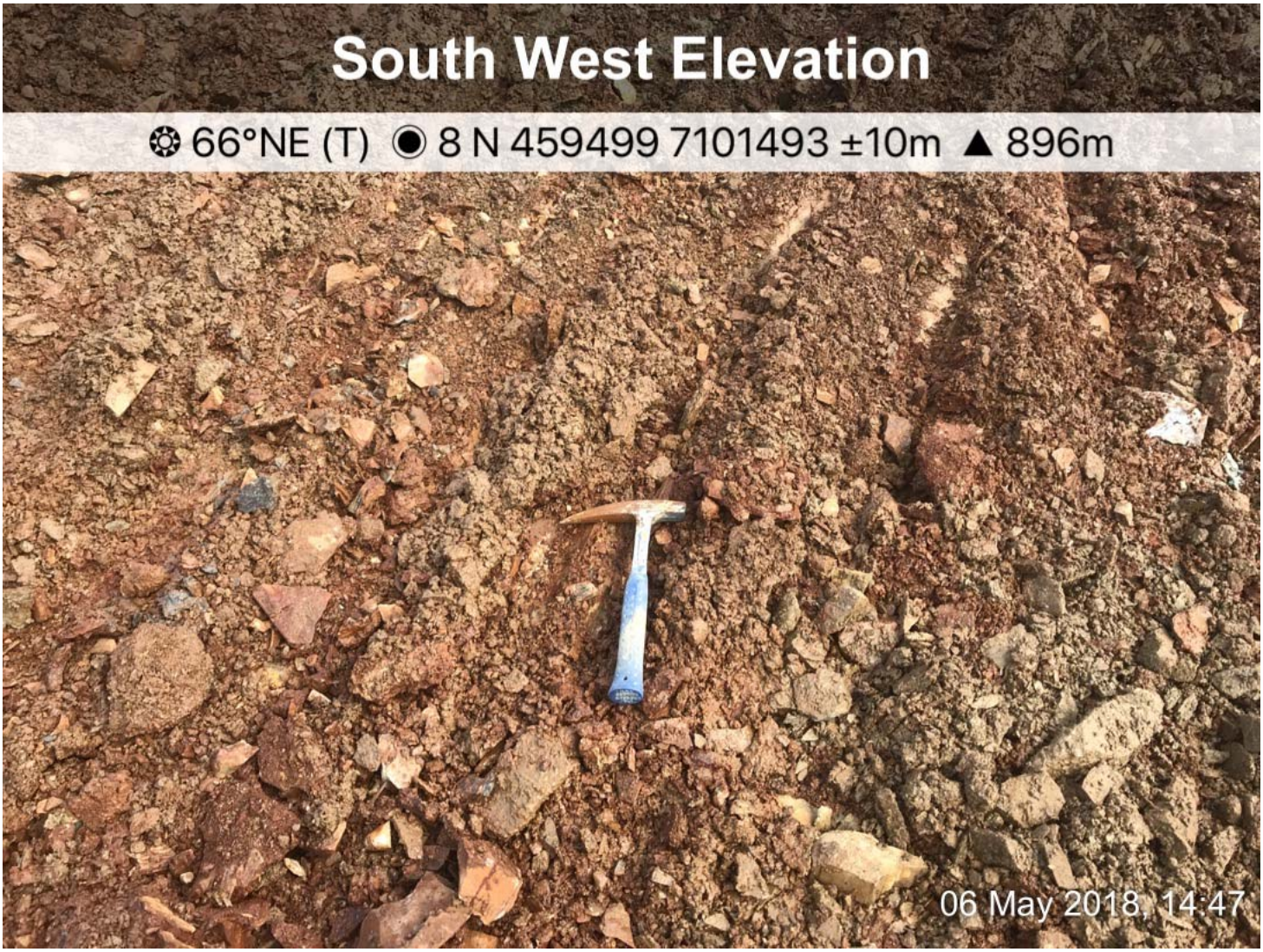


Photo 2: Example of type 3 bedrock in Section 11.



Photo 3: Example of type 3 bedrock in Section 11.

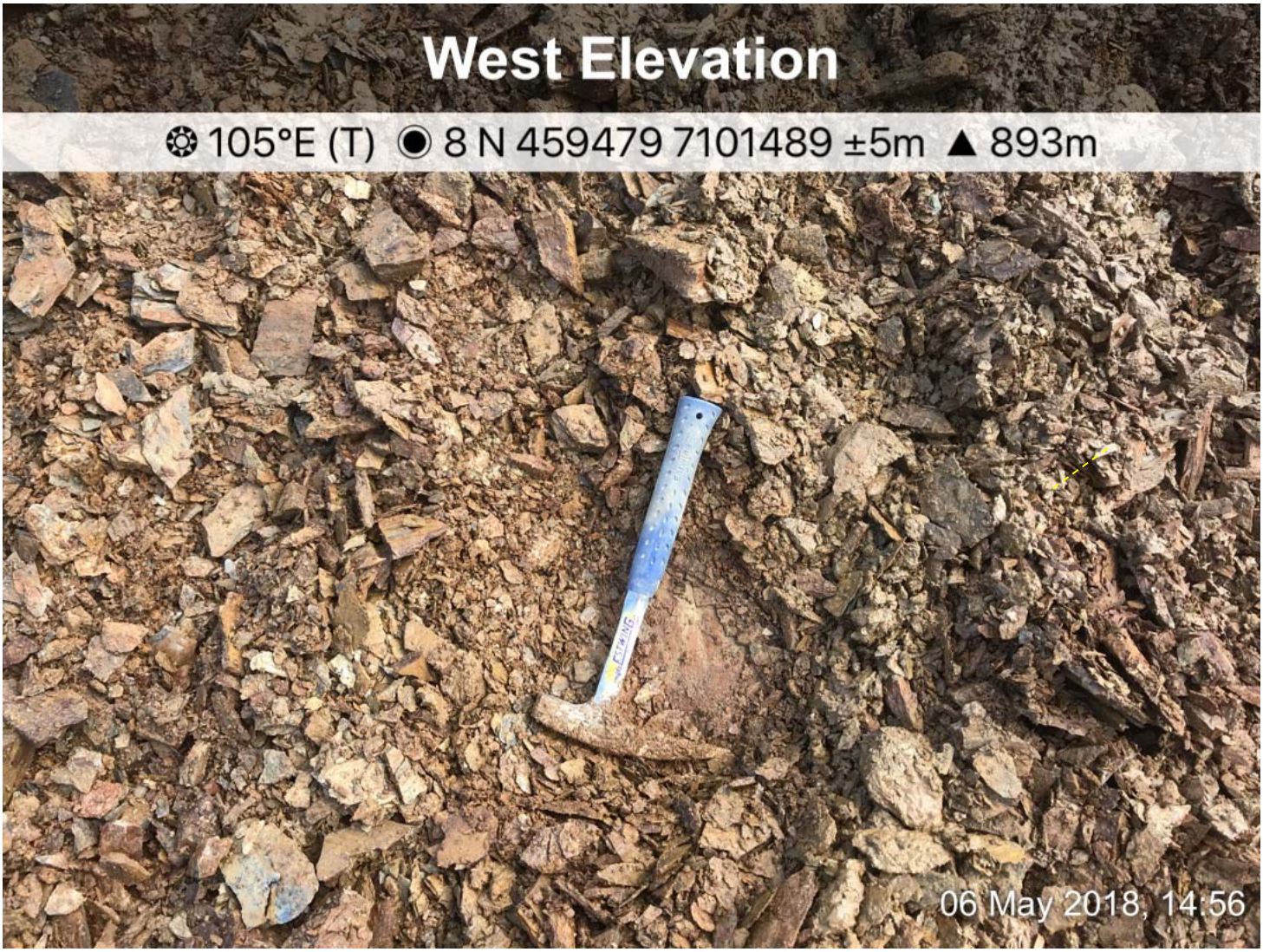
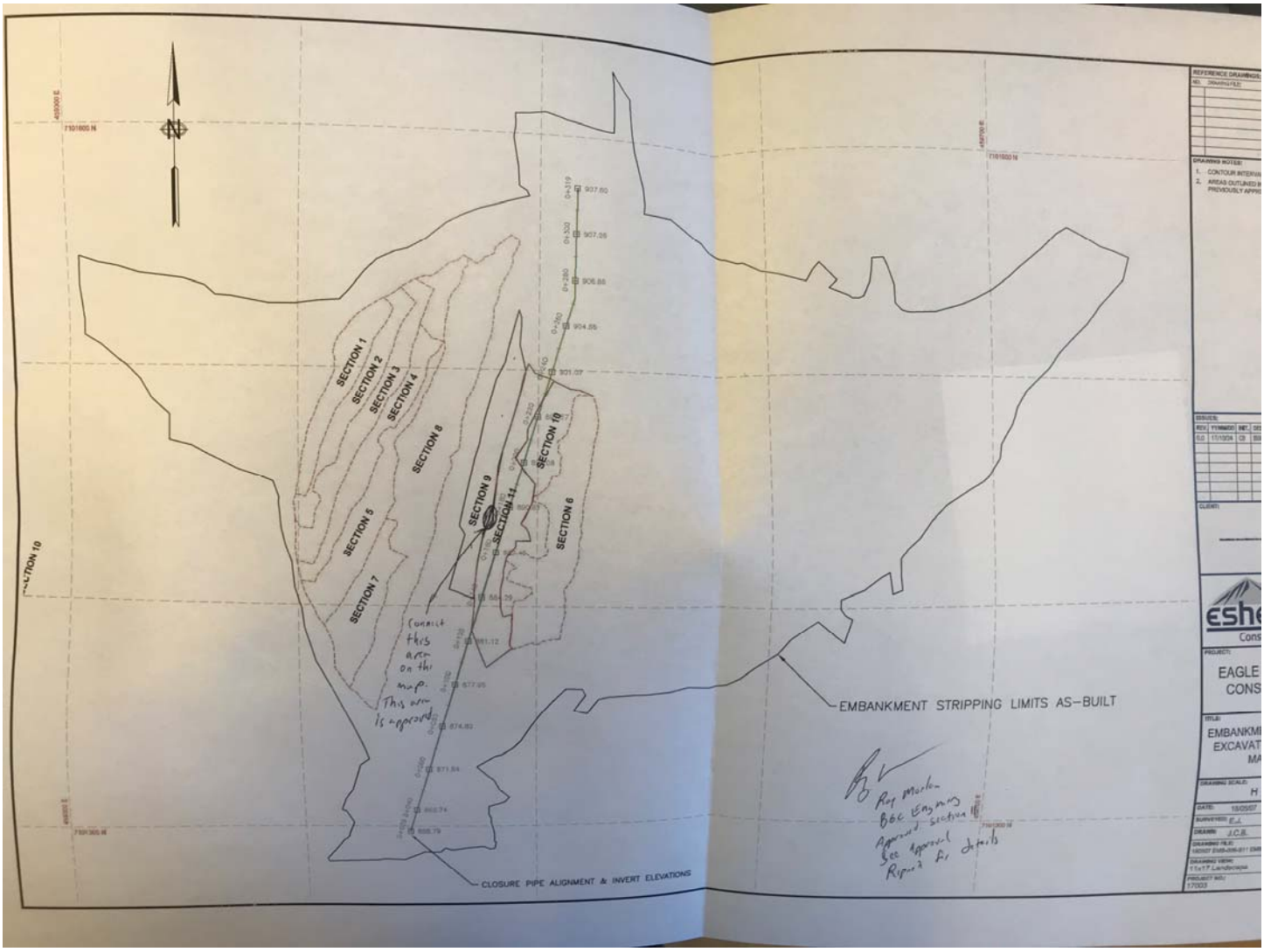


Photo 4: Example of type 3 bedrock in Section 11.



Section 11 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 9, 2018
Construction:	JDS Mining	**Inspection Number:**	FND12
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 12, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 12 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 12 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

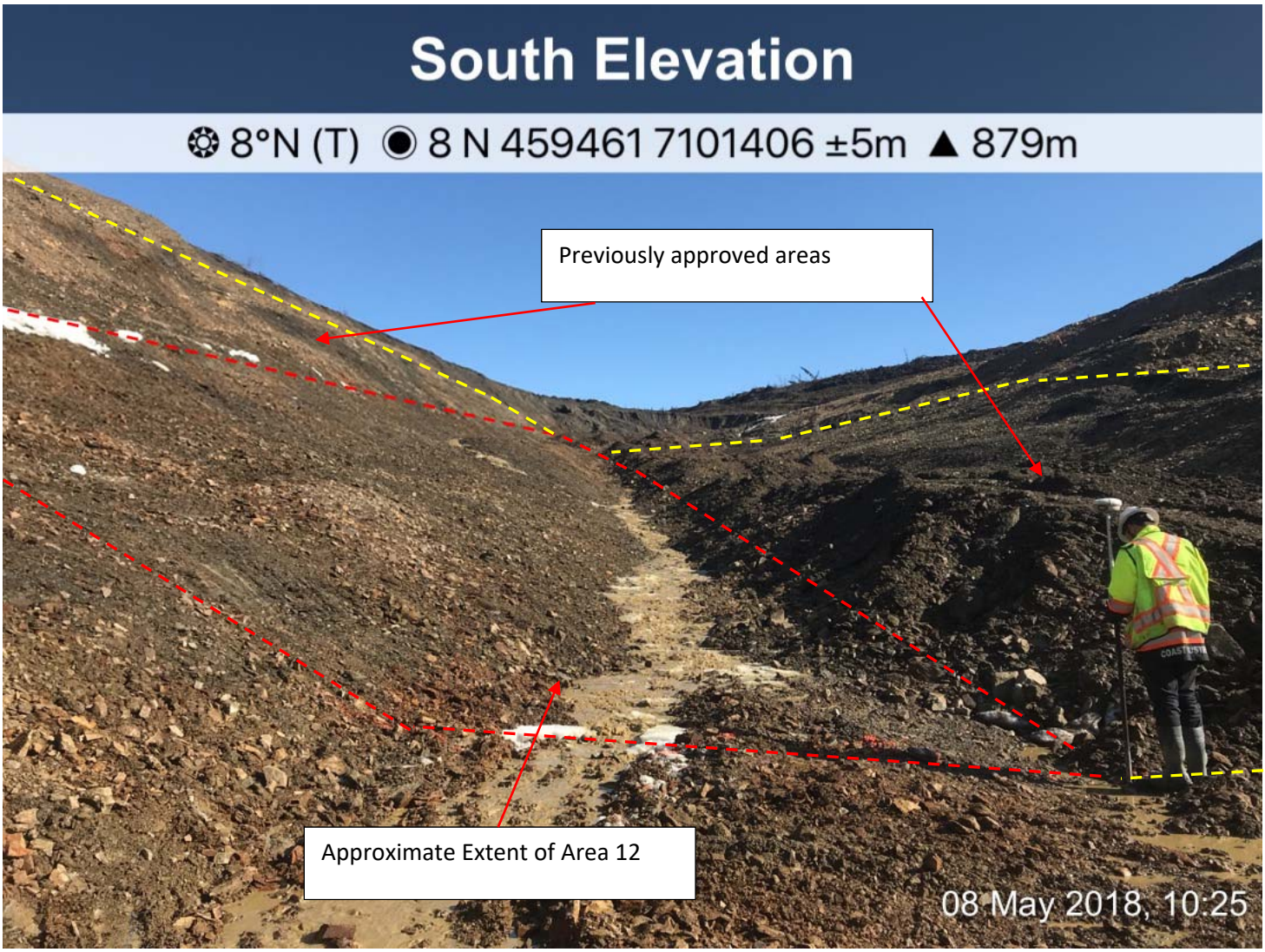


Photo 1: Photograph of a portion of Area 12.

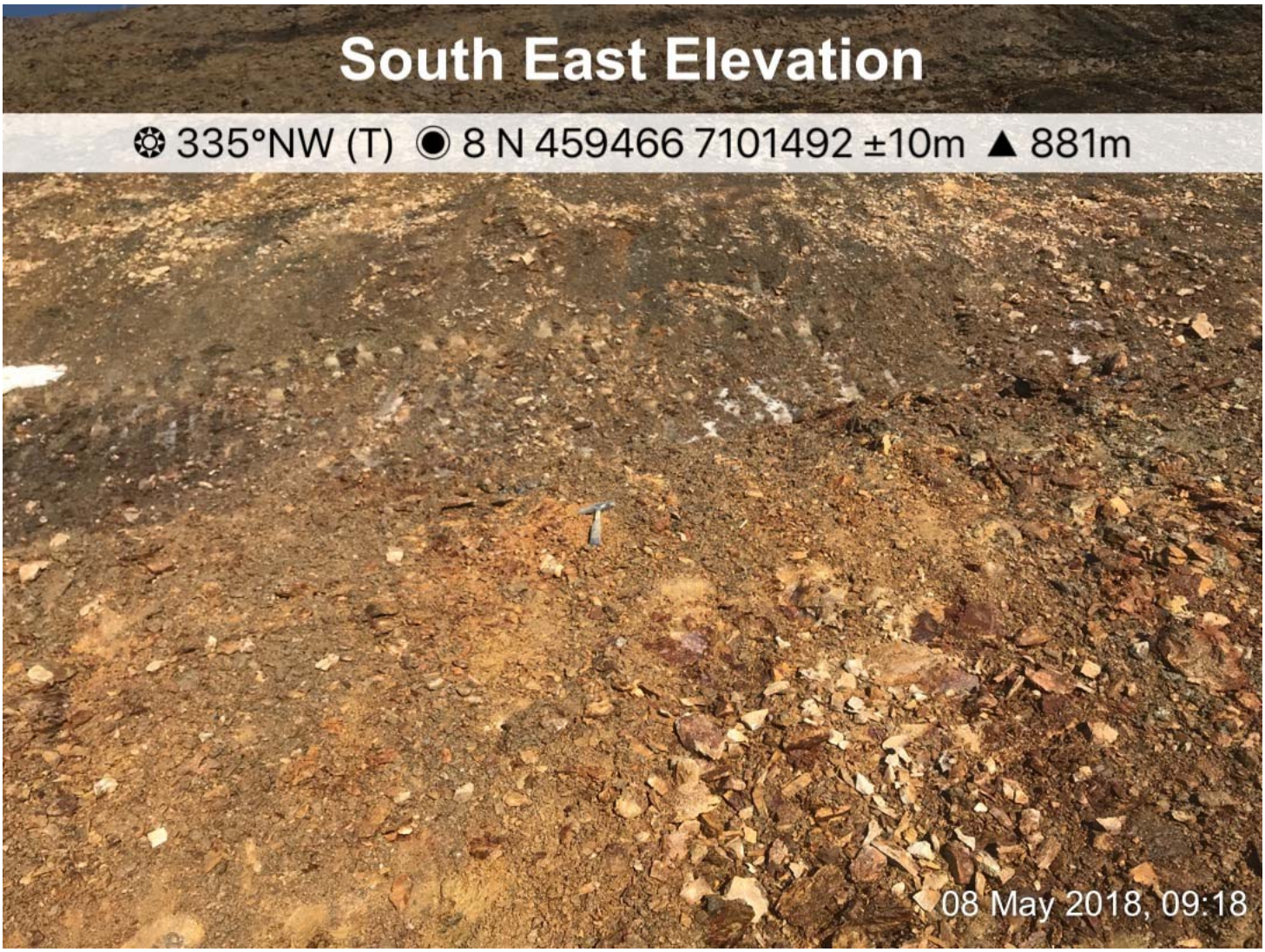


Photo 2: Example of type 3 bedrock in Section 12.

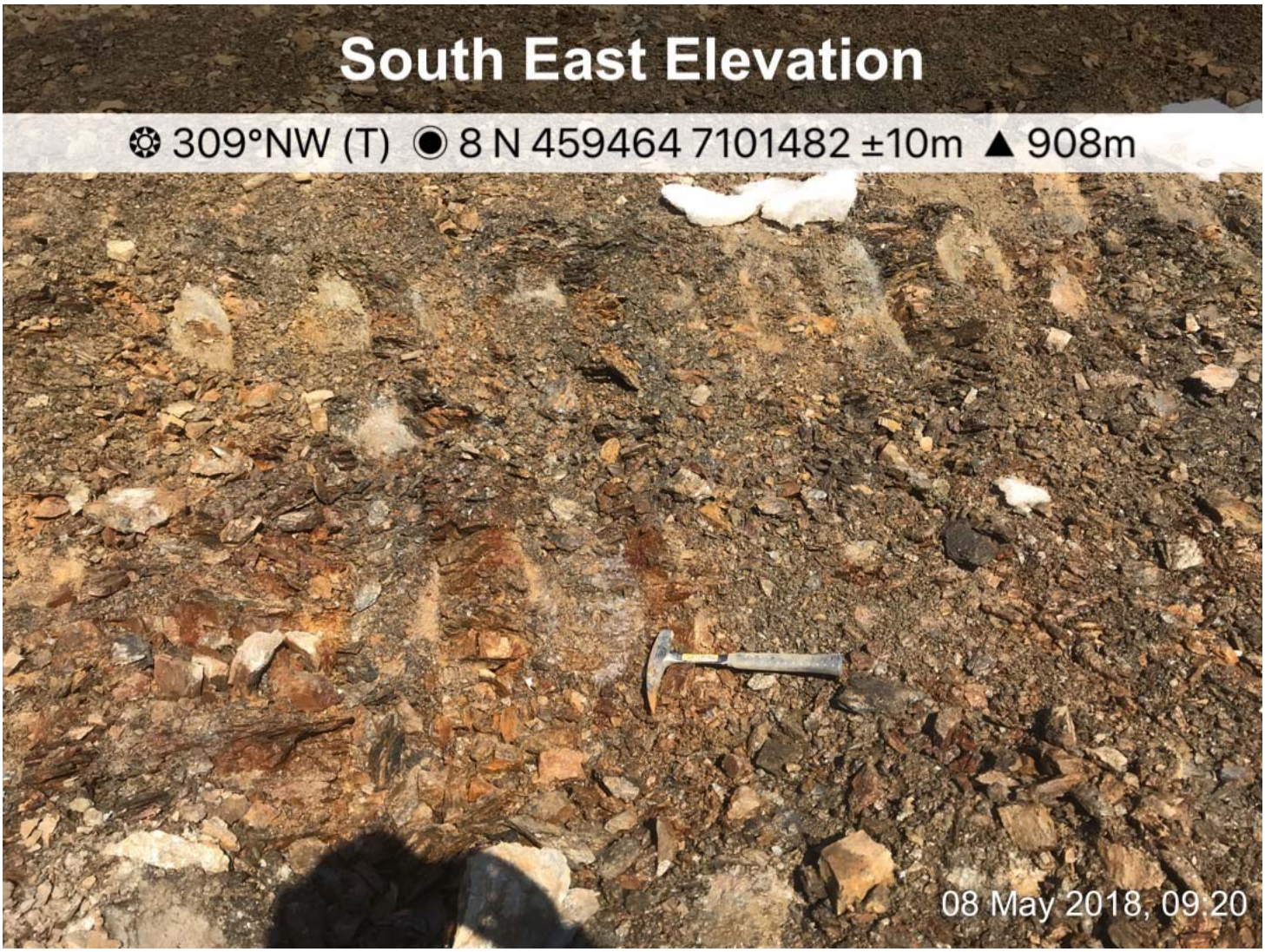


Photo 3: Example of type 3 bedrock in Section 12.

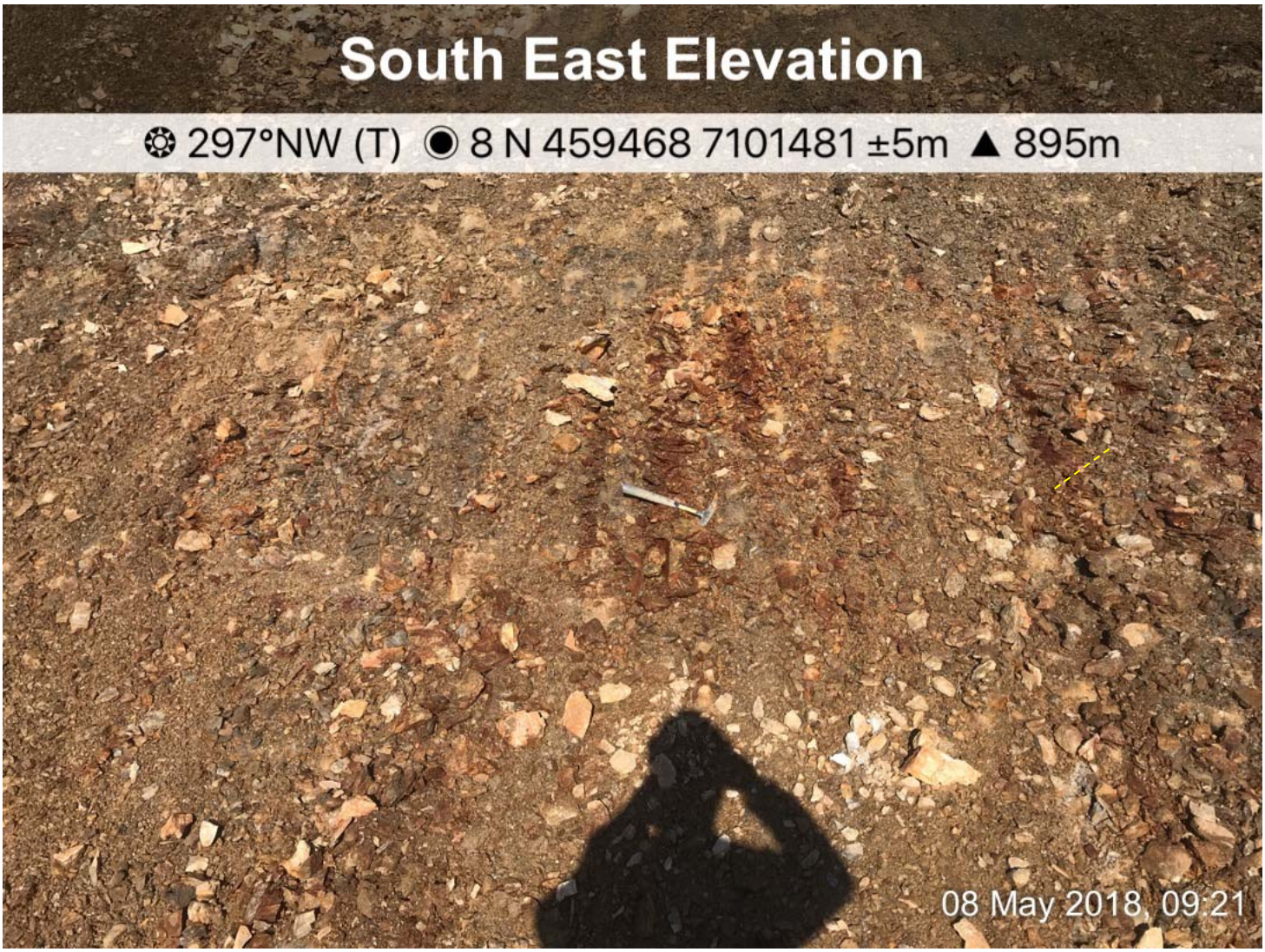
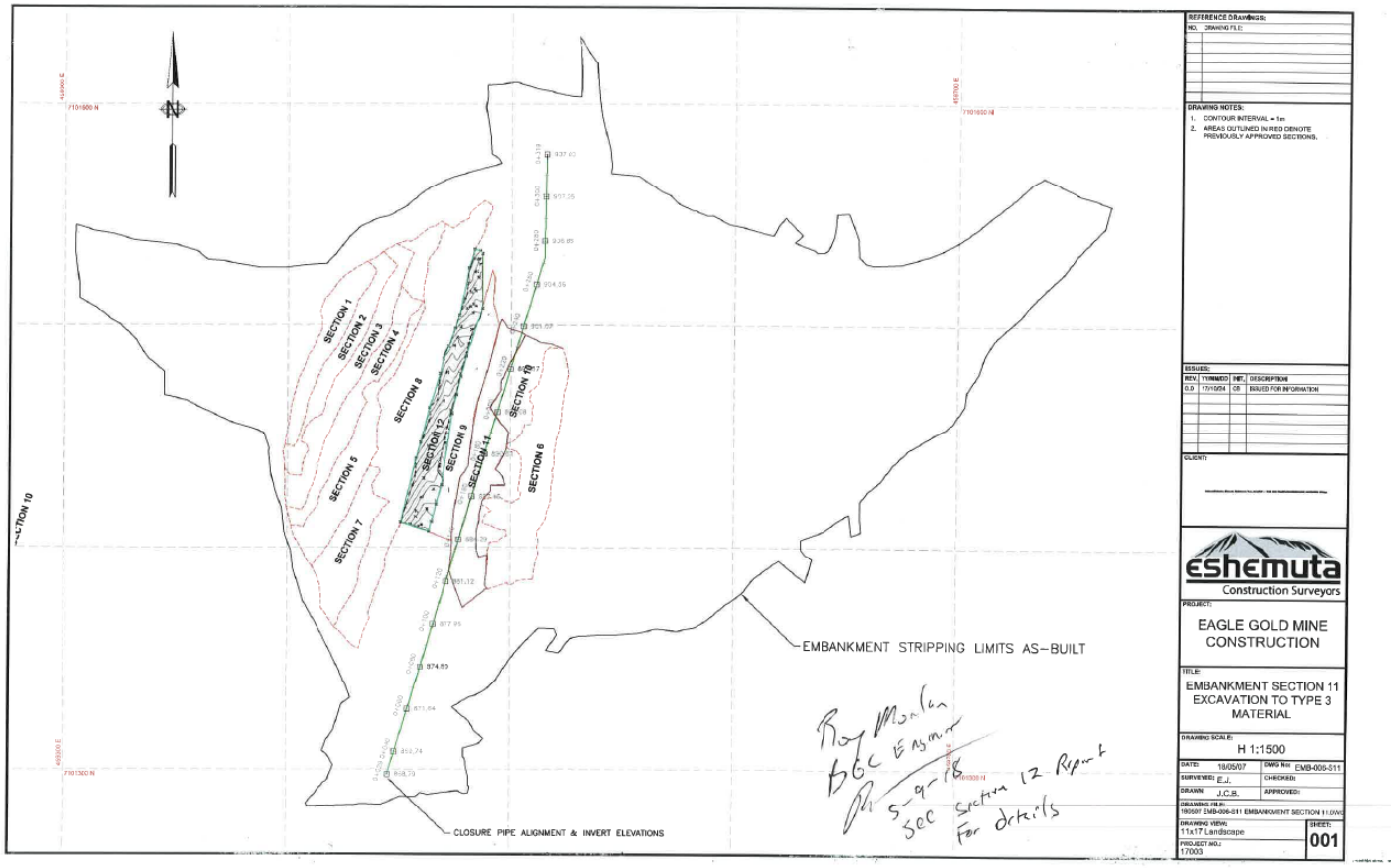


Photo 4: Example of type 3 bedrock in Section 12.



Section 12 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND13
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 13, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 13 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 13 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

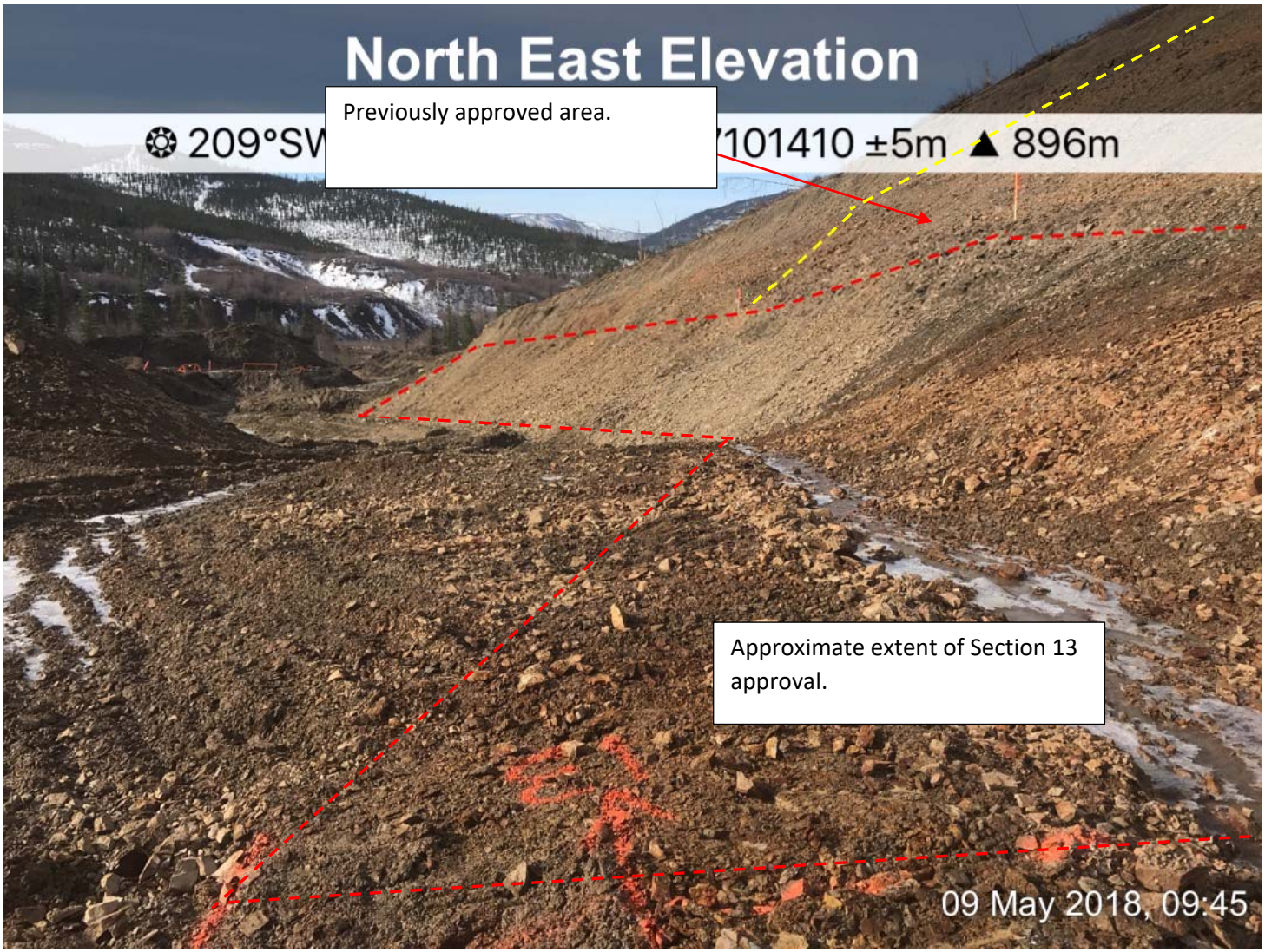


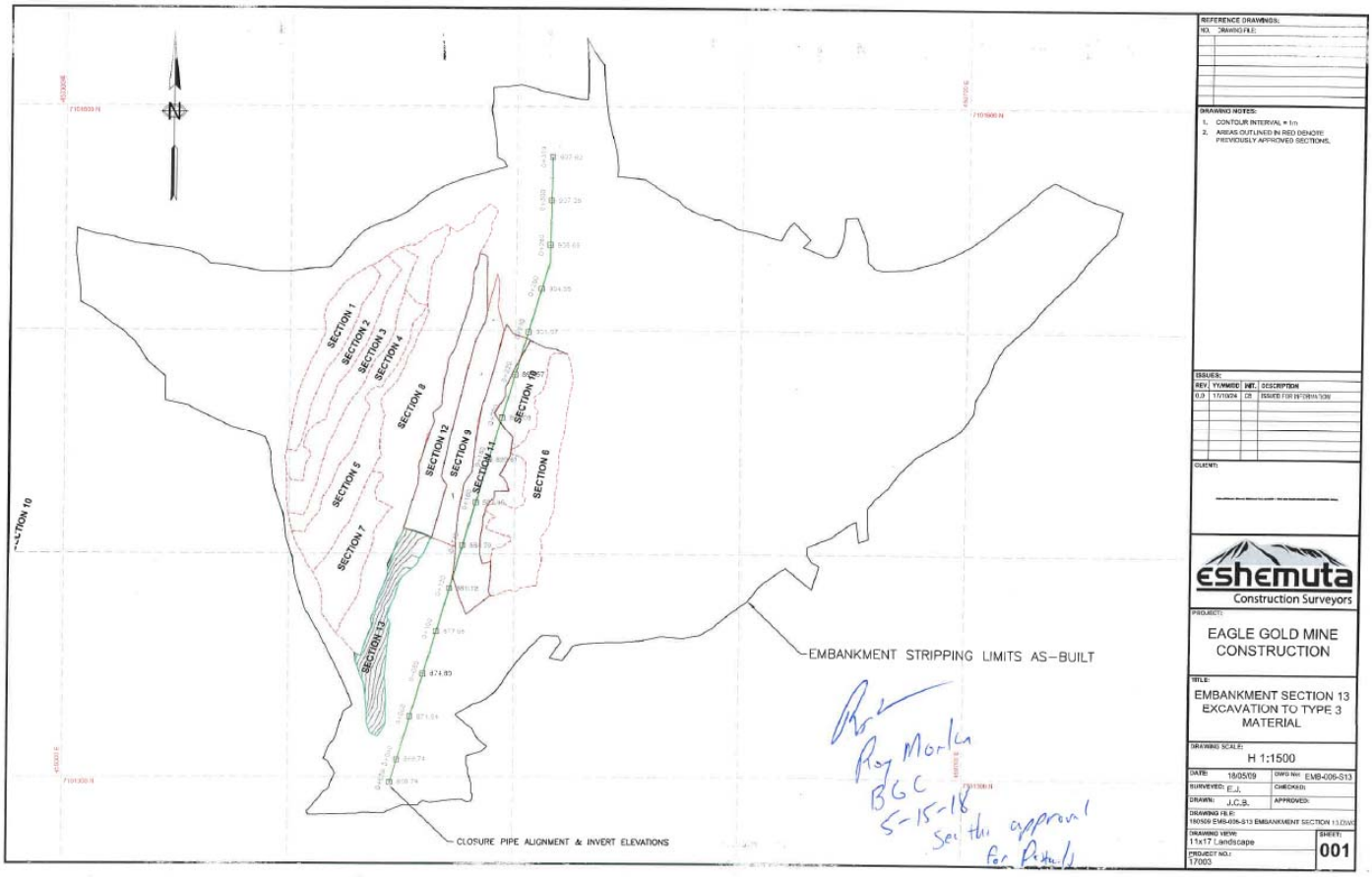
Photo 1: Photograph of a portion of Section 13.



Photo 2: Example of type 3 bedrock or better in Section 13.



Photo 3: Example of type 3 bedrock just below a thin layer of softer material (in this case sluff from overhead excavation). Area is approved but soft, loose material will have to be removed prior to placement of embankment fill.



Section 13 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND14
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 14, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 14 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Portions of this section are approved on the condition that access roads and berms will be excavated prior to placement of embankment fill. Portions of the roads built directly into type 3 rock do not have to be removed. These structures were left in place by Pelly to allow access to the valley for transport of material.
- Section 14 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

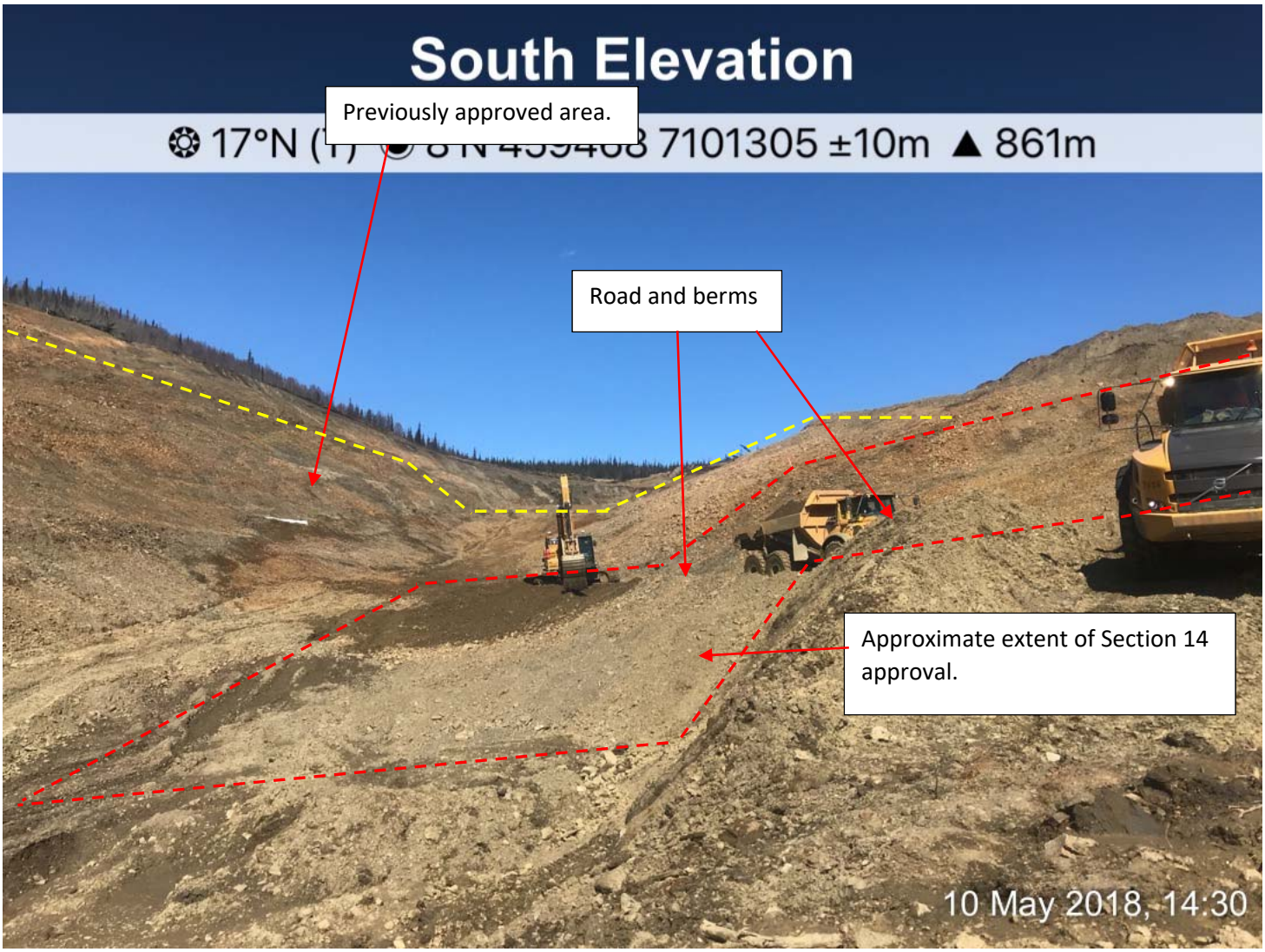


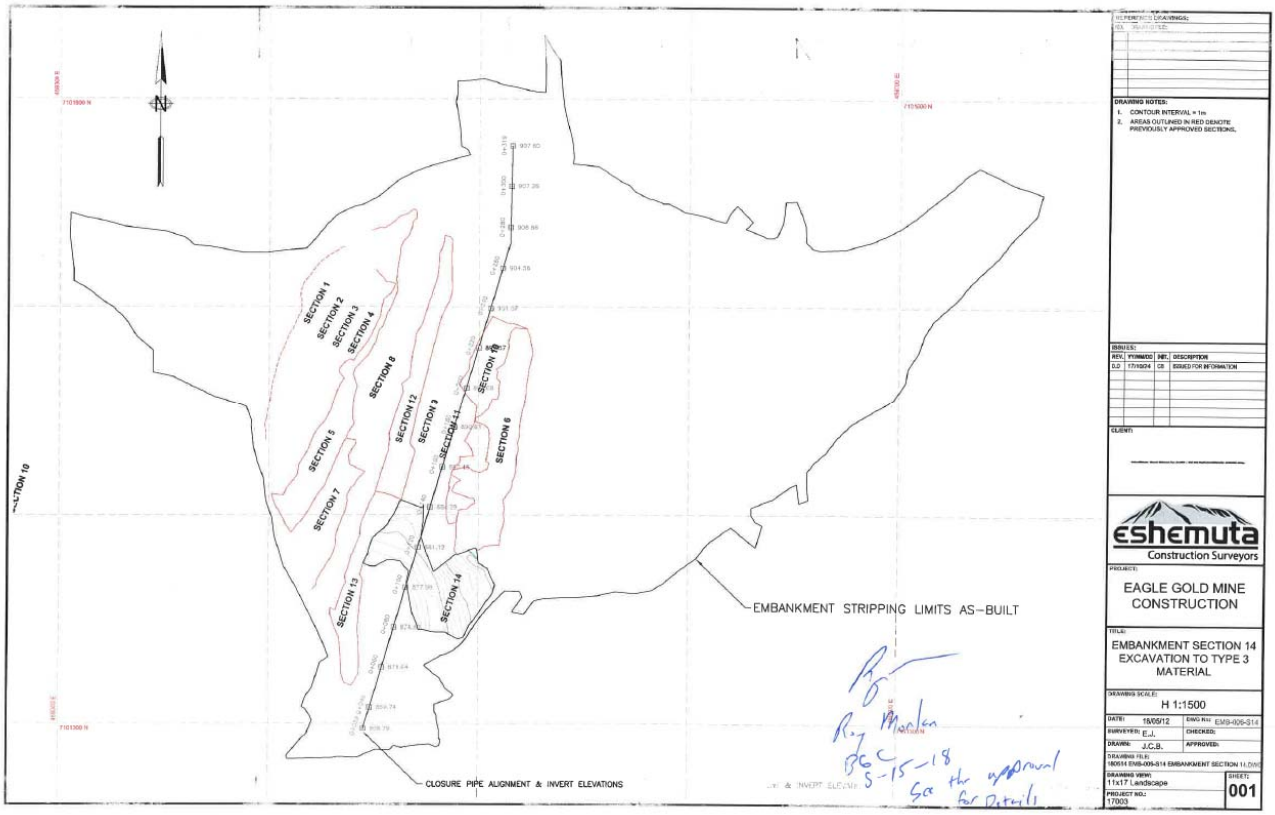
Photo 1: Photograph of Section 14 approved. Road and berms will have to be removed prior to placement of embankment fill.



Photo 2: Example of type 3 bedrock or better in Section 14.



Photo 3: Example of type 3 bedrock or better in Section 14.



Section 14 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND15
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 15, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 15 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Slopes built in colluvium to key in the embankment toe were wet and loose and, therefore, could not be approved. Further excavation likely would not have resulted in drier, denser material because of the amount of water reporting to this area. Once water has been controlled in this areas the slopes can be re-inspected and determination of foundation treatment can be evaluated.
- Section 15 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

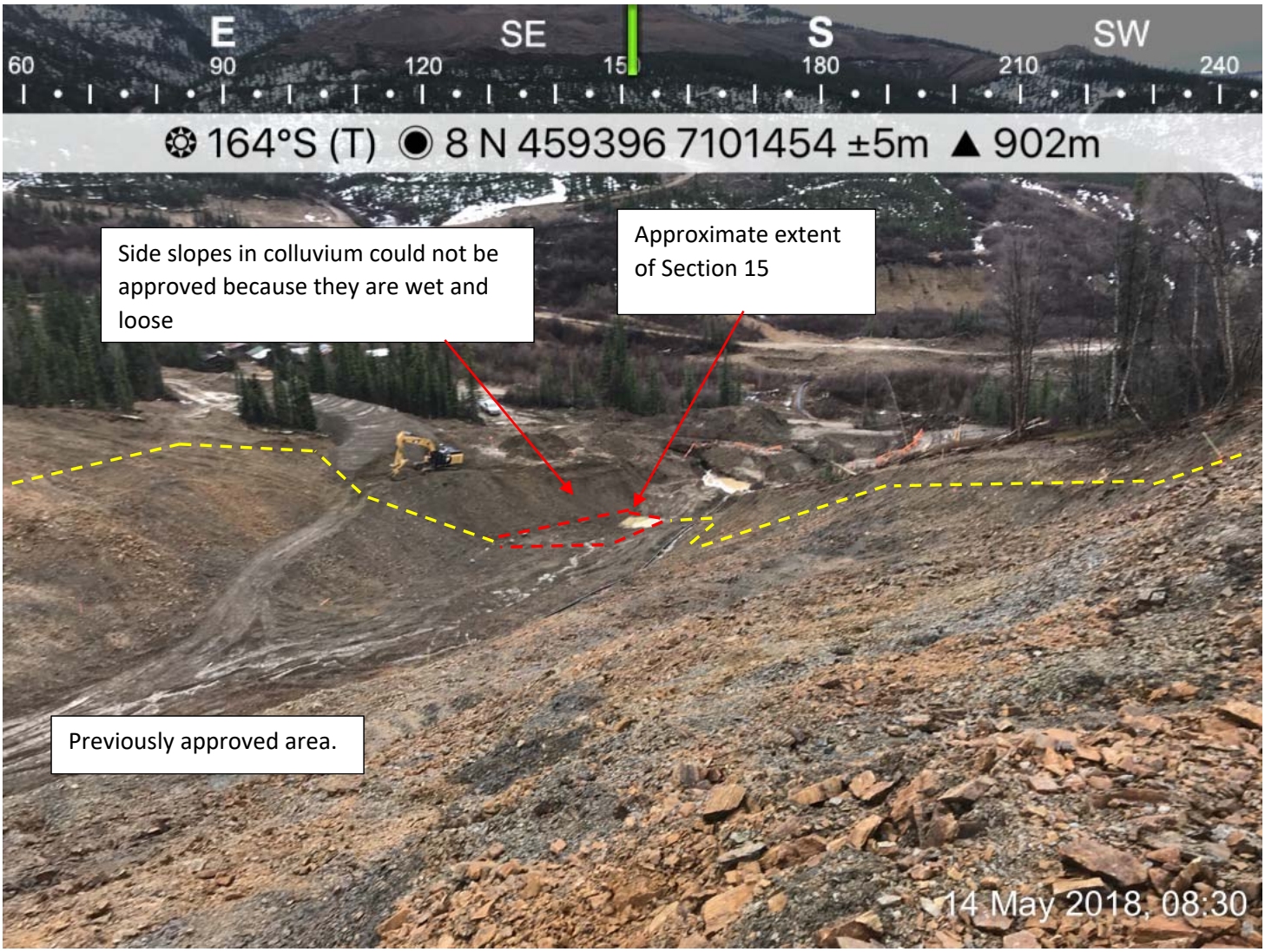
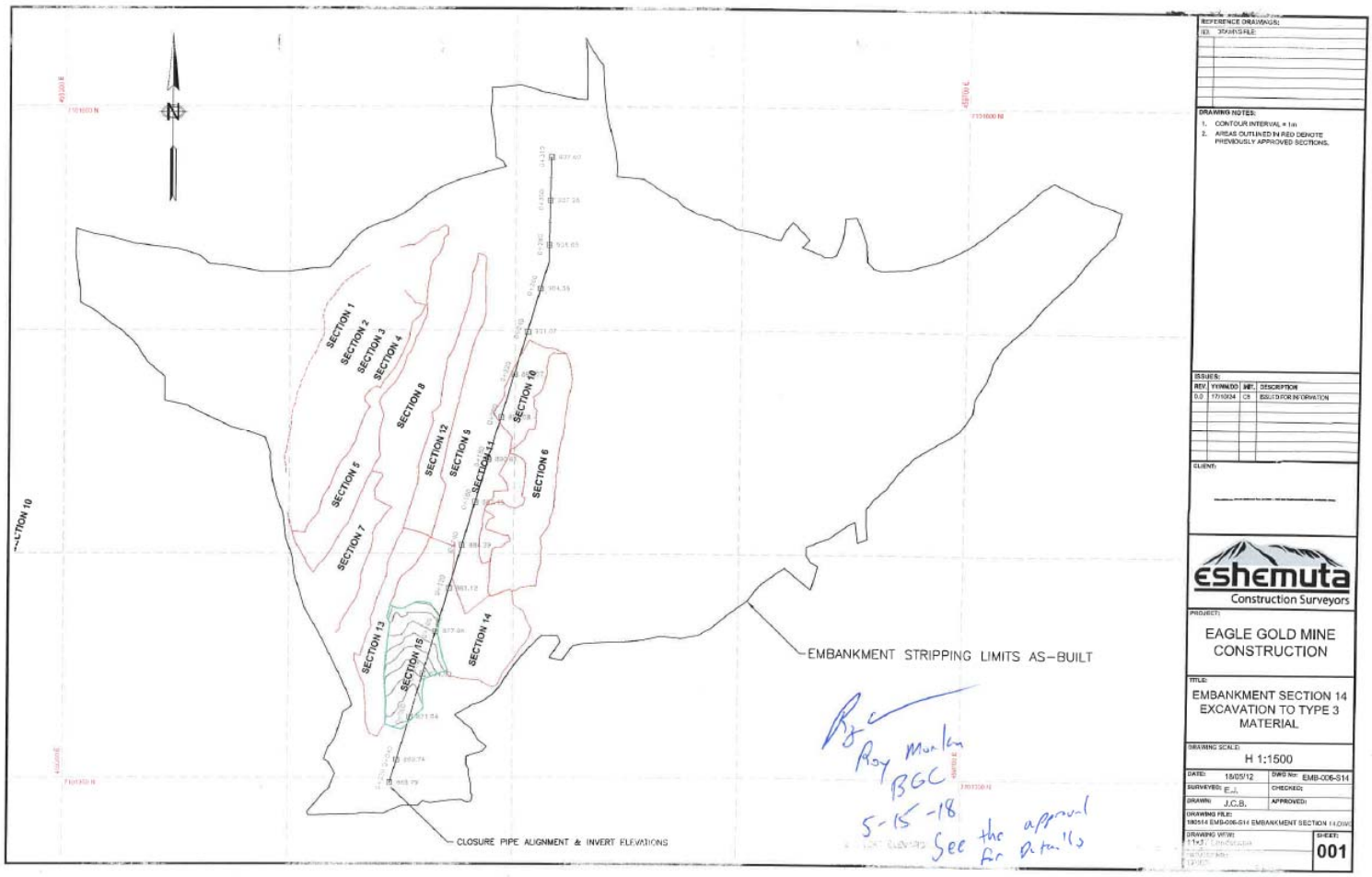


Photo 1: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.



Photo 2: Example of type 3 bedrock being pulled apart by excavator at the bottom of Section 15.



Section 15 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	September 4, 2018
Construction:	JDS Mining	**Inspection Number:**	FND16 trough FND25
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 16 through Section 25, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Sections 16 through 25 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Drains built in the foundation will be included in sperate approvals.
- Sections 16 through 25 have been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS

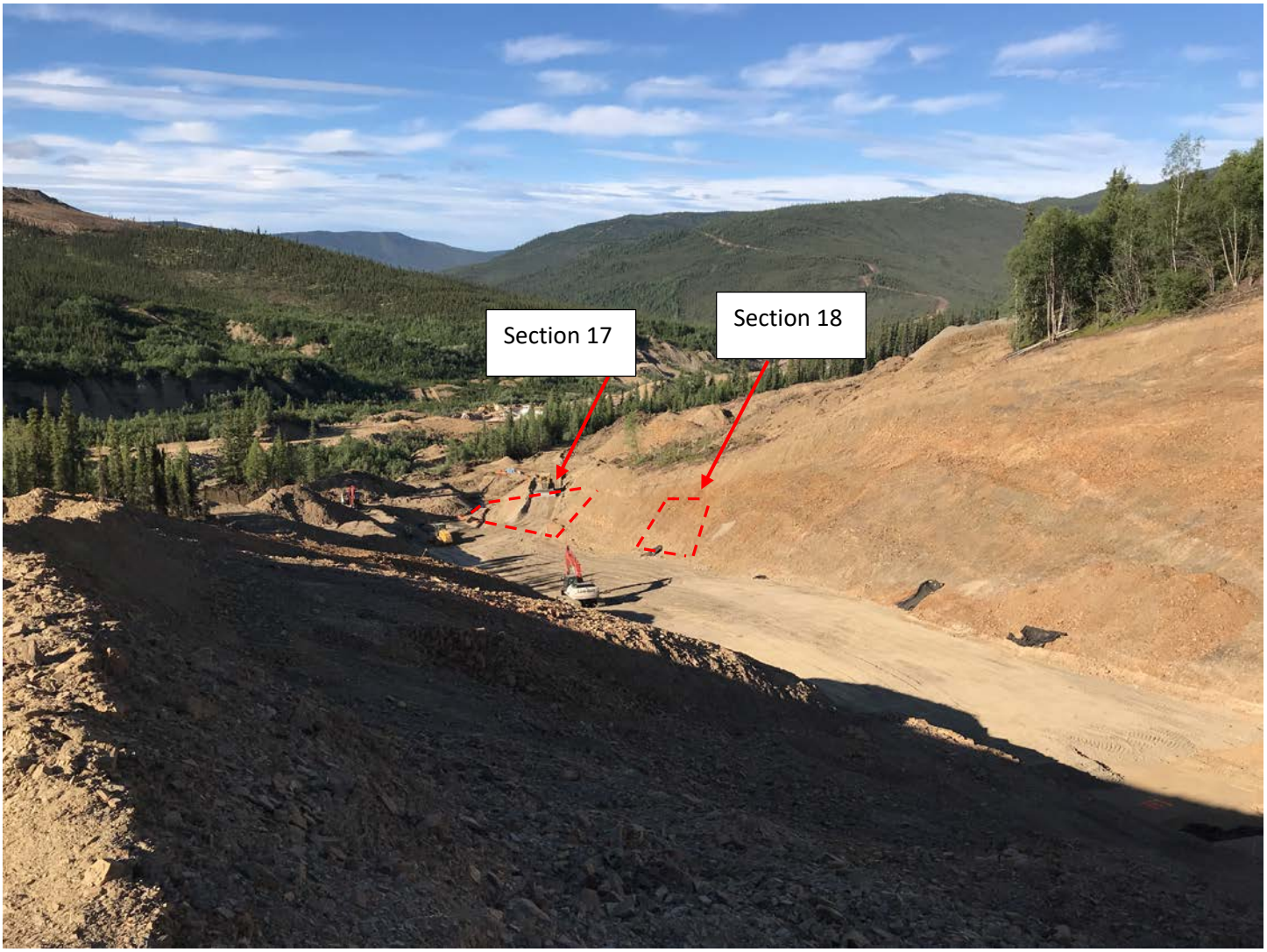


Photo 1: Photograph of Section 17 and 18 approved.

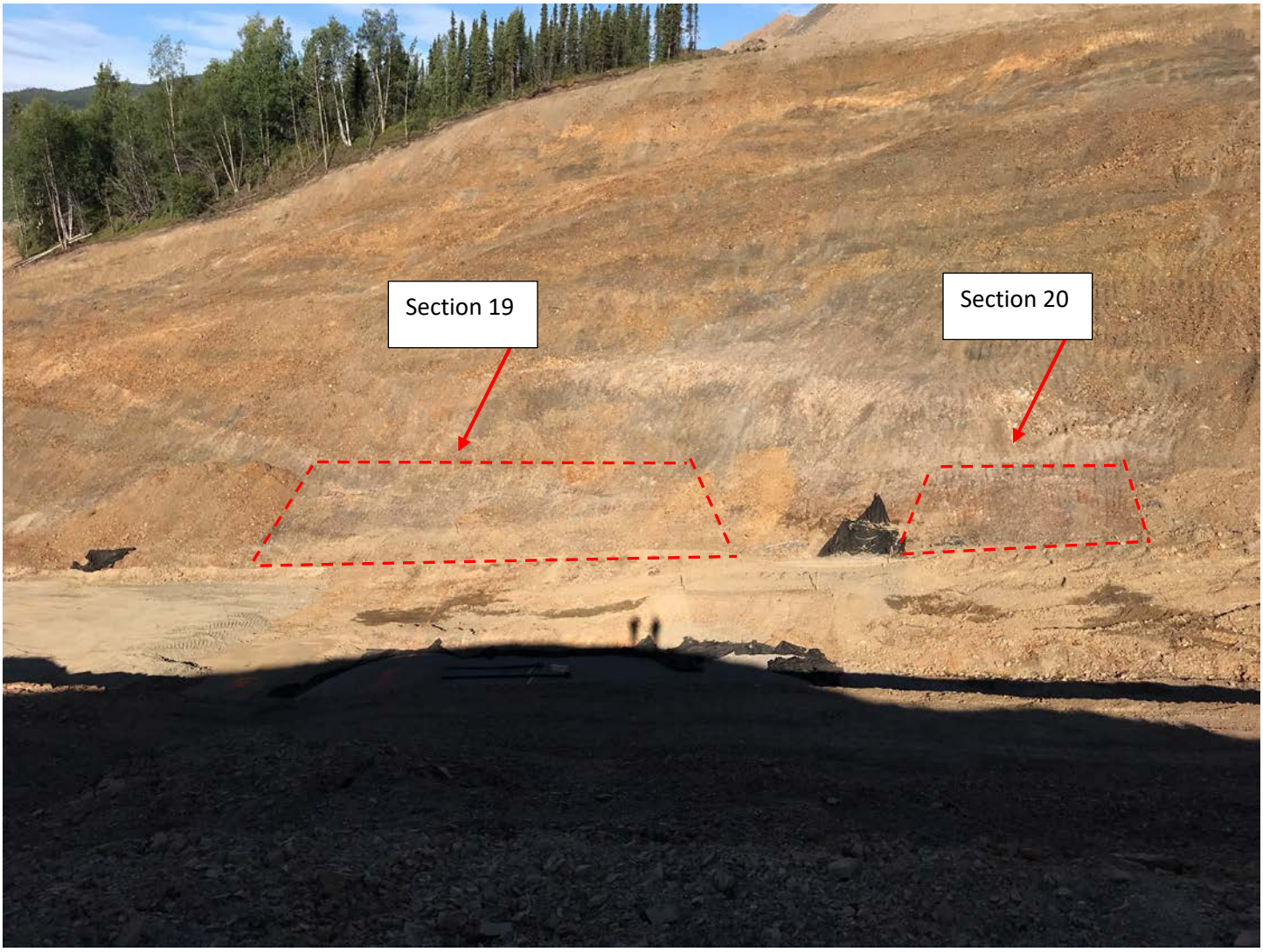


Photo 2: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

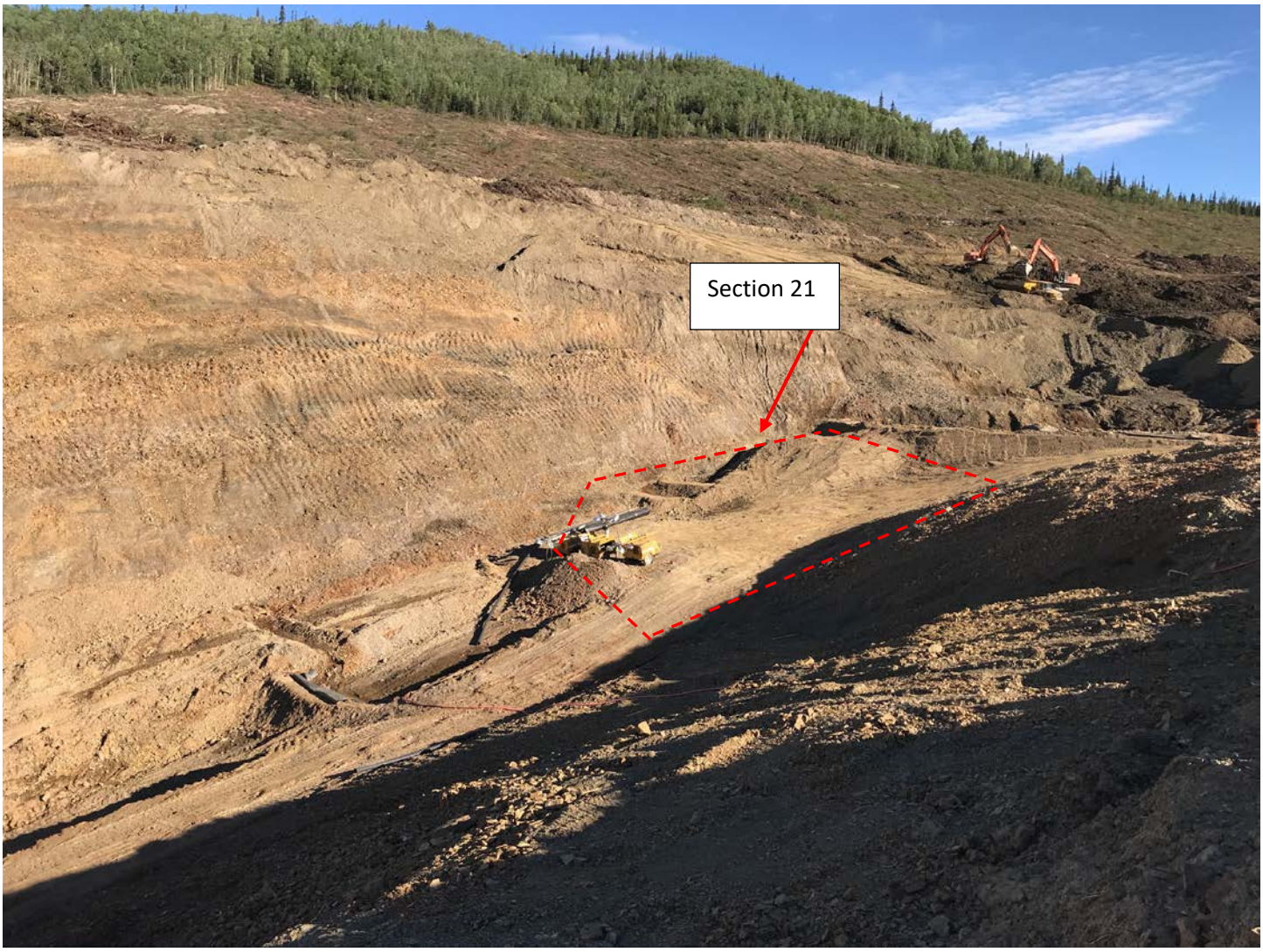


Photo 3: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

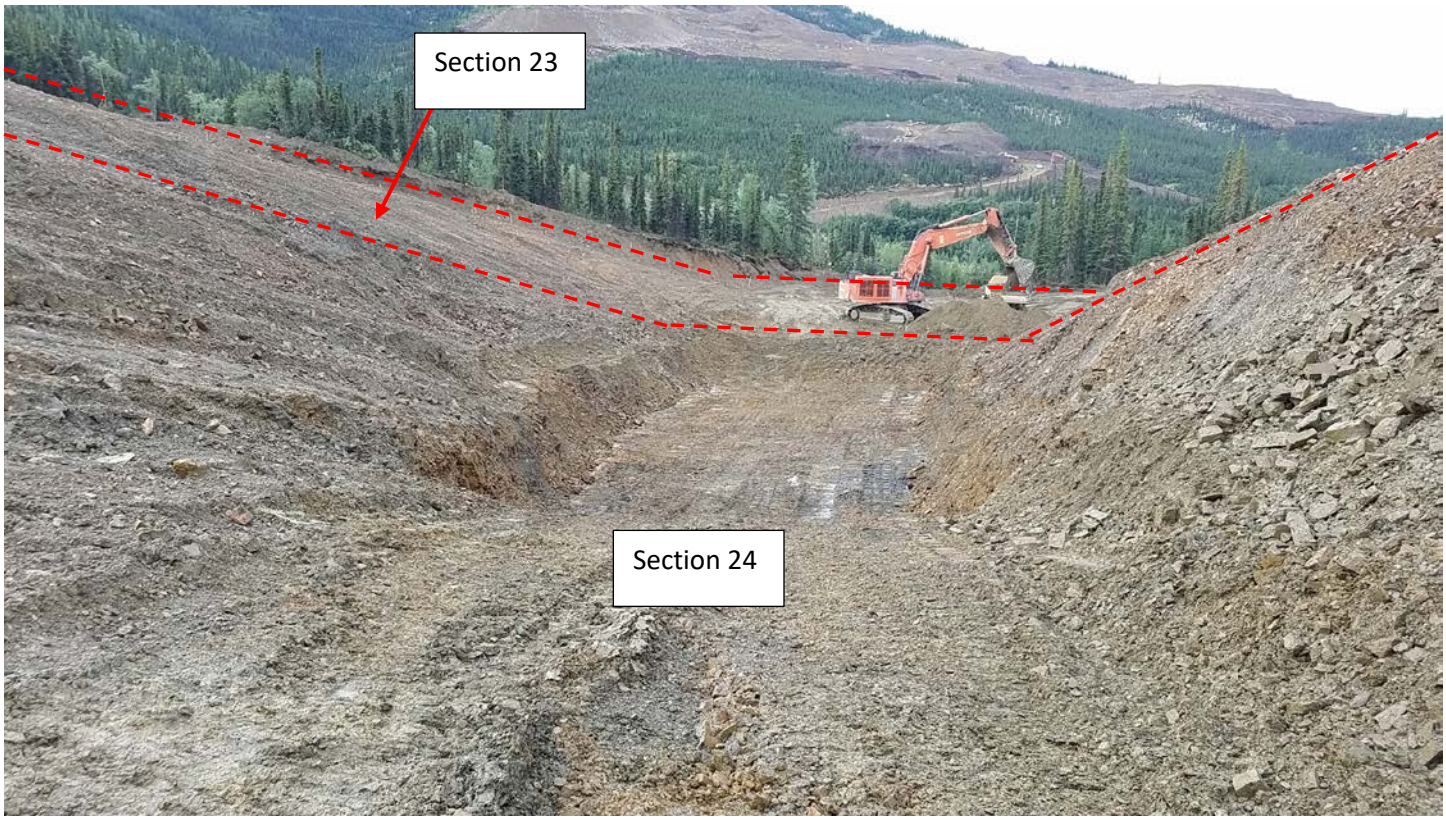


Photo 4: Section 23 and 24.

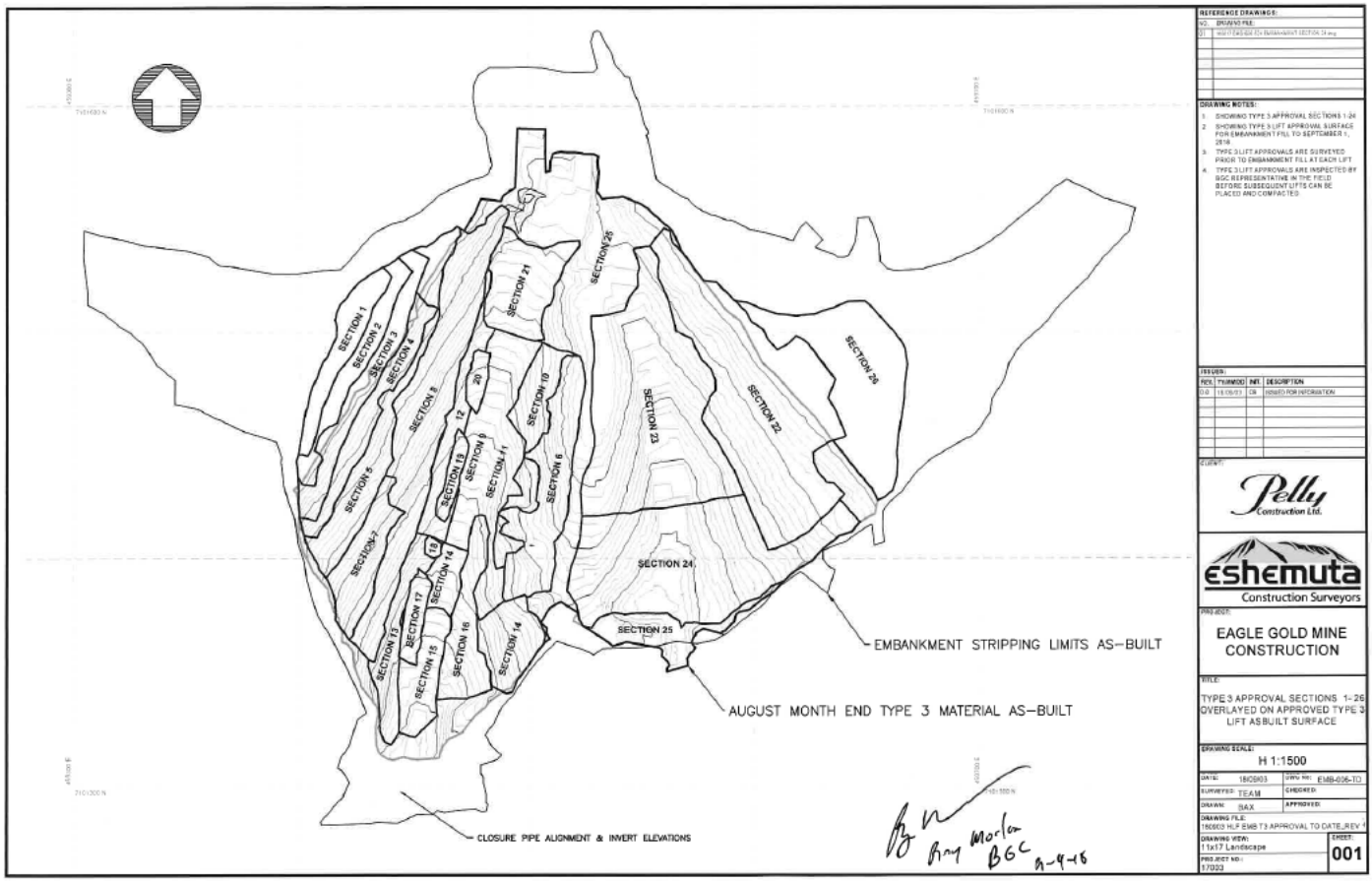
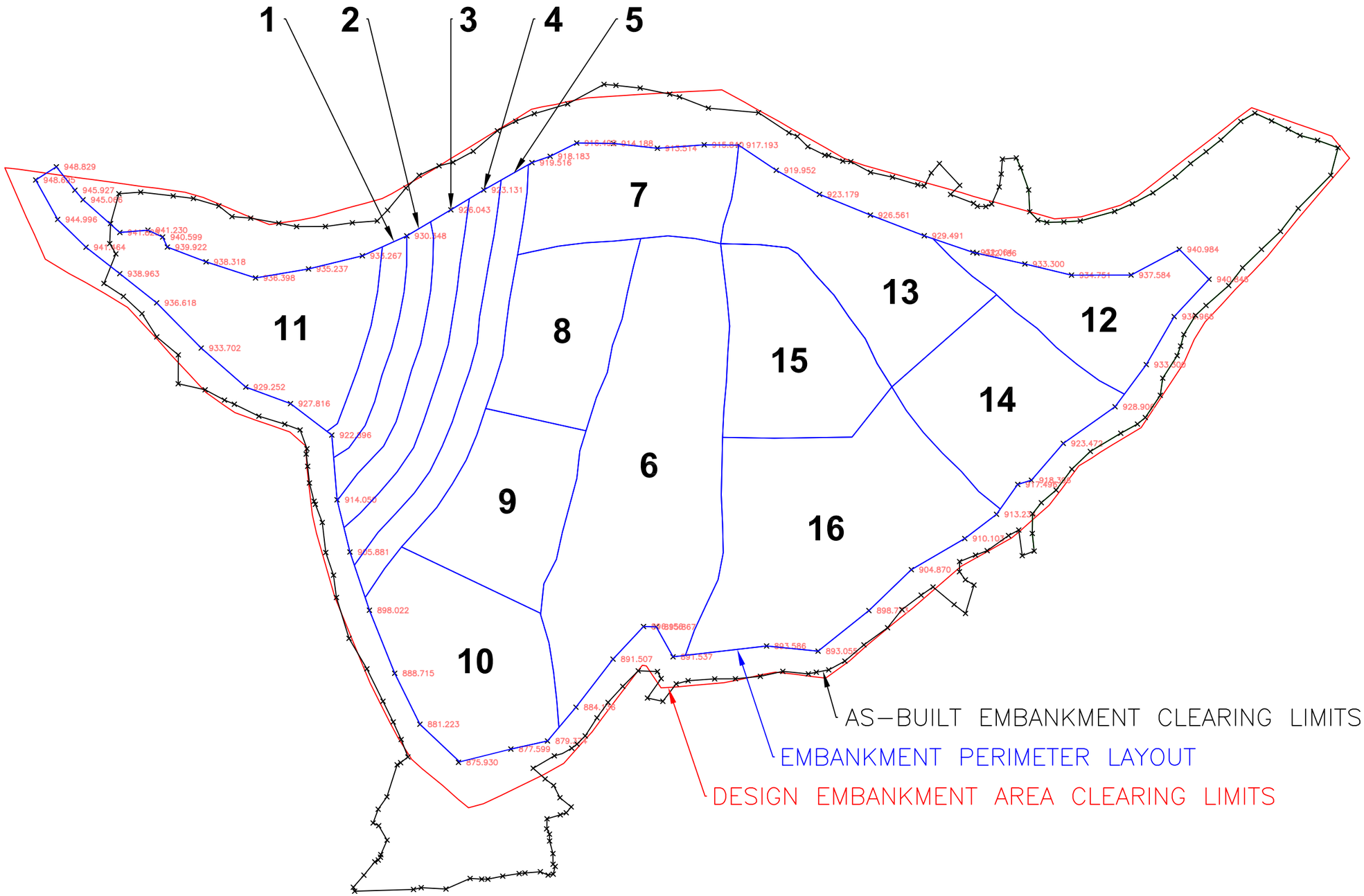


Figure 1: Approved Sections



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. NUMBERS DENOTE EMBANKMENT SECTIONAL DIVISIONS THAT WILL EXCAVATED IN CURRENTLY PLANNED ORDER
2. ORDER OF SECTIONS TO BE EXCAVATED IS SUBJECT TO CHANGE

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0	17/09/11	CM	

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT SECTIONAL DIVISIONS TO BE EXCAVATED

DRAWING SCALE: NTS

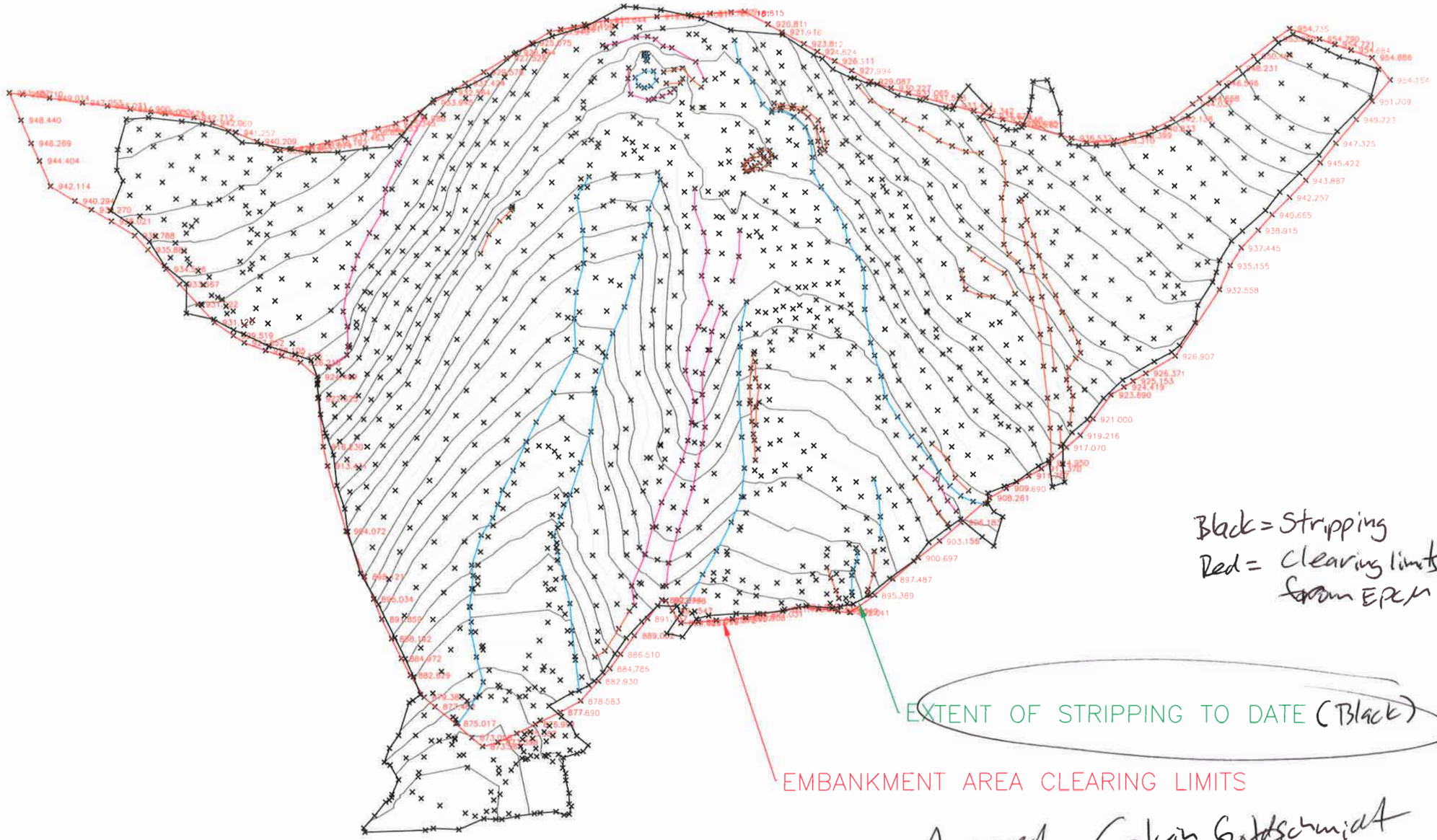
DATE:	17/09/11	DWG No. :	EMB-003
SURVEYED:	C.M. & C.J	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170911 EMBANKMENT SECTION DIVISIONS.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. AREAS WHERE STRIPPINGS WERE STOCKPILED HAVE NOT YET BEEN SURVEYED. GROUND WILL BE AS-BUILT WHEN PILES ARE REMOVED.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0	17/09/06	CM	

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT TOPOGRAPHY SURVEY AFTER STRIPPING

DRAWING SCALE: NTS

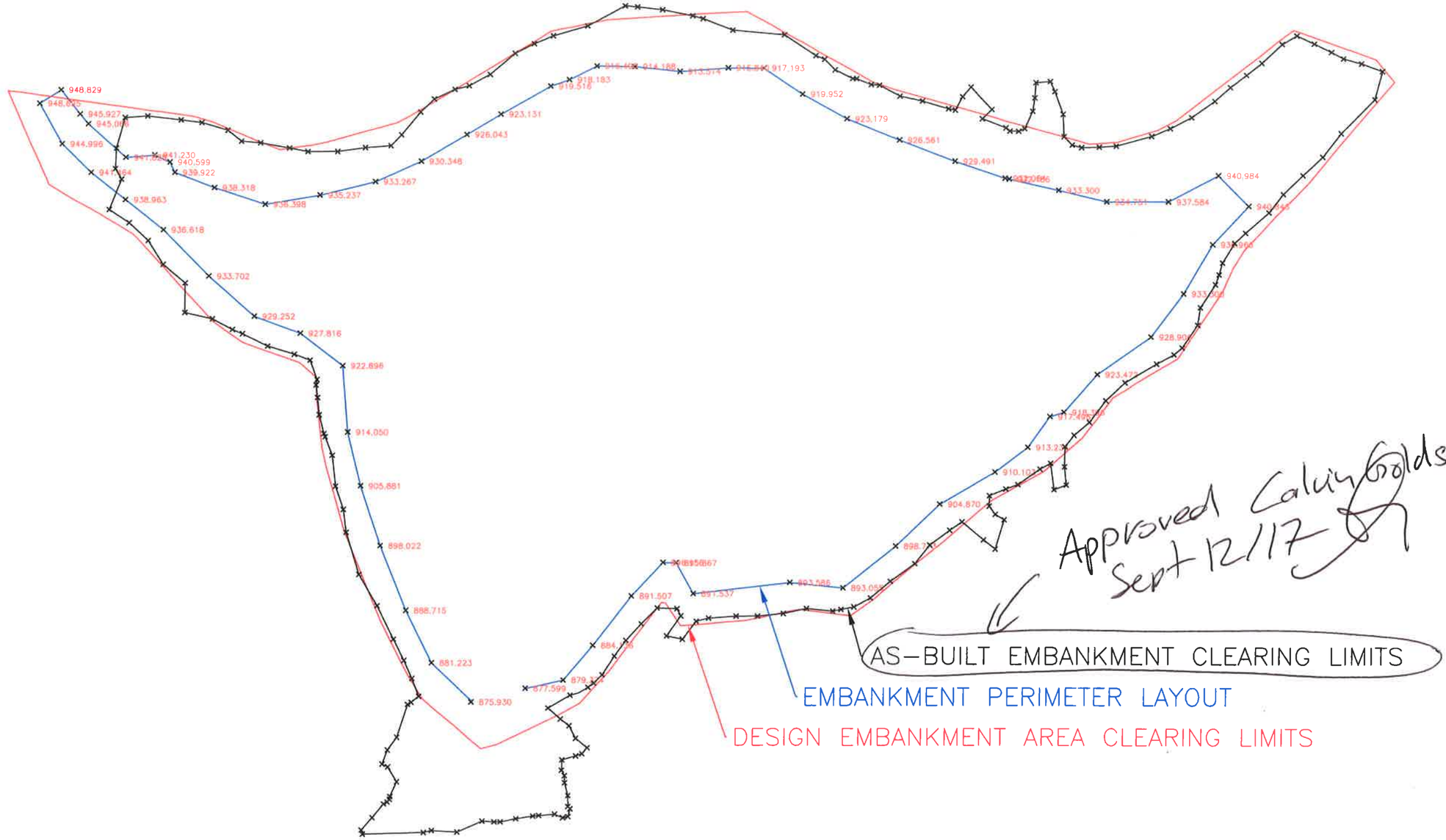
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SURVEYED:	C.M. & C.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170903 EMBANKMENT TOPO AFTER STRIPPING.dwt

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



Approved Calvin Goldsmith Sept 12/17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. AREA IN PERIMETER WITHOUT LINE WORK HAS NOT YET BEEN STAKED DUE TO STOCKPILE IMPEDING LAYOUT.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0	17/09/10	CM	

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

EMBANKMENT PERIMETER LAYOUT

DRAWING SCALE: NTS

DATE:	17/09/10	DWG No. :	EMB-002
SURVEYED:	C.M. & C.J	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170910 EMBANKMENT PERIMETER LAYOUT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



T. Monasterio BGC 9/21/17

2017-09-21
Jeff DePape - JDS

SECTION A UNSUITABLE WASTE STOCKPILE VOLUME = 2669 cu. m

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. BLACK LINE DENOTES AS-BUILT EMBANKMENT CLEARING LIMIT
2. TEAL LINE DENOTES UNSUITABLE WASTE REMOVAL AREA PERIMETER
3. RED LINE DENOTES UNSUITABLE WASTE STOCKPILE PERIMETER
4. MAGENTA LINES DENOTE TOP OF SLOPE
5. CYAN LINES DENOTE TOE OF SLOPE
6. ORANGE LINES DENOTE SLOPE BREAKS
7. GREY LINES DENOTE SLOPE CONTOURS AT 2m AND 10m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/18	CM	

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION A TOPOGRAPHY SURVEY AFTER UNSUITABLE WASTE REMOVAL

DRAWING SCALE: NTS

DATE: 17/09/18	DWG No.: EMB-005
SURVEYED: C.M.	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 170918 EMBANKMENT AREA 1 TOPO AFTER WASTE REMOVAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



9/27/17
T. MONASTERIO BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/22	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
EMBANKMENT
UNSUITABLE WASTE
STOCKPILES
B & C

DRAWING SCALE: 1:1500

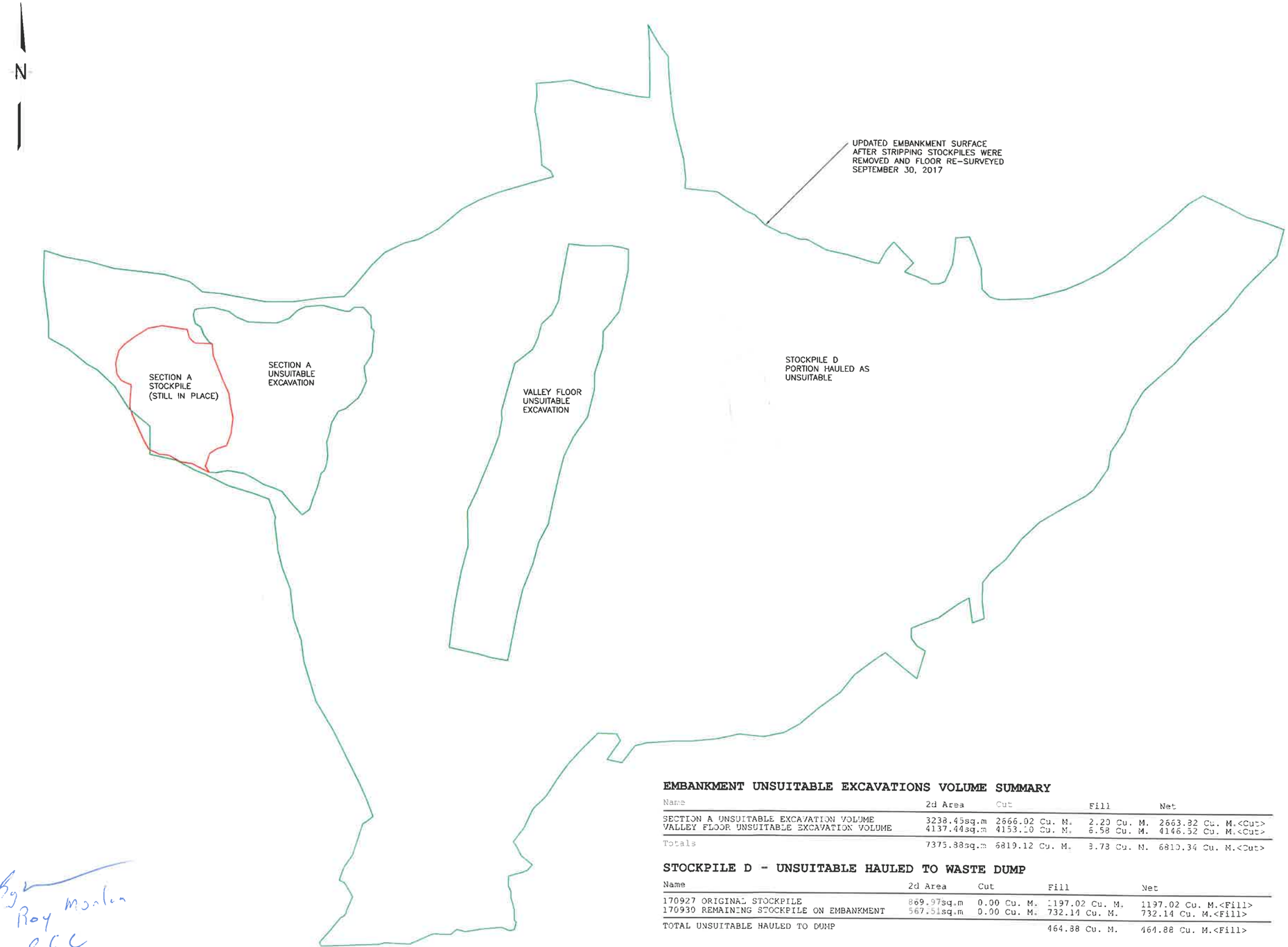
DATE:	17/09/22	DWG No:	EMB-005-BC
SURVEYED:	C.B. & C.M.	CHECKED:	
DRAWN:	C.B.	APPROVED:	

DRAWING FILE: 170921 EMBANKMENT WASTE STOCKPILES dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



EMBANKMENT UNSUITABLE EXCAVATIONS VOLUME SUMMARY

Name	2d Area	Cut	Fill	Net
SECTION A UNSUITABLE EXCAVATION VOLUME	3238.45sq.m	2666.02 Cu. M.	2.20 Cu. M.	2663.82 Cu. M.<Cut>
VALLEY FLOOR UNSUITABLE EXCAVATION VOLUME	4137.44sq.m	4153.10 Cu. M.	6.58 Cu. M.	4146.52 Cu. M.<Cut>
Totals	7375.88sq.m	6819.12 Cu. M.	8.78 Cu. M.	6810.34 Cu. M.<Cut>

STOCKPILE D - UNSUITABLE HAULED TO WASTE DUMP

Name	2d Area	Cut	Fill	Net
170927 ORIGINAL STOCKPILE	869.97sq.m	0.00 Cu. M.	1197.02 Cu. M.	1197.02 Cu. M.<Fill>
170930 REMAINING STOCKPILE ON EMBANKMENT	567.51sq.m	0.00 Cu. M.	732.14 Cu. M.	732.14 Cu. M.<Fill>
TOTAL UNSUITABLE HAULED TO DUMP			464.88 Cu. M.	464.88 Cu. M.<Fill>

By Roy Moulen BGC 10-7-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. EXCAVATION VOLUMES OBTAINED USING UPDATED EMBANKMENT SURFACE AFTER STRIPPING PILES WERE REMOVED AND EMBANKMENT FLOOR RE-SURVEYED.
2. ALL SURVEY DATA USED HAVE BEEN COLLECTED BY ESHEMUTA REMOTE SERVICES BETWEEN SEPTEMBER 2 & SEPTEMBER 30, 2017.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/03	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT UNSUITABLE EXCAVATION - SEPTEMBER MONTH-END

DRAWING SCALE: H 1:1500

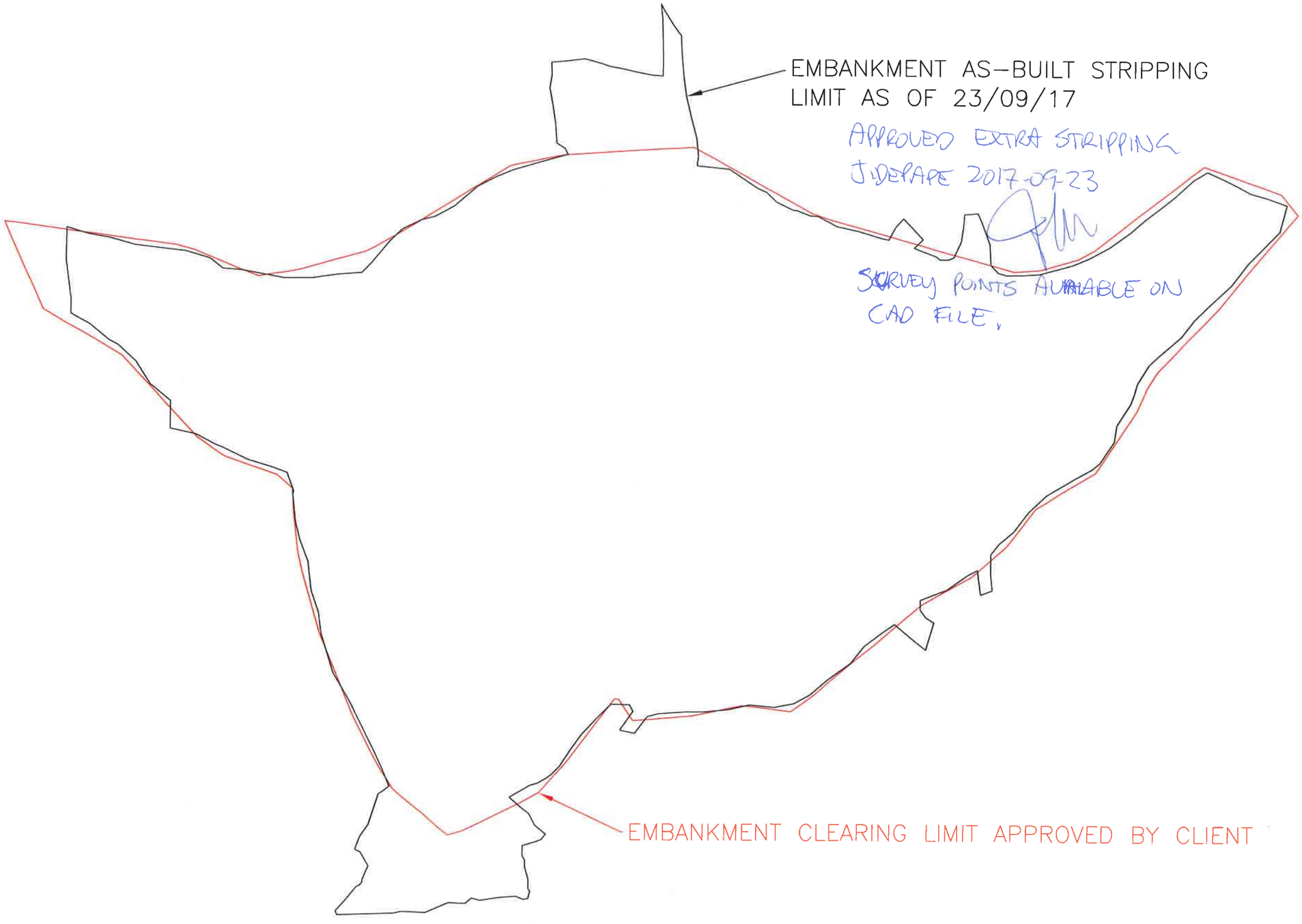
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SURVEYED:	CM, CJ, CB	CHECKED:	CB
DRAWN:	CB	APPROVED:	

DRAWING FILE: 170930 EMBANKMENT - UNSUITABLE EXCAVATIONS - SEPTEMBER MONTH-END_REV1.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. BLACK LINE DENOTES STRIPPING LIMIT AS-BUILT
2. RED LINE DENOTES CLEARING LIMIT LAYOUT APPROVED BY CLIENT

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	17/09/23	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT STRIPPING LIMITS AS-BUILT

DRAWING SCALE: 1:1500

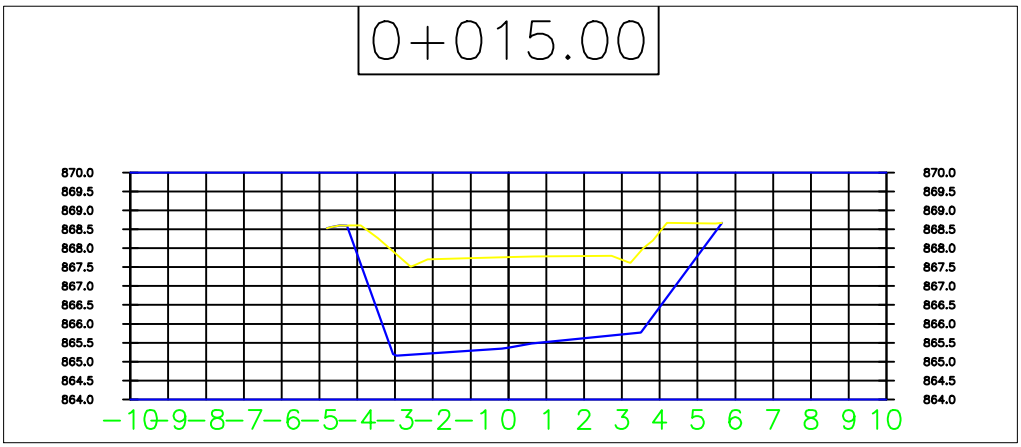
DATE:	17/09/23	DWG No:	EMB-002 REV 1.0
SURVEYED:	C.M & C.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

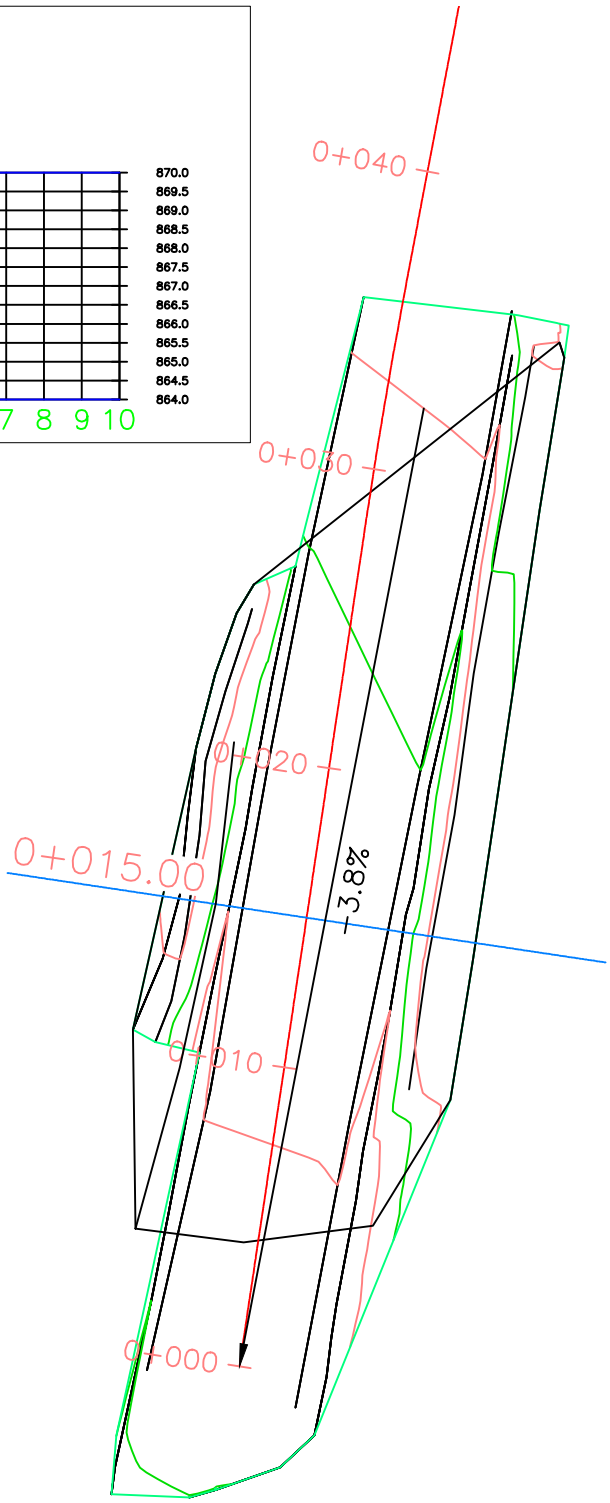
DRAWING FILE: 170922 EMB STRIPPING LIMITS ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001





REFERENCE DRAWINGS:	
NO.	DRAWING FILE:

LEGEND

EXCAVATION

FINAL ASBUILT SURFACE

Notes: Showing Embankment Toe Type 2 Material placed on excavation and final asbuilt surface.
GeoFabric installed at 0.5m above excavation surface and 0.5m below final grade.

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION

eshemuta Construction Surveyors

SURVEYED: C.M./BAX DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMB TOE EXCAVATION AND FINAL ASBUILT SECTION

DRAWING SCALE: H 1:250

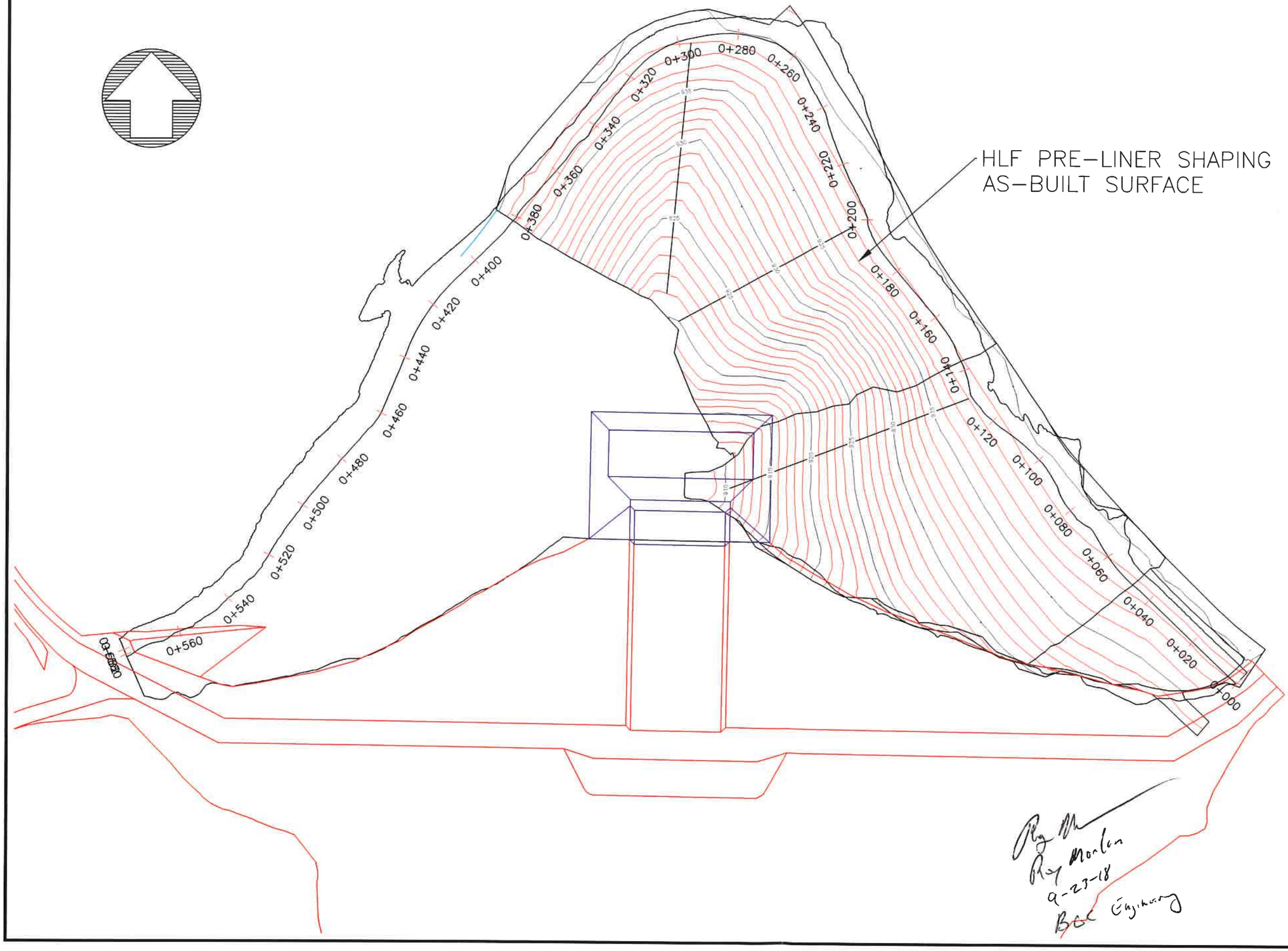
DATE: 18/07/04 DWG No: EMB-008-03

DRAWING FILE: 180704 HLF EMB TOE_SCTN

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



Roy Morlen
9-27-18
BGC Engineering

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/12	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY
SHAPING AS-BUILT 0+000 to 0+380

DRAWING SCALE: 1:1250

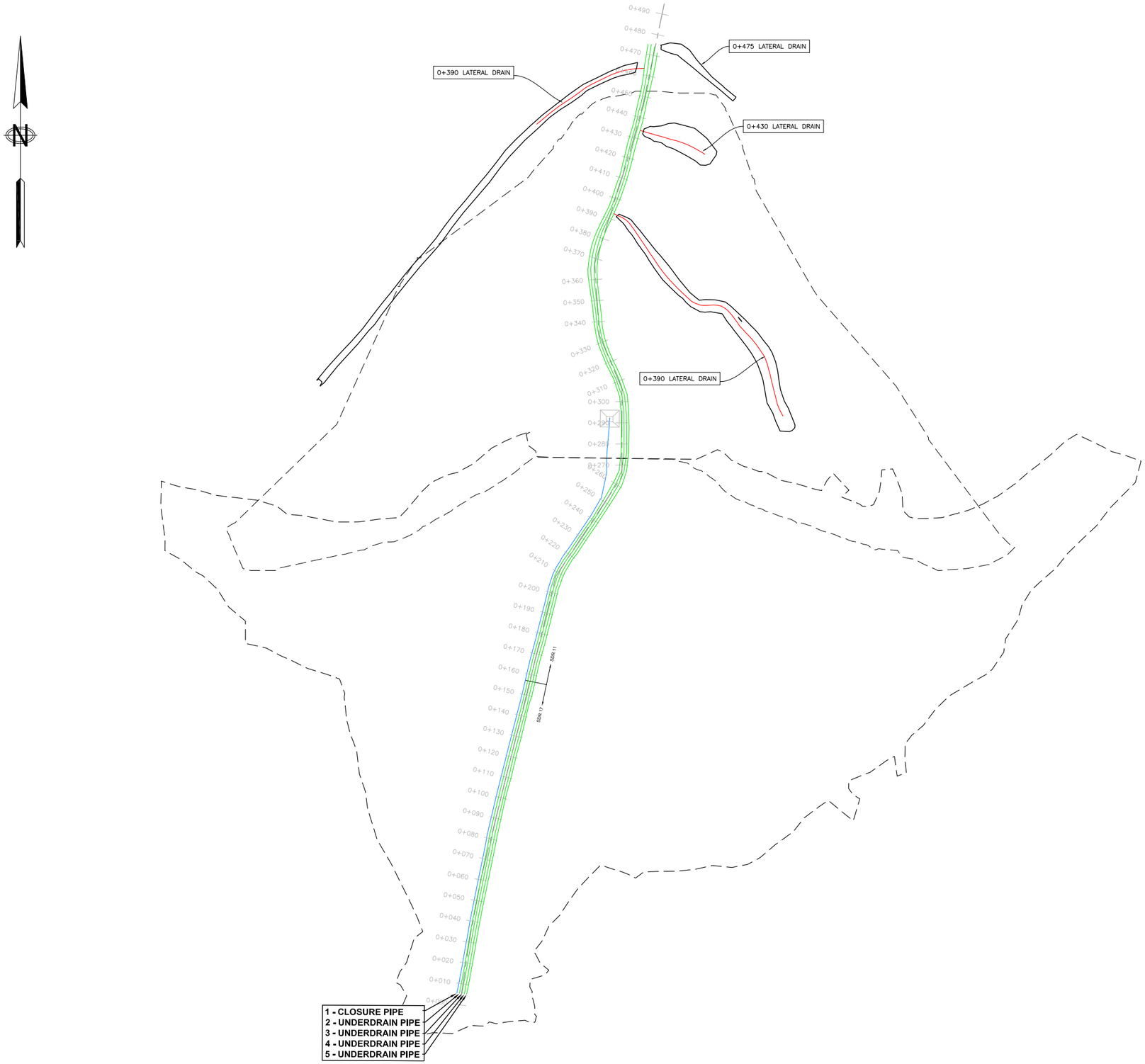
DATE: 18/09/22	DWG No: HLF-012-S2
SURVEYED: C.M./BAX	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 180922 HLF PRE-LINER SHAPING ASB 0+000 - 0+380.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CLOSURE DRAIN PIPE SHOWN IN BLUE.
2. UNDERDRAIN PIPES SHOWN IN GREEN.
3. LATERAL DRAIN PIPES SHOWN IN RED.
4. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE26 TO SEPTEMBER 14, 2018.

UNDERDRAIN - OVERALL 2018 PROGRESS		
PIPE ID	**SDR 17**	**SDR 11**
1 - CLOSURE	153.17 m	134.46 m
2 - UNDERDRAIN	152.94 m	323.09 m
3 - UNDERDRAIN	152.74 m	323.24 m
4 - UNDERDRAIN	152.63 m	322.40 m
5 - UNDERDRAIN	152.46 m	319.94 m
TOTALS	**763.94 m**	**1423.13 m**

LATERAL DRAIN - PROGRESS TO DATE	
DRAIN ID	**LENGTH**
0+390	132.00 m
0+430	33.13 m
0+462.5	58.50 m
0+475	no pipe installed
TOTAL	**223.63 m**

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/04	CB	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PIPING INSTALLATION OVERALL PROGRESS

DRAWING SCALE: H 1:2000

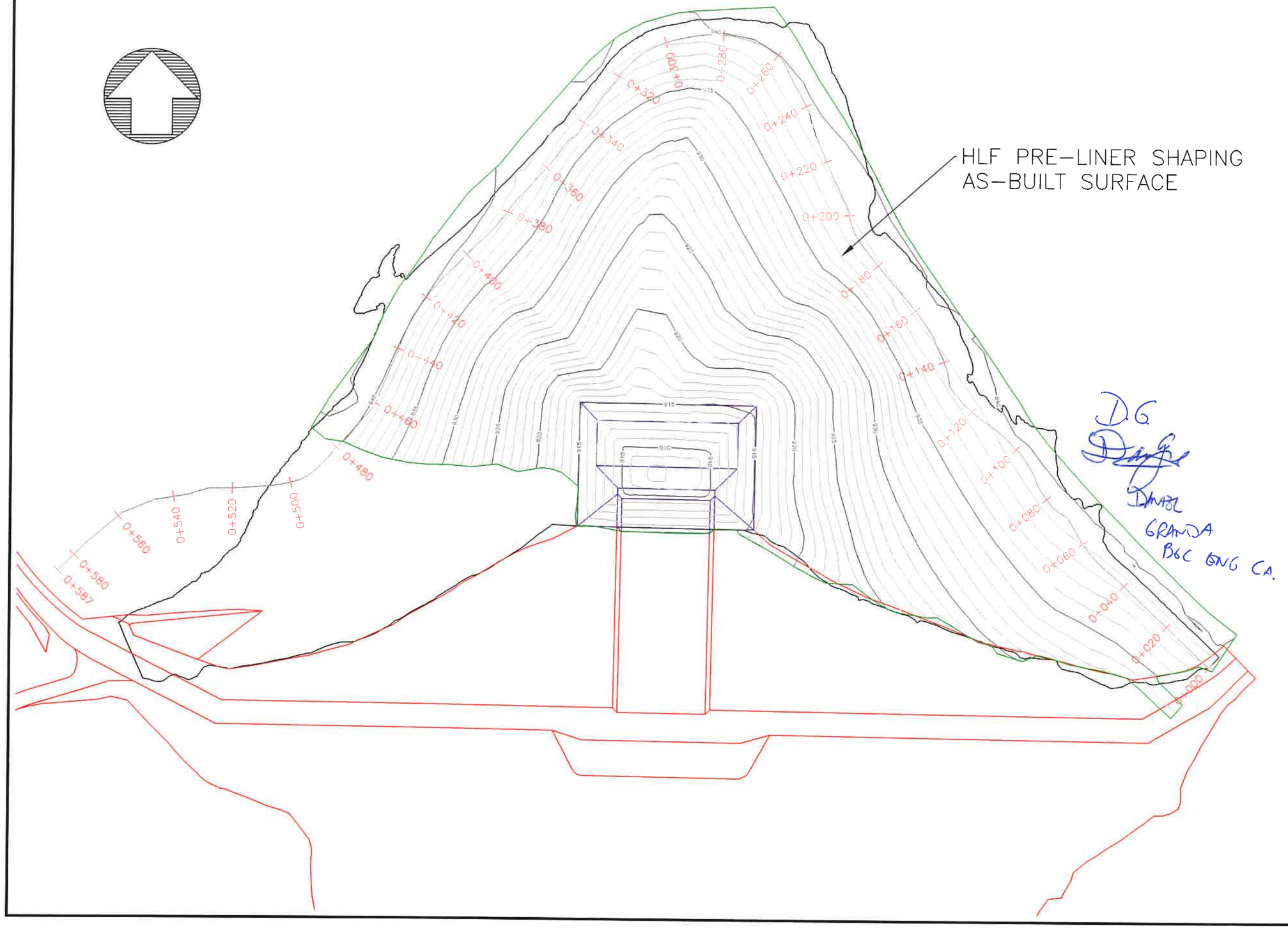
DATE:	18/10/04	**DWG No:**	184110-014
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CB, JB	**APPROVED:**	

DRAWING FILE: 181004 HLF EMB UD & LATERAL DRAINS OVERALL PROGRESS.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



D.G
D.G
DAVID
GRANJA
B&C ENG CA.

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
6.0	18/10/04	CM	ISSUED FOR INFORMATION

CLIENT:
Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE:
1:1250

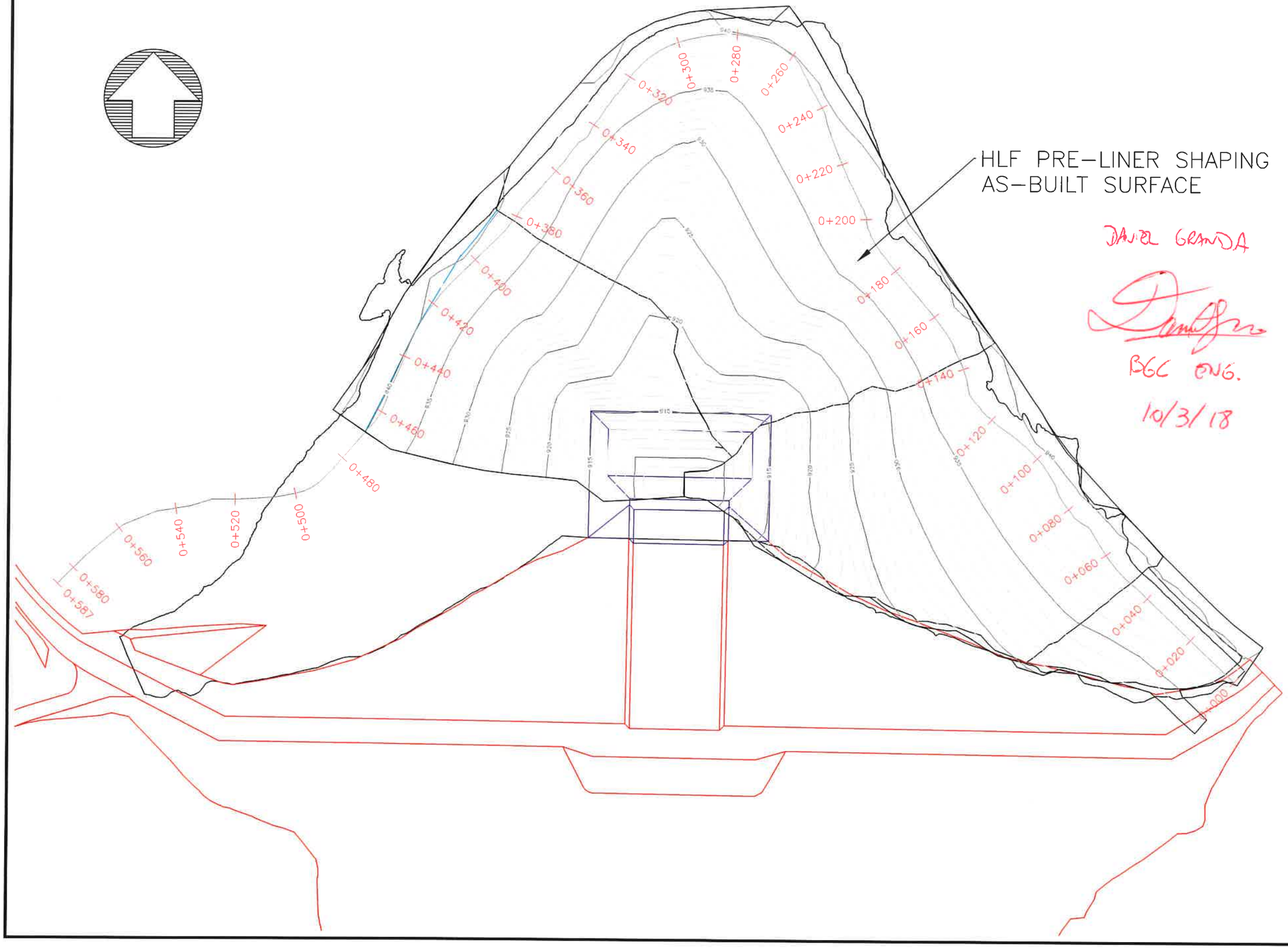
DATE:	18/10/04	DWG No:	HLF-012
SURVEYED:	C.M./BAX/E.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE:
181004 HLF PRE-LINER SHAPING ASB.dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001



DANIEL GRANDA

BGC ENG.

10/3/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/30	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT 0+000 to 0+470

DRAWING SCALE: 1:1250

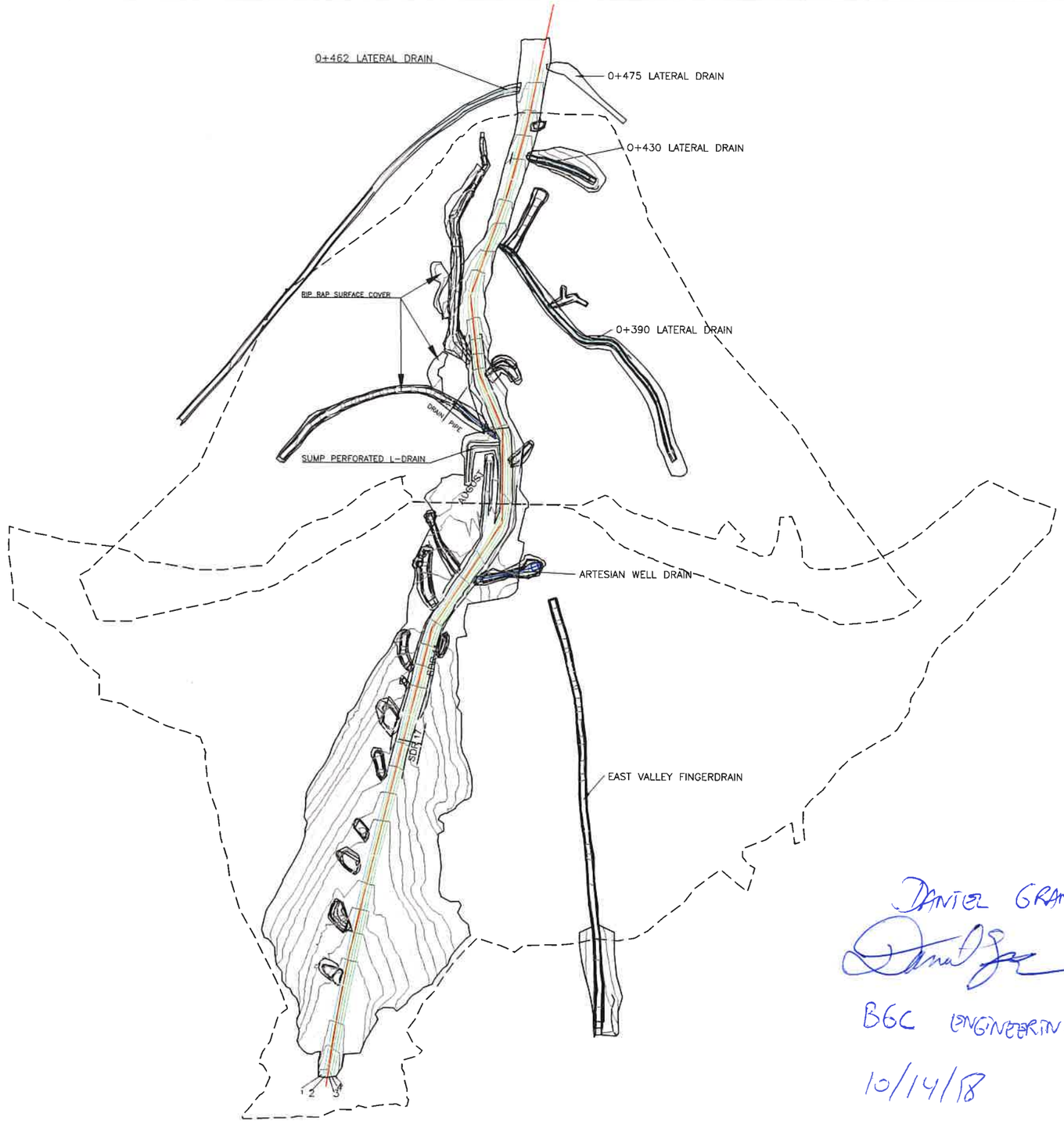
DATE: 18/09/30	DWG No: HLF-012-S3
SURVEYED: C.M./BAX/E.J.	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 180930 HLF PRE-LINER SHAPING ASB 0+000 - 0+470.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA

B&C ENGINEERING

10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. SHOWING FINGERDRAIN SURFACES ALONG CLOSURE AND UNDERDRAIN ALIGNMENT.
2. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 20 TO SEPTEMBER 17, 2018.
3. ALL SURFACES SURVEYED WITH GPS.
4. EACH FINGERDRAIN CONSISTS OF EXCAVATION, DRAIN ROCK AND REJECT SAND SURFACES UNLESS NOTED.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/22	BAX	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT OVERALL DRAIN INSTALLATION

DRAWING SCALE: H 1:2000

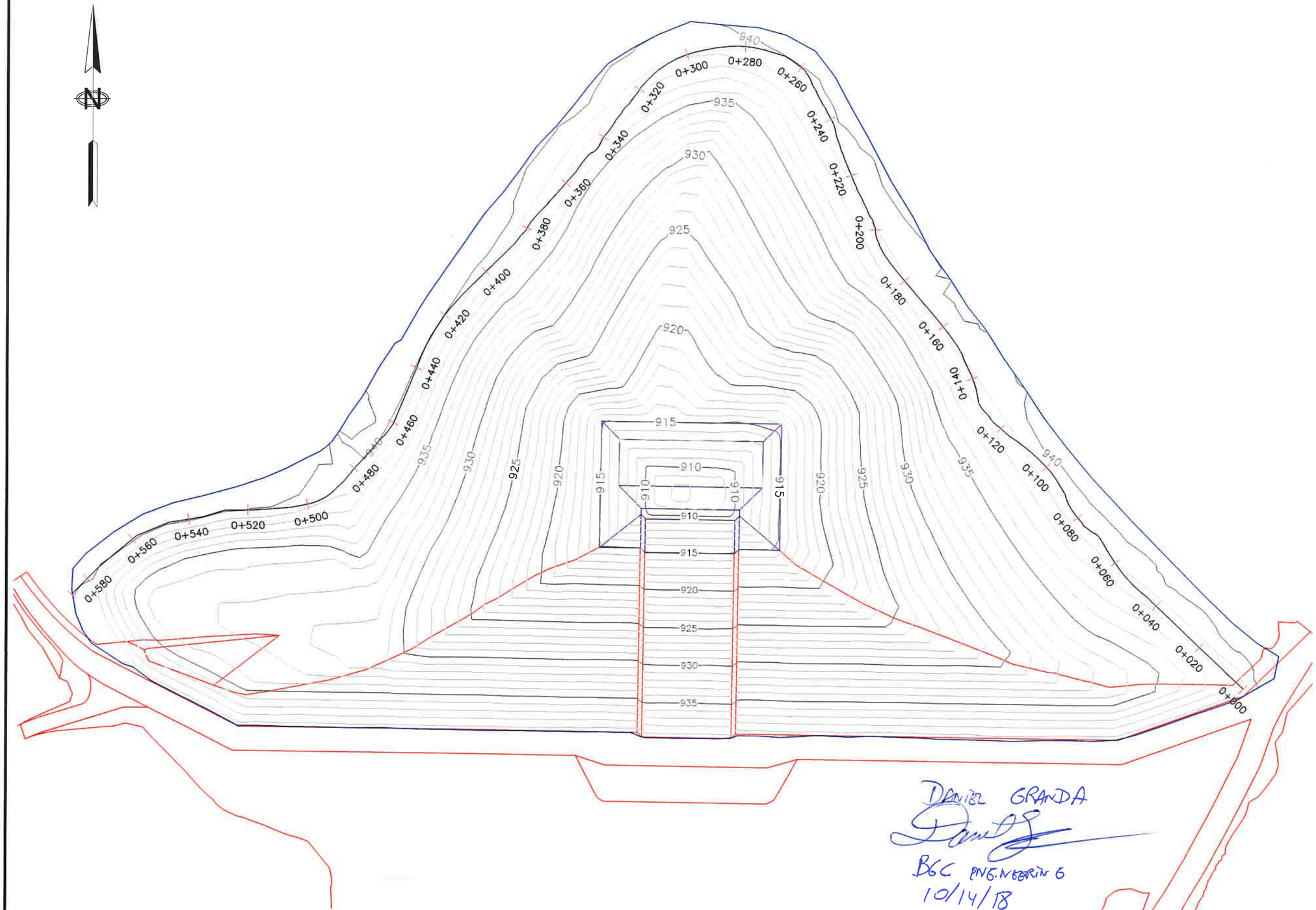
DATE:	18/09/25	DWG No:	184110-010
SURVEYED:	TEAM	CHECKED:	
DRAWN:	CM/BAX	APPROVED:	

DRAWING FILE: 180925 MASTER HLF EMB OVERALL DRAIN INSTALLATION ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA
BGC ENGINEERING
10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. RED LINES DENOTE EMBANKMENT DESIGN
2. PURPLE LINES DENOTE HLF SUMP DESIGN
3. BLUE LINE REPRESENTS HLF AS-BUILT BOUNDARY
4. BLACK LINE DEONTES DESIGN HLF 940m BENCH ALIGNMENT
5. HLF SHAPING SURFACE IS INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS APPROVED
6. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/13	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

Eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF FINAL PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE: H 1:1250

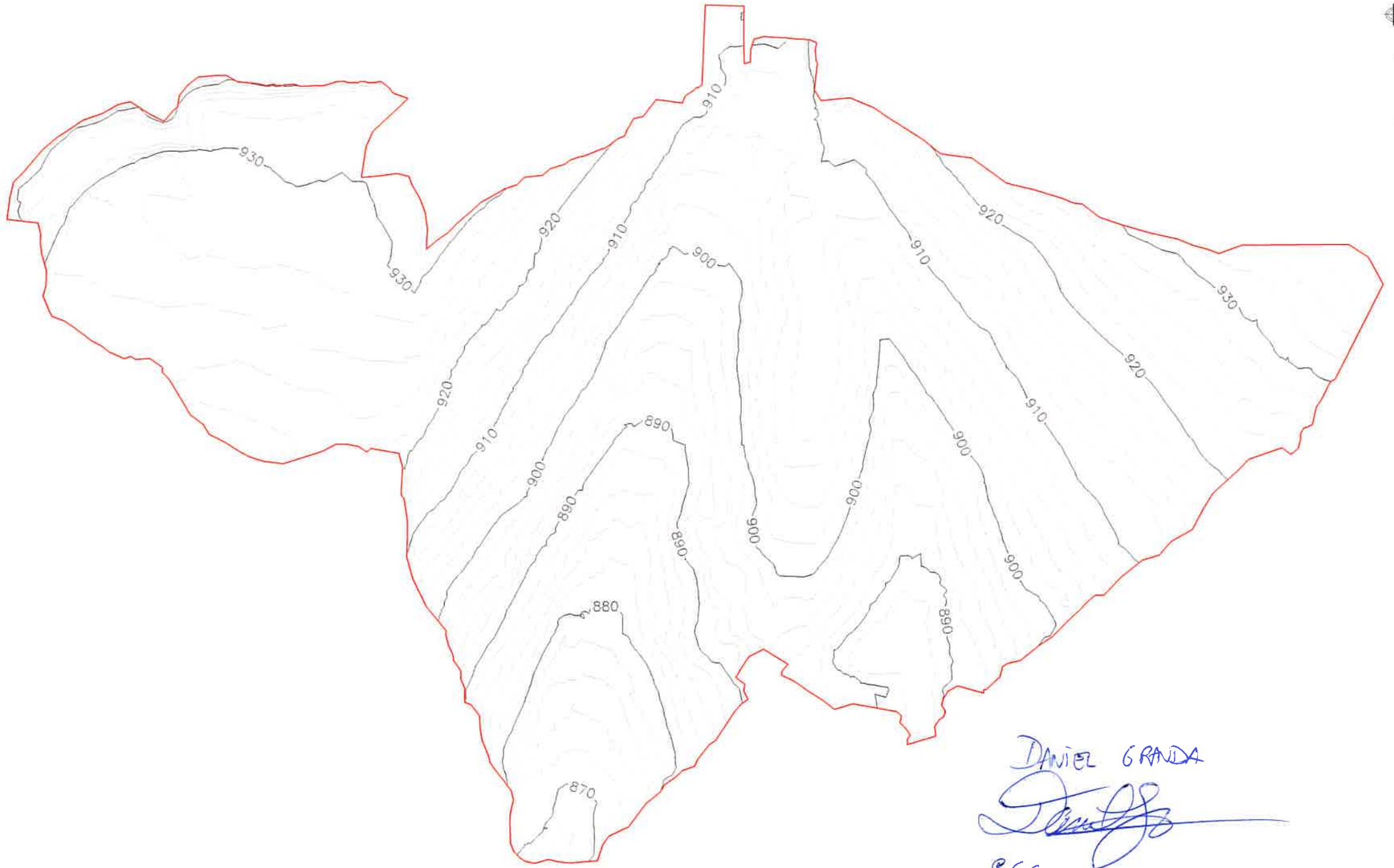
DATE: 18/10/13	DWG No: HLF-012-FINAL
SURVEYED: TEAM	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 181013 HLF PRE-LINER SHAPING ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA
BGC ENGINEERING
10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. DRAWING SHOWING EMBANKMENT EXCAVATION TO APPROVED TYPE 3 MATERIAL
2. SURFACE MATERIAL WAS INSPECTED AND APPROVED BY BGC REPRESENTATIVE PRIOR TO ALL TOPOGRAPHY AS-BUILT SURVEYS
3. CONTOUR INTERVAL = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/13	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF EMBANKMENT APPROVED TYPE 3 EXCAVATION AS-BUILT

DRAWING SCALE: H 1:1500

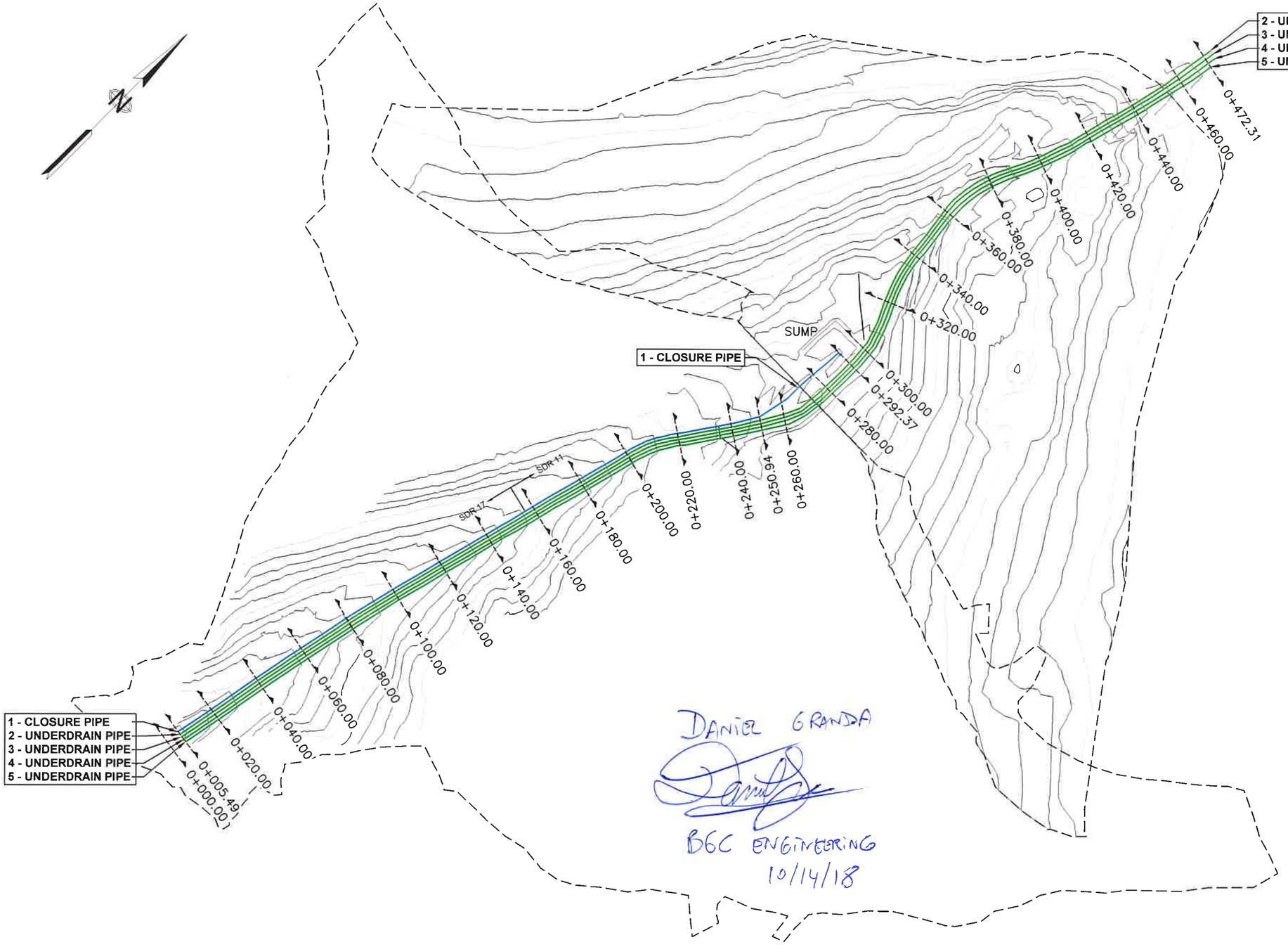
DATE: 18/10/13	DWG No: 184110-17
SURVEYED: TEAM	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 181013 HLF EMB APPROVED TYPE 3 EXCAVATION ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA

B&C ENGINEERING

10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. CLOSURE DRAIN PIPE SHOWN IN BLUE.
2. UNDERDRAIN PIPES SHOWN IN GREEN.
3. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 26 AND SEPTEMBER 2, 2018.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/02	CB	ISSUED FOR INFORMATION
1.0	18/09/17	CB	ASBUILT ISSUE
2.0	18/09/25	CB	RE-ISSUED FOR ASBUILT

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF PIPING INSTALLATION SITE PLAN (ASBUILT)

DRAWING SCALE: H 1:1500

DATE:	18/09/25	DWG No:	184110-011
SURVEYED:	EJB SP CM	CHECKED:	
DRAWN:	JB CB FvD	APPROVED:	

DRAWING FILE: 180925 HLF EMB UNDERDRAIN AND CLOSURE PIPE ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

STA	Pelly Approval for Completion	Client Representative's Approval for Completion	Comments
0+010	D.S. 9/11/18	EJF 9/11/18	NICE. INITAL SURFACE APPROVED FOR GRADE 3 FINAL SURFACE (NO RIPPING)
0+020	D.S. 9/11/18	EJF 9/11/18	
0+030	D.S. 9/11/18	EJF 9/11/18	
0+040	D.S. 9/11/18	EJF 9/11/18	
0+050	D.S. 9/11/18	EJF 9/11/18	
0+060	D.S. 9/11/18	EJF 9/11/18	
0+070	D.S. 9/11/18	EJF 9/11/18	
0+080	D.S. 9/11/18	EJF 9/11/18	
0+090	D.S. 9/11/18	EJF 9/11/18	BOTTOM OF LOGS IN-SUMP ON
0+100	D.S. 9/11/18	EJF 9/11/18	EAST SIDE IS GOOD
0+110	D.S. 9/11/18	EJF 9/11/18	
0+120	D.S. 9/11/18	EJF 9/11/18	
0+130	D.S. 9/11/18	EJF 9/11/18	
0+140	D.S. 9/11/18	EJF 9/11/18	
0+150	SZ. 9/21/18	Efm 9/12/18 *	* Pending removal of sand piles, 0+200 – 0+230
0+160	SZ 9/21/18	Efm 9/12/18 *	
0+170	SZ 9/21/18	Efm 9/12/18 *	
0+180	SZ 9/21/18	Efm 9/12/18 *	9/13 update → piles removed ✓✓ Efm
0+190	SZ 9/21/18	Efm 9/12/18 *	
0+200	SZ 9/21/18	Efm 9/12/18 *	
0+210	SZ 9/21/18	Efm 9/12/18 *	
0+220	SZ 9/21/18	Efm 9/12/18 *	
0+230	SZ 9/21/18	Efm 9/1218 *	
0+240	SZ 9/21/18	AM 9/21/18	
0+250	SZ 9/21/18	RM *	
0+260	SZ 9/21/18	RM *	
0+270	SZ 9/21/18	RM *	
0+280	SZ 9/21/18	RM *	
0+290	SZ 9/21/18	RM *	
0+300	SZ 9/21/18	RM *	
0+310	SZ 9/21/18	RM *	
0+320	SZ 9/21/18	RM *	
0+330	SZ 9/21/18	RM *	
0+340	SZ 9/21/18	RM *	
0+350	SZ 9/21/18	RM *	

* minor clean up required. Final verification of cleanup to be done in the field prior to building over foundation

P1

Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

STA	Pelly Approval for Completion	Client Representative's Approval for Completion	Comments
0+360	SB 9/21/18	Rm 9-21-18 *	
0+370	SB 9/21/18	Rm 9-21-18 *	
0+380	SB 9/21/18	Rm 9-21-18 *	
0+390	D.S. 10/1/18	D.G. 10/1/18	
0+400	D.S. 10/1/18	D.G 10/1/18	
0+410	D.S. 10/1/18	D.G 10/1/18	
0+420	D.S. 10/1/18	D.G 10/1/18	
0+430	D.S. 10/1/18	D.G 10/1/18	
0+440	D.S. 10/1/18	D.G 10/1/18	
0+450	D.S. 10/1/18	D.G 10/1/18	
0+460	D.S. 10/1/18	D.G 10/1/18	
0+470	D.S 12/1/18	R.M 12/2/18	
0+480	D.S 12/1/18		
0+490	D.S. 12/1/18		
0+500	D.S. 12/1/18		
0+510	D.S 12/1/18		
0+520	D.S 12/1/18		
0+530	D.S 12/1/18		
0+540	D.S. 12/1/18		
0+550	D.S. 12/1/18		
0+560	D.S. 12/1/18		
0+570	D.S. 12/1/18		
0+580	D.S. 12/1/18		
0+590	D.S. 12/1/18		
0+600	D.S 12/1/18		
0+610	D.S. 12/1/18		
0+620	D.S. 12/1/18		
0+630	D.S. 12/1/18		
0+640	D.S. 12/1/18		
0+650	D.S. 12/1/18		
0+660	D.S. 12/1/18		
0+670	D.S. 12/1/18		
0+680	D.S 12/1/18		
0+690	D.S. 12/1/18		
0+700	D.S. 10/10/18	D.G. 10/10/18	

* See note [illegible] pg 1

Title: **FIELD CHECKLIST SUBSURFACE SIGN OFF**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
Revised Item #: **Surface preparation**
Revision: **0**
Contract: **CC204**

Description: **Approval for Liner Surface Within In-Heap as per Activities and Criteria Outlined in ITP-010**

Details: **Stations Positioned East-West-Embankment Face From Top of 940 Bench Perpendicular to North Face of PLS Base. Stations are Positioned in 10m Increments in the Field. Stations to be Included in As-Built Drawings by Pelly.**

STA	Pelly Approval for Completion	Client Representative's Approval for Completion	Comments
0+710	D.S. 10/10/18	D.6 10/10/18	
0+720	D.S. 10/10/18	D.6 10/10/18	
0+730	D.S. 10/10/18	D.6 10/10/18	
0+740	D.S. 10/10/18	D.6. 10/10/18	
0+750	D.S. 10/10/18	D.6 10/10/18	
0+760	D.S. 10/10/18	D.6. 10/10/18	
0+770	D.S. 10/4/18	D.6 10/4/18	
0+780	D.S. 10/4/18	D.6 10/4/18	
0+790	D.S. 10/4/18	D.6 10/4/18	
0+800	D.S. 10/4/18	D.6 10/4/18	
0+810	D.S. 10/4/18	D.6 10/4/18	
0+820	D.S. 10/4/18	D.6 10/4/18	
0+830	D.S. 10/2/18	D.6 10/4/18	
0+840	D.S 10/2/18	D.6 10/4/18	
0+850	D.S 10/2/18	D.6 10/4/18	
0+860	D.S. 10/2/18	D.6 10/4/18	
0+870	D.S. 10/2/18	D.6 10/4/18	
0+880	D.S 10/2/18	D.6 10/4/18	
0+890	D.S. 10/2/18	D.6 10/4/18	
0+900	D.S. 10/2/18	D.6 10/4/18	
0+910	D.S 10/2/18	D.6 10/4/18	
0+920	D.S 10/2/18	D.6 10/4/18	
0+930	D.S. 10/2/18	D.6 10/4/18	
0+940	D.S. 10/2/18	D.6 10/4/18	
0+950	D.S. 10/2/18	D.6 10/4/18	
0+960	D.S. 10/2/18	D.6 10/4/18	
0+970	D.S. 10/2/18	D.6. 10/4/18	
0+980	D.S. 10/2/18	D.6 10/4/18	
0+990	D.S. 10/2/18	D.6. 10/4/18	
1+000	D.S. 10/2/18	D.6 10/4/18	
1+010	D.S. 10/2/18	D.6. 10/4/18	

* Closure Sump up to 915 m is approved D.6.

D.S. PELLY 10/4/18

DSC ENG. 10/4/18

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT EXCAVATION**
Task: **Inspection of excavation section to type 3 rock**
Contractor: **PELLY CONSTRUCTION LTD** Contract No. **CC204**
Project: **EAGLE GOLD PROJECT** ITP No. **001**
Item: **7.02** Drawing: **EMB-006**
CWP: TBD HLF EMBANKMENT
Revision and Date: **September 20, 2017**

Pelly Construction Ltd.

Section No.	Completion of excavation to type 3 rock	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1	Section 1 excavated down to Type 3 rock	SZ	9/21/17	ATM	9/21/17	BGC
2	Section 2 excavated down to Type 3 rock	SZ	9/21/17	ATM	9/21/17	BGC
3	Section 3 excavated down to Type 3 rock	SZ	9/23/17	ATM	9/23/17	BGC
4	Section 4 excavated down to Type 3 rock	D.S	10/7/17	Rm	10-7-17	BGC
5	Section 5 excavated down to Type 3 rock	D.S.	10/7/17	Rm	10-7-17	BGC
6	Section 6 excavated down to Type 3 rock	D.S.	10/7/17	Rm	10-7-17	BGC
7	Section 7 excavated down to Type 3 rock	D.S.	10/11/17	Rm	10-11-17	BGC
8	Section 8 excavated down to Type 3 rock	D.S.	10/18/17	RM	10-18-17	BGC
9	Section 9 excavated down to Type 3 rock	SZ	11/11/17	ATM	4/26/18	BGC
10	Section 10 excavated down to Type 3 rock	SZ	05/07/18	Rm	5-3-18	BGC
11	Section 11 excavated down to Type 3 rock	SZ	05/08/18	Rm	5-8-18	BGC
12	Section 12 excavated down to Type 3 rock	SZ	05/09/18	Rm	5-9-18	BCC
13	Section 13 excavated down to Type 3 rock	D.S.	05/14/18	Rm	5-14-18	BGC
14	Section 14 excavated down to Type 3 rock	D.S.	05/14/18	Rm	5-14-18	BCC
15	Section 15 excavated down to Type 3 rock	D.S.	05/14/18	Rm	5-19-18	BGC
16	Section 16 excavated down to Type 3 rock	D.S.	9-4-18	Rm	5-4-18	BEC

Client Rep: Ray Morlan (print) Ray (sign) 9-6-18 (date)

Contractor Rep: DEAN SEREDA (print) (sign) 9/6/18 (date)

9/6

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT EXCAVATION**
Task: **Inspection of excavation section to type 3 rock**
Contractor: **PELLY CONSTRUCTION LTD** Contract No. **CC204**
Project: **EAGLE GOLD PROJECT** ITP No. **001**
Item: **4110.1.03** Drawing: **EMB-006**
CWP: HLF Embankment
Revision and Date: **September 3, 2018**

Pelly Construction Ltd.

Section No.	Completion of excavation to type 3 rock	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
17	Section 17 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
18	Section 18 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
19	Section 19 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
20	Section 20 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
21	Section 21 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
22	Section 22 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
23	Section 23 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
24	Section 24 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
25	Section 25 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
26	Section 26 excavated down to Type 3 rock	D.S.	7/9/18	Rm	9-7-18	
27	Section 27 excavated down to Type 3 rock	D.S.	11/9/18	Rm	9-11-18	
28	Section 28 excavated down to Type 3 rock	D.S.	11/9/18	Rm	9-11-18	
29	Section 29 excavated down to Type 3 rock	D.S.	12/9/18	Rm	9-12-18	
30	Section 30 excavated down to Type 3 rock	D.S.	12/2/18	Rm	9-12-18	
31	Section 31 excavated down to Type 3 rock	D.S.	12/2/18	Rm	12218	
32	Section 32 excavated down to Type 3 rock	D.S.	12/2/18	Rm	12218	
33	Section 33 excavated down to Type 3 rock	D.S.	12/2/18	Rm	12218	

Client Rep: Ryan Mackie _____ 9-7-18
print sign date

Contractor Rep: SHIFENG ZHENG _____ 10-13-18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT EXCAVATION**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **7.02**
CWP: TBD
Revision: Revision 1

Contract No. **CC204**
ITP No. **001**
Date: **14-Sep-17**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	01/12/18	AJM	09/14/17	BGC
1.2	Request for information log	Maintain and update	Contractor	Held by Contractor	D.S.	01/12/18	RM	12218	
1.3	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	01/12/18	RM	12218	
1.4	Deficiency list log	Client/Client Rep signs off on each deficiency	Contractor	Deficiency list signed off, held by Contractor	D.S.	01/12/18	RM	12218	
1.5	Starting survey asbuilt of HLF embankment excavation footprint	Client approval of accuracy of starting survey asbuilt	Contractor/Client	Approved Drawing EMB-001 signed off, held by Contractor	D.S.	01/12/18	RM	12218	
1.6	Survey HLF embankment excavation footprint limits	Contractor/surveyor to stake excavation limits in field	Contractor	Approved Drawing EMB-002 held by Contractor	D.S.	01/12/18	RM	12218	
1.7	Embankment excavation divided into estimated sections for inspection	Client approval of excavation sections to be inspected	Contractor/Client	Approved Drawing EMB-003 held by Contractor	D.S.	01/12/18	RM	12218	
1.8	Inspection of excavation section of the unsuitable material	Client performs visual inspection and approval	Client	Signoff of approved section on Drawing ~~TBD1~~ 005	D.S.	01/12/18	RM	12218	
1.9	Inspection of excavation section to type 3 rock	Client performs visual inspection and approval	Client	Signoff of approved section on Drawing ~~TBD2~~ 006	D.S.	01/12/18	RM	12218	
1.10	Final survey asbuilt of approved inspected excavation section	Client approval of final survey asbuilt for section	Contractor/Client	Signoff of approved section on Drawing ~~TBD3~~ 134110-19	D.S.	01/12/18	RM	12218	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	01/12/18	RM	12218	
1.12	All items in this ITP are signed off	Verify all documents are signed off	Contractor/Client	Contractor ITP	D.S.	01/12/18	RM	12218	

Client Rep: Ray Morlan _____ 12-2-18
print sign date

Contractor Rep: DEAN SERELS _____ 01/12/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF CLOSURE AND UNDERDRAIN PIPE INSTALLATION**

ractor: **PELLY CONSTRUCTION LTD**
ect: **EAGLE GOLD PROJECT**
7.10, 7.11, 7.12
: **HLF Embankment**
sion: **0**

Contract No. **CC204**
ITP No. **003**
Date: **23-Oct-17**

Pelly Construction Ltd.

I NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
I.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	01/12/18		12-2-18	
I.2	Request for information log	Maintain and update	Contractor	Held by Contractor	D.S.	01/12/18		12-2-18	
I.3	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	01/12/18		12-2-18	
I.4	Closure pipe and underdrain pipe drawings are IFC	Verify all related piping drawings are IFC	Contractor/Client	Drawings reviewed	D.S.	01/12/18		12-2-18	
I.5	Material receiving log	Verify materials received throughout the project	Contractor	Log kept by Contractor	D.S.	01/12/18		12-2-18	
.6	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	01/12/18	D. G	10/14/18	
.7	Fusing technicians are qualified	Verify qualification	Contractor	Certification	D.S.	01/12/18		12-2-18	
.8	All pipe fusing is tracked and logged	Log each fuse completed	Contractor	Data logger records held by Contractor	D.S.	01/12/18		12-2-18	
.9	Engineers approval of nonwoven geotextile installation	Install geotextile as per IFC's and design engineers correspondence	Contractor/Client	Engineers written approval of geotextile installation	D.S.	01/12/18		12-2-18	
10	Receipt of approval of quality control for select drain fill and pipe trench backfill	Conduct quality control test and meet BGC Project Technical Specifications	Client	Documentation of test results and approval	D.S.	01/12/18		12-2-18	
11	Place client supplied select drain fill and pipe trench backfill	Place fill to design specifications in IFC and RFI-004	Contractor	Survey asbuilt and density test by method spec	D.S.	01/12/18		12-2-18	
~~12~~	~~Method spec test log~~	Log the number of compaction passes	~~Contractor/Client~~	~~Sign off Log by Client~~	N/A	N/A	N/A	N/A	
13	Manufacturer's recommendation for maximum deflection of HDPE piping	Manufacturer's documentation outlining maximum deflection for piping	Contractor	Receipt of manufacturer's documentation	D.S.	01/12/18		12-2-18	
14	Install preassembled closure and underdrain pipes	Install pipes to design specifications in IFC and design engineers correspondence	Contractor	Survey asbuilt	D.S.	01/12/18	D. G	10/14/18	
15	Receipt of approval of quality control underdrain pipe cover material specified by Engineer	Conduct quality control test and meet BGC Project Technical Specifications	Client	Documentation of test results and approval	D.S.	01/12/18	D. G	10/14/18	
16	Prepare completed installation of pipes for interim construction period	Place suitable fill covering installed pipes	Contractor	Survey asbuilt and photos	D.S.	01/12/18	D. G	10/14/18	
17	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	01/12/18		12-2-18	
18	All items in this ITP are signed off	Verify all documents are signed off	Contractor/Client	Contractor ITP	D.S.	01/12/18		12-2-18	

BGC Agreed w/ this ITP
Roy Morlan BGC 10-23-17

Client Rep: Clint Abel (print) _____ (sign) Oct 23, 2017 (date)

Contractor Rep: Jason Abel (print) _____ (sign) Oct 23/2017 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT TOE REDESIGN**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.07**
CWP: **HLF Embankment Toe Redesign**
Revision: **0**

Contract No. **CC204**
ITP No. **0015**
Date: **02-Jun-18**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DK		D.G		
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DK		D.G		
1.3	Embankment Toe Redesign Drawing	Verify all related Redesign drawing	Contractor/Client	Drawings reviewed	DK		D.G		
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DK		D.G		NOT ENOUGH GEOGRID. BUT APPROVED
1.5	Engineers approval of Subgrade foundation	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval subgrade foundation	DK		D.G		
1.6	Engineers approval of Phase 1 foundation	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of Phase 1 foundation	DK		D.G		
1.7	Engineers approval of Geogrid installation	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of geogrid	DK		D.G		NOT ENOUGH BUT APPROVED
1.8	Engineers approval of Nonwoven Geotextile installation - bottom	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of geotextile installation	DK		D.G.		
1.9	Engineers approval of Phase 2 foundation	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of Phase 2 foundation	DK		R.M.		
1.10	Engineers approval of Nonwoven geotextile installation - top	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of geotextile installation	DS.		RM		
1.11	Engineers approval of Select Fill layer foundation	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers written approval of Select Fill foundation	SZ		RM		
1.12	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ		RM		
1.13	All items in this ITP are signed off	Verify all documents are signed off	Contractor/Client	Contractor ITP	SZ		RM		

Client Rep: Roy Murlen (print) _____ (sign) 6-21-18 (date)

Contractor Rep: Shipeng Zhang (print) _____ (sign) 06-21-18 (date)

1.8A → Add in Type 2 & Type 3 mix

CONTRACTOR REP _____ JUNE 5 2018

CLIENT REP Roy Murlen BGC

Title: **INSPECTION AND TEST PLAN FOR UNDERDRAIN TRENCH EXCAVATION**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **7.06, 7.07, 7.08**
CWP: TBD
Revision and Date: **September 14, 2017**

Contract No. **CC204**
ITP No. **002**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	01/12/18	[illegible]	15/9/17	Rec
1.2	Request for information log	Maintain and update	Contractor	Held by Contractor	D.S.	01/12/18	[illegible]	12-2-18	
1.3	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	01/12/18	[illegible]	12218	
1.4	Deficiency list log	Client/Client Rep signs off on each deficiency	Contractor	Deficiency list signed off, held by Contractor	D.S.	01/12/18	[illegible]	12218	
~~1.5~~	~~Survey Underdrain trench footprint limits~~	Contractor/surveyor to stake excavation limits in field	Contractor	Approved Drawing EMB-004 signed off, held by Contractor	N/A	N/A	N/A	N/A	
* 1.6	Inspection of excavation to designed depth	Client performs visual inspection and approval	Client	Signoff of approved section on Drawing TBD1	D.S.	01/12/18	[illegible]	12218	
* 1.7	Final survey asbuilt of approved inspected excavation section	Client approval of final survey asbuilt for section	Contractor/Client	Signoff of approved section on Drawing TBD2	D.S.	01/12/18	[illegible]	12218	
1.8	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	01/12/18	[illegible]	12218	
1.9	All items in this ITP are signed off	Verify all documents are signed off	Contractor/Client	Contractor ITP	D.S.	01/12/18	[illegible]	12218	

* FIELD APPROVAL CHECKLIST
CC204 PELLY UNDERDRAIN INSTALLATION

Client Rep: [illegible] [illegible] 12/2/18
print / sign / date

Contractor Rep: DEAN SEREDA [illegible] 01/12/18
print / sign / date

CC204 Pelly Construction Abutements/Rock Fills					ACTUAL ELEV:		870.15		870.7		871.45		872.0	
Station	West Abutements		East Abutements		Rock Fill Lifts 1		Rock Fill Lifts 2		Rock Fill Lifts 3		Rock Fill Lifts 4		Rock Fill Lifts 5	
			TARGET ELEV: 869.7				870.70		871.05		871.6		872.35	
Elevation (m)	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
0+7.5														
0+10	Dino		Dino		Dino	EJF								
0+20	Dino		Dino		Dino	EJF	Dino	EJF	Dino	EJF	Dino	EJF	DAS	EJF
0+30	Dino		Dino		Dino	EJF	Dino	EJF	Dino	EJF	Dino	EJF	DAS	EJF
0+40	Dino		Dino		Dino	EJF					Dino	EJF	DAS	EJF
0+50	Dino		Dino		Dino	EJF								
0+60	Dino		Dino		Dino	EJF								
0+70	Dino		Dino		Dino	EJF								
0+80	Dino		Dino		Dino	EJF								
0+90	Dino		Dino		Dino	EJF								
0+100	Dino		Dino		Dino	EJF								
0+110	Dino		Dino		Dino	EJF								
0+120	Dino		Dino		Dino	EJF.								
0+130														
0+140														
0+150														
0+160														
0+170														

Finger DRAIN @ Station 0+060 (Build as per Contract Specifications). Dalm. Oppa. 07/10/18 Ellen Fleming (BGC) 07/10/18

Finger DRAIN @ Station 0+070 (Build as per Contract Specifications). Dalm. Oppa 07/10/18 Ellen Fleming (BGC) 07/10/18

NOTE: As built Approvals to follow as per Specification. Dalm Oppa. 07/10/18.

1.4m overbuild on design toe @ Lift 1 and 2, 3, 4 ↖ Ellen Fleming (BGC) 07/10/18

Dalm Oppa. 07/10/18

Ellen Fleming 07/11/18 (BGC)

Volume H_2O Test & As-built. Dalm Oppa. 07/10/18.

(TEST HOLE 1) LIFT 3 Ellen Fleming (BGC) 07/11/18

0.9m overbuild on design toe @ lift 5 and 6 07/13/18 Ellen Fleming 7/13/18

0.3m overbuild on design toe @ lift 7,8 9,10 07/13/18 Ellen Fleming 7/13/18

TEST HOLE 2 @ LIFT 7 Completed 7/14/18

CC204 Pelly Construction Abutements/Rock Fills					ACTUAL: 872.8		873.4		874.17		874.7		875.35	
Station	West Abutements		East Abutements		Rock Fill Lifts 6		Rock Fill Lifts 7		Rock Fill Lifts 8		Rock Fill Lifts 9		Rock Fill Lifts 10	
			TARGET:		872.90		873.70		874.3		875.07		875.6	
	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
0+00														
0+10														
0+20					DAS	EJF	DAS	EJF	DAS	D6	DAS	D.6	DAS	~~EJF~~
0+30					DAS	EJF	DAS	EJF	DAS	D6	DAS	D.6	DAS	EJF
0+40					DAS	EJF	DAS	EJF	DAS	D6	DAS	D.6	DAS	EJF
0+50					DAS	EJF	DAS	EJF	DAS	D6	DAS	D.6	DAS	EJF
0+60							DAS	EJF	DAS	D6	DAS	D.6	DAS	EJF
0+70													DAS	EJF
0+80														
0+90														
0+100														
0+110														
0+120														
0+130														
0+140														
0+150														
0+160														
0+170														

Water replacement density test @ lift 10 14/07/18

TEST HOLE 3 07/14/18

CC204 Pelly Construction Ltd
Rock Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	Rock Fill Lift 11		Rock Fill Lift 12		Rock Fill Lift 13		Rock Fill Lift 14		Rock Fill Lift 15		Rock Fill Lift 16		Rock Fill Lift 17		Rock Fill Lift 18	
Target (m)	876.25		877.0		877.75		878.48		879.10		~~879.55~~ 879.8		880.45		881.20	
Actual (m)	876.10		~~877.0~~ 876.85		877.58		878.20		878.90		879.55		880.30		881.05	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	DAS	EJF	DAS	EJF	DAS	EJF	DAS	D6	DAS	D.6	DAS	D6	DAS	D6	DAS	D.6
west	DAS	EJF	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
Station																
0+020																
0+030	DAS	EJF	DAS	EJF												
0+040	DAS	EJF	DAS	EJF	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+050	DAS	EJF	DAS	EJP	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+060	DAS	EJF	DAS	EJP	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+070	DAS	EJF	DAS	EJF	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+080			DAS	EJF	DAS	EJF	DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+090							DAS	EJF	DAS	D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+100										D.6	DAS	D.6	DAS	D.6	DAS	D.6
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																

EXTRAS:

Water replacement density test @ lift 12 - test hole 4

CC204 Pelly Construction Ltd
Rock Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	Rock Fill Lift 19		Rock Fill Lift 20		Rock Fill Lift 21		Rock Fill Lift 22		Rock Fill Lift 23		Rock Fill Lift 24		Rock Fill Lift 25		Rock Fill Lift 26	
Target (m)	881.95		882.60		884.0		884.65		885.40		886.15		886.90		887.65	
Actual (m)	882.66		883.2012		~~883~~ 883.75		~~885~~ 885.49		885.25		886.00		886.00		887.40	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD	Dino		Dino	SD
west	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD	Dino		Dino	SD
Station																
0+020																
0+030																
0+040	Dino	SD	Dino	SD		D.6	Dino	SD								
0+050	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+060	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+070	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+080	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+090	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+100	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+110	Dino	SD	Dino	SD		D.6	Dino	SD	Dino	HV	Dino	SD		HV	Dino	SD
0+120											Dino	SD		HV	Dino	SD
0+130															Dino	SD
0+140																
0+150																
0+160																
0+170																

EXTRAS:

0900: Lift 19 - Rockfill packed & CS78B Smooth drum. 882.60m. Dino

SF1A SF2A SF3A SF4A SF5A SF6A SF7A SF8A

CC204 Pelly Construction Ltd
Rock Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	Fill Lift 67		Fill Lift 68		Fill Lift 69		Fill Lift 70		Fill Lift 71		Fill Lift 72		Fill Lift 73		Fill Lift 74	
Target (m)			891.48		891.80		892.18		892.55		893.00		893.33		893.70	
Actual (m)	891.08		891.40		891.75		892.15		892.60		892.93		893.30		893.63	
Abutments	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
east	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
west	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
Station																
0+100	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
0+110	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
0+120	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
0+130	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
0+140	YF	H.V.	YF	Rm	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO
0+150	YF															
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

SF9A Target 894.03 Actual 893.98

SF10A Target 894.38 Actual 894.27

SF11A Target 894.67

CC204 Pelly Construction Ltd
Rock Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 9A		SF LIFT 10A		SF LIFT 11A		SF LIFT 12A		SF LIFT 13A		SF LIFT 14A		SF LIFT 15A		SF LIFT 16A	
Target (m)	844.03		844.38		844.67		845.02		845.38		845.78		846.17		846.45	
Actual (m)	843.48		844.27		844.62		844.98		845.38		845.77		846.05		846.40	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
west	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
Station																
0+100	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF			
0+110	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+120	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+130	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+140	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+150	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+160			YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO	YF	H.V.	YF	H.V.
0+170													YF	H.V.	YF	H.V.
0+180																/
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd
~~Rock~~ Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 17A		SF LIFT 18A		SF LIFT 19A		SF LIFT		SF LIFT		SF LIFT		SF LIFT		SF LIFT	
Target (m)	896.80		897.20		897.56											
Actual (m)	896.80		897.16		897.48											
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	H.V.	TP	RO	TP	RO										
west	YF	H.V.	TP	RO	TP	RO										
Station																
0+100																
0+110	YF	H.V.	TP	RO	TP	RO										
0+120	YF	H.V.	TP	RO	TP	RO										
0+130	YF	H.V.	TP	RO	TP	RO										
0+140	YF	H.V.	TP	RO	TP	RO										
0+150	YF	H.V.	TP	RO	TP	RO										
0+160	YF	H.V.	TP	RO	TP	RO										
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd Rock Fill Lift Checklist			*all lifts maintain a minimum 0.3m overbuild at embankment toe								Structural		structural		Structural	
Elevation	**Rock Fill Lift 27**		**Rock Fill Lift 28**		**Rock Fill Lift 29**		**Rock Fill Lift 30**		**Rock Fill Lift 31**		**Rock Fill Lift 32**		**Rock Fill Lift 33**		**Rock Fill Lift 34**	
Target (m)	888.30		888.90		889.60		890.30		891.00		891.25		891.55		891.90	
Actual (m)	888.00		888.70		889.40		890.20		890.80		891.10		891.45		891.80	
Abutment:	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	Dino	SD	Dino	SD *	YF	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
west	Dino	SD	Dino	SD *	YF	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
Station																
0+020																
0+030																
0+040																
0+050	Dino	SD	Dino	SD *	SB	H.V.										
0+060	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.								
0+070	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.						
0+080	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD		
0+090	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD		
0+100	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD		
0+110	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
0+120	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
0+130	Dino	SD	Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
0+140			Dino	SD *	SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
0+150					SB	H.V.	YF	H.V.	YF	H.V.	Dino	SD	Dino	SD	YF	H.V.
0+160									YF	H.V.	Dino	SD			YF	H.V.
0+170											Dino				YF	H.V.

EXTRAS:

* Lift 28 - Did not witness placement or compaction (DD) - Just survey DD. July 25/18

Lift 31 - Last rock fill lift (pending confirmation)

(Sta 1+10)

Lift 32 - 40m offset marked by green stakes, 45m uncompacted Structural Fill

892.41

Structural #5 Structural 6 SF7 structural SF8 structural

CC204 Pelly Construction Ltd

~~Rock~~ Fill Lift Checklist SF4

*all lifts maintain a minimum 0.3m overbuild at embankment toe

SF9 SF10 SF11

Elevation	~~Rock~~ Fill Lift 35		~~Rock~~ Fill Lift 36		~~Rock~~ Fill Lift 37		~~Rock~~ Fill Lift 38		~~Rock~~ Fill Lift 39		~~Rock~~ Fill Lift 40		~~Rock~~ Fill Lift 41		~~Rock~~ Fill Lift 42	
Target (m)	892.25		892.68		[illegible]		893.30		893.65		894.05		894.42		894.83	
Actual (m)	892.23		892.61		892.85		893.20		893.60		893.97		894.38		894.77	
Abutment:	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
west	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
Station																
0+020																
0+030																
0+040																
0+050																
0+060																
0+070																
0+080																
0+090																
0+100					Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+110	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+120	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+130	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+140	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+150	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+160	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.
0+170	YF	H.V.	YF	H.V.	Dino	[illegible]	Dino	[illegible]	Dino	H.V.	YF	H.V.	YF	H.V.	T.P.	H.V.

EXTRAS:

Structural 6 – Down to 30cm lift due to using lighter packer (0+180 # of runs TBD) 0+180

CAT 758 – 0.45m on 2 passes

CAT 854B – 0.3m on 2 passes

CC204 Pelly Construction Ltd

~~Rock~~ Fill Lift Checklist SF12 SF13 SF14 SF15 SF16 SF17 SF18 SF19

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	Fill Lift 43		Fill Lift 44		Fill Lift 45		Fill Lift 46		Fill Lift 47		Fill Lift 48		Fill Lift 49		Fill Lift 50	
Target (m)	895.17		895.55		895.95		896.35		896.61		846.90		847.35		897.68	
Actual (m)			895.50		895.87		846.21		846.50		846.95		847.28		897.58	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
west	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
Station																
0+100																
0+110	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+120	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+130	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+140	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+150	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+160	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+170	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+180	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+190	Dino	QD	Dino	QD	Dino	QD	Dino	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	QD
0+200													YF	H.V.	YF	QD
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS: 40 cm lifts for foreseeable future

SF20

CC204 Pelly Construction Ltd
Rock Fill Lift Checklist

SF21 SF22 SF23 SF24 SF25 SF26 SF27

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	Fill Lift 51		Fill Lift 52		Fill Lift 53		Fill Lift 54		Fill Lift 55		Fill Lift 56		Fill Lift 57		Fill Lift 58	
Target (m)	897.98		898.35		898.7		899.05		899.37		899.72		900.08		900.45	
Actual (m)	897.95		898.32		898.65		898.97		899.32		899.68		900.05		900.43	
Abutment:	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
east	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
west	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
Station																
0+100	TP	RO	TP	RO	YF	H.V.										
0+110	TP	RO	TP	RO	YF	H.V.										
0+120	TP	RO	TP	RO	YF	H.V.										
0+130	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+140	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+150	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+160	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+170	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+180	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+190	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+200	TP	RO	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+210				RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	TP	RO
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

SF28 30 SF29 SF31 SF32 SF33 SF34 35

CC204 Pelly Construction Ltd Rock Fill Lift Checklist	*all lifts maintain a minimum 0.3m overbuild at embankment toe															
Elevation	**Fill Lift 59**		**Fill Lift 60**		**Fill Lift 61**		**Fill Lift 62**		**Fill Lift 63**		**Fill Lift 64**		**Fill Lift 65**		**Fill Lift 66**	
Target (m)	900.81		901.15		901.47		901.82		902.14		902.50		902.82		903.22	
Actual (m)	900.75		901.07		901.42		901.74		902.10		902.42		902.82		903.10	
Abutment:	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
west	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
Station																
0+100																
0+110																
0+120																
0+130																
0+140	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+150	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+160	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+170	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+180	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+190	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+200	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+210	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+220	YF	H.V.	YF	H.V.	YF	H.V.	TP	RO	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

* SF lift 1A as continuation from RF lift 31 will require to key into downstream face access ramps only as far as haul traffic travel has occurred; No further compaction is required within areas of haul traffic on access ramps.

CC204 Pelly Construction Ltd
~~Rock~~ Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 36		SF LIFT 37		SF LIFT 38		SF LIFT 39		SF LIFT 40		SF LIFT 41		SF LIFT 42		SF LIFT 43	
Target (m)	903.50		903.76		904.12		904.48		904.83		905.26		905.63		905.94	
Actual (m)	903.76		903.72		904.08		904.43		904.86		905.23		905.54		905.97	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
west	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
Station																
0+100																
0+110																
0+120																
0+130																
0+140	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.						
0+150	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+160	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+170	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+180	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+190	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+200	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+210	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+220	TP	RTD	YF	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+230											D.S.	H.V.	D.S.	H.V.	D.S.	H.V.
0+240															D.S.	H.V.
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

* Lift 38 was subbed out in SW corner where significant deflection was noticed; Brought down to solid and replaced with suitable material and compacted. * Also completed in North Central area of pad.

CC204 Pelly Construction Ltd
~~Rock~~ Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 44		SF LIFT 45		SF LIFT 46		SF LIFT 47		SF LIFT 48		SF LIFT 49		SF LIFT 50		SF LIFT 51	
Target (m)	906.33		906.70		907.07		907.44		907.87		908.08		908.42		908.79	
Actual (m)	906.30		906.66		907.04		907.27		907.68		908.02		908.39		908.75	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	O.K	RO	OK	RO	D.S.	RO
west	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	O.K	RO	OK	RO	D.S.	RO
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150	D.S.	~~H.V.~~														
0+160	D.S.	~~D.S H.V~~	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+170	D.S.	~~D.S H.V~~	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+180	D.S.	~~D.S H.V~~	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+190	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+200	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+210	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+220	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+230	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+240	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+250	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+260			D.S.	H.V.	D.S.	H.V.	O.K	RO	D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+270									D.S.	RO	OK	RO	OK	RO	D.S.	RO
0+280															D.S.	
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd
~~Rock~~ Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 52		SF LIFT 53		SF LIFT 54		SF LIFT 55		SF LIFT 56		SF LIFT 57		SF LIFT 58		SF LIFT 59	
Target (m)	909.15		909.50		909.90		910.30		910.71		911.06		911.43		911.81	
Actual (m)	909.10		909.50		909.90		910.31		910.66		911.03		911.41		~~911.84~~ 911.84	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO					OK	SD
west	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO					OK	SD
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+170	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+180	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+190	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+200	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+210	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+220	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+230	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+240	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+250	OK	RO	OK	RO	O.S.	EPW	OK	RO	OK	RO	SE	EPW	SE	EPW	OK	SD
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

* Lifts will begin to be offset to the WEST by ~~3m~~ 2m per lift once lift elevation exceeds highest point of centre rock ridge * East abutment defined @ 2 m offset EPW

CC204 Pelly Construction Ltd
~~Rock~~-Fill Lift Checklist

EAST

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT Correction		SF LIFT Correction		SF LIFT Correction		SF LIFT Correction		SF LIFT		SF LIFT		SF LIFT		SF LIFT	
Target (m)	40cm		40cm		40cm		40cm		886.86							
Actual (m)	40cm		40cm		40cm		40cm				887.26		887.70		888.10	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	OK	886	OK	886	OK	886	OK	886	OK	886.	OK	886	OK	886	OK	886.
west																
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS: EAST EMBANKMENT

CC204 Pelly Construction Ltd
~~Rock~~ Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 60		SF LIFT 61		SF LIFT 62		SF LIFT		SF LIFT		SF LIFT		SF LIFT		SF LIFT	
Target (m)	912.21		912.58		913.00											
Actual (m)	912.18		912.60													
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP	EPM	TP	EPM												
west	TP	EPM	TP	EPM												
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160	TP	EPM	TP	EPM												
0+170	TP	EPM	TP	EPM												
0+180	TP	EPM	TP	EPM												
0+190	TP	EPM	TP	EPM												
0+200	TP	EPM	TP	EPM												
0+210	TP	EPM	TP	EPM												
0+220	TP	EPM	TP	EPM												
0+230	TP	EPM	TP	EPM												
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

East Embankment

CC204 Pelly Construction Ltd ~~Rock~~ Fill Lift Checklist	*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT		SF LIFT		SF LIFT		SF LIFT		SF LIFT		SF LIFT		SF LIFT 14 A		SF LIFT 14 B	
Target (m)	888.53		888.96		889.36		889.75		890.15		890.55		890.98		890.98	
Actual (m)	888.56		888.96		889.38		889.75								890.98	
Abutments	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
east	TP	EBM	TP	EBM	TP	EBM	TP	EBM	OK	SD	OK	SD	OK	SD	OK	EBM
west	TP	EBM	TP	EBM	TP	EBM	TP	EBM	OK	SD.	OK	SD.	OK	SD.	OK	EBM
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

14A - ... W half of lift, 14-B (E half) to be completed by daylight SD

*14 B was left for Dayshift to complete

East Embankment

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 15		SF LIFT 16		SF LIFT 17		SF LIFT 18		SF LIFT 19		SF LIFT 20		SF LIFT 21		SF LIFT 22	
Target (m)	~~891.38~~ 891.41		891.81		~~892.24~~		892.61		892.98		893.35		893.76		894.15	
Actual (m)			891.84				892.58		892.95		893.36		893.75		894.13	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP	~~BGC~~	TP	~~BGC~~	SD	SD	OK	SD	OK	SD	OK	SD	~~OK~~	~~BGC~~	TP	~~BGC~~
west	TP	~~BGC~~	TP	~~BGC~~	SD	SD	OK	SD	OK	SD	OK	SD	~~OK~~	~~BGC~~	TP	~~BGC~~
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

East

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 23		SF LIFT 24		SF LIFT 25		SF LIFT 26		SF LIFT 27		SF LIFT 28		SF LIFT 29		SF LIFT 30	
Target (m)	894.82		894.92		895.32		895.75		896.16		896.6		897.05		897.47	
Actual (m)	894.52		895.22		895.35		895.76		896.20		896.65		897.07		897.40	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP		TP		OK	SD	OK	SD	OK	SD	OK		TP		TP	*
west	TP		TP		OK	SD	OK	SD	OK	SD	OK		TP		TP	
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS: 30 lift tied into the A lifts, *No overlap yet. Lift 31 will overlap

East

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 31 *		SF LIFT 32		SF LIFT 33		SF LIFT 34		SF LIFT 35		SF LIFT 36		SF LIFT 37		SF LIFT 38	
Target (m)	897.80		894.17		898.57		898.95		899.34		899.75		900.09		900.47	
Actual (m)	897.77		894.17		898.55		898.94		899.35		899.69		900.07		900.47	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP	[signature]	OK	SD	OK	SD	OK	SD	TP	[signature]	TP	[signature]	TP	[signature]	OK	
west	TP	[signature]	OK	SD	OK	SD	OK	SD	TP	[signature]	TP	[signature]	TP	[signature]	OK	
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
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0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

* Lift 31 tied into A section of west embankment with (full-overlap)

*

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 39		SF LIFT 40		SF LIFT 41		SF LIFT 42		SF LIFT 43		SF LIFT 44		SF LIFT 45		SF LIFT 46	
Target (m)	900.97		~~900.50~~ 901.15		901.50		901.85		902.17		902.53		902.85		903.20	
Actual (m)	~~901.40~~ 900.75		901.10		901.45		901.77		902.13		902.45		902.80		903.12	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	OK		OK		TP	EAN	TP	EAN	TP	EAN	~~OK~~ OK	ELN	OK	ELN	YF	ELN
west	OK		OK		TP	EAN	TP	EAN	TP	EAN	~~OK~~ OK	ELN	OK	ELN	YF	EAN
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
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0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 47		SF LIFT 48		SF LIFT 49		SF LIFT 50		SF LIFT 51		SF LIFT 52		SF LIFT 53		SF LIFT 54	
Target (m)	903.52		903.88		904.28		904.68		905.07		905.47		905.89		906.27	
Actual (m)	903.43		903.83		904.23		904.62		905.02		905.44		905.82		906.20	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	[illegible]	YF	[illegible]	TP	ELW	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW	YF	[illegible]
west	YF	[illegible]	YF	[illegible]	TP	ELW	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW	YF	[illegible]
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS: 45 cent lifts due to GPS dozer - Lift 48 onwards

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 55		SF LIFT 56		SF LIFT 57		SF LIFT 58		SF LIFT 59		SF LIFT 60		SF LIFT 61		SF LIFT 62	
Target (m)	906.65		907.05		907.48		907.91		908.32		908.69		909.12		909.51	
Actual (m)	906.60		907.03		907.46		907.87		908.24		908.67		909.06		909.43	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW
west	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW	YF	[illegible]	YF	[illegible]	TP	ELW	TP	ELW
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
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0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 63		SF LIFT 64		SF LIFT 65		SF LIFT 66		SF LIFT 67		SF LIFT 68		SF LIFT 69		SF LIFT 70	
Target (m)	909.68		910.25		910.66		911.05		911.41		911.81		912.21		912.60	
Actual (m)	909.80		910.21		910.60		910.96		911.36		911.76		912.15		912.55	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	Epm	YF	Epm	TP	ELW	TP	ELW	YF	Epm	TP	ELW	TP	ELW	YF	Epm
west	YF	Epm	YF	Epm	TP	ELW	TP	ELW	YP	Epm	TP	ELW	TP	ELW	YF	Epm
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+220																
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0+320																
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EXTRAS:

Lift 68 - remove large rock and re-fill, then good for signoff on night shift

↳ Back edge check on 68/67 (upstream-toe edge) → confirm built to design location

CC204 Pelly Construction Ltd Compaction Fill Lift Checklist			*all lifts maintain a minimum 0.3m overbuild at embankment toe													
Elevation	**SF LIFT 71**		**SF LIFT 72**		**SF LIFT 73**		**SF LIFT 74**		**SF LIFT 75**		**SF LIFT 76**		**SF LIFT 77**		**SF LIFT 78**	
Target (m)	913.00		913.37		913.76		914.14		914.54		914.94		915.31		915.70	
Actual (m)	912.92		913.31		913.69		914.09		914.49		914.86		915.25		915.65	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	ELN	YF	ELN	D.S.	EJF	YF	ELN	YF	ELN	D.S.	EJF	YF	ELN	D.S.	EJF
west	YP	EJP	YF	ELN	D.S.	EJP	YF	ELN	YF	ELN	D.S.	EJP	YF	ELN	D.S.	EJF
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+300																
0+310																
0+320																
0+330																

EXTRAS:

Lift 71 last one of "East" lifts - ties into old lift at this elevation

Lift 72 first "full" lift (continuing numbering system)

Lift 78 - Mostly completed by Night Shift, did not sign due to small area where haul truck broke down

Started 79 already

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 79		SF LIFT 80		SF LIFT 81		SF LIFT 82		SF LIFT 83		SF LIFT 84		SF LIFT 85		SF LIFT 86	
Target (m)	916.60		916.5		916.88		917.27		917.67		918.06		918.45		918.85	
Actual (m)	916.05		916.43		916.82		917.22		917.61		918.00		918.40		918.78	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	D.S.	EJF	YF	ELN	YF	EJF	D.S.	EJF	YF	ELN	D.S.	EJF	YF	ELN	D.S.	EJF
west	D.S.	EJF	YF	ELN	YF	EJF	D.S.	EJF	YF	ELN	D.S.	EJF	YF	ELN	D.S.	EJF
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+240																
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0+260																
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0+320																
0+330																

EXTRAS: Lift 84 - Mostly placed by Night Shift, Day shift removed thawed ice creating soft spots and replaced with suitable material

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 87		SF LIFT 88		SF LIFT 89		SF LIFT 90		SF LIFT 91		SF LIFT 92		SF LIFT 93		SF LIFT 94	
Target (m)	919.23		919.62		920.00		920.38		920.77		921.15		921.52		921.90	
Actual (m)	919.17		919.55		919.93		920.32		920.70		921.07		921.45		921.78	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	D.S.	EJF	YF	RO	D.S.	RO	D.S.	RO	YF	RO	D.S.	RO	TP	RO	D.S.	EJF
west	D.S.	EJF	YF	RO	D.S.	RO	D.S.	RO	YF	RO	D.S.	RO	TP	RO	D.S.	EJF
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+320																
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EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 95		SF LIFT 96		SF LIFT 97		SF LIFT 98		SF LIFT 99		SF LIFT 100		SF LIFT 101		SF LIFT 102	
Target (m)	922.23		922.60		922.99		923.40		923.75		924.11		924.51		924.89	
Actual (m)	922.15		922.54		922.95		923.30		923.66		924.06		924.44		924.82	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	D.S.	EJF	D.S.	EJF	D.S.	EJF	TP	RO	D.S.	EJF	D.S.	EJF	TP	RO	TP	RO
west	D.S.	EJF	D.S.	EJF	D.S.	EJF	TP	RO	D.S.	EJF	D.S.	EJF	TP	RO	TP	RO
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+300																
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0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd Compaction Fill Lift Checklist			*all lifts maintain a minimum 0.3m overbuild at embankment toe													
Elevation	**SF LIFT 103**		**SF LIFT 104**		**SF LIFT 105**		**SF LIFT 106**		**SF LIFT 107**		**SF LIFT 108**		**SF LIFT 109**		**SF LIFT 110**	
Target (m)	925.27		925.65		926.04		926.45		* 926.84		927.25		927.62		928.01	
Actual (m)	925.20		925.59		~~926~~ 926.00		926.39		926.80		927.17		927.56		927.99	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TN	RO	D.S.	EJF	D.S.	EJF	D.S.	EJF	D.S.	EJF	TP	RO	D.S.	EJF	TN	RTO
west	TP	RO	D.S.	EJF	D.S.	EJF	D.S.	EJF	D.S.	EJF	TP	RO	D.S.	EJF	TN	RTO
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd Compaction Fill Lift Checklist			*all lifts maintain a minimum 0.3m overbuild at embankment toe													
Elevation	**SF LIFT 111**		**SF LIFT 112**		**SF LIFT 113**		**SF LIFT 114**		**SF LIFT 115**		**SF LIFT 116**		**SF LIFT 117**		**SF LIFT 118**	
Target (m)	~~928.44~~		928.81		929.20		929.60		930.00		930.25		930.49		930.89	
Actual (m)	928.36		928.75		929.15		929.55		929.95		930.19		930.44		930.84	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	D.S.	RTO	D.S.	RTO	TP	RTO	D.S.	[illegible]	TP	RTO	TP	RTO	D.S.	[illegible]	TP	RTO
west	D.S.	RTO	D.S.	RTO	TP	RTO	D.S.	[illegible]	TP	RTO	TP	RTO	D.S.	[illegible]	TP	RTO
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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EXTRAS:

Lift 116 set at 30 cents due to material from HLF

Lift 115 required a large section to be dug out due to organics

Lift 117 set at 30 cm due to material from HLF

Lift 118 Saturated area in center of lift required removal, replace with dry material and compact

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 119		SF LIFT 120		SF LIFT 121		SF LIFT 122		SF LIFT 123		SF LIFT 124		SF LIFT 125		SF LIFT 126	
Target (m)	931.29		931.69		932.07		932.48		932.85		933.30		933.71		934.10	
Actual (m)	931.24		931.62		932.03		932.40		932.87		933.26		933.65		934.06	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	TP	RD	D.S.	[illegible]	D.S.	[illegible]	TP	AS	D.S.	[illegible]	[illegible]	[illegible]	TP	AS	TP	AS
west	TP	RD	D.S.	[illegible]	D.S.	[illegible]	TP	AS	D.S.	[illegible]	[illegible]	[illegible]	TP	AS	TP	AS
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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EXTRAS: Lift 124 set to 43 cm → 45 cm plus target of 123 due to concerns over high average as a result of large portion of lift 123 being done without gps dozer and being slightly high

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT 127		SF LIFT 128		SF LIFT 129		SF LIFT 130		SF LIFT 131		SF LIFT 132		SF LIFT 133		SF LIFT 134	
Target (m)	934.51		934.90		935.25		935.66		936.07		936.47		936.87		937.14	
Actual (m)	934.45		934.93		935.21		935.62		936.02		936.42		936.86		937.13	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	SB		SB		TP	AS	TP	AS	TP	AS	SB		SB		SB	
west	SB		SB		TP	AS	TP	AS	TP	AS	SB		SB		SB	
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
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0+290																
0+300																
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0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd Compaction Fill Lift Checklist	*all lifts maintain a minimum 0.3m overbuild at embankment toe															
Elevation	**SF LIFT** 135		**SF LIFT** 136		**SF LIFT** 137		**SF LIFT** 138		**SF LIFT** 139		**SF LIFT** 140		**SF LIFT**		**SF LIFT**	
Target (m)	937.58		937.91		938.33		938.74		939.14		939.50					
Actual (m)	937.56		937.88		938.29		938.69		939.10		939.44					
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	AS	YF	AS	YF	AS	~~SZ~~		SZ		SZ					
west	YF	AS	YF	AS	YF	AS	~~SZ~~		SZ		SZ					
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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0+220																
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0+240																
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0+300																
0+310																
0+320																
0+330																

EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT W17		SF LIFT W18		SF LIFT W19		SF LIFT W20		SF LIFT W21		SF LIFT W22		SF LIFT W23		SF LIFT W24	
Target (m)	925.[illegible]		925.66		926.06		926.45		926.76		927.17		927.53		927.93	
Actual (m)			925.61		926.00		926.31		926.72		927.08		927.48		927.88	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	SZ	[illegible]	YF	AS	YF	AS	YF	AS	YF	AS	SZ	[illegible]	SZ	[illegible]	SZ	[illegible]
west	SZ	[illegible]	YF	AS	YF	AS	YF	AS	YF	AS	SZ	[illegible]	SZ	[illegible]	SZ	[illegible]
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT W25		SF LIFT W26		SF LIFT W27		SF LIFT W28		SF LIFT W29		SF LIFT W30		SF LIFT W31		SF LIFT W32	
Target (m)	928.33		928.75		929.16		929.55		929.96		930.35		930.76		931.17	
Actual (m)	928.30		928.71		929.10		929.51		929.90		930.31		930.72		931.14	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	AS	~~58~~	D6	58	D.6	58	AS	YF	AS	YF	AS	5Z	D6	~~58~~	D6
west	YF	AS	57	D6	5Z	D.6	5Z	AS	YF	AS	YF	AS	57	D6	~~5Z~~	D6
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
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EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT W33		SF LIFT W34		SF LIFT W35		SF LIFT W36		SF LIFT W37		SF LIFT W38		SF LIFT W39		SF LIFT W40	
Target (m)	931.59		932.00		932.41		932.82		933.22		933.64		934.03		934.45	
Actual (m)	931.55		932.96		932.37		932.78		933.19		933.58		934.00		934.42	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	YF	AS	YF	AS	SF	[illegible]	SF	[illegible]	YF	AS	YF	AS	MM	[illegible]	MM	[illegible]
west	YF	AS	YF	AS	SF	[illegible]	SF	[illegible]	YF	AS	YF	AS	MM	[illegible]	MM	[illegible]
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
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EXTRAS:

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT W41		SF LIFT W42		SF LIFT W43		SF LIFT W44		SF LIFT W45		SF LIFT W46		SF LIFT W47		SF LIFT W48	
Target (m)	934.87		935.28		935.67		936.06 *		936.47 *		936.88 *		937.31 *		937.70	
Actual (m)	934.83		935.22		935.61		936.02 *		936.43 *		936.86 *		937.25 *		937.65	
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	MM	AS	YF	AS	YF	AS	YF	AS	YF	AS	YF	AS	YF	AS	MM	ERN
west	MM	AS	YF	AS	YF	AS	YF	AS	YF	AS	YF	AS	YF	AS	MM	ERN
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
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0+260																
0+270																
0+280																
0+290																
0+300																
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0+320																
0+330																

EXTRAS:

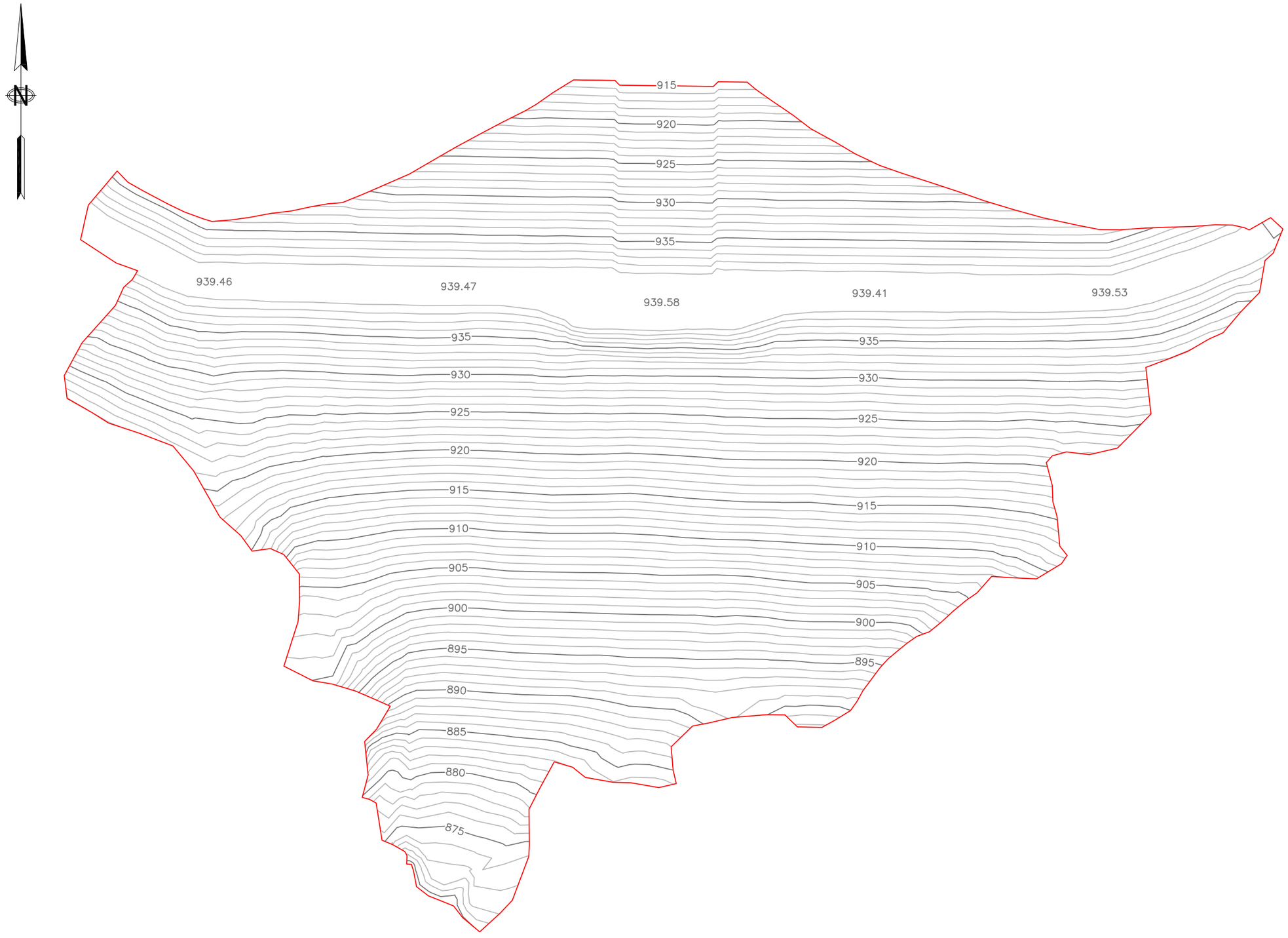
* Not constructed as a continuous lift, later tied-in to allow cleaning of west wall (edge of embankment - right abutment).

CC204 Pelly Construction Ltd
Compaction Fill Lift Checklist

*all lifts maintain a minimum 0.3m overbuild at embankment toe

Elevation	SF LIFT W49		SF LIFT W50		SF LIFT W51		SF LIFT W52		SF LIFT W53		SF LIFT		SF LIFT		SF LIFT	
Target (m)	938.10		938.53		938.95		939.30		939.50							
Actual (m)	938.08		938.50													
Abutments	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**	**Pelly**	**BGC**
east	MM	[illegible]	MM	[illegible]	YF	[illegible]	YF	AS	YF	AS						
west	MM	[illegible]	MM	[illegible]	YF	[illegible]	YF	AS	YF	AS						
Station																
0+100																
0+110																
0+120																
0+130																
0+140																
0+150																
0+160																
0+170																
0+180																
0+190																
0+200																
0+210																
0+220																
0+230																
0+240																
0+250																
0+260																
0+270																
0+280																
0+290																
0+300																
0+310																
0+320																
0+330																

EXTRAS:



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. HLF EMBANKMENT FINAL AS-BUILT SURFACE SHOWN IN RED
2. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/11/03	CM	ISSUED FOR TURNOVER

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF EMBANKMENT FINAL AS-BUILT

DRAWING SCALE: H 1:1250

DATE:	18/11/03	DWG No:	184110-18
SURVEYED:	TEAM	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 181103 HLF EMBANKMENT SURFACE ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 21, 2017
Construction:	JDS Mining	**Inspection Number:**	FND01
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 1, and 2, Survey drawings attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock in both Sections 1 and 2. Upon further excavation, parent rock fabric was observed and the area was approved. Some discontinuous areas of ice remain, and are impractical to remove. Sections 1 and 2 have been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: North area of Section 1 approved under FND01



Photo 2: North half of Section 2 approved under FND01. The area uphill of approximately the red line was approved. Note that in areas of stronger rock, the slope cannot be cleaned as easily as soft rock and initially appears to not be excavated to bedrock. These areas were investigated and were found to be sufficient.



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/20	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

EMBANKMENT SECTION 1 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/20	DWG No:	EMB-006-S1
SURVEYED:	C.B, C.M.	CHECKED:	
DRAWN:	C.B.	APPROVED:	

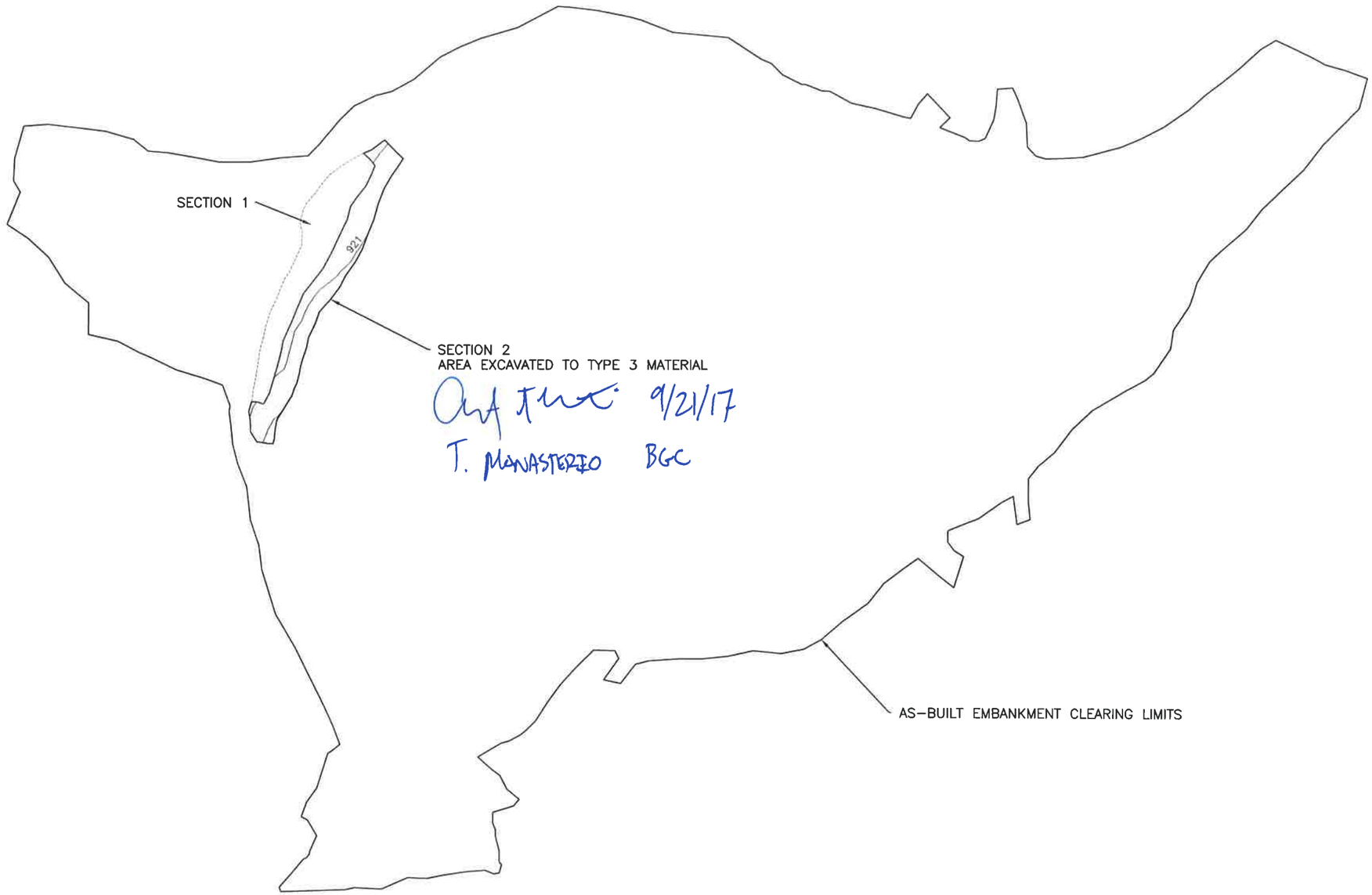
DRAWING FILE: 170920 EMBANKMENT SECTION 1 EXCAVATION TO TYPE 3 DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

N



9/21/17
T. MONASTERIO BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/21	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 2 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE: 17/09/21	DWG No: EMB-006-S2
SURVEYED: C.M.	CHECKED:
DRAWN: C.B.	APPROVED:

DRAWING FILE: 170921 EMBANKMENT SECTION 2 EXCAVATION TO TYPE 3 DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 23, 2017
Construction:	JDS Mining	**Inspection Number:**	FND02
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 3, Survey drawings attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock in both Sections 2 and 3. Excavation continued until parent rock fabric was observed and the area was approved. There is less ground ice in Section 3 than previously encountered, and mostly on the north side of the section. Section 3 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: North area of Section 1 approved under FND02.



Photo 2: Typical excavation to Type 3 bedrock as approved. Note the heterogeneity of the rock types encountered.

N



9/23/17

T. MONASTERIO BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/23	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 3 TOPOGRAPHY SURVEY AFTER EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/23	DWG No:	EMB-006-S3
SURVEYED:	C.M.	CHECKED:	
DRAWN:	C.B.	APPROVED:	

DRAWING FILE: 170923 EMB-006-S3 EMBANKMENT SECTION 3.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Sept. 28, 2017
Construction:	JDS Mining	**Inspection Number:**	FND03
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 4, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC requested additional excavation in select areas suspected to not be Type 3 bedrock. Excavation continued until parent rock fabric was observed and the area was approved. Again, ground ice was limited to the north third of the section. Ground temperatures in the north were -3 to 0°C; the south was much warmer, ranging from +2 to +5°C. Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 4 looking North, approved under FND03.



Out for Info. T. Monasterio 9/28/17 BGC

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/09/26	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: 1:1500

DATE:	17/09/26	DWG No:	EMB-006-S4
SURVEYED:	C.M.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 170926 EMB-006-S4 EMBANKMENT SECTION 4.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 5, 2017
Construction:	JDS Mining	**Inspection Number:**	FND04
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 5, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC approved a portion of the west side of the ridge running down the center of Ann Gulch. Small areas which require additional cleaning or excavation near the bottom of the slope were excluded from this approval and will be attended to by Pelly and included in the next approval.
Ground ice was not encountered on the slope.
Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 5 looking North, approved under FND04.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 5, 2017
Construction:	JDS Mining	**Inspection Number:**	FND04
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 5, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
BGC approved a portion of the west side of the ridge running down the center of Ann Gulch. Small areas which require additional cleaning or excavation near the bottom of the slope were excluded from this approval and will be attended to by Pelly and included in the next approval.
Ground ice was not encountered on the slope.
Section 4 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 5



RG
Ron Morlan
BGC
10-7-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/04	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/01	DWG No: EMB-006-S5
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171001 EMB-006-S5 EMBANKMENT SECTION 5.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 6, 2017
Construction:	JDS Mining	**Inspection Number:**	FND06
BGC Personnel:	Tony Monasterio, Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 6, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
Excavation has reached bedrock. However, the abutment face will need to cleaned and stripped of loose soil/rock prior to construction next season. Benching or keying in lifts may also be required.
Ground ice was not encountered on the slope.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ **Excavation to Type 3 bedrock**
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS



Photo 1: Section 6



Roy Mosher
BGC
10-7-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/04	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 4 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/01	DWG No: EMB-006-S6
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171004 EMB-006-S6 EMBANKMENT SECTION 6.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 10, 2017
Construction:	JDS Mining	**Inspection Number:**	FND07
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

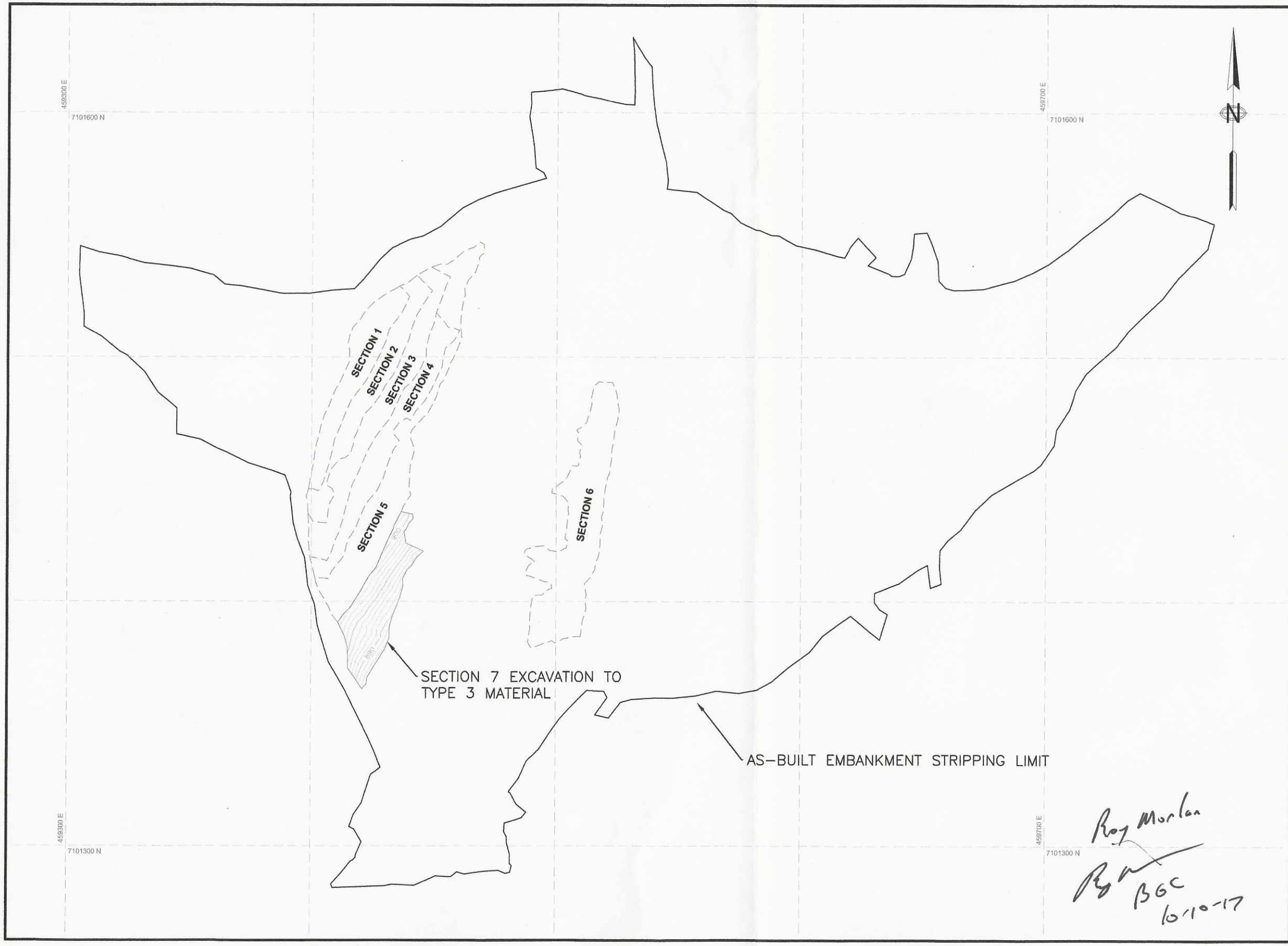
Pelly area(s) approved by this document: Section 7, Survey drawing attached.
Approval/Rejection Observations and Recommendations:
Ground ice was not encountered on the slope.
Section 7 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	☐ Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS

Photo 1:.



Roy Morlan
BGC
10-10-17

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/07	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT SECTION 7 EXCAVATION TO TYPE 3 MATERIAL

DRAWING SCALE: H 1:1500

DATE: 17/10/06	DWG No: EMB-007-S7
SURVEYED: CJ	CHECKED:
DRAWN: CB	APPROVED:

DRAWING FILE: 171007 EMB-007-S6 EMBANKMENT SECTION 7.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date:**	Oct. 18, 2017
Construction:	JDS Mining	**Inspection Number:**	FND08
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 8, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered on the northern ¼ of the approved area. It was removed to hard, competent bedrock. Ground temperature measurements are included in Ground Temperature Measurement Log Sec08-01.
- As with all other approved sections, Section 8 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 8 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

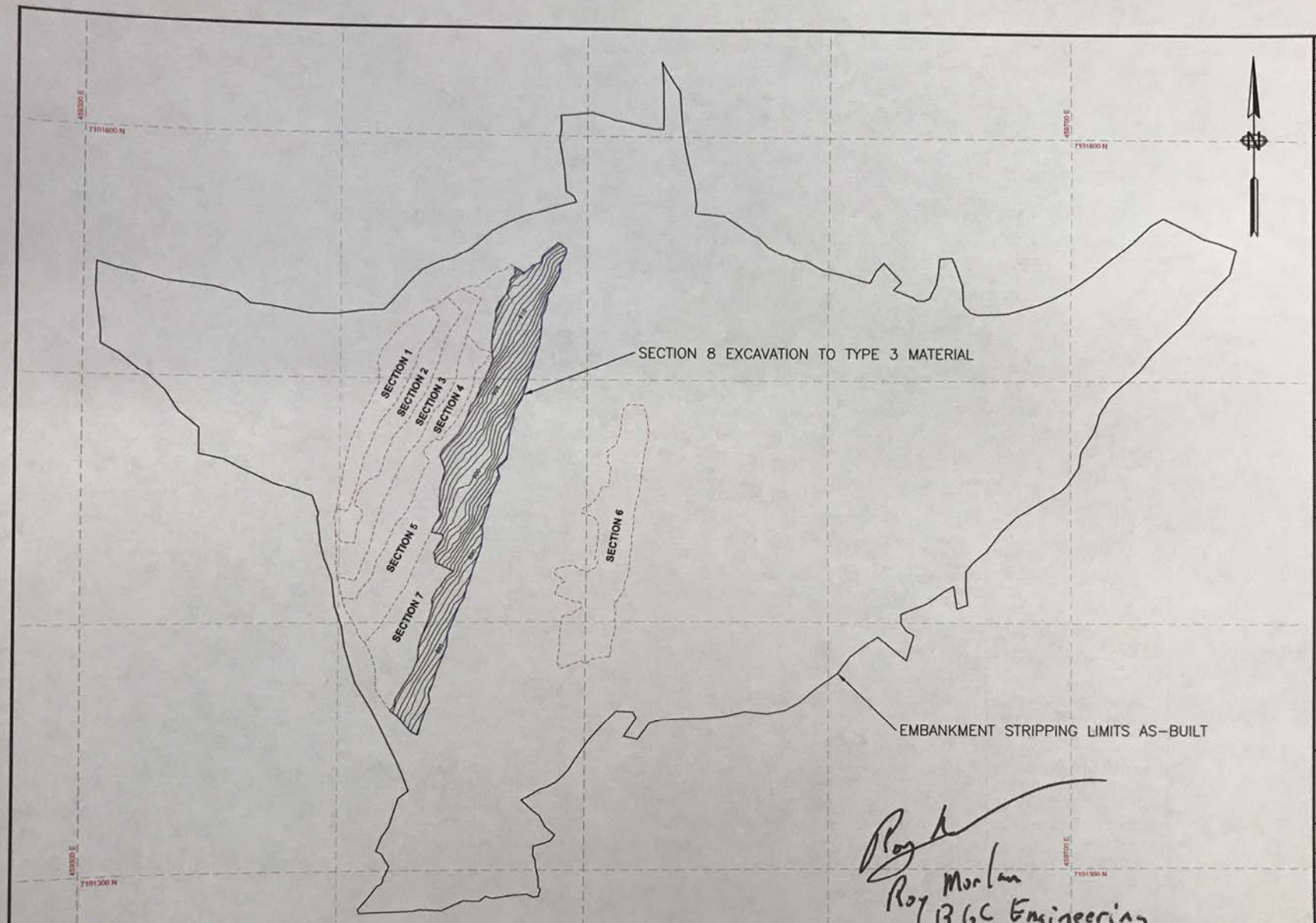
PHOTOGRAPHS


SW
W
NW
N
NE
240
270
300
330
0
30
330°NW (T)
8 N 459520 7101463 ±5m
906m
16 Oct 2017, 14:24

Photo 1:


W
NW
N
NE
0
270
300
330
0
30
60
348°N (T)
31 N 166021 0
0m
17 Oct 2017, 12:17

Photo 2:



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CONTOUR INTERVAL = 1m
2. AREAS OUTLINED IN RED DENOTE PREVIOUSLY APPROVED SECTIONS.
3. COORDINATES SHOWN ARE UTM NAD 83 ZONE 8.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/10/17	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
EMBANKMENT SECTION 8 EXCAVATION TO TYPE 3 TOPOGRAPHY AS-BUILT

DRAWING SCALE: H 1:1500

DATE:	17/10/17	DWG No:	EMB-006-S8
SURVEYED:	C.M. & C.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 171017 EMB-006-S8 EMBANKMENT SECTION 8 ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Roy Morlan
BGC Engineering
Oct 18, 2017

See FND08 For Details of Approval

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	April 26, 2018
Construction:	JDS Mining	**Inspection Number:**	FND09
BGC Personnel:	Tony Monasterio	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 09, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Areas was cleared in October 2017. However, BGC was demobilized before approval could be completed. BGC has inspected this area on April 26 and has approved it.
- Section 09 will require surface cleaning as ice removal activities in April 2018 has generated mud from pulverization of the upper portion (5 to 20 cm) of type 3 foundation. The area should be resurveyed once cleaning is complete and the final limits should be amended to this report, if needed.
- Section 09 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS



Photo 1: Section 9.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 2, 2018
Construction:	JDS Mining	**Inspection Number:**	FND10
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 10, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Foundation was over excavated in some areas between 30 to 50 cm as loose material at the surface was frozen to stronger material below and all material would be dislodged in one large frozen chunk. Type 3 foundation rock left had visible ice between joints in some sections. Ground temperature was measured between -1 C to 2C in Section 10.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 10 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 10 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS



Photo 1: Foundation excavation spoils.



Photo 2: Example of type 3 foundation with ice between the joints. In place strength will need to be re-evaluated after ice has thawed. Area may need additional cleaning of loose material after ice has thawed.

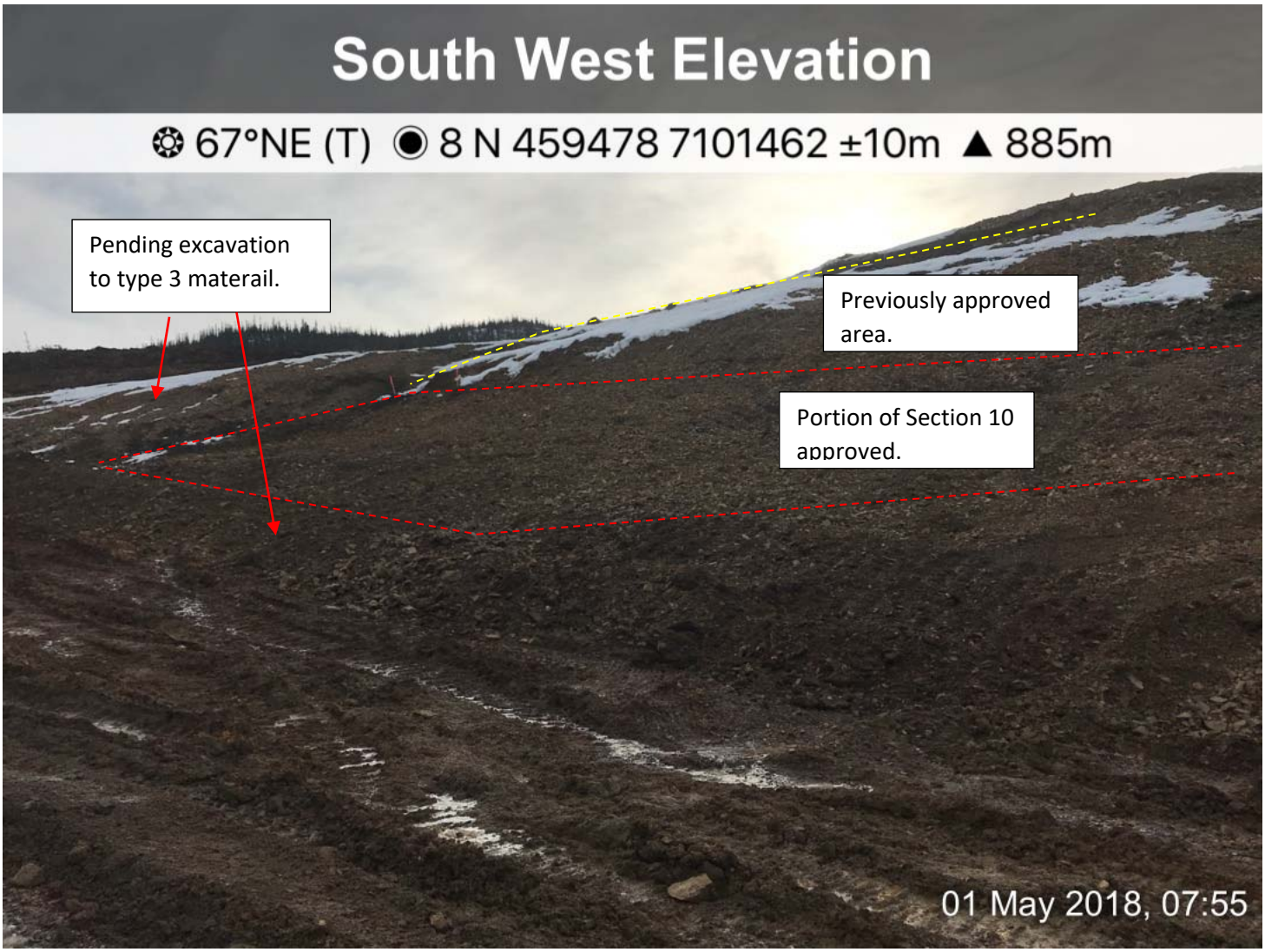


Photo 3: Portion of the area where type 3 foundation was approved in Section 10.

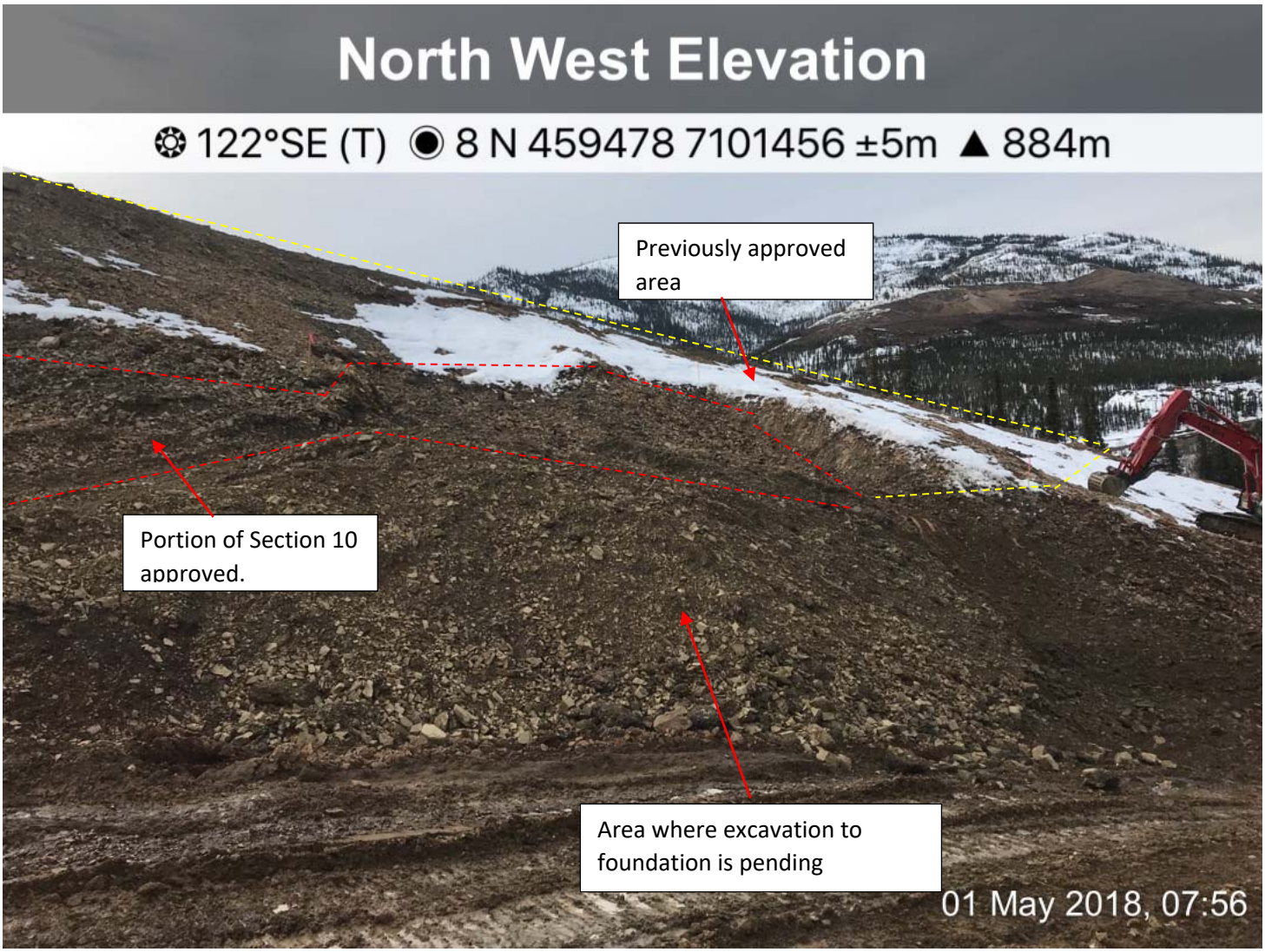
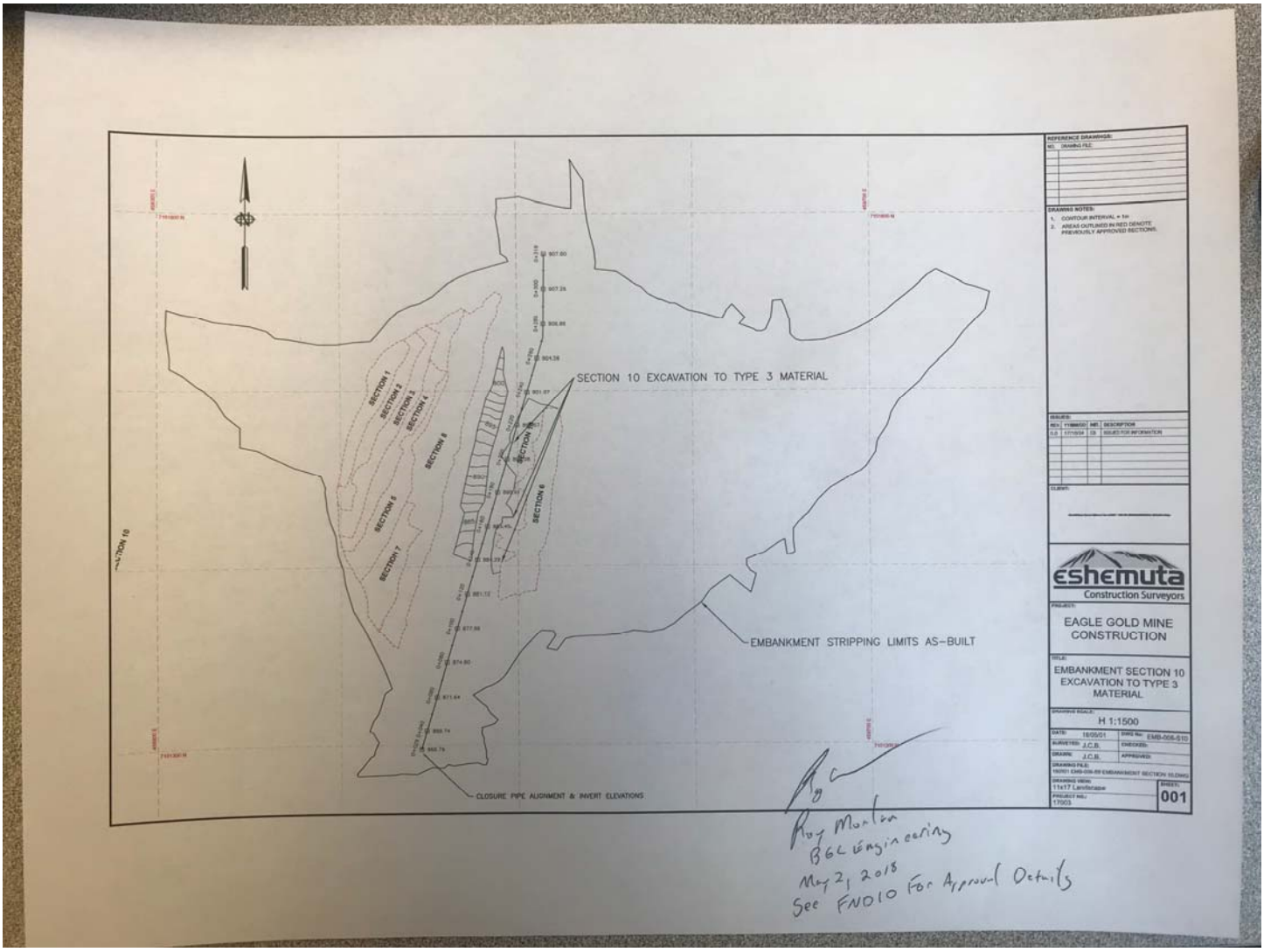


Photo 4: Remaining portion of Section 10 foundation approval.



Section 10 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 8, 2018
Construction:	JDS Mining	**Inspection Number:**	FND11
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 11, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 11 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 11 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

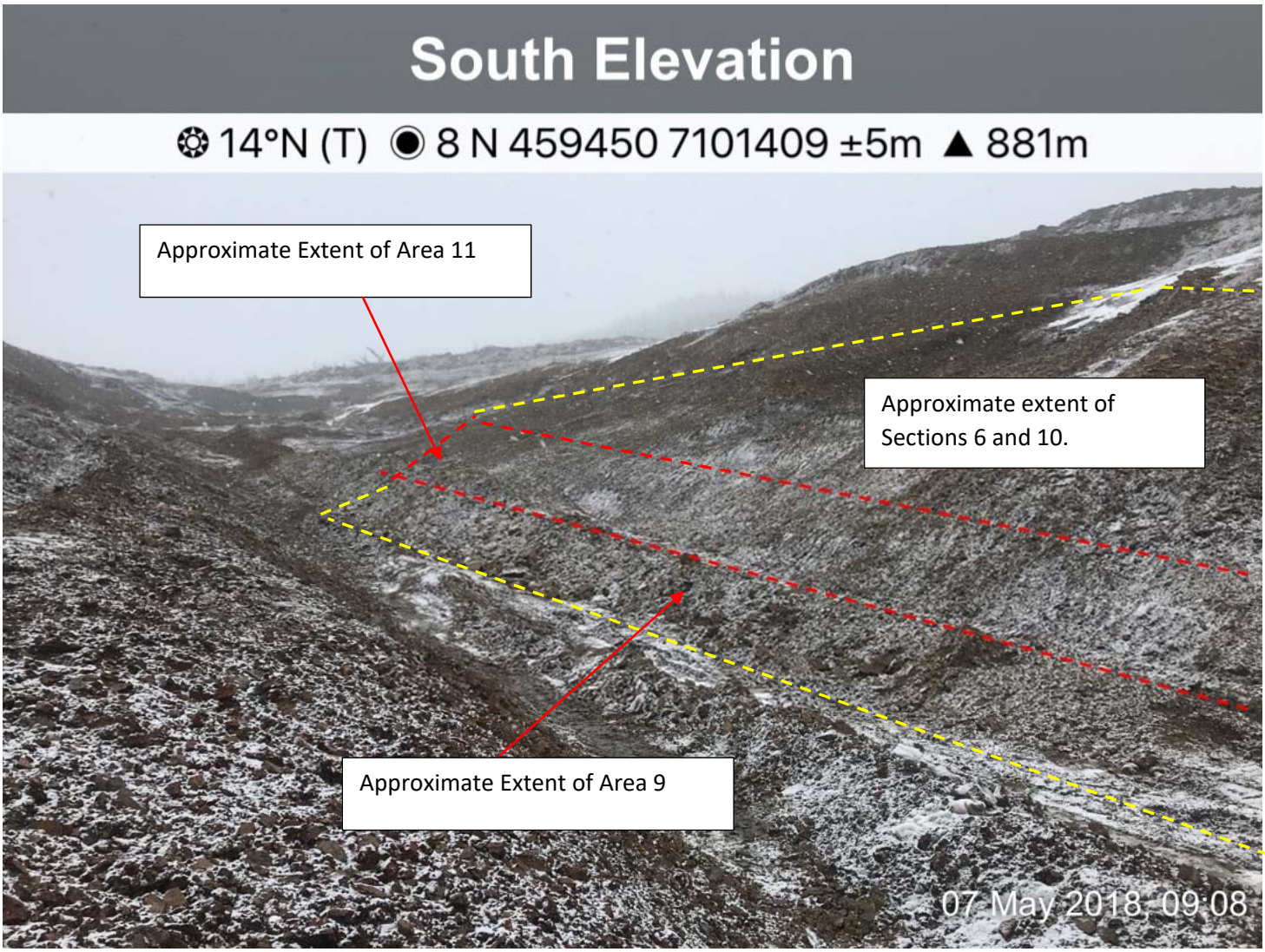


Photo 1: Photograph of a portion of Area 11.

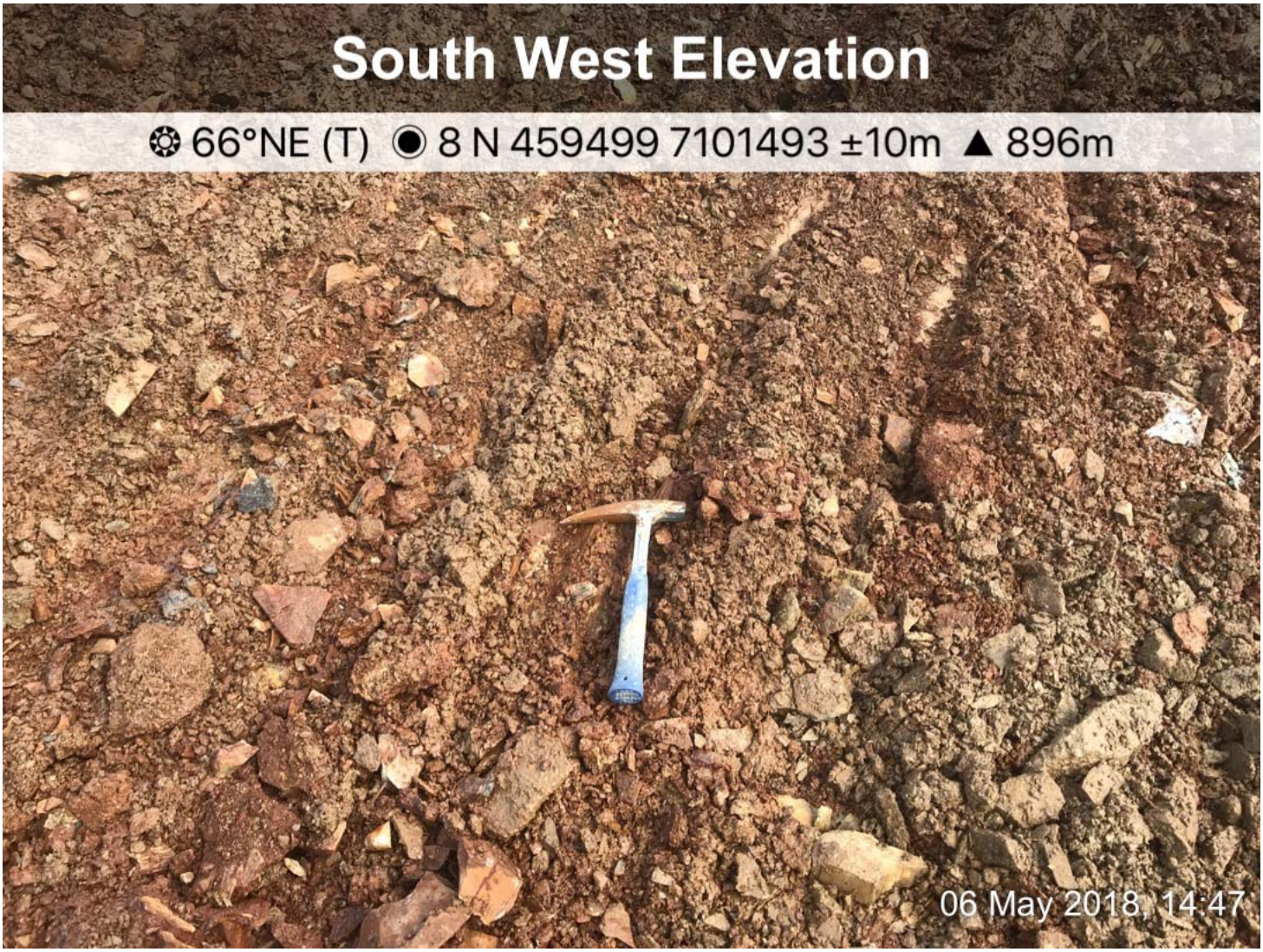


Photo 2: Example of type 3 bedrock in Section 11.



Photo 3: Example of type 3 bedrock in Section 11.

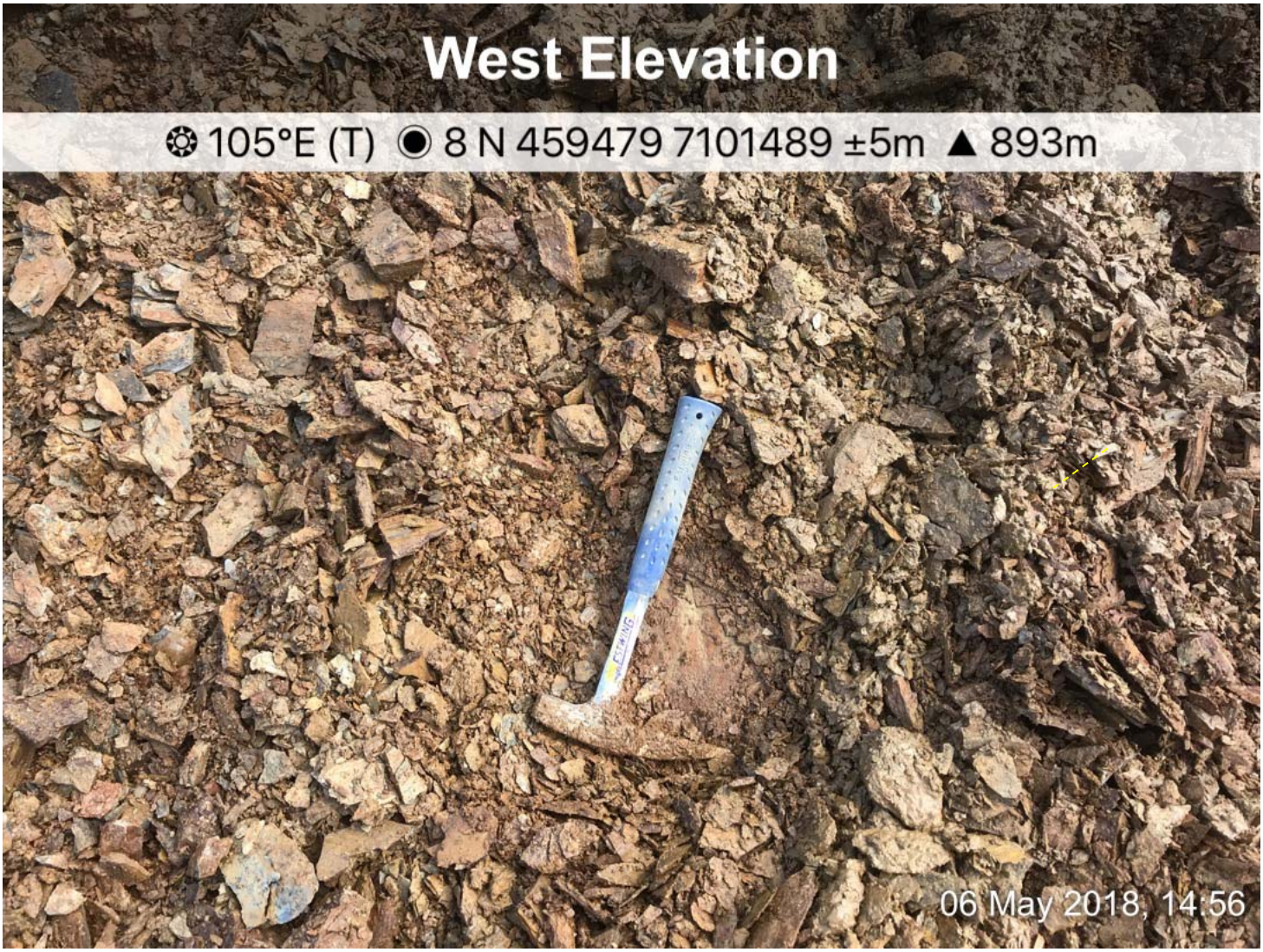
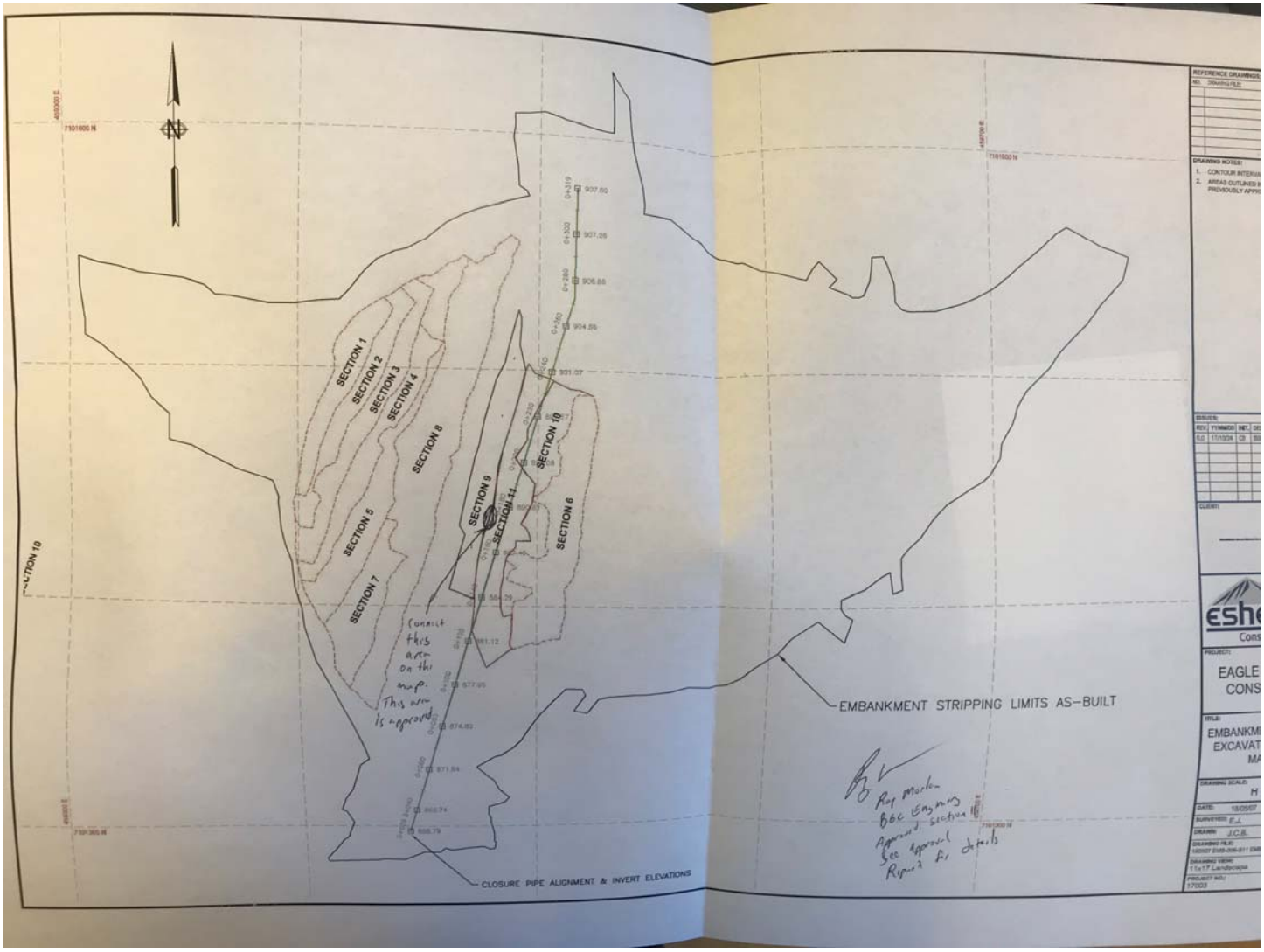


Photo 4: Example of type 3 bedrock in Section 11.



Section 11 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 9, 2018
Construction:	JDS Mining	**Inspection Number:**	FND12
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 12, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Some Type 3 foundation rock left had visible ice between joints in some sections.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 12 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 12 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

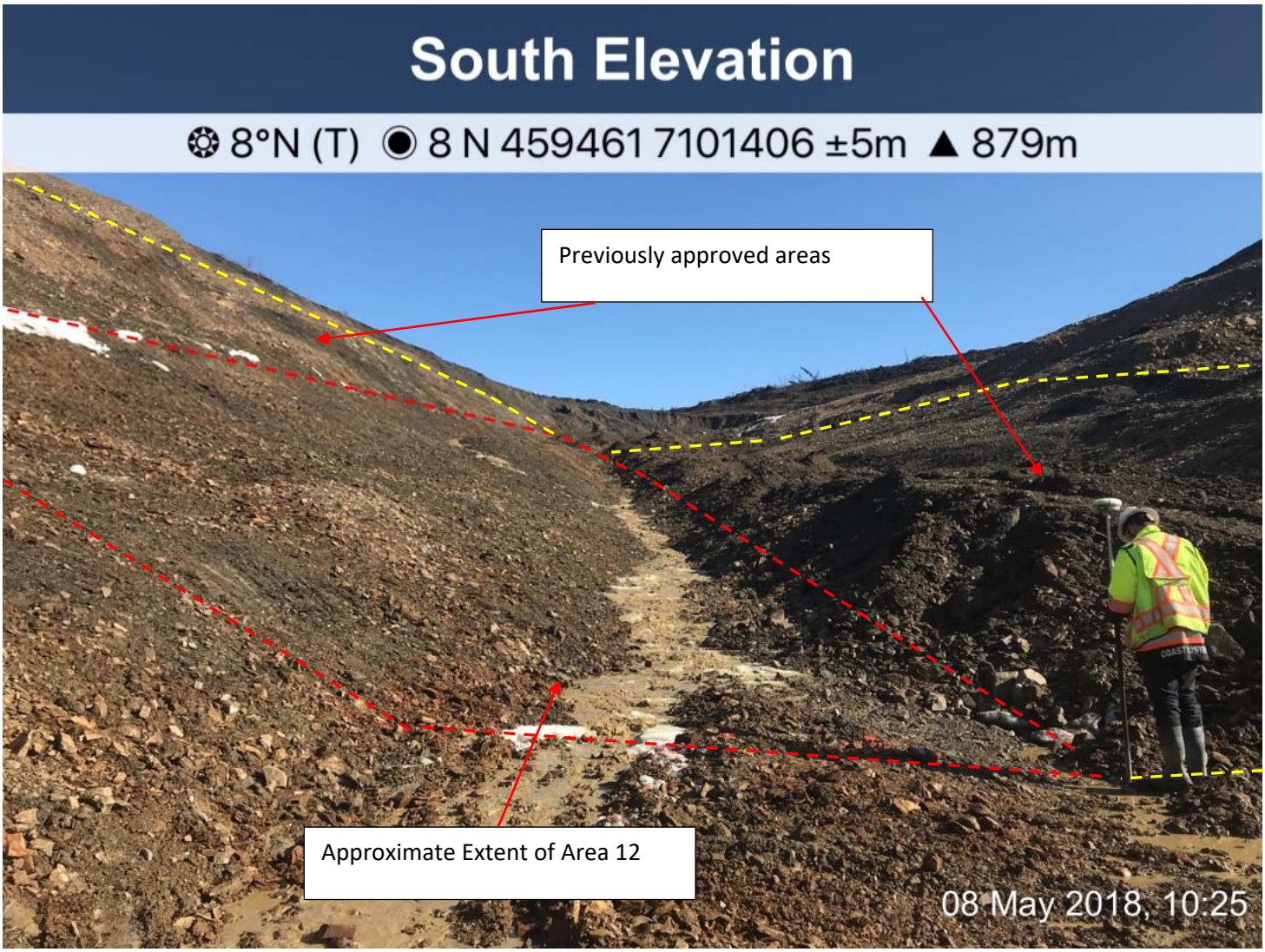


Photo 1: Photograph of a portion of Area 12.

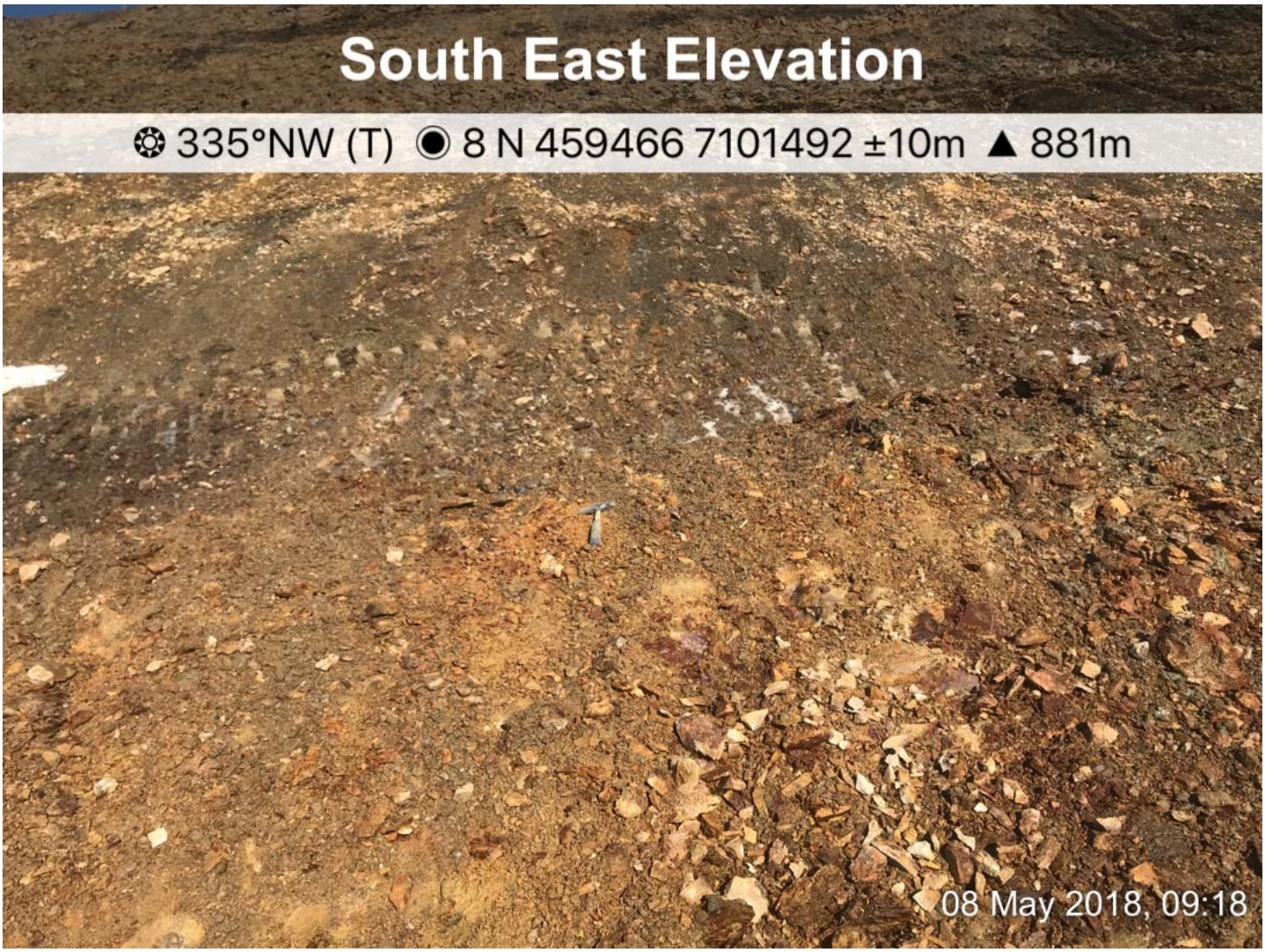


Photo 2: Example of type 3 bedrock in Section 12.

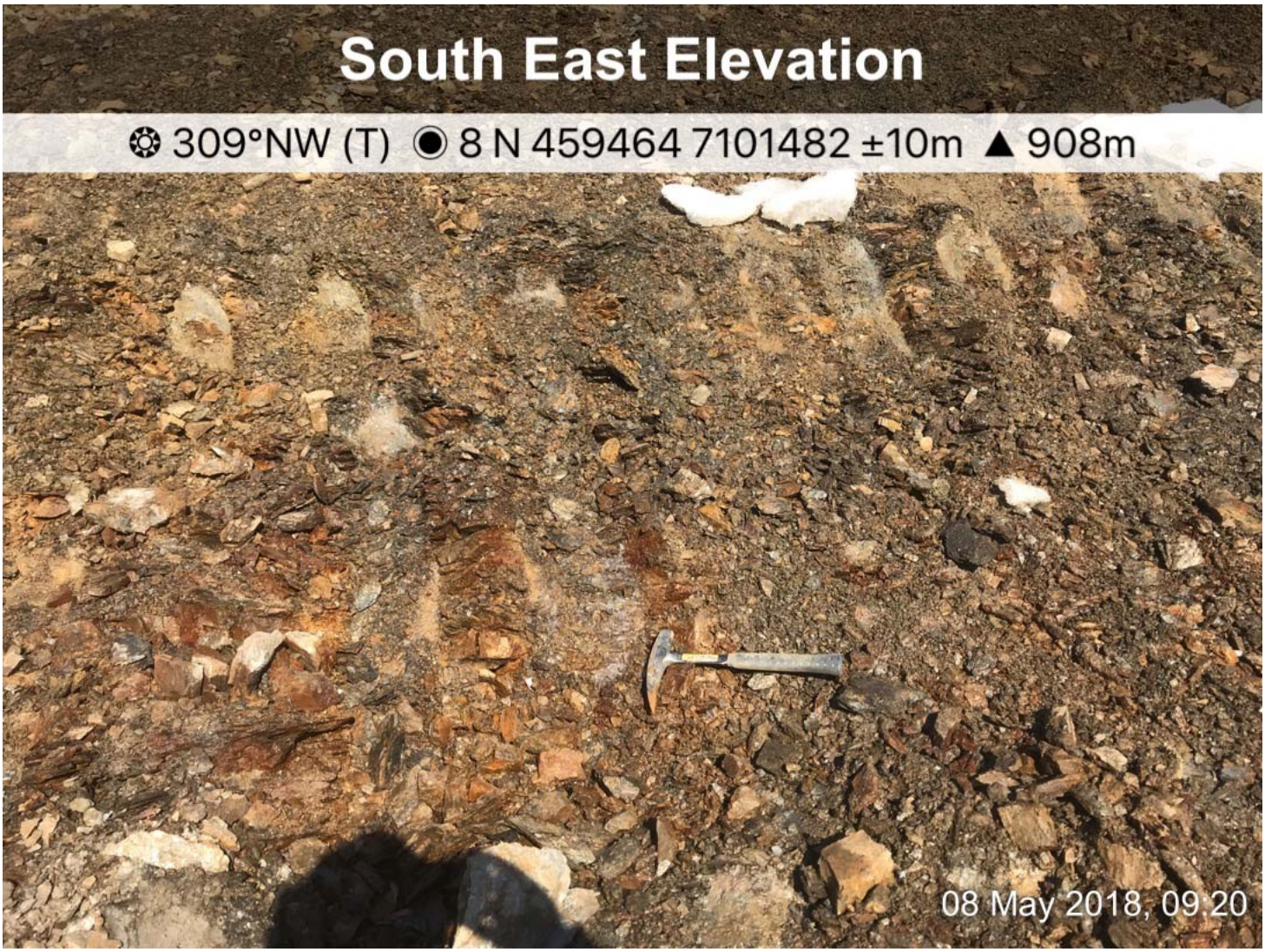


Photo 3: Example of type 3 bedrock in Section 12.

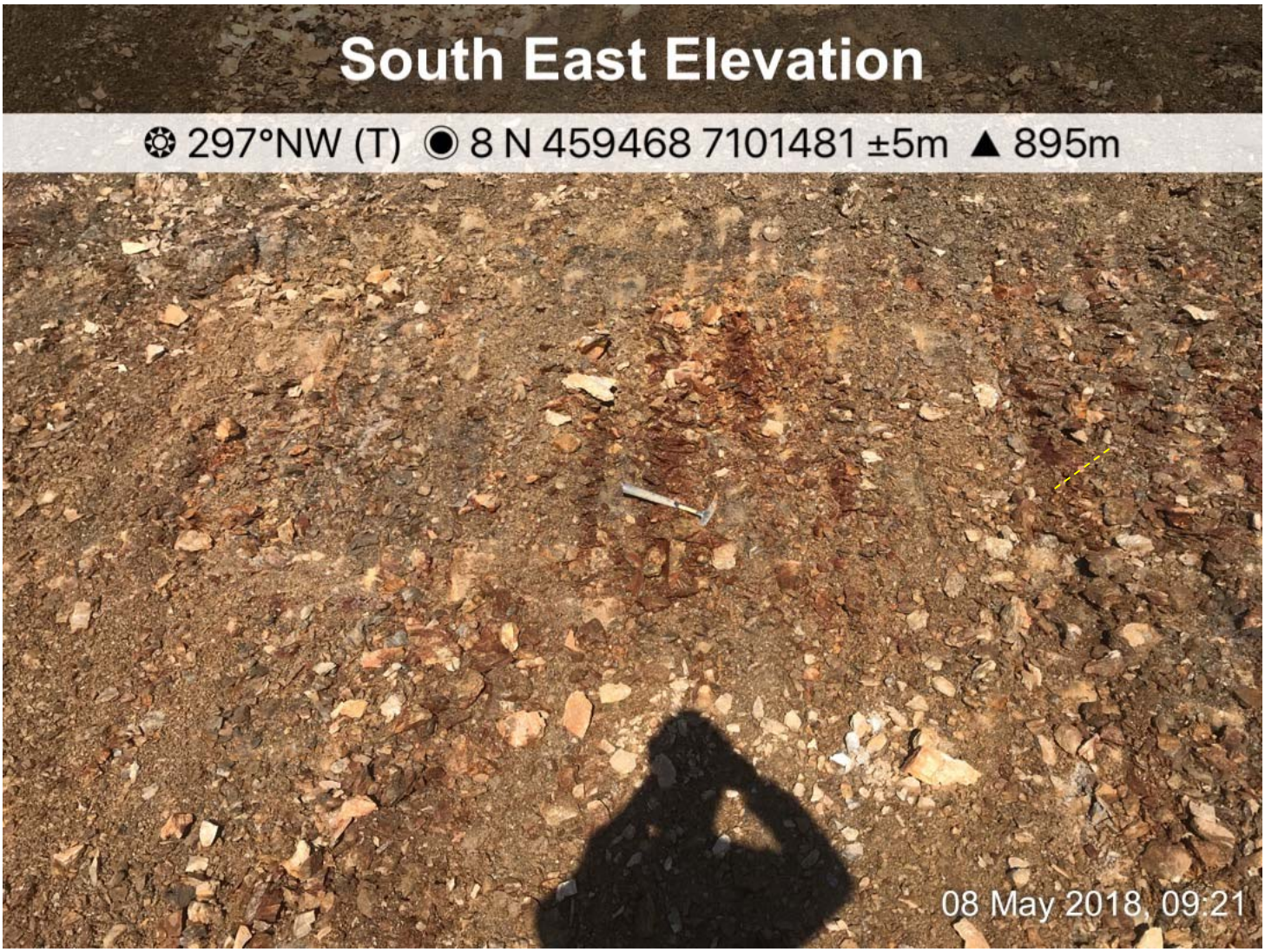
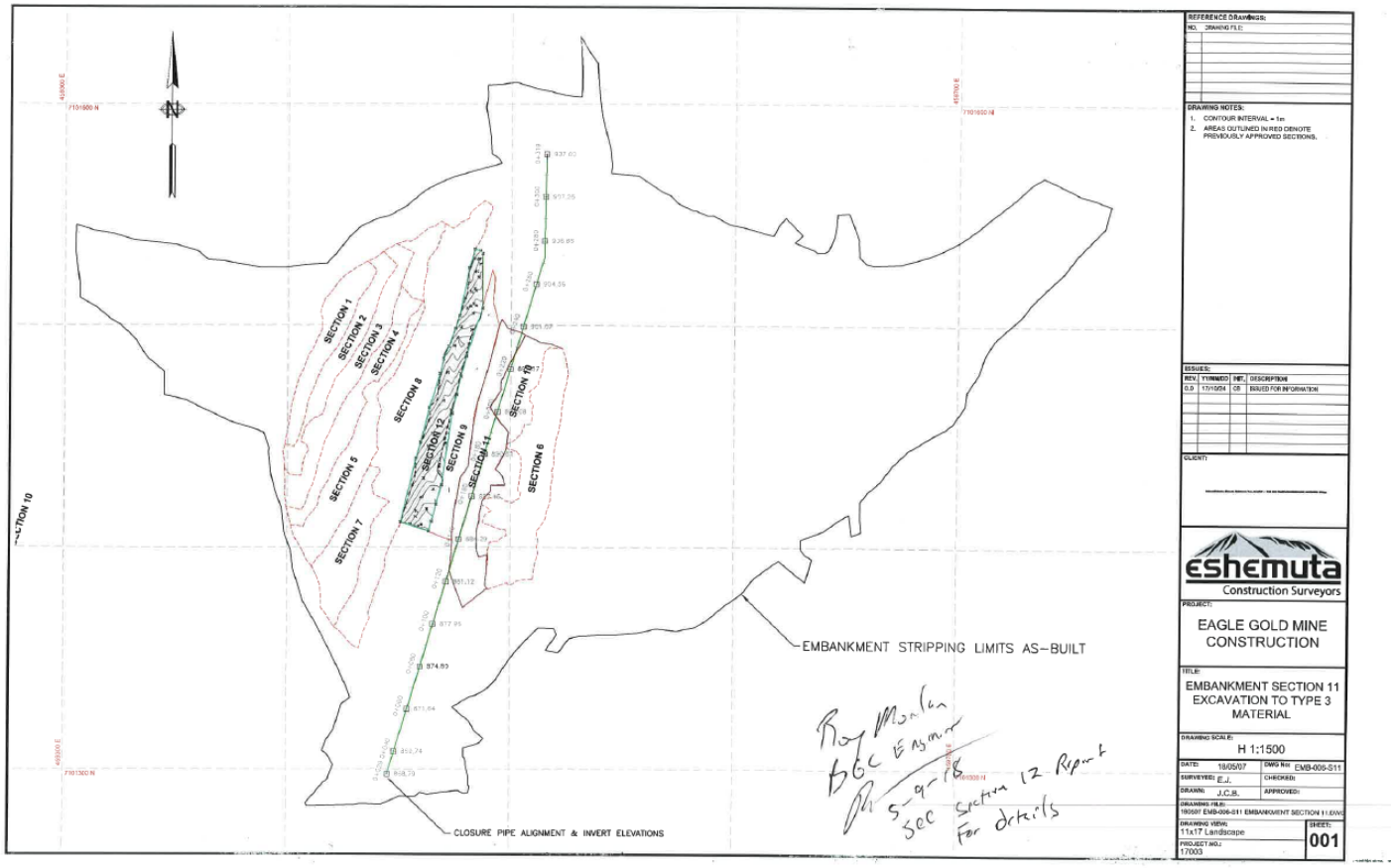


Photo 4: Example of type 3 bedrock in Section 12.



Section 12 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND13
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 13, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 13 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 13 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

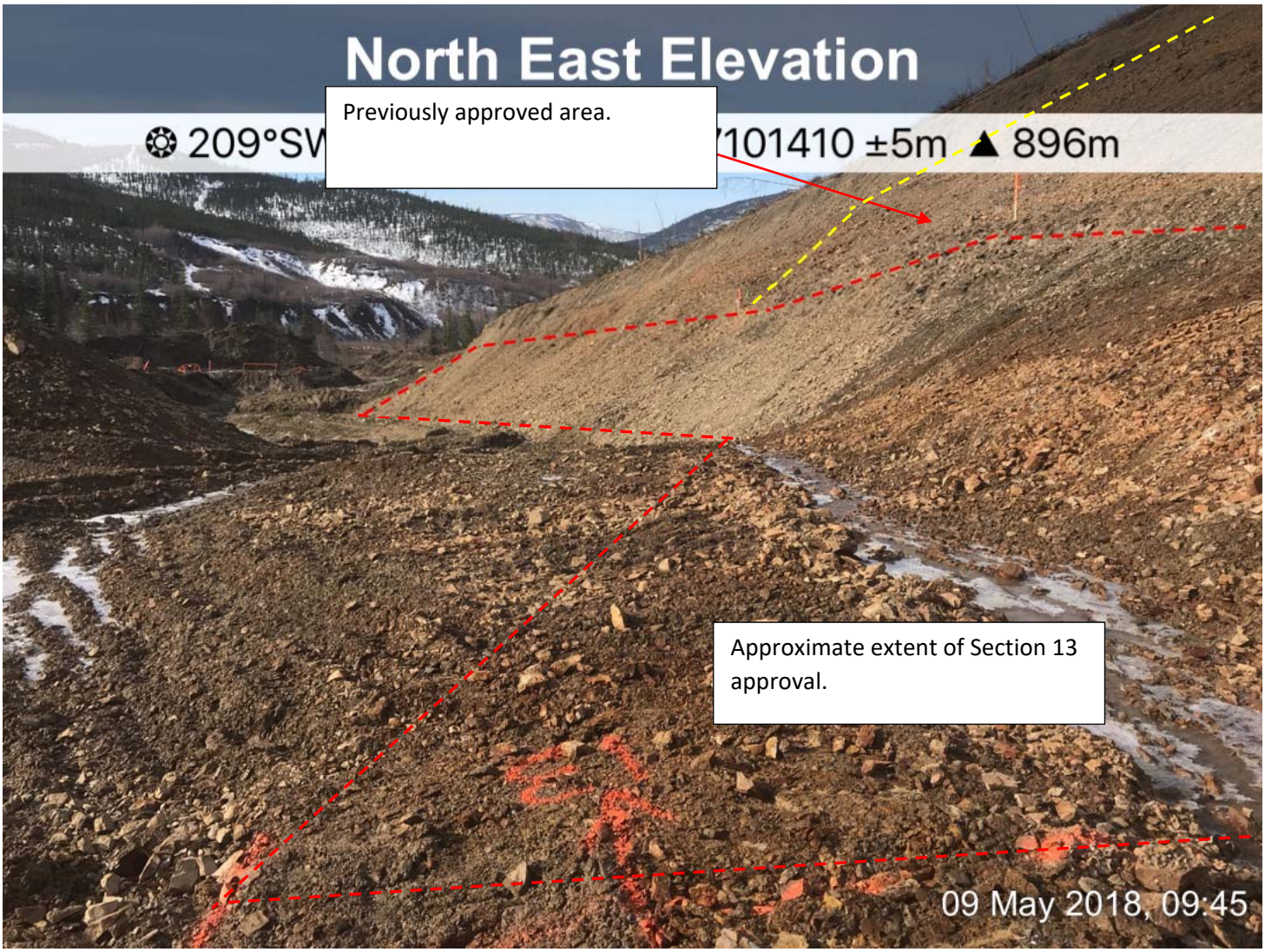


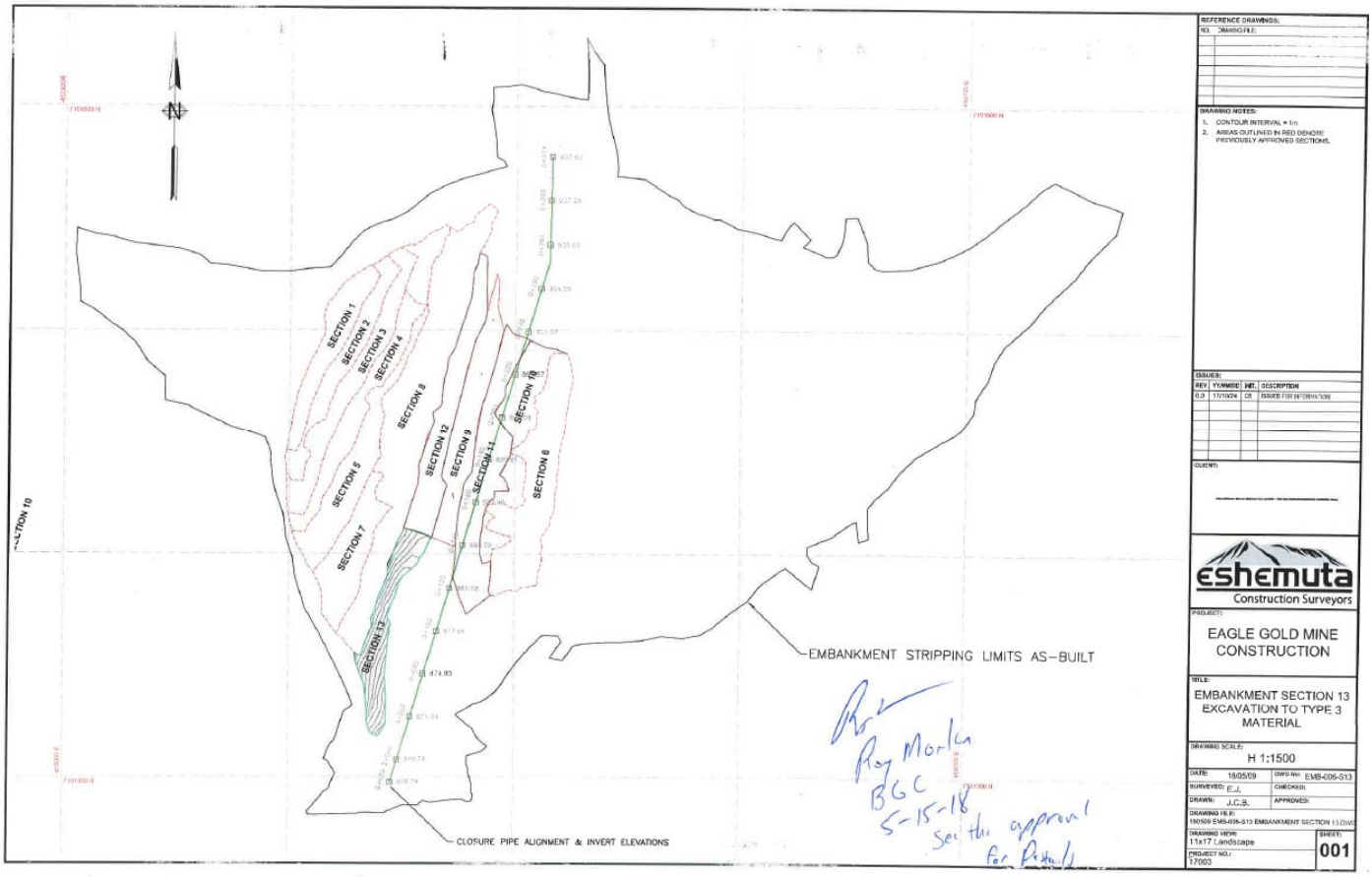
Photo 1: Photograph of a portion of Section 13.



Photo 2: Example of type 3 bedrock or better in Section 13.



Photo 3: Example of type 3 bedrock just below a thin layer of softer material (in this case sluff from overhead excavation). Area is approved but soft, loose material will have to be removed prior to placement of embankment fill.



Section 13 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND14
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 14, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 14 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Portions of this section are approved on the condition that access roads and berms will be excavated prior to placement of embankment fill. Portions of the roads built directly into type 3 rock do not have to be removed. These structures were left in place by Pelly to allow access to the valley for transport of material.
- Section 14 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

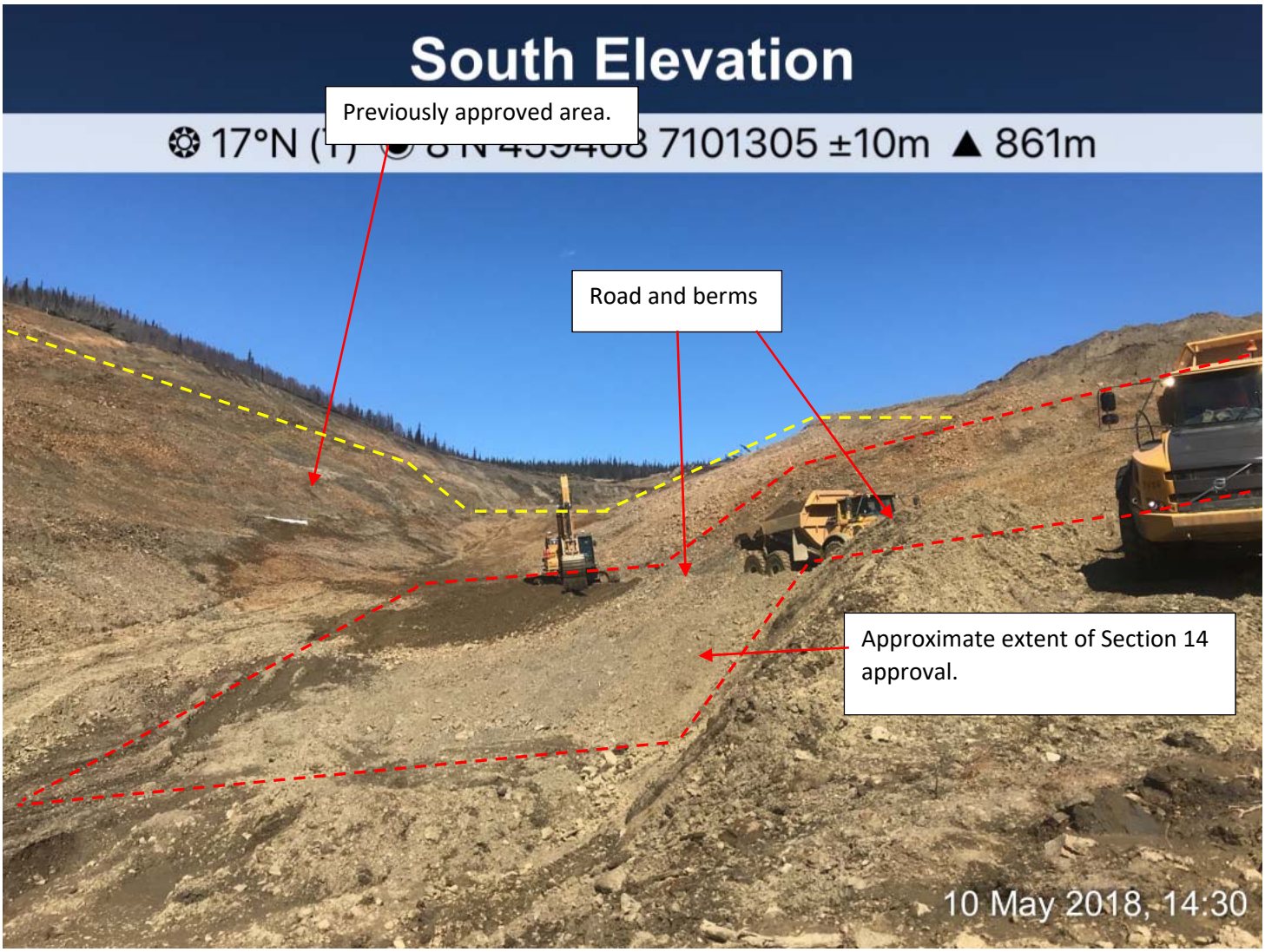


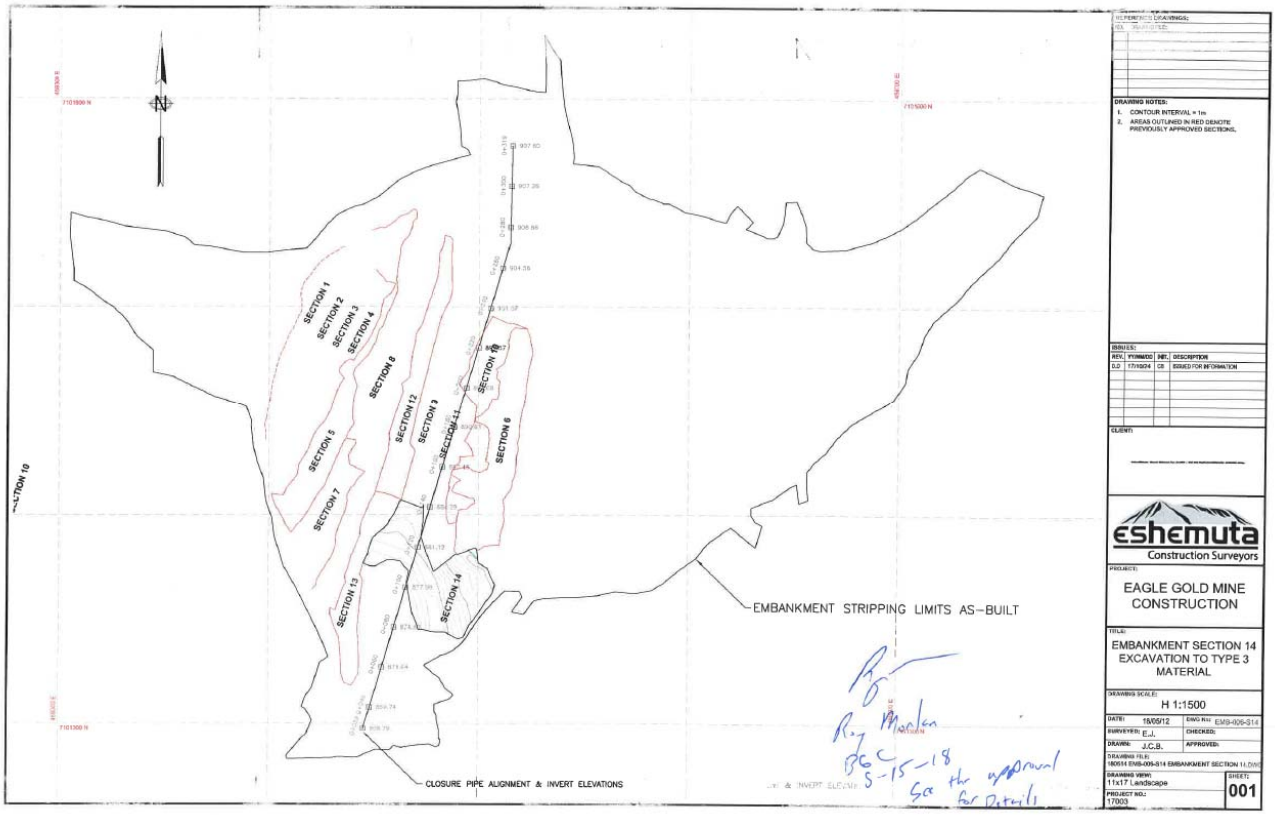
Photo 1: Photograph of Section 14 approved. Road and berms will have to be removed prior to placement of embankment fill.



Photo 2: Example of type 3 bedrock or better in Section 14.



Photo 3: Example of type 3 bedrock or better in Section 14.



Section 14 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 15, 2018
Construction:	JDS Mining	**Inspection Number:**	FND15
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 15, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Section 15 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Slopes built in colluvium to key in the embankment toe were wet and loose and, therefore, could not be approved. Further excavation likely would not have resulted in drier, denser material because of the amount of water reporting to this area. Once water has been controlled in this areas the slopes can be re-inspected and determination of foundation treatment can be evaluated.
- Section 15 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS

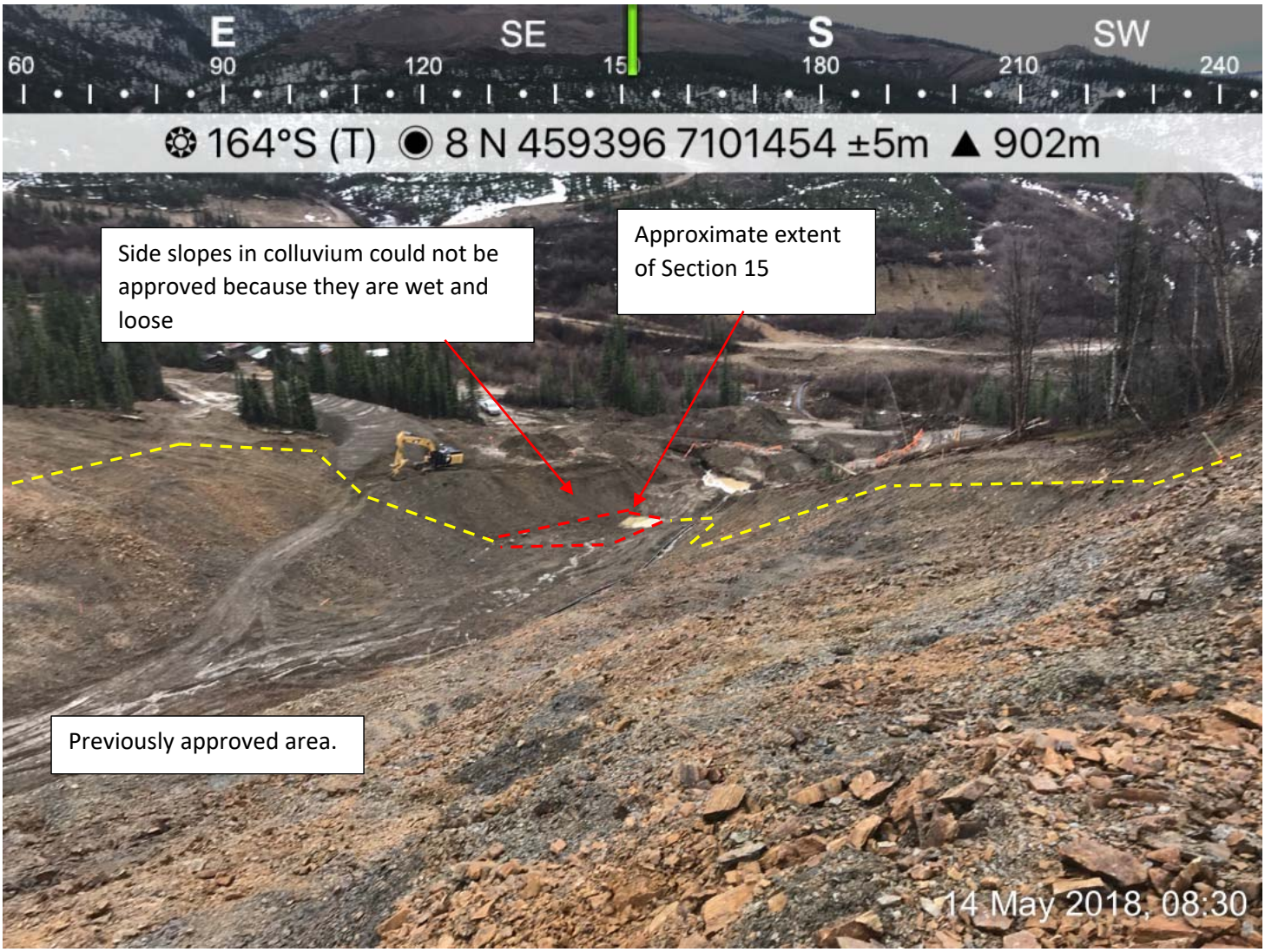
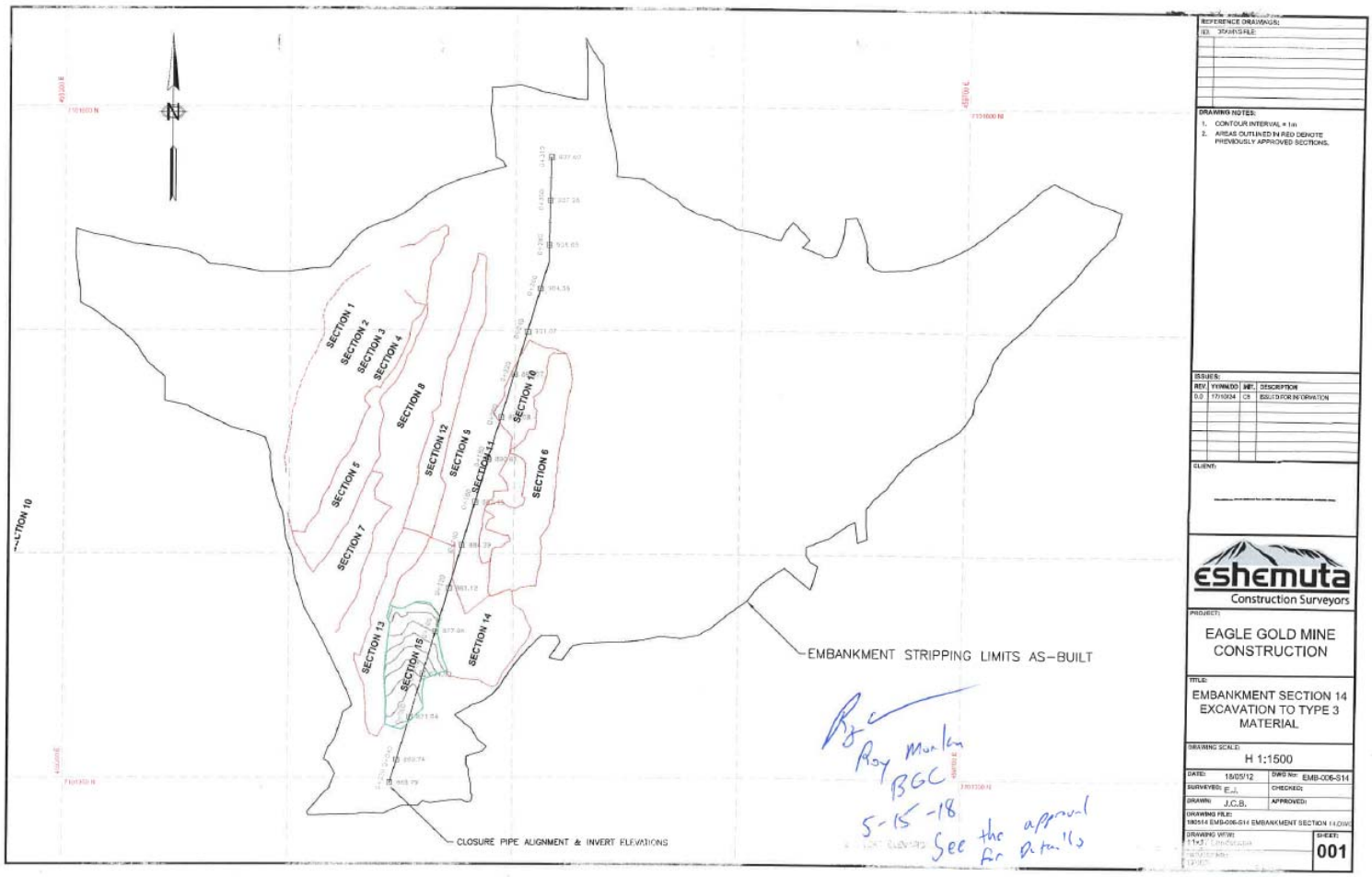


Photo 1: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.



Photo 2: Example of type 3 bedrock being pulled apart by excavator at the bottom of Section 15.



Section 15 Foundation Approval Limits

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	September 4, 2018
Construction:	JDS Mining	**Inspection Number:**	FND16 trough FND25
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 16 through Section 25, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- As with all other approved sections, Sections 16 through 25 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Drains built in the foundation will be included in sperate approvals.
- Sections 16 through 25 have been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	

PHOTOGRAPHS

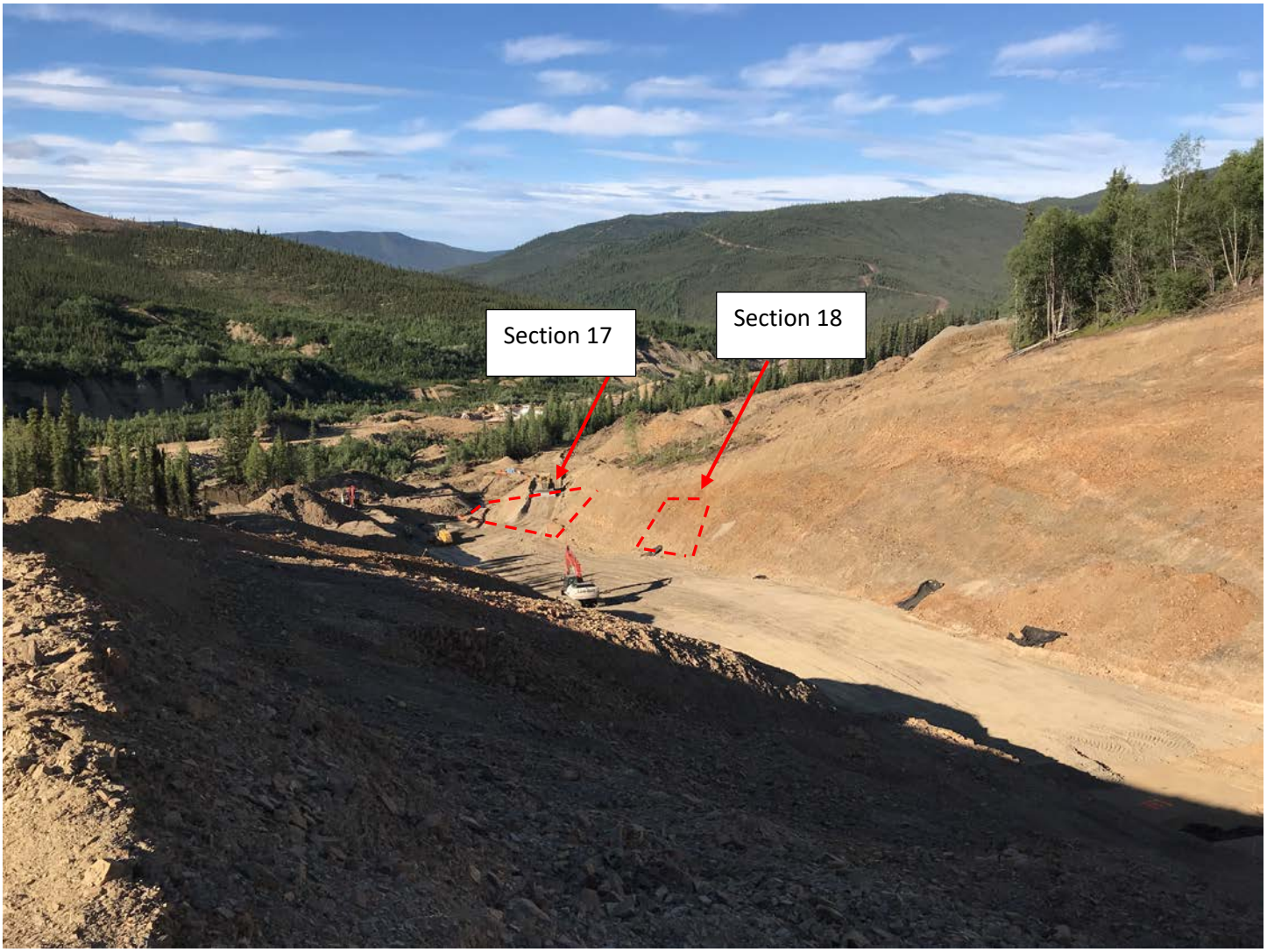


Photo 1: Photograph of Section 17 and 18 approved.

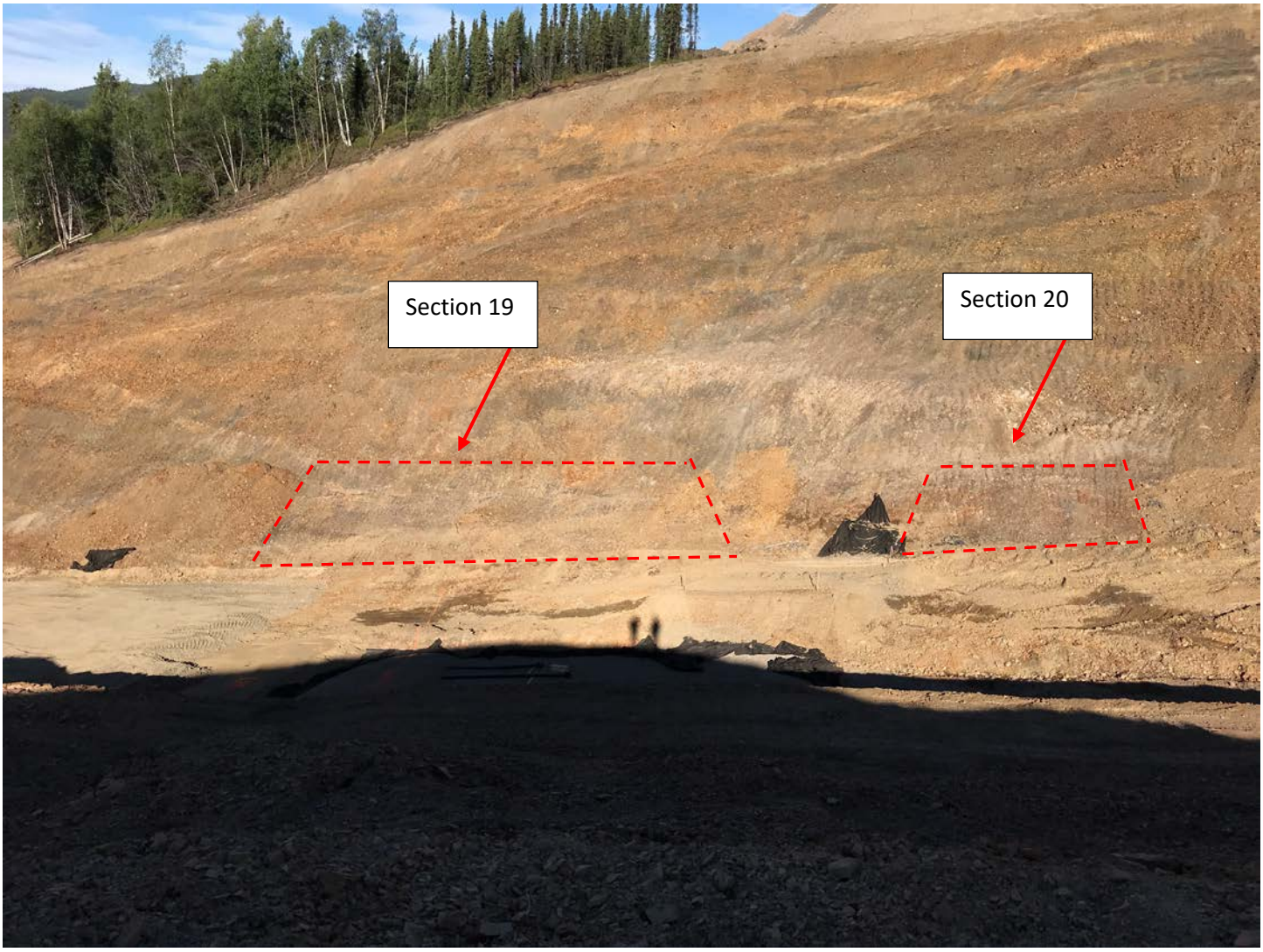


Photo 2: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

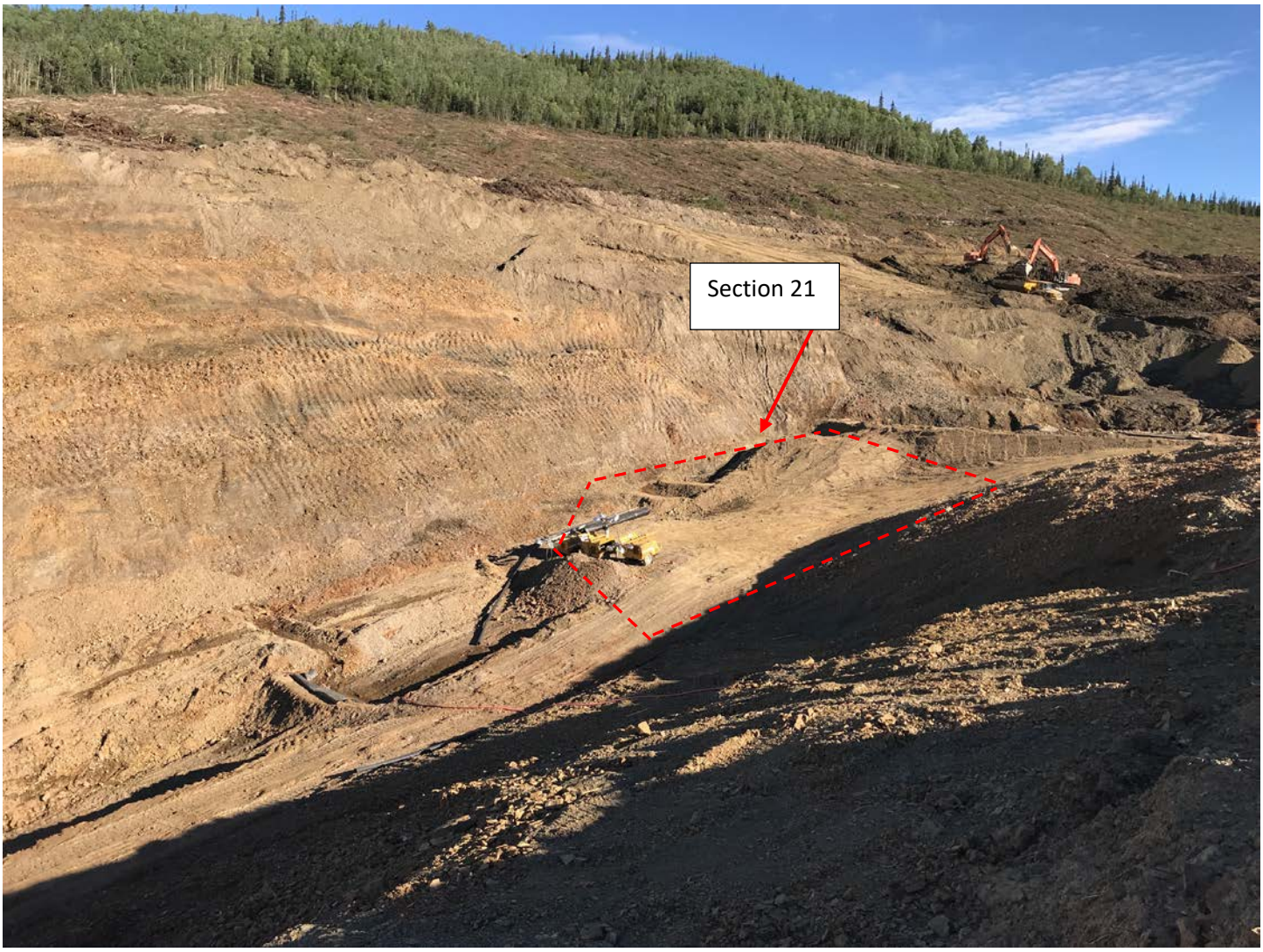


Photo 3: Photograph of Section 15 approved. Side slopes in colluvium were wet and loose. They could not be approved.

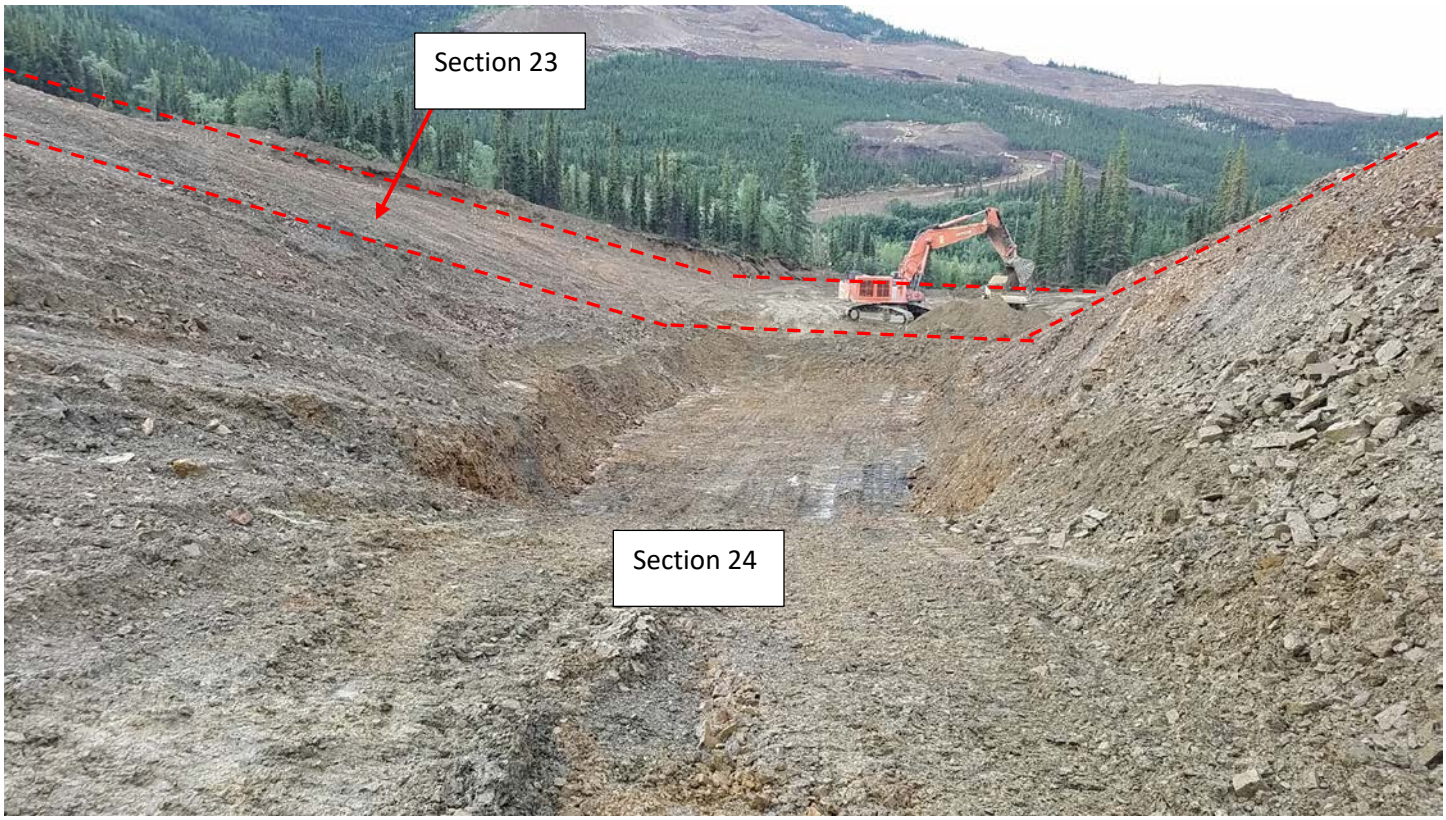


Photo 4: Section 23 and 24.

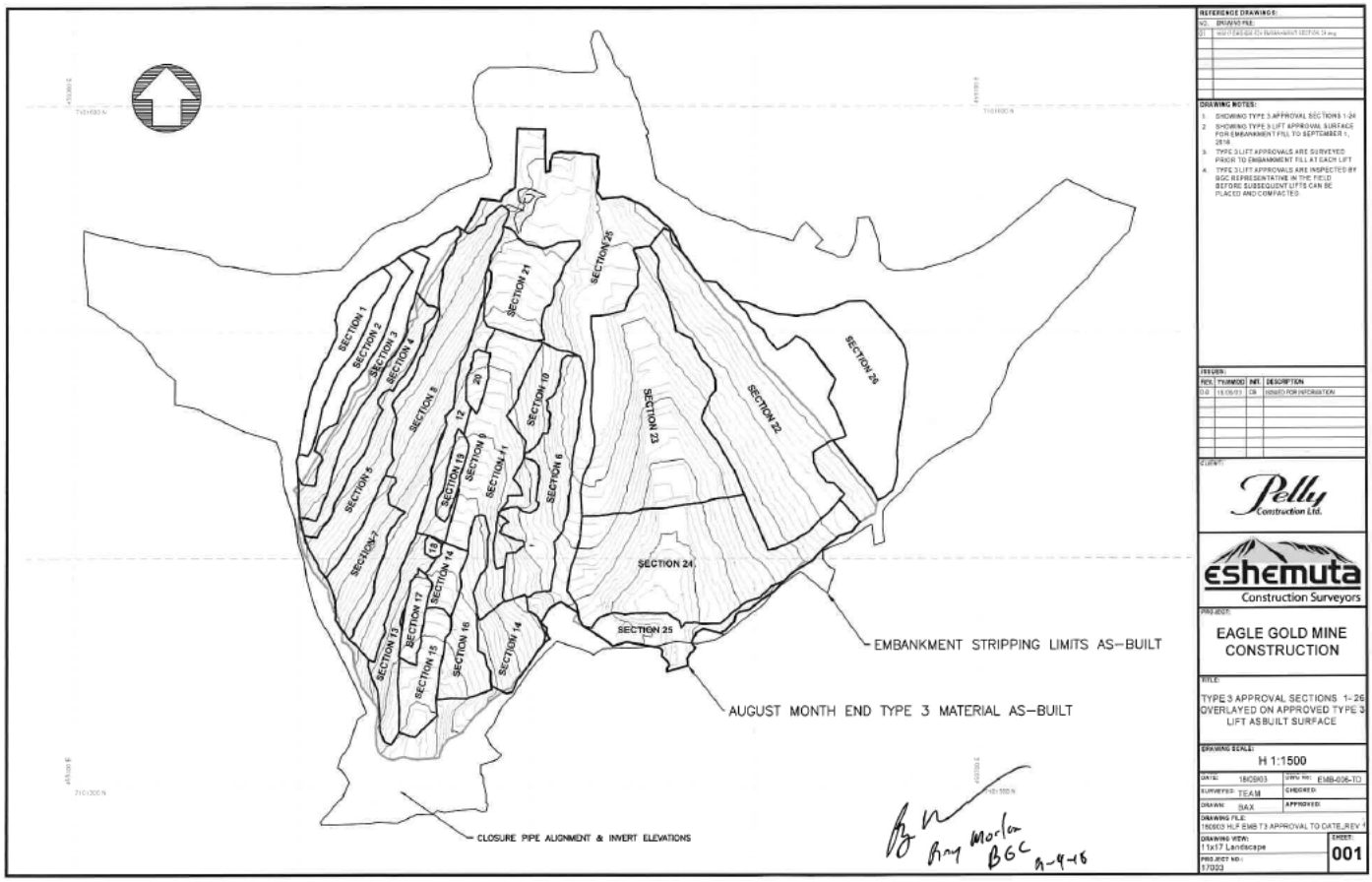


Figure 1: Approved Sections

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date:**	May 2, 2018
Construction:	JDS Mining	**Inspection Number:**	FND10
BGC Personnel:	Roy Morlan	**Approved:**	Y / N

Summary and Observations

Pelly area(s) approved by this document: Section 10, Survey drawing attached.
Approval/Rejection Observations and Recommendations:

- Ground ice was encountered through most of the area. Foundation was over excavated in some areas between 30 to 50 cm as loose material at the surface was frozen to stronger material below and all material would be dislodged in one large frozen chunk. Type 3 foundation rock left had visible ice between joints in some sections. Ground temperature was measured between -1 C to 2C in Section 10.
- Frozen areas of type 3 will be inspected again after thaw to ensure that they did not lose strength. If frozen foundation has become loose after thaw it will have to be removed.
- As with all other approved sections, Section 10 will require minor cleaning of loose material and possibly benching/lift keying prior to construction.
- Section 10 has been excavated to the top of Type 3 bedrock or deeper, as required in the Technical Specifications.

Inspection Items

☐ Culverts/ trenches	☐ Foundation Treatment needed
☐ Clearing and grubbing complete	☐ Unusable material segregated
☐ Excavation beyond design limits	X Excavation to Type 3 bedrock
☐ Backfill compacted to spec	☐ Ruts backfilled and compacted
☐ Ice identified	☐ No geosynthetics stress points visible
☐ Ice extent delineated and removed (including method)	
☐	☐

PHOTOGRAPHS



Photo 1: Foundation excavation spoils.



Photo 2: Example of type 3 foundation with ice between the joints. In place strength will need to be re-evaluated after ice has thawed. Area may need additional cleaning of loose material after ice has thawed.

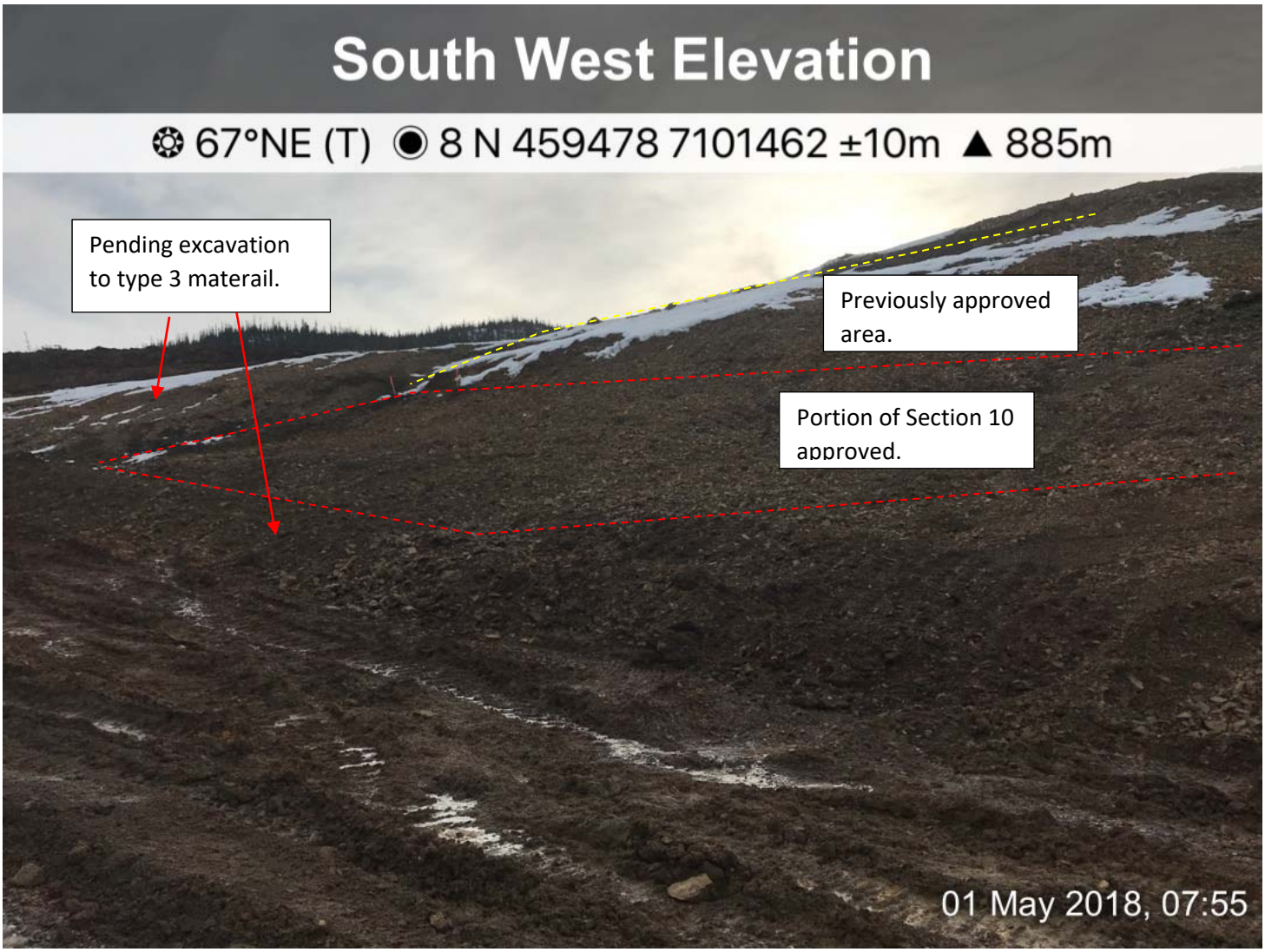


Photo 3: Portion of the area where type 3 foundation was approved in Section 10.

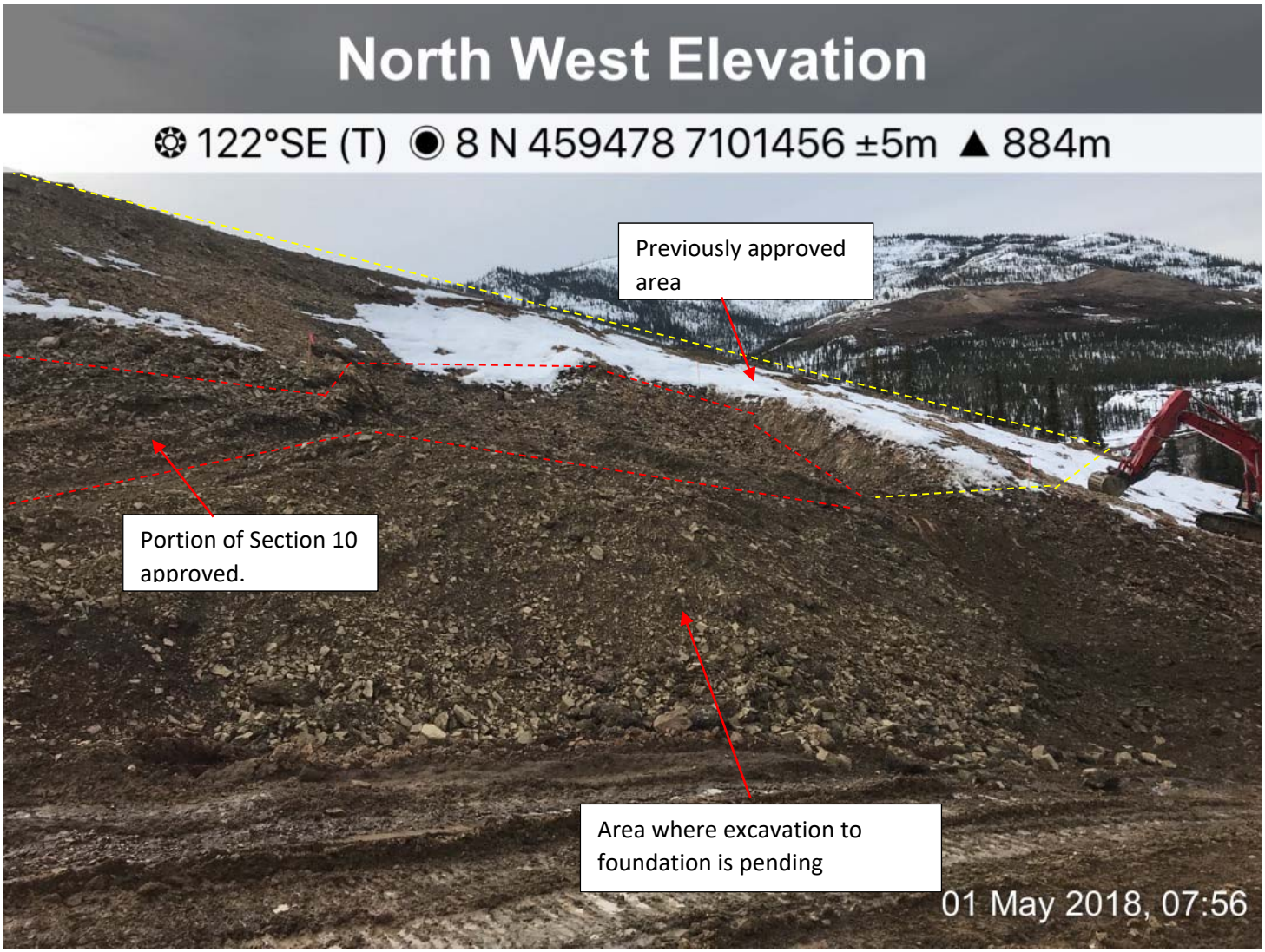
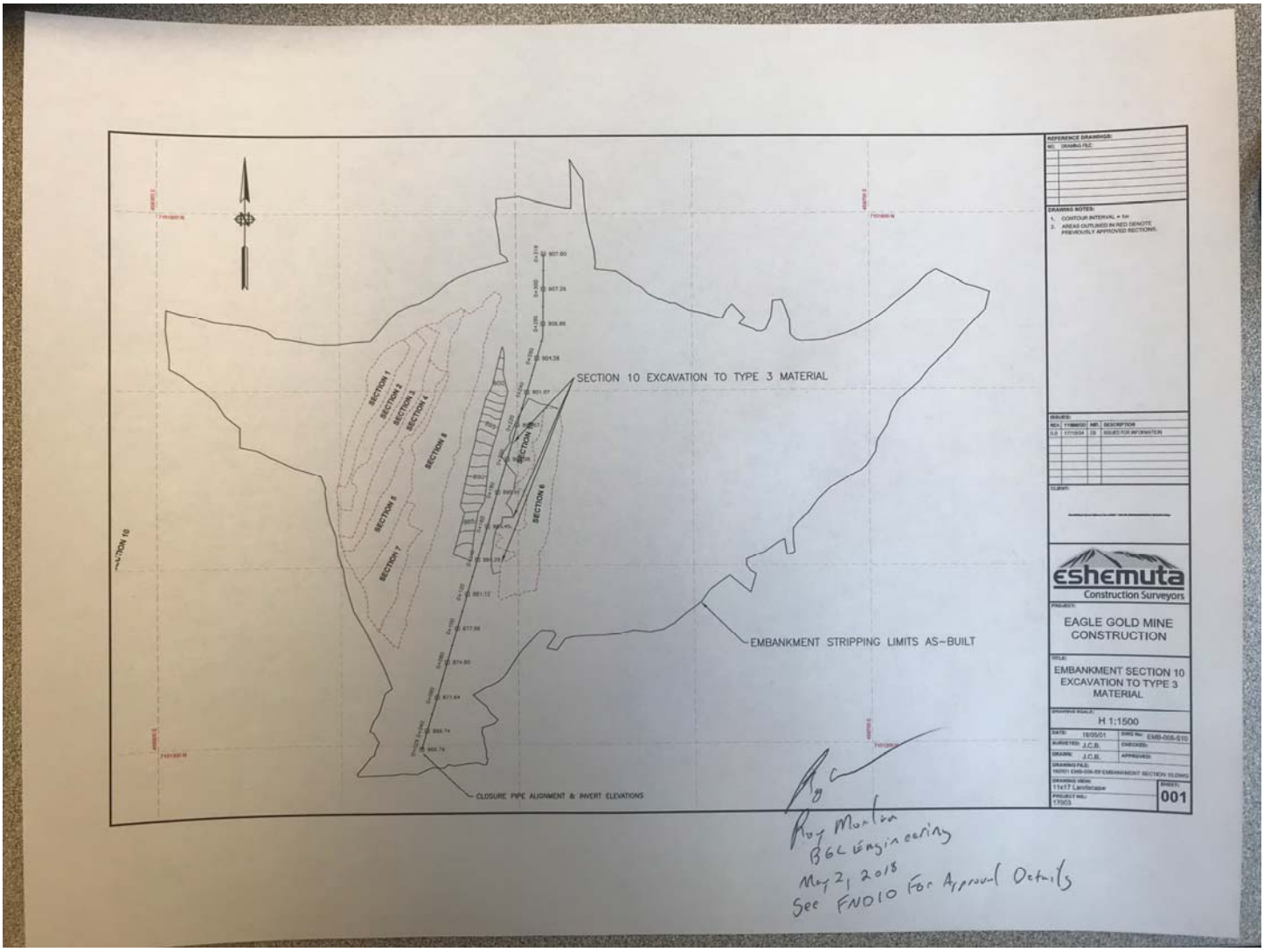


Photo 4: Remaining portion of Section 10 foundation approval.



Section 10 Foundation Approval Limits

CC204 Pelly Underdrain Installation

Station	Type 3 Foundation		Geotextile - 12oz		10cm SDF Bedding		Header Pipes		Backfill min. 0.2m above pipes - SDF		Close off geotextile		Backfill min. 0.3m above geotextile	
	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
0+10														
0+20	Toe Redesign Dino	To Redsign RM	SZ	ERM	SZ	ERM	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+30	Toe Redsign Dino	Toe Redsign ERM	SZ	ERM	Dino	ERM	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+40	SZ	ERM	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+50	SZ	ERM	Dino	ERM	Dino	ERM 6/23	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+60	SZ	ERM	Dino	RM	Dino	ERM 6/24	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+70	SZ	RM	Dino	RM 6/23	Dino	ERM	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+80	SZ	RM 6/23	Dino	ERM 6/24	Dino	ERM	Dino	ERM	Dino	RM	SZ	RM	SZ	RM
0+90	Dino	ERM 6/24	Dino	ERM	Dino	ERM	Dino	ERM 6/25	Dino	RM	SZ	RM	SZ	RM
0+100	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+110	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+120	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+130	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+140	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+150	Dino	ERM	Dino	ERM	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+160	Dino	ERM	Dino	ERM 6/24	Dino	ERM	Dino	RM	Dino	RM	SZ	RM	SZ	RM
0+170	Dino	ERM	DAS	D.6	D.S.	D.6	SZ	D.6	SZ	H.V.	SZ	D.6	SZ	D.6
0+180	DAS	D.6	DAS	D.6	D.S.	D.6	SZ	D.6	SZ	H.V.	SZ	D.D	SZ	D.6

* Field approval. Final approval dependant on as-built. ERM & Roy Morlan
* Field approval pending as-builts for finger drains
* Final approval requiring survey thickness of Drain rock.
* @ STN 1+10, a 50cm x 50cm piece of geotextile was cut-out, it will be heat-tac @ a later stage per BGC request
* BGC approved the use of mini-Hoe CAT304 working on the 0.5m of material 2 above the closed off geotextile.

CC204 Pelly Underdrain Installation

Station	Type 3 Foundation		Geotextile - 12oz		10cm SDF Bedding		Header Pipes *		Backfill min. 0.2m above pipes - SDF		Close off geotextile		Backfill min. 0.3m above geotextile		
	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	
0+190	DAS	D.6	DAS	D.6	DAS	D.6	[illegible]	D.6	[illegible]	H.V.	[illegible]	D.6	[illegible]	D.6	
0+200	DAS	D.6	DAS	D.6	DAS	D.6	[illegible]	D.6	[illegible]	H.V.	[illegible]	D.6	[illegible]	D.6	
0+210	DAS	D.6	DAS	D.6	DAS	D.6	[illegible]	D.6	[illegible]	H.V.	[illegible]	D.6	[illegible]	D.6	
0+220	DAS	D.6	DAS	D.6	DAS	D.6	[illegible]	D.6	YF	H.V.	YF	H.V.	YF	H.V.	
0+230	[illegible]	H.V.	[illegible]	H.V.	[illegible]	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	
0+240	[illegible]	H.V.	[illegible]	H.V.	[illegible]	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	YF	H.V.	
0+250	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	H.V.	D.S.	H.V.	YF	[illegible]	8/25 Δ
0+260	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	[illegible]	8/25 Δ
0+270	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	[illegible]	8/25 Δ
0+280	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	[illegible]	8/25 Δ
0+290	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	[illegible]	YF	[illegible]	8/24
0+300	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	YF	[illegible]	YF	[illegible]	YF	[illegible]	
0+310	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	
0+320	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	
0+330	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	8/24
0+340	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	8/26
0+350	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	8/26
0+360	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	8/26

* Pressure testing of underdrain and/or closure pipe is not required as spot test completed previously is sufficient. 18/07/18

* ↳ [illegible] Gouge on closure pipe pending survey review to determine if replacement is required

Δ Signed for area previously placed under supervision of H.V.

CC204 Pelly Underdrain Installation

Station	Type 3 Foundation		Geotextile - 12oz		10cm SDF Bedding		Header Pipes		Backfill min. 0.2m above pipes - SDF		Close off geotextile		Backfill min. 0.3m above geotextile	
	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC
0+370	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]
0+380	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]
0+390	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]
0+400	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]	YF	[illegible]
0+410	YF	[illegible] *	YF	[illegible] *	YF	[illegible] *	YF	[illegible]	DS	EJF	DS	EJF	DS	EJF
0+420	YF	[illegible] *	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF
0+430	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF
0+440	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF
0+450	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF
0+460	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF	DS	EJF
0+														
0+														
0+														
0+														
0+														
0+														
0+														
0+														

8/22

* Conditional Approval following clean-up passes to remove mud and water.

→ Good.

CC204 Pelly Closure Pipe Installation																				
Station	Type 3 Foundation or Approved Subgrade		Geotextile - 12oz		10cm SDF Bedding		Header Pipes		Backfill min. 0.2m above pipes - SDF		Close off Geotextile		Backfill min. 0.3 above geotextile					
	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC	Pelly	BGC				
0+260	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.				
0+270	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.				
0+280	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.				
0+290	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.				
0+300	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	D.S.	H.V.	N/A	N/A	* N/A	N/A	* N/A	N/A	*			

* SDF Bedding below closure pipe is >10cm to achieve design grade where closure pipe enters closure sump.

* No Longer Pelly scope; Exposed pipe was left for another contractor

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

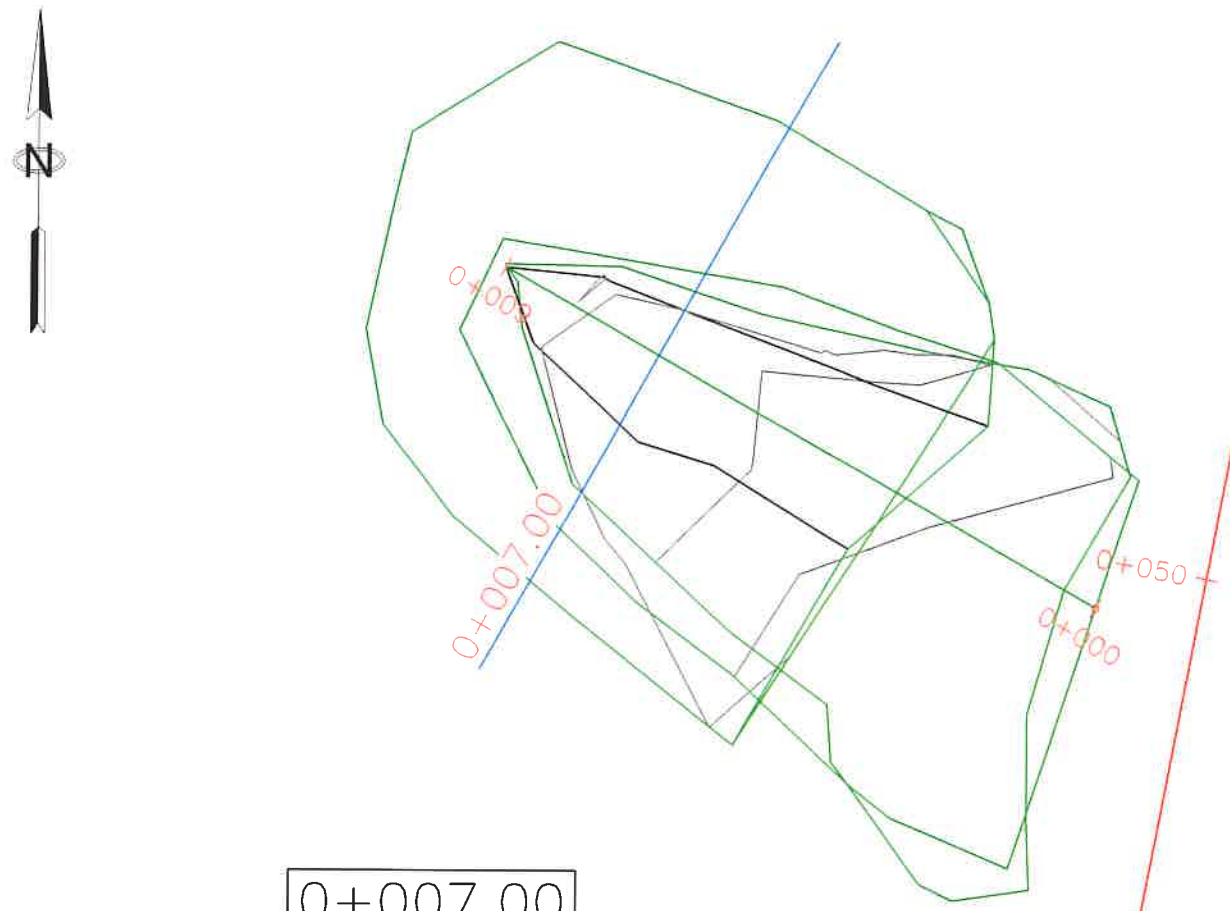
Contract No. **CC204**
ITP No. **006-A**
Date: **20-Jun-18**
Station: **STA 0+60 RT**

Pelly Construction Ltd.

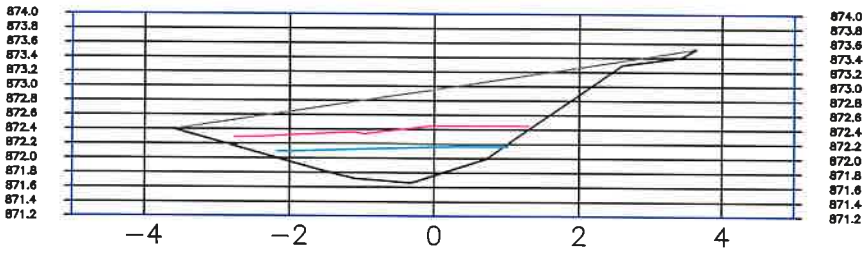
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	Jun			
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	SZ				
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	Jun			
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	Jun			
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morden (print) _____ (sign) June 21, 2018 (date)

Contractor Rep: SHIPENG ZHENG (print) _____ (sign) June 21, 2018 (date)



0+007.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP STRUCTURAL FILL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+050

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD0050

DRAWING FILE: 180718 FINGERDRAIN 0+050

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

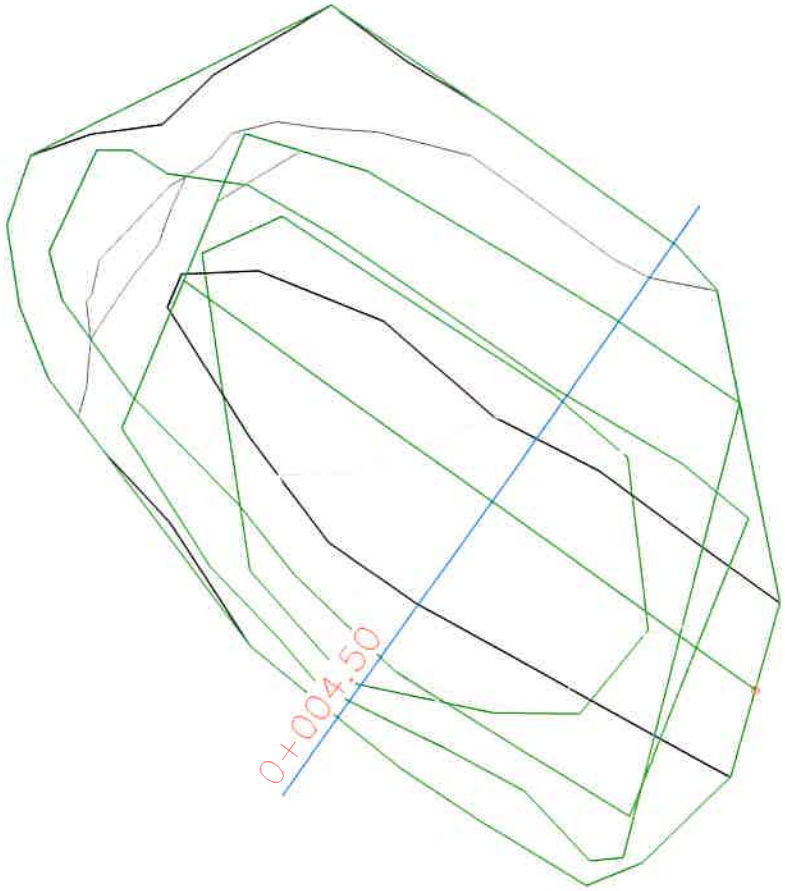
Contract No. **CC204**
ITP No. **006-B**
Date: **20-Jun-18**
Station: **STA 0+90 RT**

Pelly Construction Ltd.

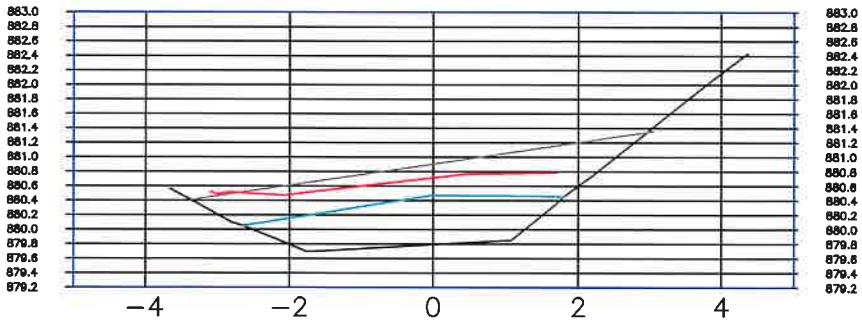
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	RM			
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	RM			
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	RM			
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	RM			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	RM			
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	RM			
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	RM			
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	RM			
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mullen (print) RM (sign) June 21, 2018 (date)

Contractor Rep: SHIPENG ZHEN (print) (sign) June 21, 2018 (date)



0+004.50



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	D.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+090

DRAWING SCALE: H 1:100

DATE: 18/07/01 | DWG No: EMB-FD3090

DRAWING FILE: 180702 FINGERDRAIN 0+090

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-D**
Date: **20-Jun-18**
Station: **STA 0+100 RT**

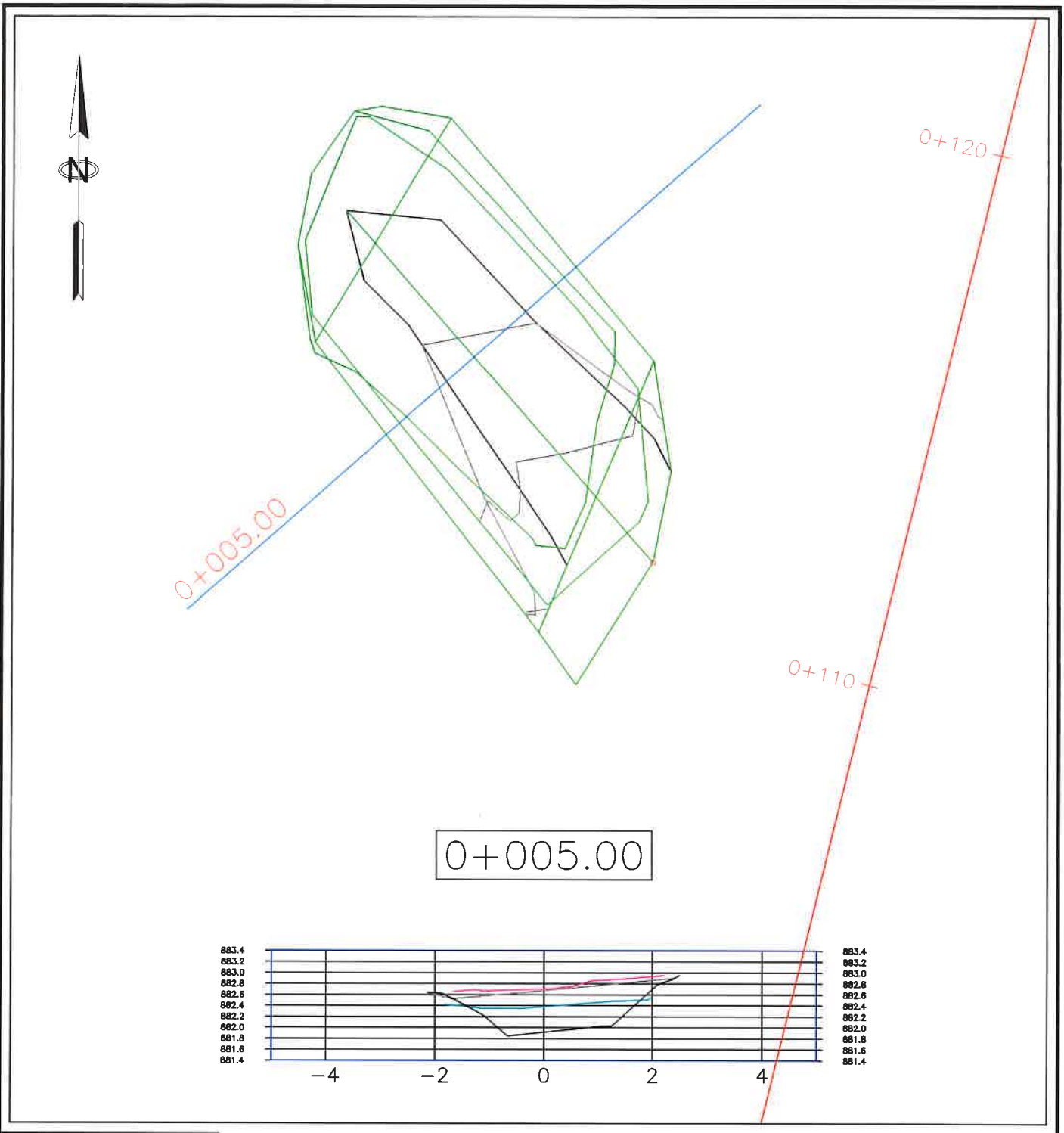
Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures					
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ		RM	625/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ		RM	625/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ		RM	625/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ		RM	625/18	

Client Rep: Ray Marlow — print; sign; 6-25-18 — date

Contractor Rep: SHIPENG ZHENG — print; sign; June 25, 2018 — date

* As built Pending RM 625/18



0+005.00

REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+110

DRAWING SCALE: H 1:100

DATE: 18/07/03 | DWG No: EMB-FD3110

DRAWING FILE: 180703 FINGERDRAIN_0+110

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

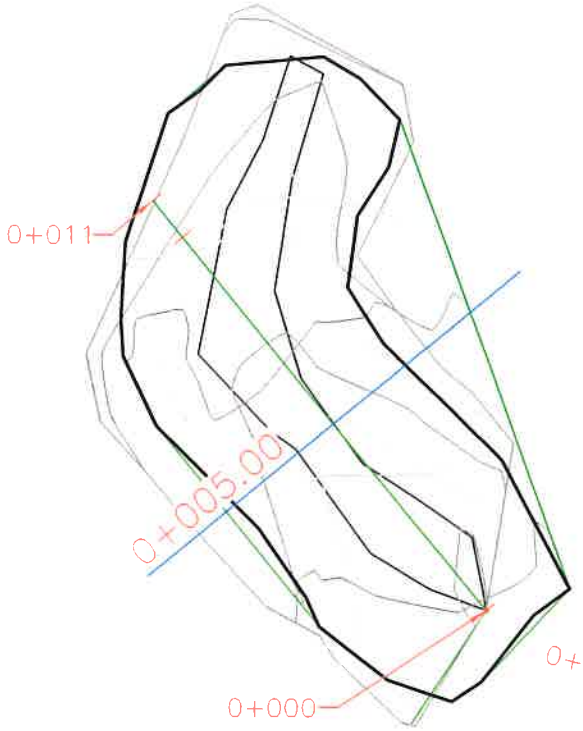
Contract No. **CC204**
ITP No. **006-E**
Date: **20-Jun-18**
Station: **STA 0+70 RT**

Pelly Construction Ltd.

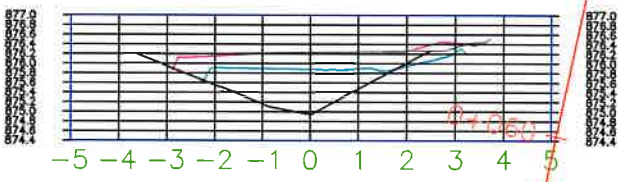
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DLine	7/10	EJF	7/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DLine	7/10	EJF	7/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DLine	7/10	EJF	7/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DLine	7/10	EJF	7/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DLine	7/10	EJF	7/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DLine	7/10	EJF	7/10	

Client Rep: ETHAN FABER (print) _____ (sign) 07/10/18 (date)

Contractor Rep: _____ (print) _____ (sign) 07/10/18 (date)



0+005.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INT.	DESCRIPTION
1.0	18/07/19	CM	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+070

DRAWING SCALE: H 1:150

DATE: 18/07/08 | DWG No: EMB-FD0070

DRAWING FILE: 180708 FINGERDRAIN 0+070

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

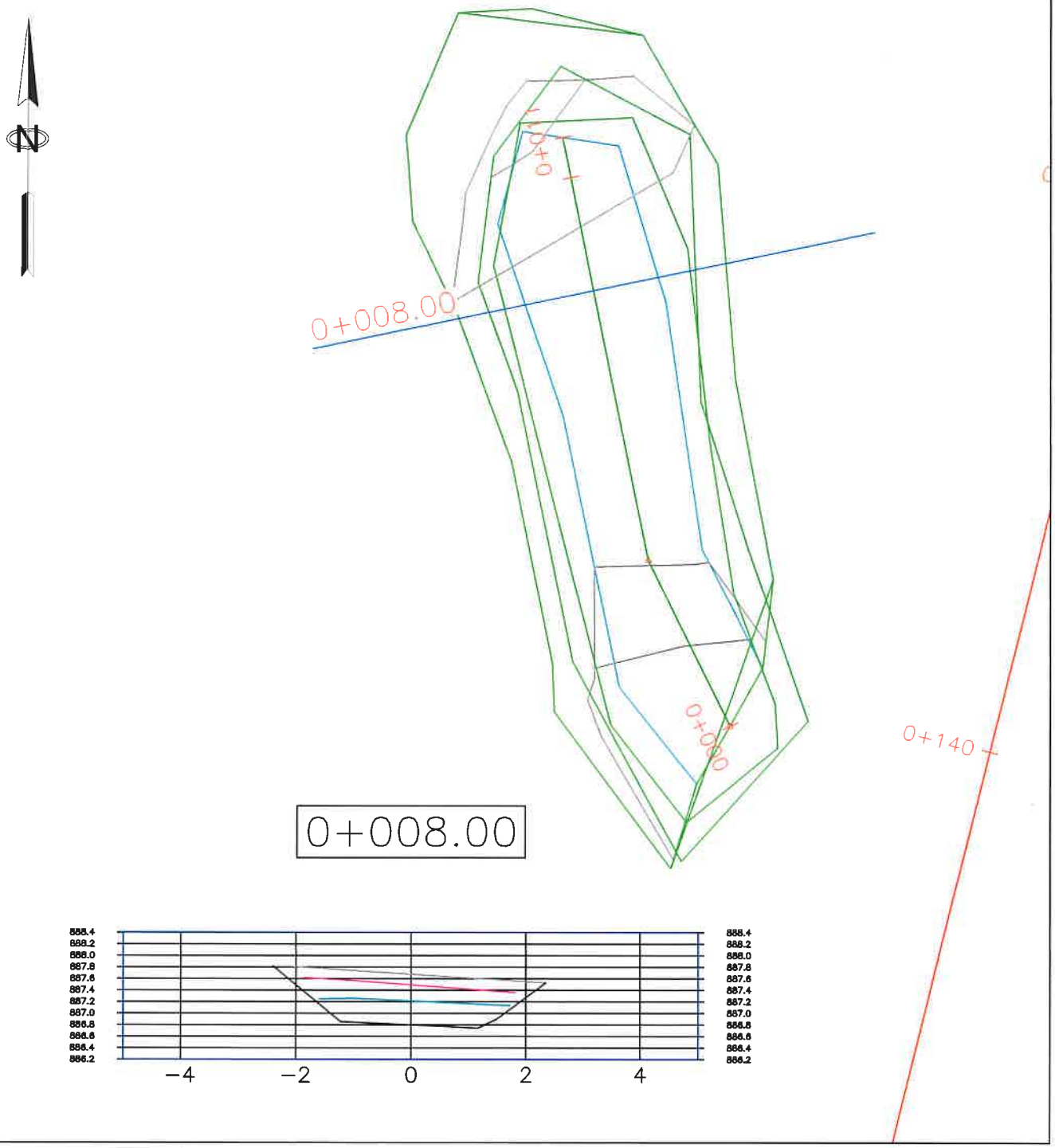
Contract No. **CC204**
ITP No. **006-F**
Date: **20-Jun-18**
Station: **STA ~~0+60~~ RT** D+140

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	Dino	7/10	EJF	7/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	Dino	7/10	EJF	7/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	Dino	7/10	EJF	7/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	Dino	7/10	EJF	7/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	Dino	7/10	EJF	7/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	Dino	7/10	EJF	7/10	

Client Rep: ETHAN FARGE _____ 07/10/18
print sign date

Contractor Rep: Daniel M. Oppie _____ 07/10/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+140

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD0140

DRAWING FILE: 180718 FINGERDRAIN 0+140

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

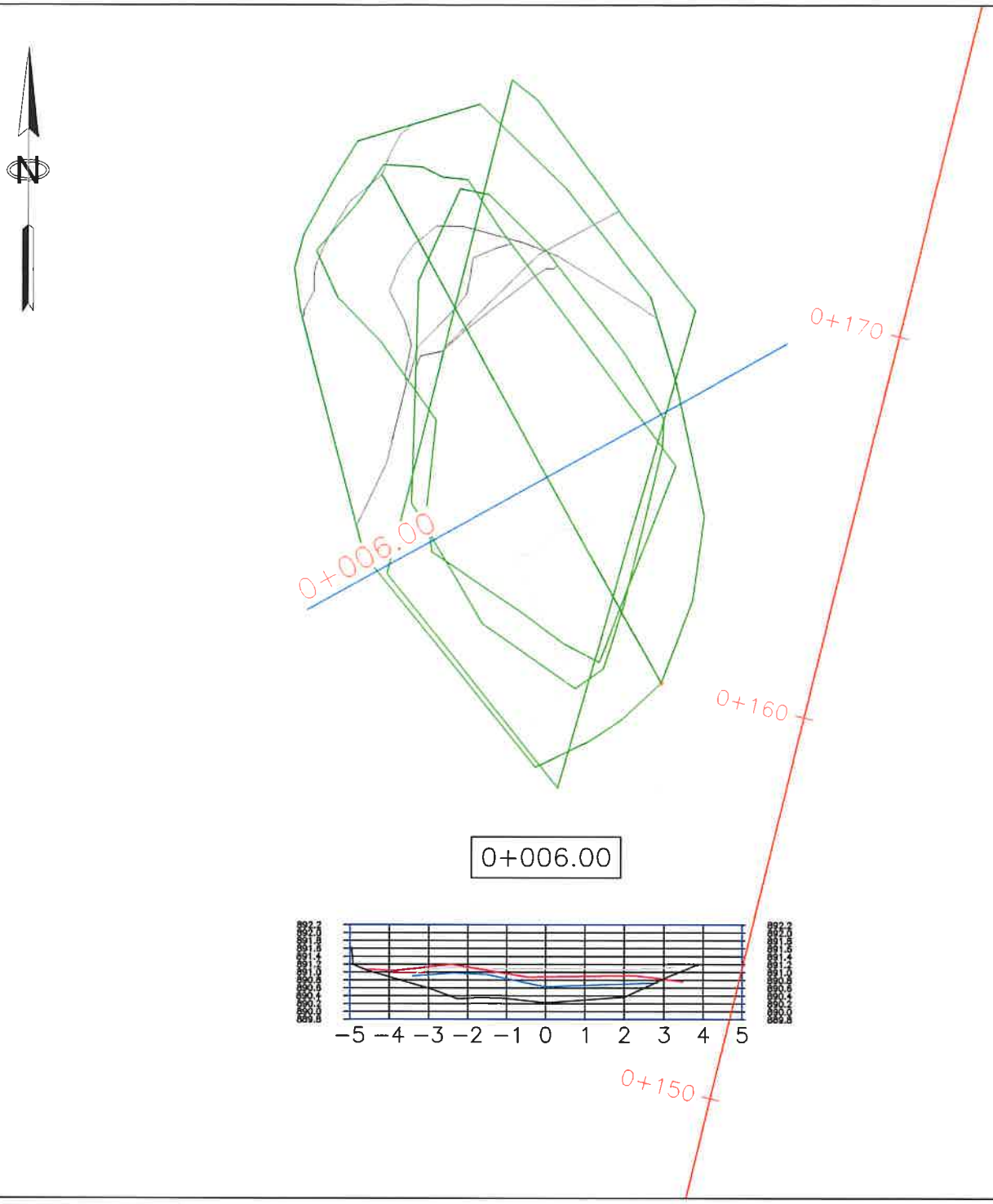
Contract No. **CC204**
ITP No. **006-G**
Date: ~~**20-Jun-18**~~ July 12TH 2018
Station: **STA 0+~~115~~ 160 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DAS	7/13/18	EJF	7/13	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DAS	7/13/18	EJF	7/13	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DAS	7/13/18	EJF	7/13	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DAS	7/13/18	EJF	7/13	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DAS	7/13/18	EJF	7/13	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DAS	7/13/18	EJF	7/13	

Client Rep: ETHAN FASER _____ 7/13/18
print sign date

Contractor Rep: DEAN SEKELA _____ 7/13/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+160

DRAWING SCALE: H 1:150

DATE: 18/07/03 DWG No: EMB-FD0160

DRAWING FILE: 180702 FINGERDRAIN 0+160

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

SURVEYED: BAX DRAWN: BAX CHECKED: APPROVED:

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

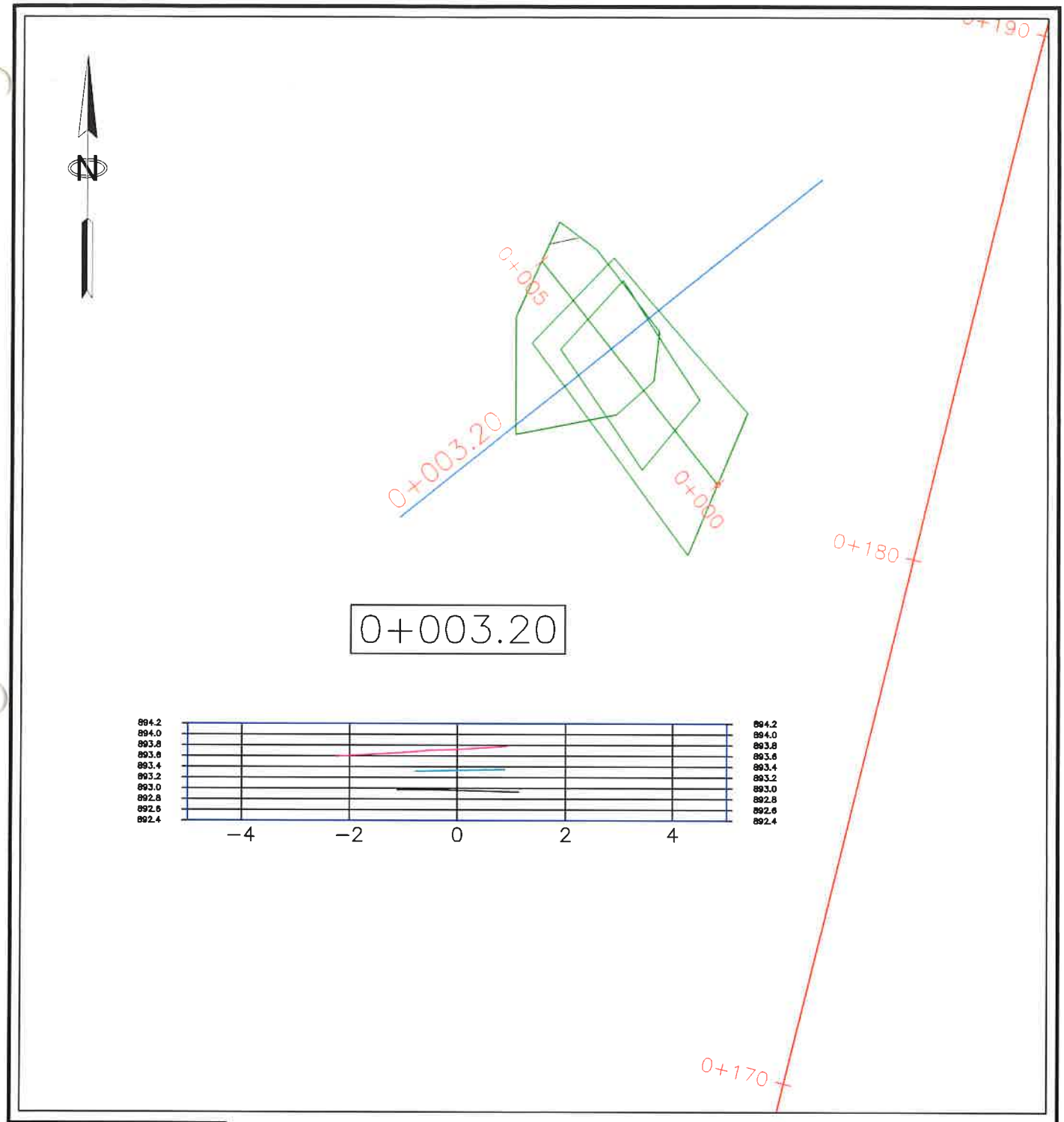
Contract No. **CC204**
ITP No. **006-H**
Date: **13-Jul-18**
Station: **STA 0+190 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DAS	7/13/18	EJF	7/12/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DAS	7/13/18	EJF	7/13/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DAS	7/13/18	EJF	7/13/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DAS	7/13/18	EJF	7/13/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/15/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DAS	7/13/18	EJF	7/13/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DAS	7/13/18	EJF	7/13/18	

Client Rep: ETHAN FABER (print)  (sign) 7/13/18 (date)

Contractor Rep: DEAN SERETO (print)  (sign) 7/13/18 (date)



0+003.20

REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDE DRAIN 0+~~110~~ 180

DRAWING SCALE: H 1:100

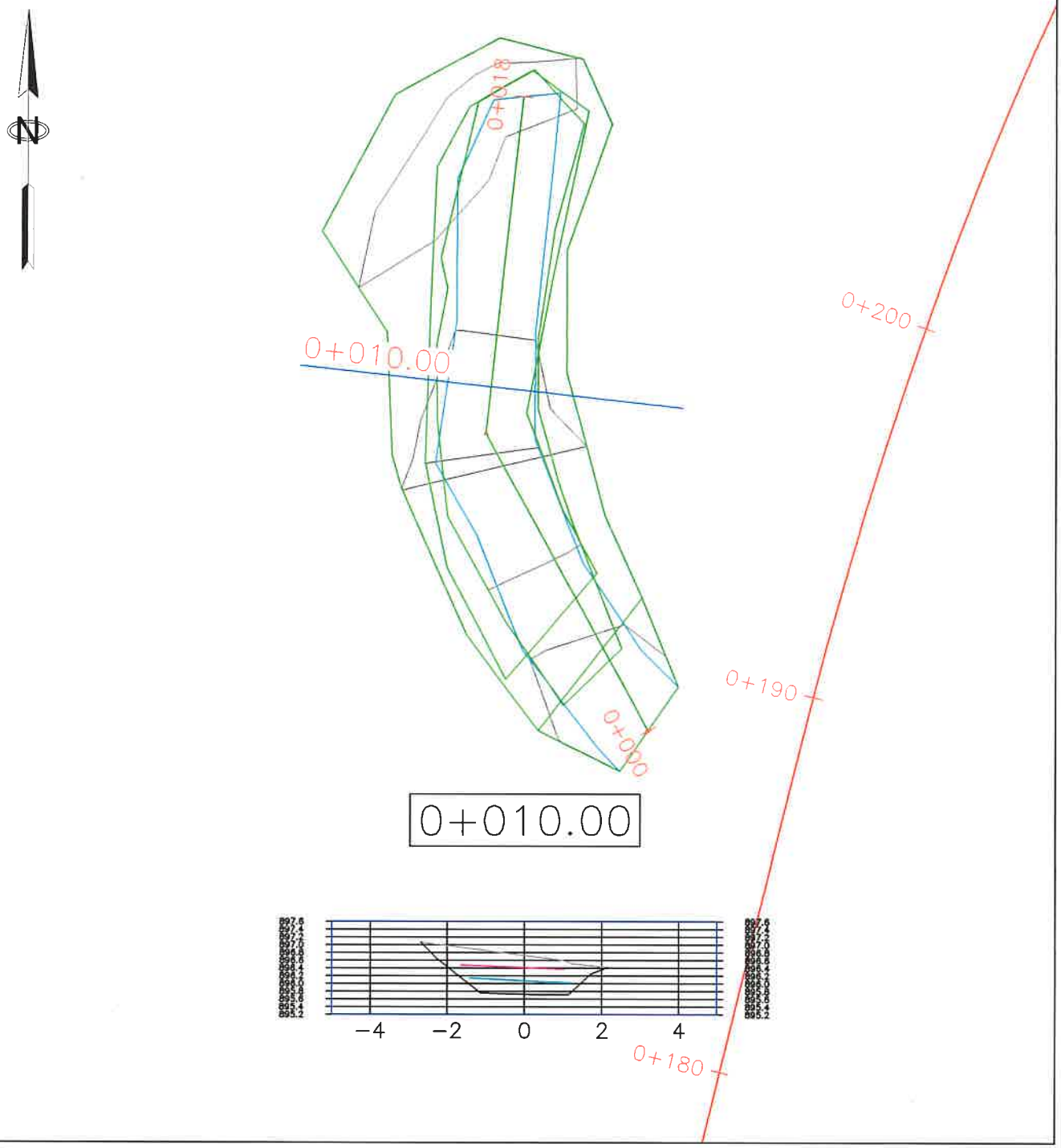
DATE: 18/07/19 DWG No: EMB-SD0180

DRAWING FILE: 180719 SIDEDRAIN 0+180

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+190

DRAWING SCALE: H 1:150

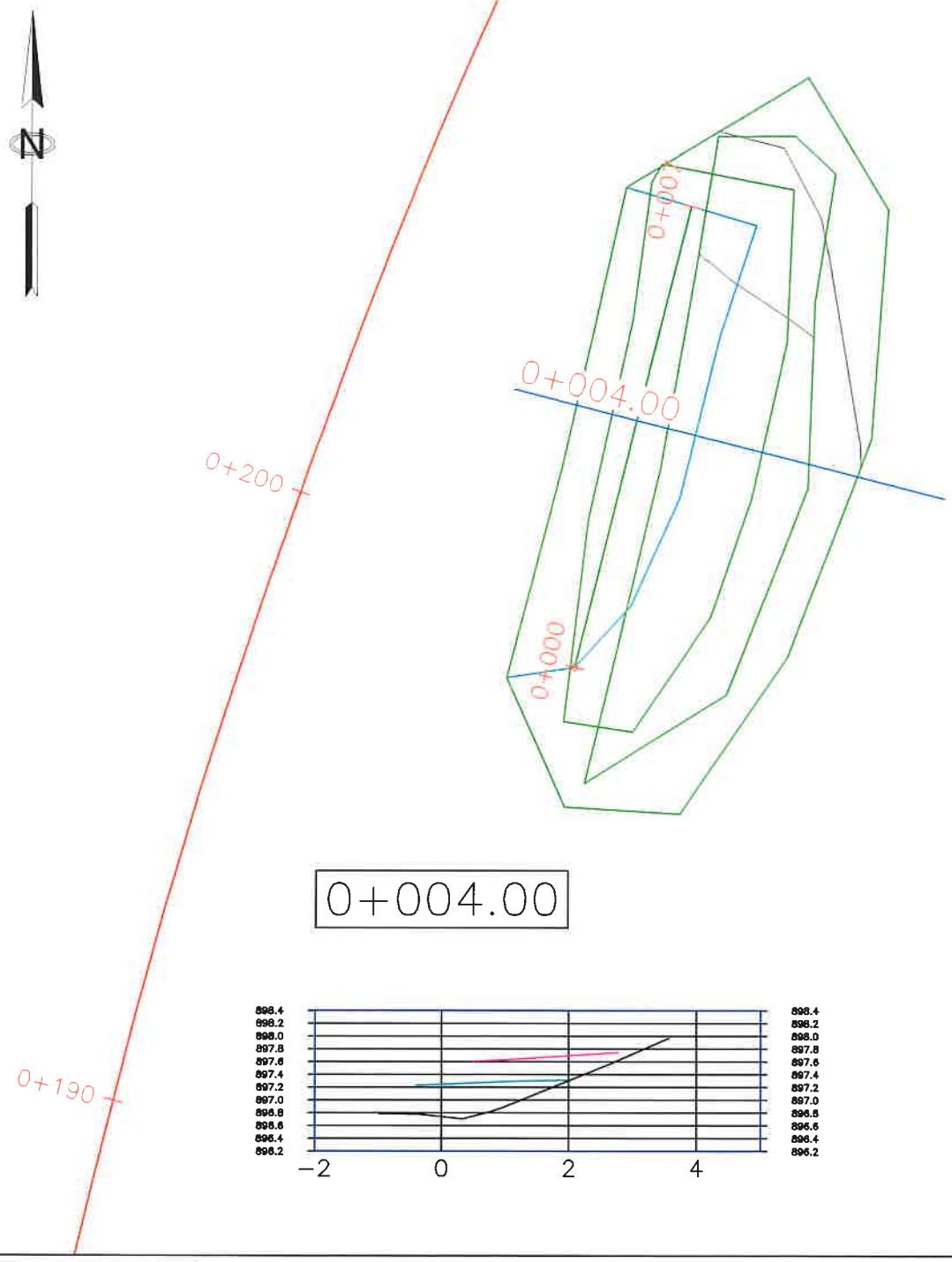
DATE: 18/07/18 DWG No: EMB-FD0190

DRAWING FILE: 180703 FINGERDRAIN 0+190

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/22	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDEDRAIN 0+200

DRAWING SCALE: H 1:100

DATE: 18/07/22 | DWG No: EMB-SD0200

DRAWING FILE: 180722 FINGERDRAIN 0+220

DRAWING VIEW: 8.5x11 Portrait

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

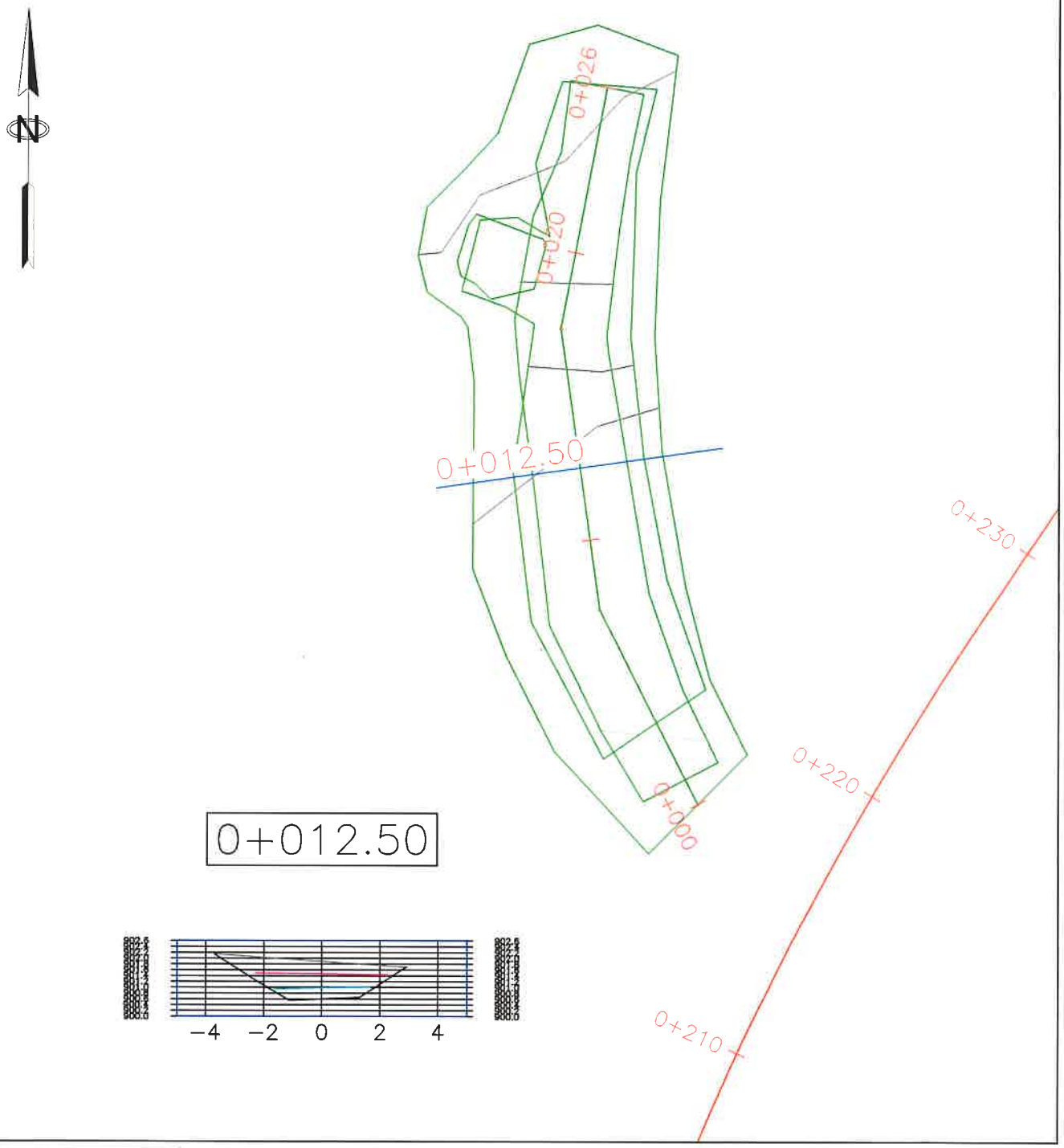
Contract No. **CC204**
ITP No. **006-I**
Date: **13-Jul-18**
Station: **STA 0+220 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SS	July 22/18	D.6	July 23/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SS	July 22/18	D6	July 23/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SS	Jul 22/18	D6	July 23/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D 6	July 23/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morlan _____ 11-27-18
print sign date

Contractor Rep: DEAN SEREDA _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/21	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+215

DRAWING SCALE: H 1:200

DATE: 18/07/21 | DWG No: EMB-FD215

DRAWING FILE: 180721 FINGERDRAIN 0+215

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Artesian**
Date: **30-Jul-18**
Station: **STA**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	8-6-18	RM	8-6-18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	YF	8-6-18	RM	8-6-18	
1.3	Artesian drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8-6-18	RM	8-6-18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	YF	Aug 6/18	RM	8-6-18	
1.5	Engineers approval of drain excavation *	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8-6-18	RM	8-6-18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.7	Installation of ~~select~~ ODF or Concrete aggs drain fill to minimum of 0.3m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.8	Iinstallation of SDR 11 perforated pipe loop	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	YF	8-6-18	RM	8-6-18	
1.9	Installation of select drain fill to minimum of 0.7m above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.10	Installation of the bentonite plug	Install the betonite plug	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

*Min excavation changed from 3m to 2m

Upstream from bentonite plug material changed from select drain fill to ODF and concrete aggregate

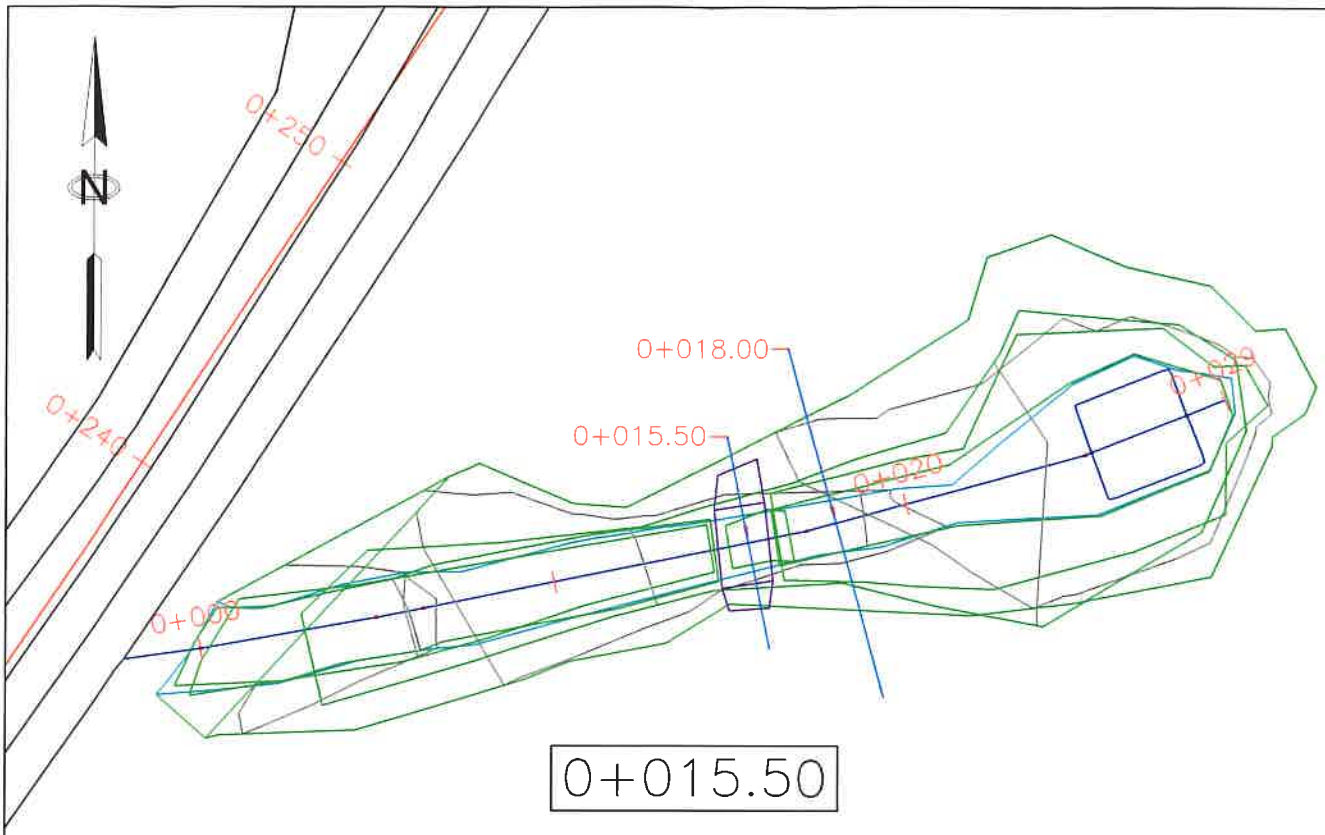
Min 0.1m drain fill below pipe

Client Rep: Roy Morlan _____ 11-27-18
print / sign / date

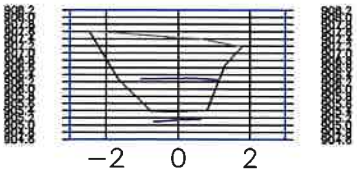
Contractor Rep: DEAN SERGEO _____ 11/27/18
print / sign / date

also other changes: See as built

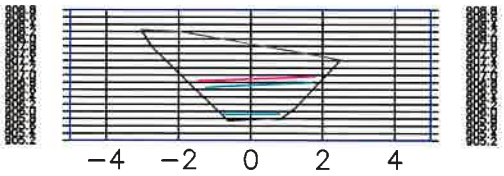
Roy Morlan _____ 8-6-18



0+015.50



0+018.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11
- BENTONITE PLUG

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	CM	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX & SP | DRAWN: CM

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT ARTESIAN WELL DRAIN

DRAWING SCALE: H 1:200

DATE: 18/08/11 | DWG No: EMB-AW023

DRAWING FILE: 180811 ARTESIAN WELL DRAIN COMPLETE ASB.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

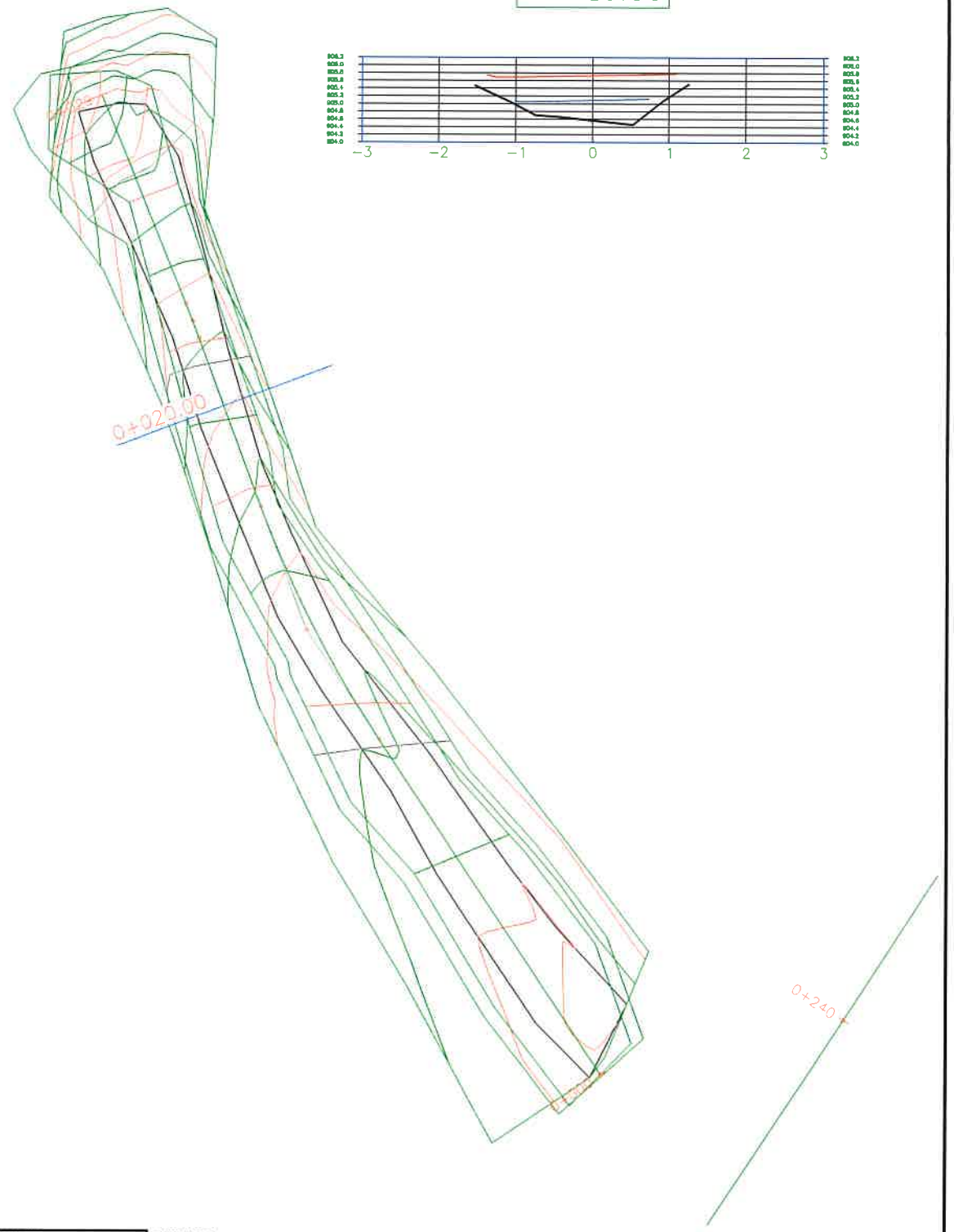
Contract No. **CC204**
ITP No. **006-J**
Date: **31-Jul-18**
Station: **STA 0+240 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	08/18/18	H.V.	08/18/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms			H.V.	08/18/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	08/18/18	H.V.	08/18/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	〃	H.V.	08/18/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/18/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/18/18	
1.7	Installation of select drain fill to minimum of 0.20m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.9	Place and compact minimum 0.2m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	〃	H.V.	08/14/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ	〃	H.V.	08/14/18	

Client Rep: Harra Vardeleon (print) (sign) 08/14/18 (date)

Contractor Rep: SHIPENG ZHENG (print) (sign) 08/18/18 (date)



REFERENCE DRAWINGS:	
NO.	DRAWING FILE
01	HLF UNDERDRAIN AND CLOSURE ALIGNMENT

DRAWING NOTES:

LEGEND

- SAND
- GRAVEL
- TRENCH

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0-0	17/XX/01	CB	ISSUED FOR...

eshemuta Construction Surveyors

SURVEYED: C.B. DRAWN: C.B.

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+235 BLANKET DRAIN SECTION

DRAWING SCALE: H 1:100

DATE: 18/08/18 DWG No: EMB-FD-0235

DRAWING FILE: 180818 0235 BLANKET DRAIN SECTION dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Closure Sump Interceptor Drain**
Date: **06-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

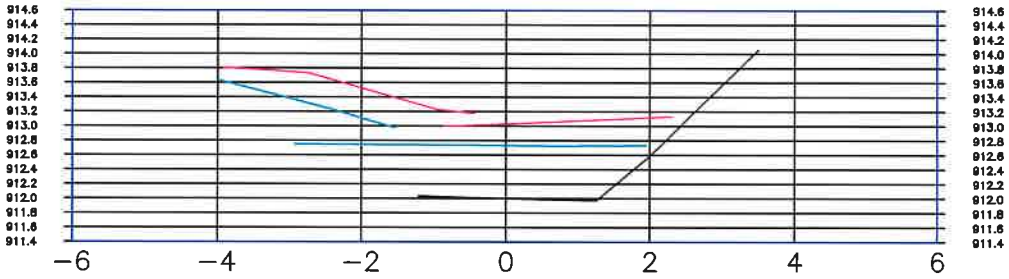
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	8-8-18	RM	8-8-18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	YF	8-8-18	RM	8-8-18	
1.3	Closure sump interceptor drain design	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8-8-18	RM	8-8-18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	12/8/18	H.V.	08/14/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.7	Installation of ODF or Concrete Aggregate below pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.8	Iinstallation of SDR 11 perforated piping	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.9	Installation of ODF or Concrete Aggregate above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.10	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.11	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.12	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.13	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mowlam _____ 11-27-18
print / sign / date

Contractor Rep: DEAN SORELL _____ 11/27/18
print / sign / date



0+013.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN L-DRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-LD

DRAWING FILE: 180725 FINGERDRAIN L-DRAIN.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT**
Revision: **0**

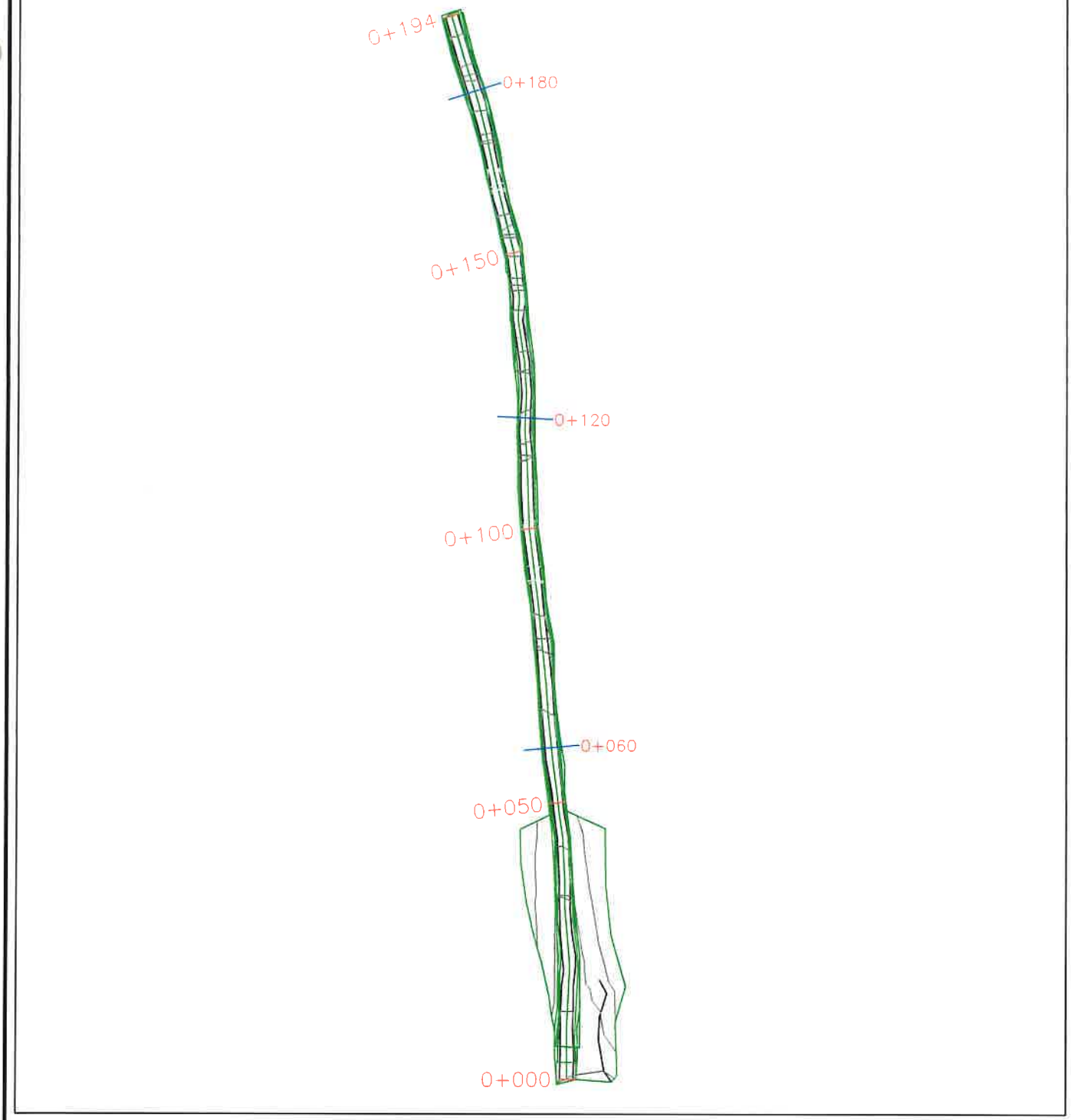
Contract No. **CC204**
ITP No. **006-East Underdrain**
Date: **14-Aug-18**
Station: **East Valley EMB Footprint**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	18/08/18	CKM	18/08/19	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Underdrain design drawing (Verbal direction from BGC)	Verbal requirements received from BGC Engineer	Contractor/Client	Design Received	SZ	18/08/18	CKM	18/08/19	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	18/08/18	CKM	18/08/19	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.7	Installation of select drain fill to minimum of 0.70m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	18/08/18	CKM	18/08/19	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morlan _____ 11-27-18
print sign date

Contractor Rep: DEAN SOREN _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:1000

DATE: 18/08/25 | DWG No: EMB-FD-EV

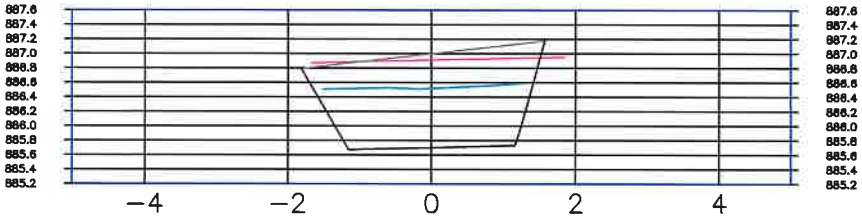
DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

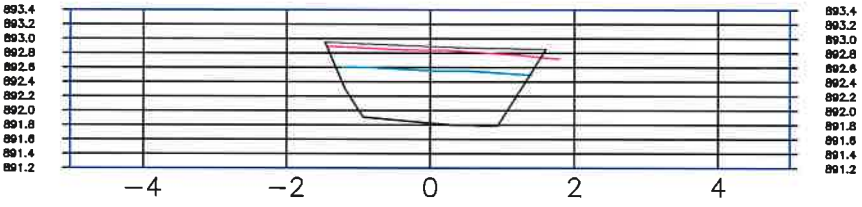
PROJECT NO.: 17003

SHEET: 001

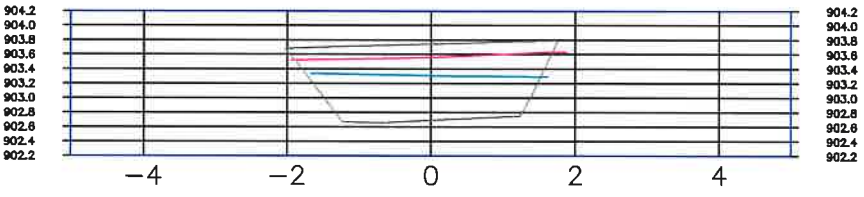
0+060.00



0+120.00



0+180.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-EV2

DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

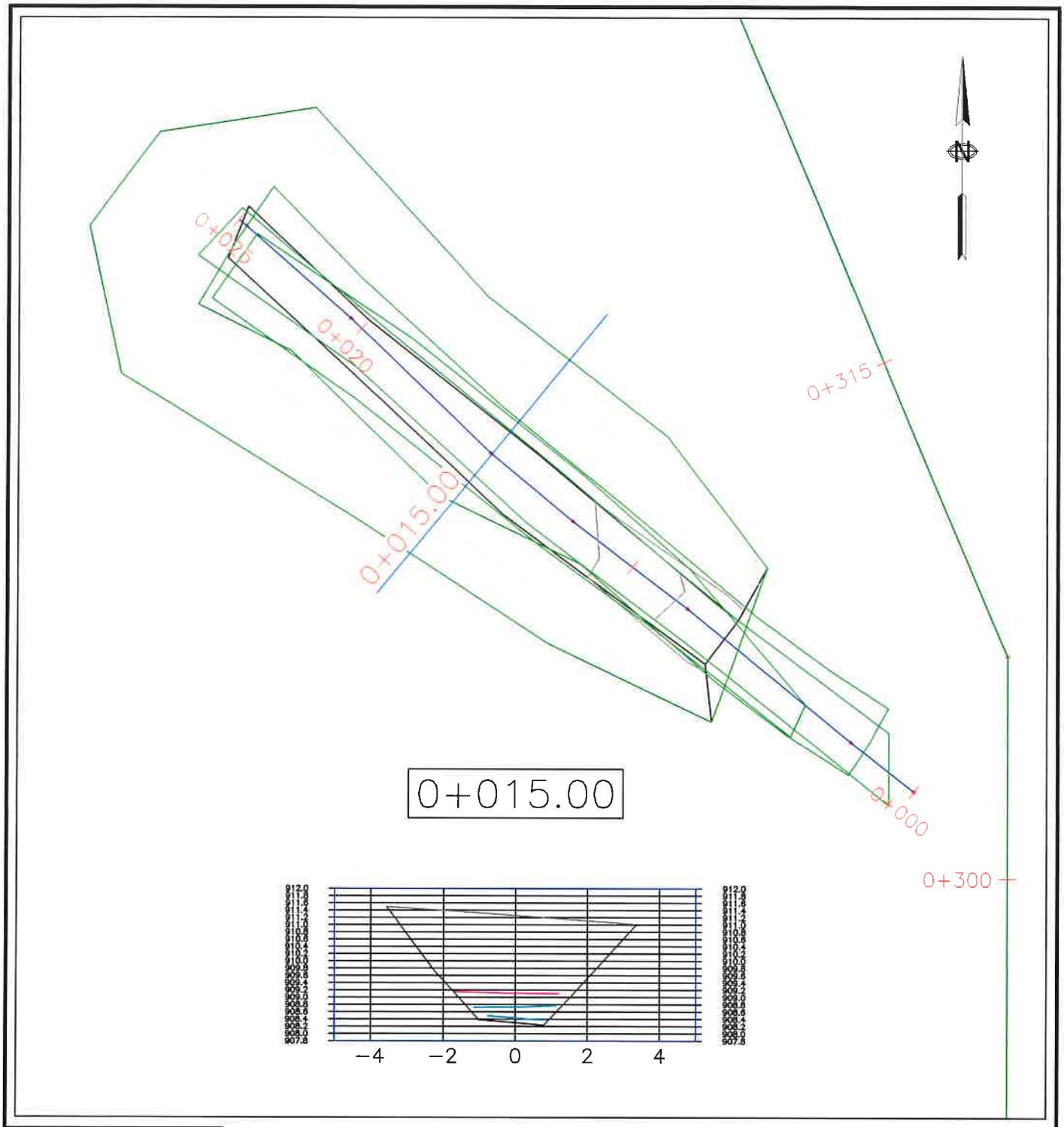
Contract No. **CC204**
ITP No. **006-K**
Date: **18-Aug-18**
Station: **HLF In-heap Sump**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	08/18/18	EFM	08/19/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	08/18/18	EFM	08/19/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	08/18/18	EFM	08/19/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.7	Installation of select drain fill to minimum of 0.3m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	08/18/18	EFM	08/19/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mullen _____ 11-27-18
print sign date

Contractor Rep: DEAN SERESS _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/12	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+300

DRAWING SCALE: H 1:150

DATE: 18/07/18 DWG No: EMB-FD0300

DRAWING FILE: 180912 HLF FINGERDRAIN 0+300 ASB dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Upslope In Heap Interceptor Drain**
Date: **21-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	Aug 25/18	[sig]	8/25	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Closure sump interceptor drain design	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8/25	[sig]	8/25	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	YF	8/25	[sig]	8/25	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.7	Installation of ODF or Concrete Aggregate below pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.8	Iinstallation of SDR 11 perforated piping	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.9	Installation of ODF or Concrete Aggregate above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.10	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.11	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.12	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	YF	8/25	[sig]	8/25	
1.13	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

* DRAIN WAS EXTENDED WEST UPSLOPE TO TIE INTO EXFILTRATION TRENCH CAPTURING MELT WATER; EXCAVATION WAS 1.5m BELOW LINER SURFACE AND WIDTH OF LB 490 EXCAVATOR BUCKET; NO GEOTEXTILE REQUIRED AS PER BGC; EXTENSION WAS FILLED WITH 0.5m of RIP RAP MATERIAL; MINIMUM 0.45m OF STRUCTURAL FILL WAS PLACED AND COMPACTED ABOVE. [sig] 9/18/2018

Client Rep: Roy McLean [sig] 11-27-18
print sign date

Contractor Rep: DEAN SERGO [sig] 11/27/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

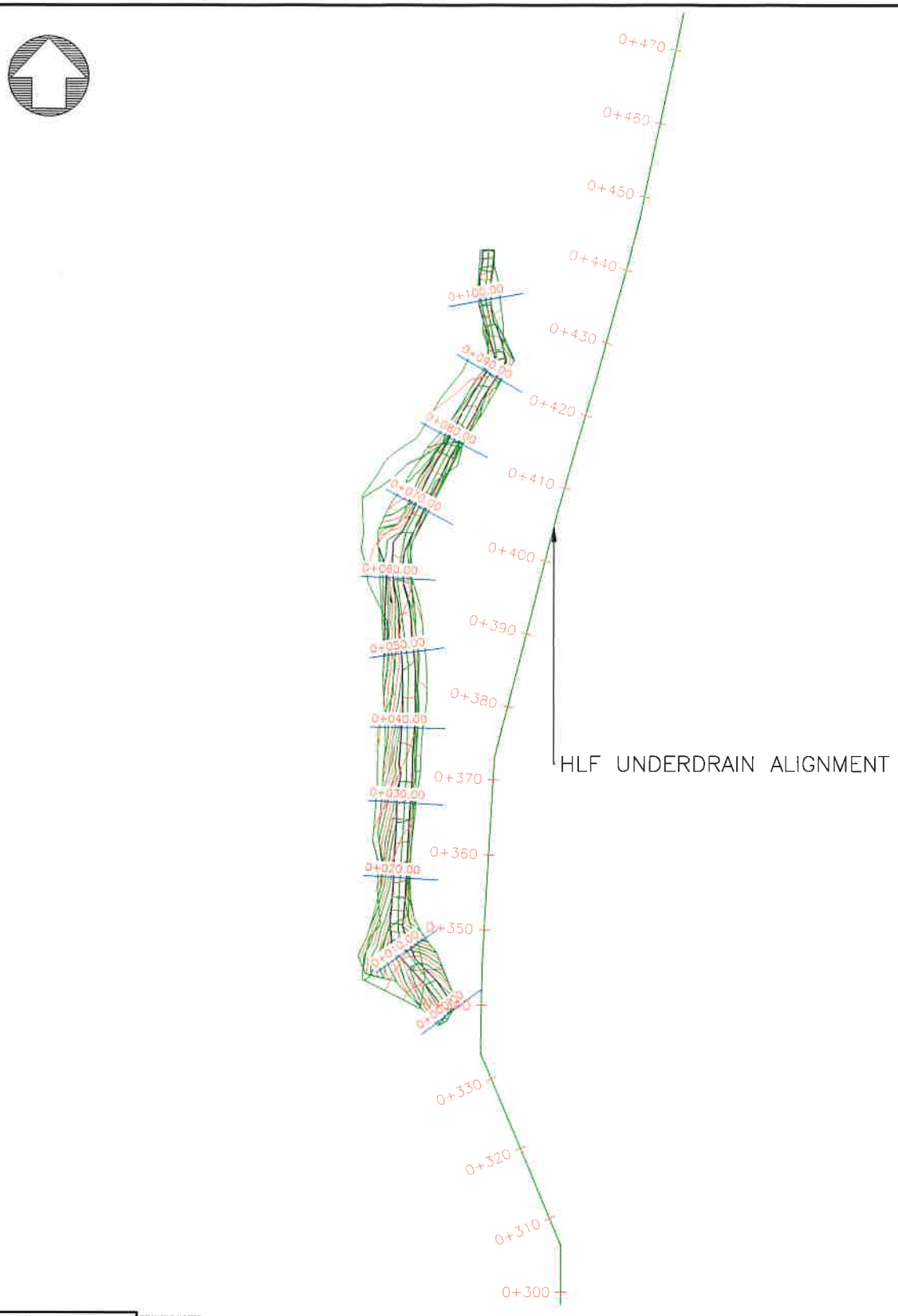
Contract No. **CC204**
ITP No. **006-L Perimeter Drain**
Date: **07-Sep-18**
Station: **STA 0+340 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/7/18	EJF	9/8/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.50m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.30m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Place 12oz non woven geotextile on top of 0.30m SDF	Geotextile to fully cover layer of SDF extending upslope on bank	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place rock material on top of geotextile	Rock to cover geotextile extending upslope on bank	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material 2 or material 3 to be placed where rock material not needed	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: ETHAN FARRER _____ 9/8/18
print sign date

Contractor Rep: DEAN SERETO _____ 9/7/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE
01	Xref.dwg

DRAWING NOTES:

1 SHOWING FINGERDRAIN INSTALLED AT 0+0340 OF UNDERDRAIN TRENCH

ISSUES:			
REV.	YY/MM/DD	INT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

eshemuta Construction Surveyors

SURVEYED: C B | DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN 0+340

DRAWING SCALE: H 1:500

DATE: 18/09/12 | DWG No: EMB-FD-0340

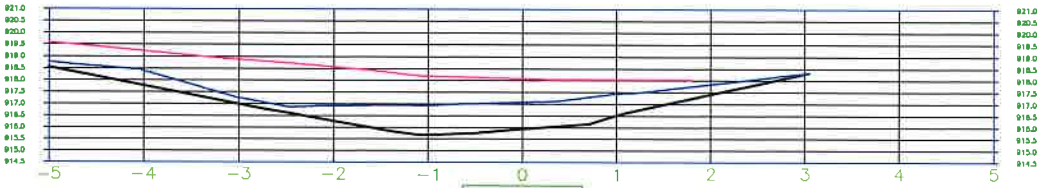
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DRAWING VIEW: 11x17 Portrait

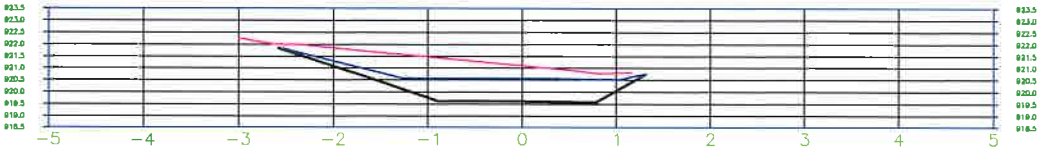
PROJECT NO.: 17003

SHEET: 001

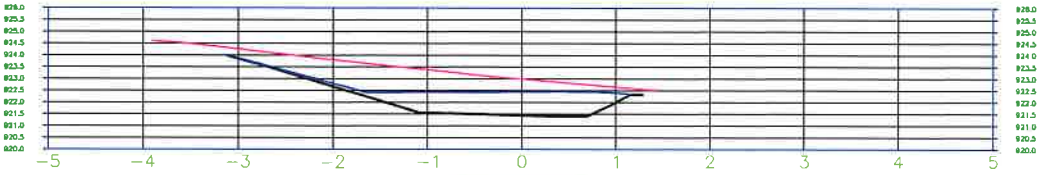
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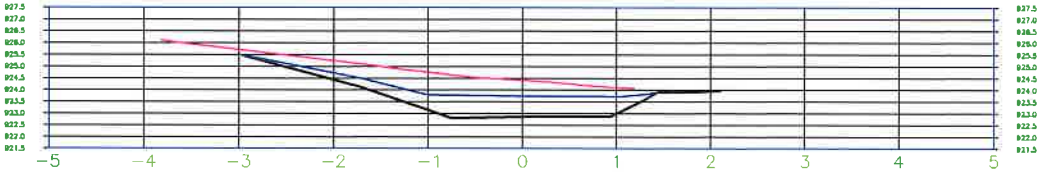
0+020.00



0+030.00



0+040.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE
01	Xref 0=0

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0 0	17/10/01	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN 0+340 SECTIONS 0+010 TO 0+040

DRAWING SCALE: NOT TO SCALE

DATE: 18/09/12 | DWG No: [illegible]

SURVEYED: E.J. | CHECKED:

DRAWN: BAX | APPROVED:

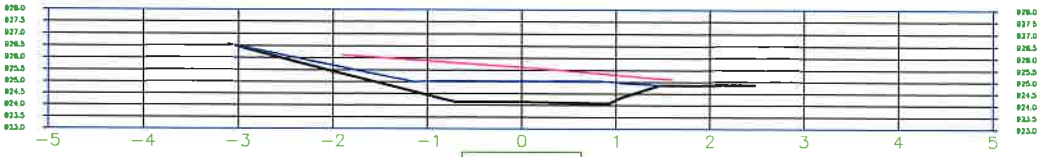
DRAWING FILE: 180912 0340 FINGER DRAIN SECTION dwg

DRAWING VIEW: 11x17 Landscape

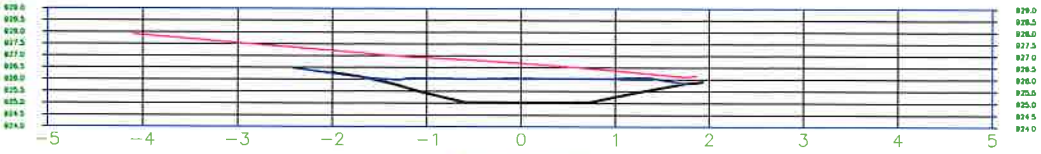
PROJECT NO.: 17003

SHEET: 001

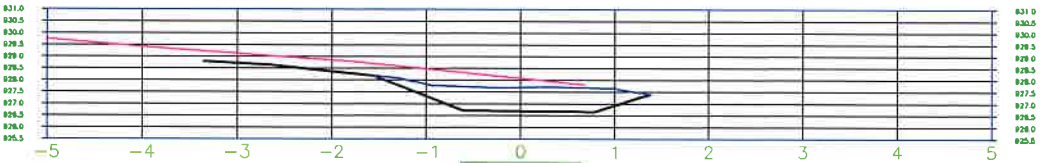
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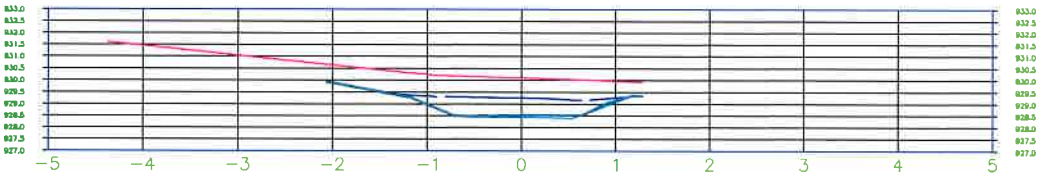
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0+070.00



0+080.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE
01	Xref dwg

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/07/01	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
FINGERDRAIN
0+340 SECTIONS
0+050 TO 0+080

DRAWING SCALE: NOT TO SCALE

DATE:	18/09/12	DWG No:	
SURVEYED:	E.J	CHECKED:	
DRAWN:	BAX	APPROVED:	

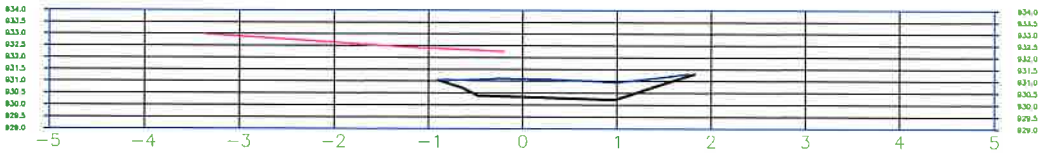
DRAWING FILE: 190912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

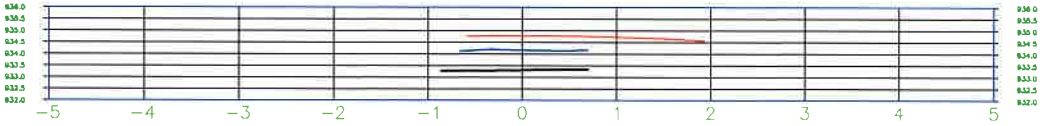
PROJECT NO : 17003

SHEET: 001

0+090.00



0+100.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN
0+340 SECTIONS
0+090 TO 0+100

DRAWING SCALE:

NOT TO SCALE

DATE:	18/09/12	DWG No:	
SURVEYED:	E.J /C.M	CHECKED:	
DRAWN:	BAX	APPROVED:	

DRAWING FILE:
190912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

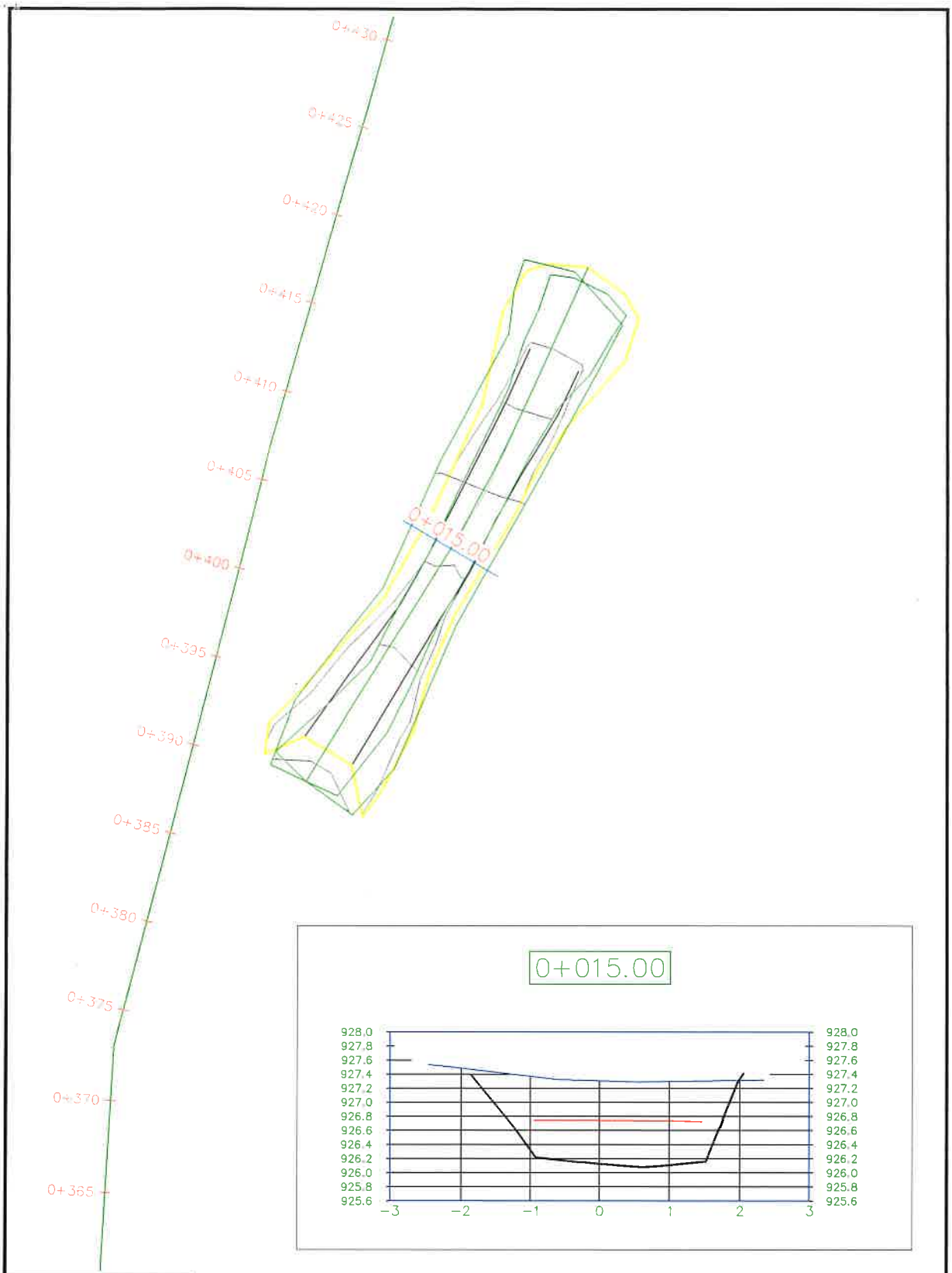
Contract No. **CC204**
ITP No. **006-M**
Date: **13-Jul-18**
Station: **STA 0+390 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S	9/7/18	EJF	9/8/18	EMAIL
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: ETHAN FABER _____ 9/8/18
print sign date

Contractor Rep: DEAN SEREDA _____ 9/7/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

1 SHOWING FINGERDRAIN INSTALLED AT APPROXIMATELY STA 0+390 OF UNDERDRAIN TRENCH ALIGNMENT

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
00	17/07/01	CB	ISSUED FOR:

eshemuta Construction Surveyors

SURVEYED: C.B DRAWN: C.B

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+390 FINGERDRAIN CROSS SECTION

DRAWING SCALE: H 1:200

DATE: 19/09/09 DWG No: FDRN-0390

DRAWING FILE: 190905 0390 FINGERDRAIN SECTION dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

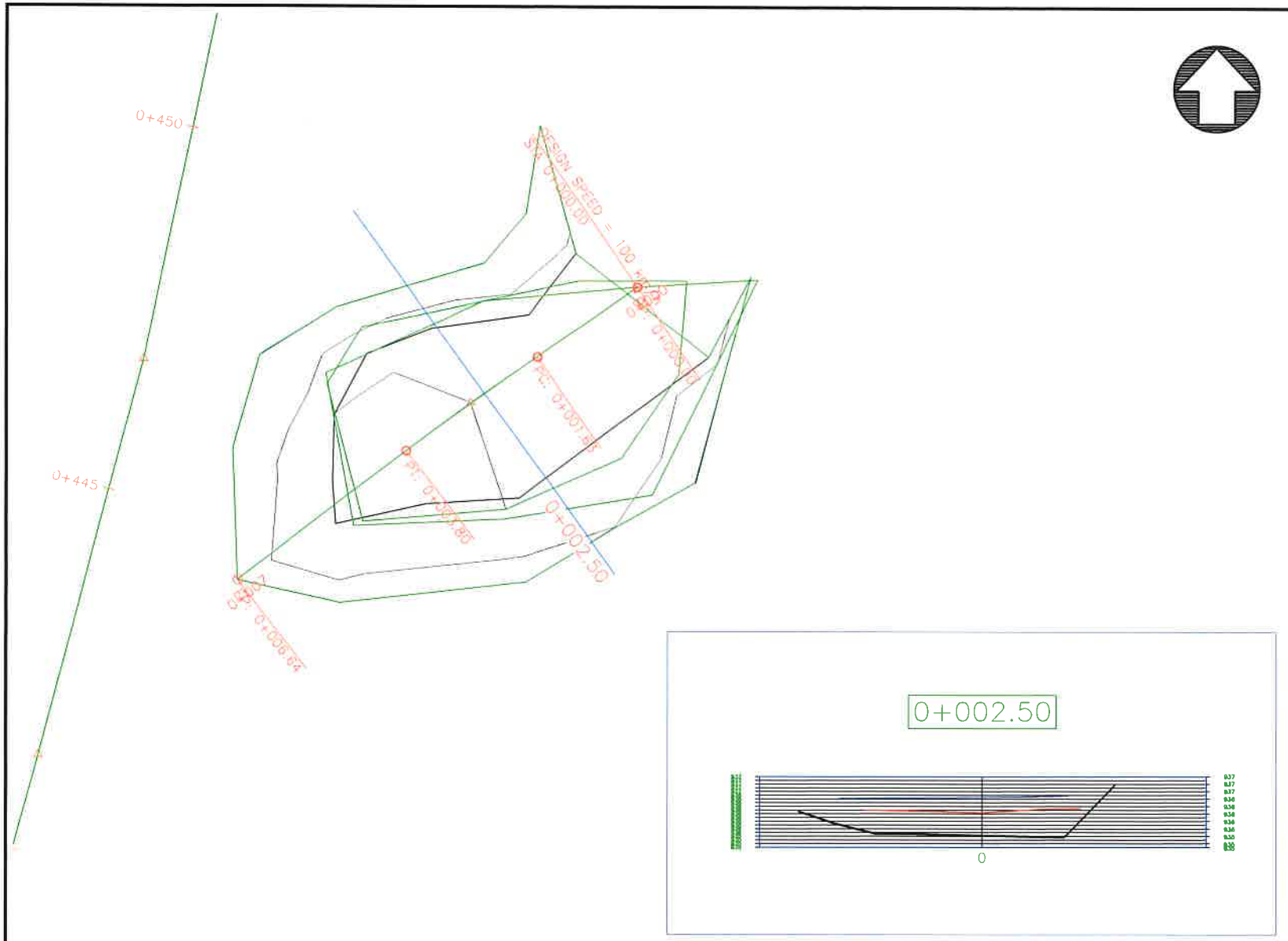
Contract No. **CC204**
ITP No. **006-N**
Date: **13-Jul-18**
Station: **STA 0+445 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/7/18	EJF	9/8/18	EMAIL
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: EITHAN FABEN _____ 9/8/18
print sign date

Contractor Rep: DEAN SERELO _____ 9/7/18
print sign date



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	footprint.dwg

DRAWING NOTES:

1. SHOWING CROSS SECTION OF FINGERDRAIN AT STA. 0+445 OF UNDERDRAIN AND CLOSURE TRENCH

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION:
00	YY/07/01	DB	ISSUED FOR...

CLIENT:

eshemuta
Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

FINGERDRAIN 0+445
CROSS-SECTION

DRAWING SCALE:

H 1:100

DATE: 18/09/10	DWG No: EMB-FD-0445
SURVEYED: E.J	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE:
190910 0445 FINGERDRAIN SECTION dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

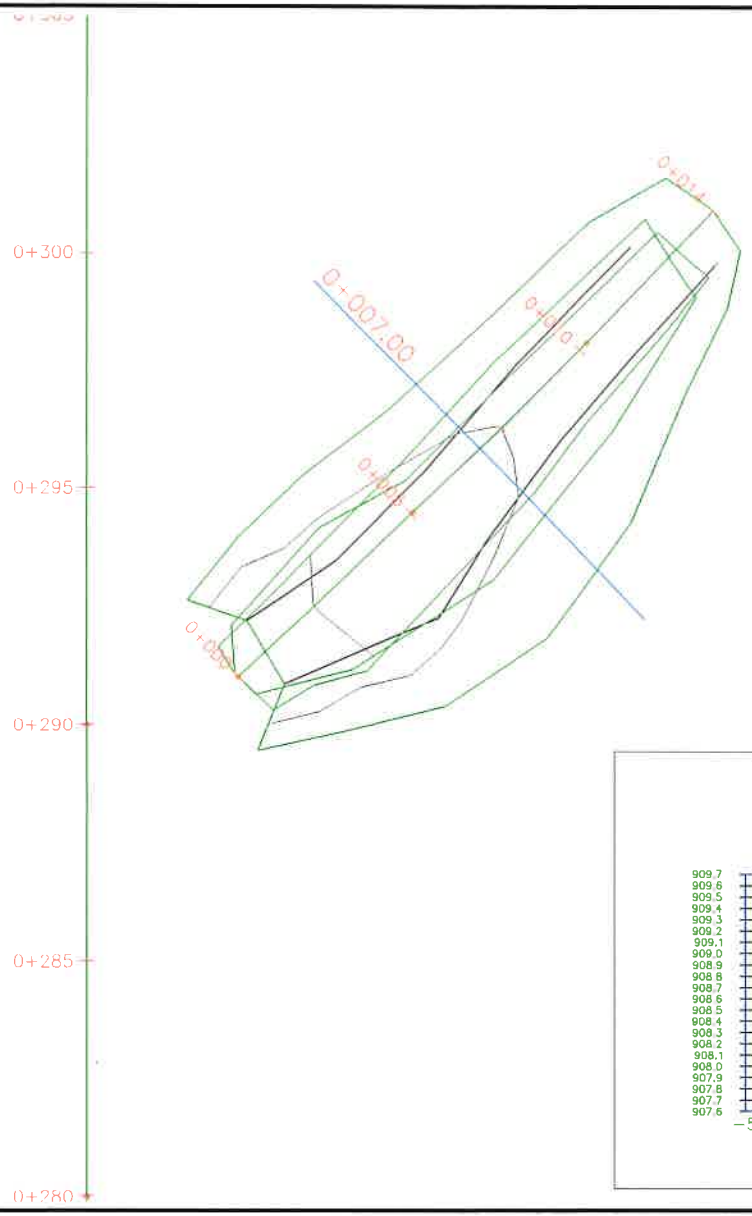
Contract No. **CC204**
ITP No. **006-O**
Date: **09-Sep-18**
Station: **STA 0+292 RT**

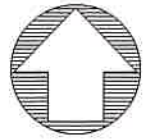
Pelly Construction Ltd.

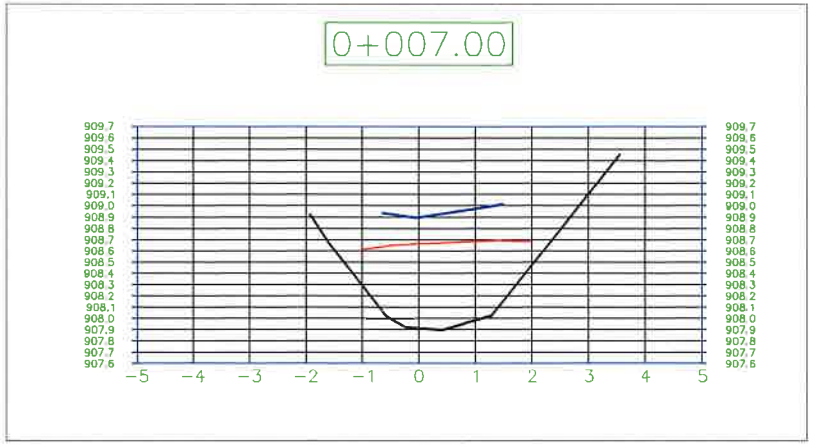
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/10/18	EJF	9/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/10/18	EJF	9/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/10/18	EJF	9/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/10/18	EJF	9/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material thickness and compaction to meet specifications	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/10/18	EJF	9/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/10/18	EJF	9/10	

Client Rep: ETHAN FORBES _____ 9/10/18
print sign date

Contractor Rep: DEAN SERELO _____ 9/10/18
print sign date







REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

1. SHOWING CROSS SECTION OF FINGERDRAIN AT STA 0+292 OF UNDERDRAIN AND CLOSURE TRENCH

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
00	17/07/01	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: CROSS- SECTION FINGERDRAIN 0+292

DRAWING SCALE: H 1:100

DATE: 18/09/10	DWG No: EMB-FD-0292
SURVEYED: C.M	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 190910 0+292 FINGERDRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-O**
Date: **10-Sep-18**
Station: **STA 0+035 along 0+390 E Lateral**

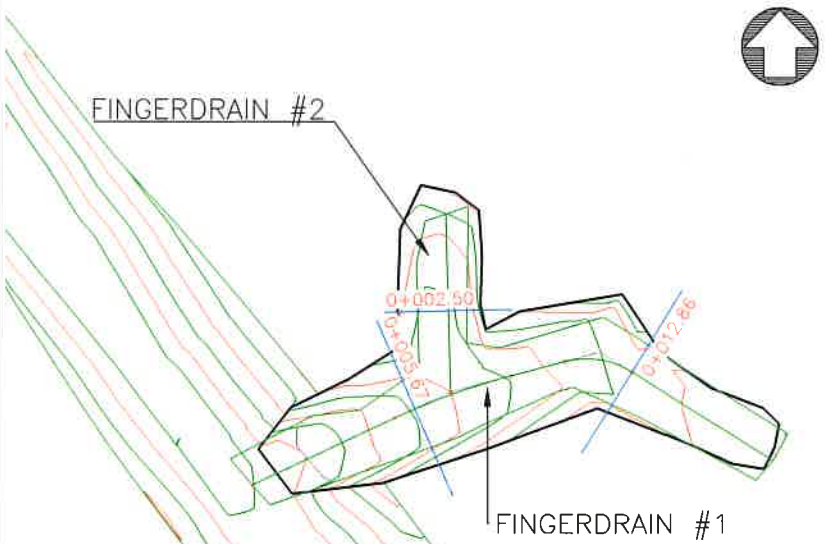
Pelly Construction Ltd.

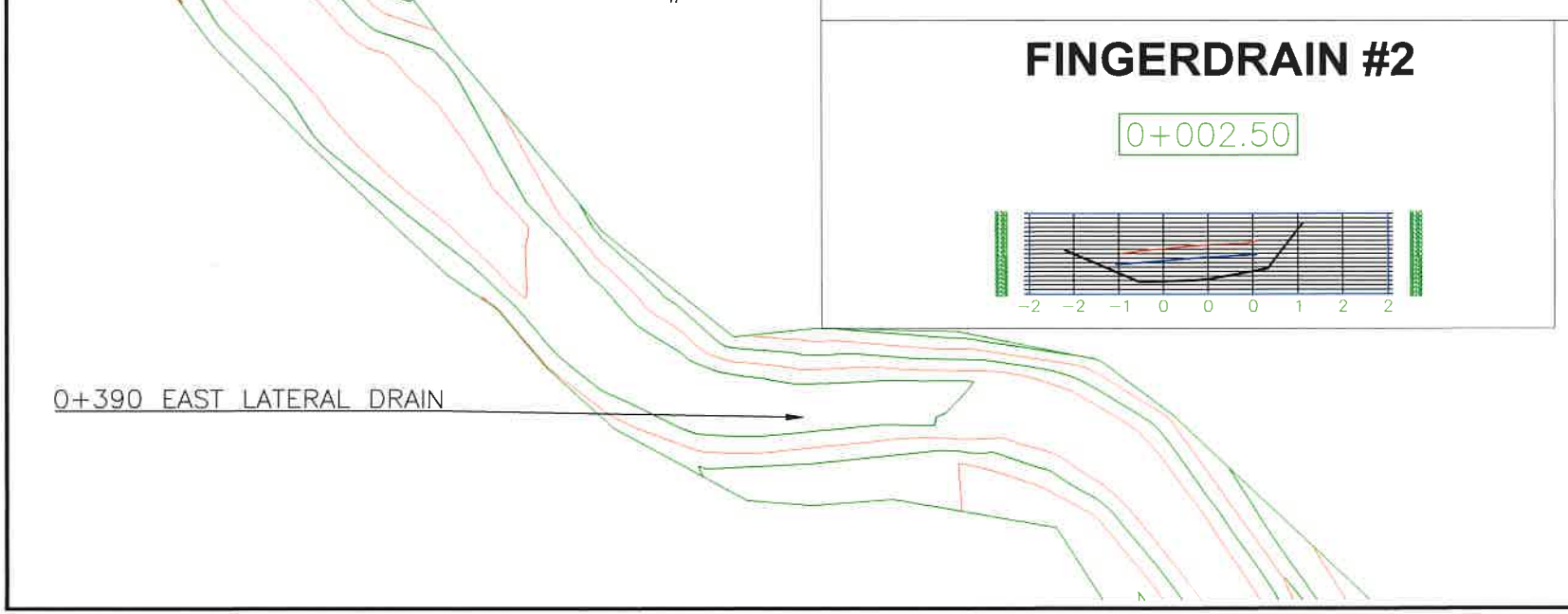
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	12/09/18		9.13.18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	12/09/18		9.13.18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	12/09/18		9.13.18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	12/09/18		9.13.18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.7*	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material thickness and compaction to meet specifications	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	12/09/18		9.13.18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	12/09/18		9.13.18	

* SDF was placed between 0.3-0.45m to allow for fill between drain and liner surface

Client Rep: Roy Morlan _____ 9-13-18
print sign date

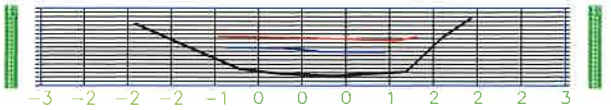
Contractor Rep: DEAN SERLO _____ 12/09/18
print sign date



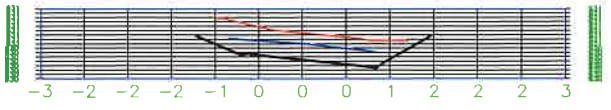


FINGERDRAIN #1

0+005.67



0+012.86



FINGERDRAIN #2

0+002.50

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	180829 925m EAST LATERAL DRAIN E.X ASB.dwg

DRAWING NOTES:

1. SHOWING FINGERDRAIN EXCAVATED ALONG EAST LATERAL DRAIN
2. EAST LATERAL DRAIN IS LOCATED AT 0+390 OF UNDERDRAIN TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
00	11/01/07	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN INSTALLED ON EAST LATERAL DRAIN

DRAWING SCALE: H 1:150

DATE: 18/09/11	DWG No: HLF - FD -EL
SURVEYED: C.B	CHECKED:
DRAWN: C.B	APPROVED:

DRAWING FILE: 0+390 EAST LATERAL DRAIN FINGERDRAIN dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: ~~TBD~~ Rock Fills
CWP: **HLF EMBANKMENT**
Revision: **0**

Contract No. **CC204**
ITP No. **008**
Date: **07-Jul-18**
Station: **STA 0+~~07.5~~ 010 to STA 0+140**

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DLW	07/10	EJF	7/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DLW	07/10	EJF	7/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DLW	07/10	EJF	7/10	
1.5	Excavated/Stockpiled material to haul to placement position	Inspection of excavation material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.6	Constructed in 0.9m thick lifts with maximum particle size no greater than 2/3 the fill loose lift.	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.7	Test fills will be conducted to determine if a greater Rockfill lift is permissible	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.8	Structural fill section will be constructed in 0.3m thick lifts with maximum particle size no greater than 2/3 the fill loose lift	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.9	Structural fill section will be constructed in 0.9m thick lifts with maximum particle size no greater than 2/3 the fill loose lift	Inspection of placed material	Contractor/Client	Approvals Checklist	DLW	07/10	EJF	7/10	
1.10	Rockfill will key into the Structural fill horizontally by 1.0m for every 0.9m incremental vertical lifts	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.11	Every compacted lift will be scarified prior to placement of the next lift	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.12	Smooth and Grid drum packers to pack lift material	Inspection of placed material	Contractor/Client	Engineers initials on this document	DLW	07/10	EJF	7/10	
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DLW	07/10	EJF	7/10	
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DLW	07/10	EJF	7/10	

Client Rep: ETHAN FABER (print) _____ (sign) 07/10/18 (date)

Contractor Rep: _____ (print) _____ (sign) 07/10/18 (date)

Title: **INSPECTION AND TEST PLAN FOR HLF UNDERDRAIN LATERAL**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.5.04**
CWP: **HLF Embankment Phase 2 Water Management and Construction**
Revision: **0**

Contract No. **CC204**
ITP No. **009**
Date: **03-Sep-18**
Station: **0+390 East**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/3/18	EJF	9/3	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/3/18	EJF	9/3	BY EMAIL
1.3	Underdrain Lateral Design	Design drawing received by Contractor; Verify drawing	Contractor/Client	Drawing reviewed	D.S.	9/3/18	EJF	9/3	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/3/18	EJF	9/3	
1.5	Engineers approval of drain excavation; minimum 1.0m wide; minimum 0.8m trench depth below liner surface; minimum 3% grade	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.7	Installation of 0.1m pipe bedding of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.8	Installation of T fitting and HDPE reducer to outermost underdrain header pipe	Butt fuse HDPE fitting and reducer	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.9	Installation of 100mm perforated corrugated ADS N-12 pipe	Connect piping to extend length of drain trench excavation	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.10	Installation of 0.3m pipe cover of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/3/18	EJF	9/3	
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/3/18	EJF	9/3	

Client Rep: ETHAN FABER _____ 9/3/18
print sign date

Contractor Rep: DEAN SEREDA _____ 9/3/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF UNDERDRAIN LATERAL**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.5.04**
CWP: **HLF Embankment Phase 2 Water Management and Construction**
Revision: **0**

Contract No. **CC204**
ITP No. **009**
Date: **03-Sep-18**
Station: **0+435 East**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/3/18	EJF	9/3	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S	9/3/18	EJF	9/3	BY EMAIL
1.3	Underdrain Lateral Design	Design drawing received by Contractor; Verify drawing	Contractor/Client	Drawing reviewed	D.S.	9/3/18	EJF	9/3	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S	9/3/18	EJF	9/3	
1.5	Engineers approval of drain excavation; minimum 1.0m wide; minimum 0.8m trench depth below liner surface; minimum 3% grade	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.7	Installation of 0.1m pipe bedding of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.8	Installation of T fitting and HDPE reducer to outermost underdrain header pipe	Butt fuse HDPE fitting and reducer	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.9	Installation of 100mm perforated corrugated ADS N-12 pipe	Connect piping to extend length of drain trench excavation	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.10	Installation of 0.3m pipe cover of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/3/18	EJF	9/3	
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/3/18	EJF	9/3	
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/3/18	EJF	9/3	

Client Rep: ETHAN FABER _____ 9/3/18
print sign date

Contractor Rep: DEAN SEREDA _____ 9/3/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF LINER SURFACE PREPARATION TO 940 ELEVATION**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.6.01**
CWP: **HLF Embankment**
Revision: **0**

Contract No. **CC204**
ITP No. **010**
Date: **10-Sep-18**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/11/18		9-11-18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Liner surface design	Design received by Contractor; Verify drawing	Contractor/Client	Design reviewed; Initials on this document	D.S.	9/11/18		9-11-18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/11/18		9-11-18	
1.5	Subgrade surface shaped to satisfy requirements and approval of the Engineer	Subgrade surface to meet Technical Specifications 3.2 and approval of the Engineer	Contractor/Client	Engineers initials on this document and field checklist	SZ	10/14/18	D.G	9/14/18	
1.6	Liner subgrade inspected and evalutated by the Engineer	Inspection and evaluation to meet Technical Specifications 3.2 Subgrade Preparation	Contractor/Client	Engineers initials on this document and field checklist	SZ	10/14/18	D. G	9/14/18	
1.7	Survey asbuilt of liner subgrade	Survey to asbuilt completed liner subgrade	Contractor/Client	Asbuilt drawings provided as requested	SZ	10/14/18	D. G	9/14/18	
1.8	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: DANIEL GRADA _____ 9/14/18
print sign date

Contractor Rep: SHIPENG ZHENG _____ 10/14/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF UNDERDRAIN LATERAL**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.5.04**
CWP: **HLF Embankment Phase 2 Water Management and Construction**
Revision: **0**

Contract No. **CC204**
ITP No. **009**
Date: **03-Sep-18**
Station: **0+ 390 east**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	09/23/18		92318	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Underdrain Lateral Design	Design drawing received by Contractor; Verify drawing	Contractor/Client	Drawing reviewed	SZ	09/23/18		92318	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	"			
1.5	Engineers approval of drain excavation; minimum 1.0m wide; minimum 0.8m trench depth below liner surface; minimum 3% grade	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	"			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	"			
1.7	Installation of 0.1m pipe bedding of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	"			
1.8	Installation of T fitting and HDPE reducer to outermost underdrain header pipe	Butt fuse HDPE fitting and reducer	Contractor/Client	Engineers initials on this document	SZ	"			
1.9	Installation of 100mm perforated corrugated ADS N-12 pipe	Connect piping to extend length of drain trench excavation	Contractor/Client	Engineers initials on this document	SZ	"			
1.10	Installation of 0.3m pipe cover of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	"			
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	"			
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	"			
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ	"		92318	

Client Rep: Ryan Morley _____ 92318
print sign date

Contractor Rep: SHIPENG ZHENG _____ 09/23/2018
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF UNDERDRAIN LATERAL**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **4110.5.04**
CWP: **HLF Embankment Phase 2 Water Management and Construction**
Revision: **0**

Contract No. **CC204**
ITP No. **009**
Date: **03-Sep-18**
Station: **0+435 East**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	09/23/18		92318	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Underdrain Lateral Design	Design drawing received by Contractor; Verify drawing	Contractor/Client	Drawing reviewed	SZ	〃		92318	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	〃			
1.5	Engineers approval of drain excavation; minimum 1.0m wide; minimum 0.8m trench depth below liner surface; minimum 3% grade	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	〃			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	〃			
1.7	Installation of 0.1m pipe bedding of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	〃			
1.8	Installation of T fitting and HDPE reducer to outermost underdrain header pipe	Butt fuse HDPE fitting and reducer	Contractor/Client	Engineers initials on this document	SZ	〃			
1.9	Installation of 100mm perforated corrugated ADS N-12 pipe	Connect piping to extend length of drain trench excavation	Contractor/Client	Engineers initials on this document	SZ	〃			
1.10	Installation of 0.3m pipe cover of select drain fill or coarse aggregate	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	〃			
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	〃			
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	〃			
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ	〃		92318	

Client Rep: Ryan Mackie _____ 92718
print sign date

Contractor Rep: SHIPENG ZHANG _____ 09/23/18
print sign date

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
BH-BGC16-086	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

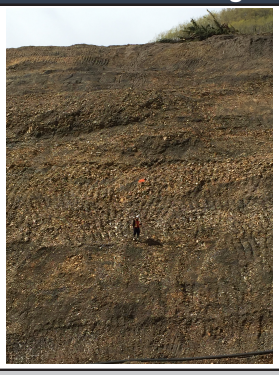
PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Unsafe to Excavate
2			The area is excavated to
3			Type 3 bedrock
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning	After Decommissioning
	

Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
BH-BGC16-087	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
BH-BGC16-089	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
BH-BGC-090	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
BH-BGC16-091	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
DG10-399C	Ann Gulch	Exploration hole	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
120.3m	459652.073, 7101594	None	2018-06-08

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & pull instrument	Crystal Beaudry	Alex Therriault		
6/8/2018	Observe/report	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

Metal Casing 1m deep

INSTRUMENTATION REMOVAL

none

PLUG MATERIAL

Grout

PLUG VOLUME

2.2m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Remove casing	YES	
2	Grout Borehole	YES	
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
DG17-847C/844C/842C	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
DG17-851C	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To locate the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
DG17-854C	HLF EMBANKMENT		
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
			June 2, 2018

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180602	To identify the hole	BGC - Daniel Granda	Pelly - Dominic Korn	Pelly - Dale Burtch	Eshemuta - Colin
					Mackay

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

N/A

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

N/A

PLUG VOLUME

N/A

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Locate the hole	Yes	Cannot locate the hole
2			
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



Engineer: ***Signature:***

Date:

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459548, 7101624	None	2018-06-07

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/7/2018	Observing/notes	Dan Granda			

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

Grout

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Remove monument casing	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

Victoria GOLD CORP

WELL/BOREHOLE INFORMATION SUMMARY

Well / Borehole ID	Location Description	Type / Purpose	Install Date
Unnamed well next to MW10-AG5	Ann Gulch	Groundwater monitoring well	May 2010
Well Depth / Water Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**
21.3 m deep / 6.0 m to water from top PVC	459541, 7101639	None	2018-06-06

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
2018-06-05	Record water level & well depth	Crystal Beaudry	Alex Therriault		
6/6/2018	Observing/notes	Dan Granda	Dominic Korn		

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

PVC Pipe removed

INSTRUMENTATION REMOVAL

non existant

PLUG MATERIAL

grouting from bottom to top with a tremie pipe

PLUG VOLUME

0.38m^3

DECOMMISSIONING PLAN

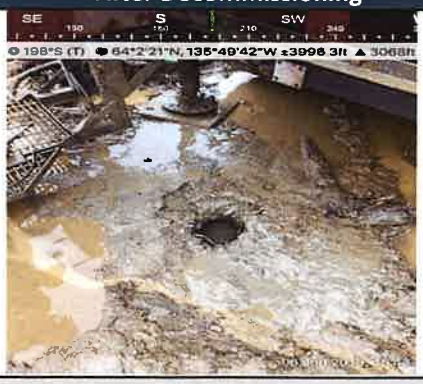
Step	Description	Followed?	Deviation From Plan
1	Record water level and well depth	YES	
2	Casing removed	YES	
3	Grout borehole	YES	
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning



After Decommissioning



LIST ATTACHMENTS

Well/Borehole Inspection & Decommissioning Record

Eagle Gold Project

WELL/BOREHOLE INFORMATION SUMMARY

Well/Borehole ID	Location Description	Type/Purpose	Install Date
Unnamed Artesian Well	HLF Embankment	Exploration hole	
Depth	**Coordinates (UTM)**	**Instrumentation**	**Decommission Date**

INSPECTION/MEETING RECORD

Date	Purpose	Attendee	Attendee	Attendee	Attendee
180605	To inspect the well	BGC - Dan G.	Pelly - Shipeng Z.	Pelly - Jason A.	Eshemuta - Colin M.
		Pelly - Declan M.	Midnight sun -	Midnight sun-	Midnight sun -

DECOMMISSIONING DESCRIPTION

CASING REMOVAL

No casing found

INSTRUMENTATION REMOVAL

N/A

PLUG MATERIAL

Grout

PLUG VOLUME

DECOMMISSIONING PLAN

Step	Description	Followed?	Deviation From Plan
1	To identify the hole		
2	Drill to Az. 50 Dip-55, Depth 159.41m		
3			
4			
5			
6			

PHOTOGRAPHS

Before Decommissioning	After Decommissioning
	

LIST ATTACHMENTS

APPENDIX 6
DAILY REPORTS

BGC DAILY REPORTS

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406-006
Client:	Victoria Gold	**Date and Shift:**	September 10, 2017 Day Shift
Construction:	JDS Mining	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan		
Weather:	Cloudy and Rainy, 15°C to 8°C		

Summary and Observations

- Summary and Observations:
  - Seeps from ice melting was observed along upstream portion of embankment right abutment. (***Photo 1 and 2***).
  - Heavy rains have delayed the foundation excavation to Type 3 bedrock. A revised schedule is in the works, however, excavation is expected to begin within the next two to three days, weather permitting.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
1	BGC to JDS	BGC-01030: IFC Drawings (September 8, 2017) • EGHLF-XD-03-03_Rev 0_PHASE 1 UNDERDRAIN PIPING PLAN • EGHLF-XD-03-04_Rev 0_PHASE 1 UNDERDRAIN PIPING DETAILS • EGHLF-XD-03-05_Rev 0_CLOSURE PIPING PLAN AND PROFILE • EGHLF-XD-05-06_Rev 0_MONITORING VAULT DETAILS • EGHLF-XD-06-01_Rev 0_PHASE 1 PLS RECOVERY PIPING PLAN VIEW • EGHLF-XD-06-02_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 1 OF 2 • EGHLF-XD-06-03_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 2 OF 2
2	JDS to BGC	September 8, 2017 - JDS requested comment on two potential changes to the design. The first is related to moving the union between SR9 and SR11 header pipe. The second is related to reconfiguration of the closure drain piping. BGC has begun looking into responses and provided initial guidance. JDS is developing RFIs to allow for a formal response.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.



Photo 1. Embankment topsoil stockpile.



Photo 1: Slope failure / outwash observed at the east-most seep.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406-006
Client:	Victoria Gold	**Date and Shift:**	September 11, 2017 Day Shift
Construction:	JDS Mining	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan		
Weather:	Cloudy, 14°C to 8°C		

Summary and Observations

- Summary and Observations:
  - Seeps observed yesterday observed within the dam footprint have reduced in surficial flow. Lower volume subterranean flow was observed daylighting in the valley bottom within the same drainage channels. Localized slope failures and washout were observed in the areas where seepage flow was noted. (***Photo 1***).
  - BGC met with Jason from Pelly. Pelly informed me that excavation to Type 3 rock would begin September 12 (early September 13 at the latest). We discussed how to ensure that suitable Type 3 material is reached, what to do if frozen ground is encountered, and potential use of organics free soil generated from the foundation clearing. BGC will develop a memorandum to provide further explanation to Pelly. BGC and Pelly will also hold a meeting prior to the start of excavation to go over the memo.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
1	BGC to JDS	BGC-01030: IFC Drawings (September 8, 2017) • EGHLF-XD-03-03_Rev 0_PHASE 1 UNDERDRAIN PIPING PLAN • EGHLF-XD-03-04_Rev 0_PHASE 1 UNDERDRAIN PIPING DETAILS • EGHLF-XD-03-05_Rev 0_CLOSURE PIPING PLAN AND PROFILE • EGHLF-XD-05-06_Rev 0_MONITORING VAULT DETAILS • EGHLF-XD-06-01_Rev 0_PHASE 1 PLS RECOVERY PIPING PLAN VIEW • EGHLF-XD-06-02_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 1 OF 2 • EGHLF-XD-06-03_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 2 OF 2
2	JDS to BGC	September 8, 2017 - JDS requested comment on two potential changes to the design. The first is related to moving the union between SR9 and SR11 header pipe. The second is related to reconfiguration of the closure drain piping. BGC has begun looking into responses and provided initial guidance. JDS is developing RFIs to allow for a formal response.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.



Photo 1. Areas where seepage was observed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406-006
Client:	Victoria Gold	**Date and Shift:**	September 12, 2017 Day Shift
Construction:	JDS Mining	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan		
Weather:	Cloudy, 17°C to 1°C		

Summary and Observations

- Summary and Observations:
  - Pelly worked on removal of the topsoil piles from the center valley of the dam footprint. (***Photo 1***).
  - Pelly expects to begin foundation excavation to Type 3 bedrock tomorrow.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
1	BGC to JDS	BGC-01030: IFC Drawings (September 8, 2017) • EGHLF-XD-03-03_Rev 0_PHASE 1 UNDERDRAIN PIPING PLAN • EGHLF-XD-03-04_Rev 0_PHASE 1 UNDERDRAIN PIPING DETAILS • EGHLF-XD-03-05_Rev 0_CLOSURE PIPING PLAN AND PROFILE • EGHLF-XD-05-06_Rev 0_MONITORING VAULT DETAILS • EGHLF-XD-06-01_Rev 0_PHASE 1 PLS RECOVERY PIPING PLAN VIEW • EGHLF-XD-06-02_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 1 OF 2 • EGHLF-XD-06-03_Rev 0_PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 2 OF 2
2	JDS to BGC	September 8, 2017 - JDS requested comment on two potential changes to the design. The first is related to moving the union between SR9 and SR11 header pipe. The second is related to reconfiguration of the closure drain piping. BGC has begun looking into responses and provided initial guidance. JDS is developing RFIs to allow for a formal response.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.



Photo 1. Removal of topsoil pile from embankment footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 14, 2017 Day Shift
Construction:	JDS Mining, Pelly, Cobalt	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Partly Cloudy, 14°C to 5°C

Summary and Observations

- Summary and Observations:
  - Pelly worked on removal of the topsoil piles from the center valley of the dam footprint.
  - Pelly has begun excavation to Type 3 bedrock.
  - A portion of the western abutment of the embankment has enough frost in the soil to cause melting. This area has become 'soupy' and the soil difficult to remove while wet. See photos.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

No.	Personnel	Description
1	JDS to BGC	JDS has requested that all our future IFC packages have rev clouds on everything that has changed. JDS has requested BGC add the Pelly construction leads to the IFC drawing distribution list so nothing gets lost between cross-shifts. JDS has suggested looking at an alternative closure sump puncture system.
2	Pelly to BGC	Pelly has requested clarification on compaction requirements for the underdrain fills so they can order the correct equipment (urgent).

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.

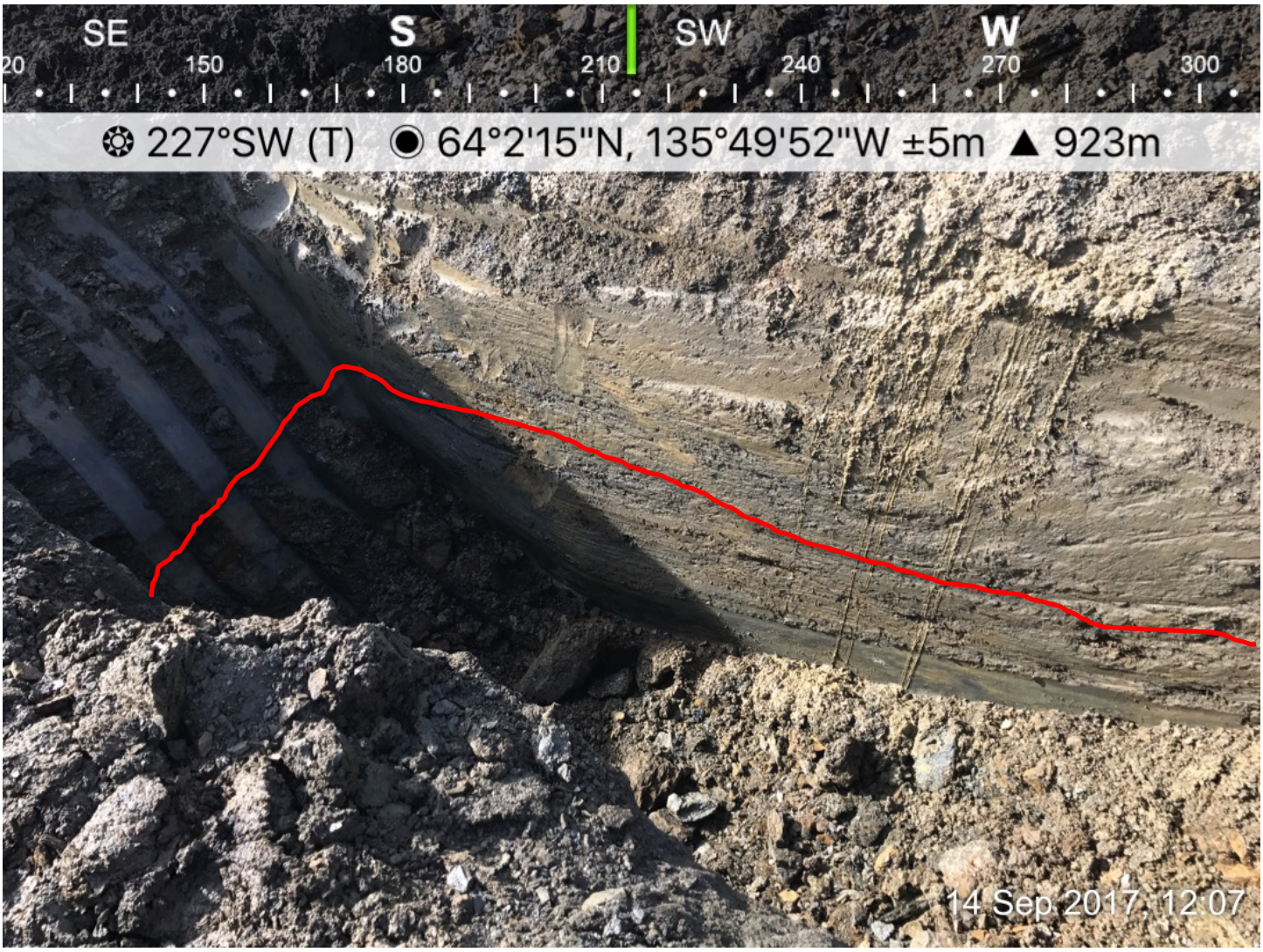


Photo 1: Test pit on west abutment of embankment, excavated the night previous. The red line approximately follows Type 3 bedrock; though the test pit doesn't show it well, this material was significantly more difficult to excavate. The Type 3 bedrock was approximately 1.5-2.5 meters below original ground surface in this area. Note the 'weeping' of the melting ice in the uppermost soil. No visible ice was identified. The infrared thermometer showed the material in the bottom of the pit was approx. -5°C while material on the surface (weeping) was +0.5°C.

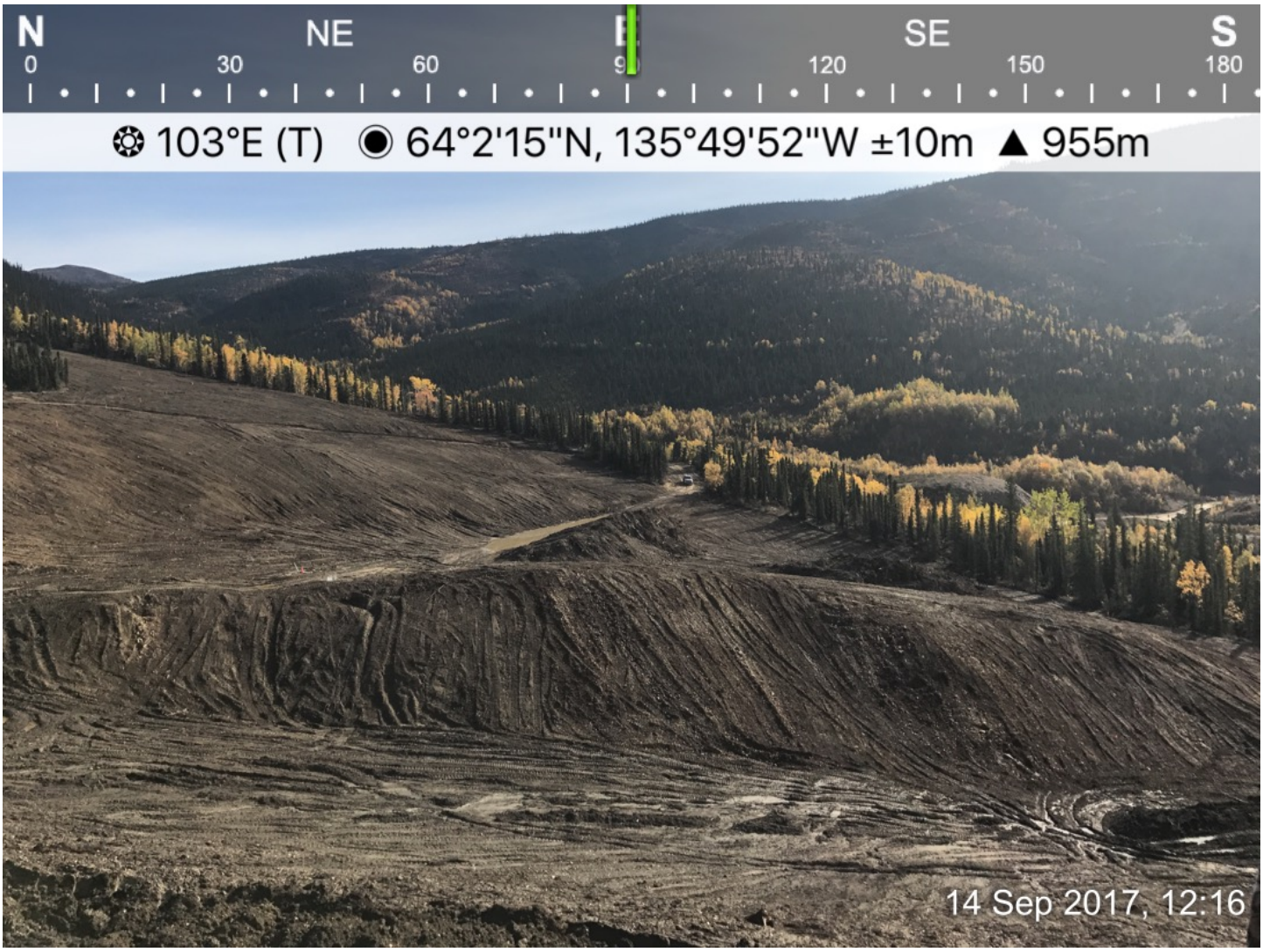


Photo 2: View East from the West abutment, all topsoil removed. Note that some areas appear drier than others. It was observed that the areas which appear wetter (likely because of melting permafrost) were also areas where JDS/Pelly personnel remembered black spruce thickets, and the drier areas appeared to be in areas which had poplar trees. This may be an rough method of delineating ground ice going forward.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 15, 2017 Day Shift
Construction:	JDS Mining, Pelly, Cobalt, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Cloudy, light rain, 12°C to -2°C

Summary and Observations

- Summary and Observations:
  - Pelly worked on removal of the topsoil piles from the center valley of the dam footprint, and excavation to Type 3 bedrock.
  - NuWay has begun crushing, producing Select Drain Fill (along with two other products not used at the HLF). See photos.
  - Tetra Tech and BGC performed a rough measure of the Select Drain Fill transmissivity, approximately 4 cm/s.
- Recommendations:
  - BGC has recommended continuing crushing operations while the Select Drain Fill is evaluated for approval.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Preliminary gradation results for the Select Drain Fill show an excess of fines. The specification calls for less than 3% passing the #200 sieve, the test results show 6.8%. This is partially due to a misunderstanding of the specifications: the crushing operator's contract states they need to produce a material with less than 5% passing the #200, not 3% as the specifications are currently written. Washing the material, even briefly, was observed to effectively remove the fines content.
  - The hydraulic conductivity was attempted to be visually observed by passing water through the Select Drain Fill. It appeared to be 'free-draining', in line with the design intent.
- BGC Recommendations:
  - BGC is still evaluating whether the excess fines are acceptable. BGC has recommended sending a sample to a laboratory for loaded hydraulic conductivity testing.

2) Communications (no follow up required):

No.	Personnel	Description
1	BGC to JDS	BGC responded to RFI 004: Both Select Drain Fill (Material #5) and Pipe Trench Backfill (Material #5) shall be placed with no moisture conditioning in 0.3 m maximum loose lifts and compacted to a minimum 95 percent of the Standard Proctor maximum dry density (ASTM D698).
2	BGC to Pelly	BGC reviewed and approved Pelly's Inspection and Testing Plan for Excavation for Underdrain Trench Excavation
3	BGC to JDS	BGC clarified the original response to RFI 002: BGC understands the request is withdrawn, and the original design will be used. The intent of Troy's comment "the connection point shall be moved from Sta. 2+88 to Sta. 2+80" was to provide adequate flow at the merging point of the closure drain pipes. The merge point of the pipes should occur below the grade break from 2% to ~17%, which occurs near station 280.
4	BGC to JDS	BGC responded to RFI 003, item #2: BGC agrees and approves the continuation beyond the closure sump for off-season protection as described. The transition to 160mm DR9 pipe will occur at approximately Station 0+400. Please advise if this length beyond the closure sump is adequate for this year's construction.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

None		

Safety Issues: None.



Photo 1: Select Drain Fill stockpile at the NuWay crushing plant. The fines are primarily stuck to the gravel, and will likely be difficult to remove using only dry operations. BGC, JDS and NuWay discussed potentially using a more clean source, but it was observed that the placer tailings in the valley are generally not very clean to begin with, so a better source may not be found.



Photo 2: A different product of the crushing operations (coarse gravel for concrete aggregate) illustrates how the fines 'stick' to the gravels.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 16, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Partly cloudy, 14°C to 2°C

Summary and Observations

- Summary and Observations:
  - Pelly worked on removal of the topsoil piles from the center valley of the dam footprint, and excavation to Type 3 bedrock along the west abutment. See photo for progress.
  - Tetra Tech and BGC performed a rough measure of the Select Drain Fill permeability, results pending.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Two more gradations were completed on the Select Drain Fill, showing 4.6% and 5.1% fines content. The decrease from yesterday is the result of changes made to the screening process and borrow material selection.
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
1	Pelly to JDS/BGC	Pelly increased the clearing limits of the embankment to cover the continuation of underdrain pipes as approved in RFI 003.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.



Photo 1: Excavator has removed more material from the west abutment. This material is being stored further up the embankment. Once Pelly finishes the stockpile locations across Dublin gulch, they will be focused on the embankment foundation preparation and the excavation to Type 3 bedrock will ramp up.



Photo 2: The extent of the excavation on the west embankment. Note the loosed bedrock (light brown) on the right; it appears the excavation has nearly reached Type 3 bedrock at this location.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 17, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Partly cloudy, 14°C to 2°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the topsoil piles from the center valley of the dam footprint, and excavation to Type 3 bedrock along the west abutment. Today the material was dry enough to use a dozer in addition to the excavator. See photo for progress.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Two additional gradations were completed for the Select Drain Fill, showing much cleaner material, less than 2% fines in both. The crushing crew replaced the 10 mm screen with a 12.5 mm screen in hopes of producing higher percentage of gravels and it appears to be effective so far.
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
		None

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.

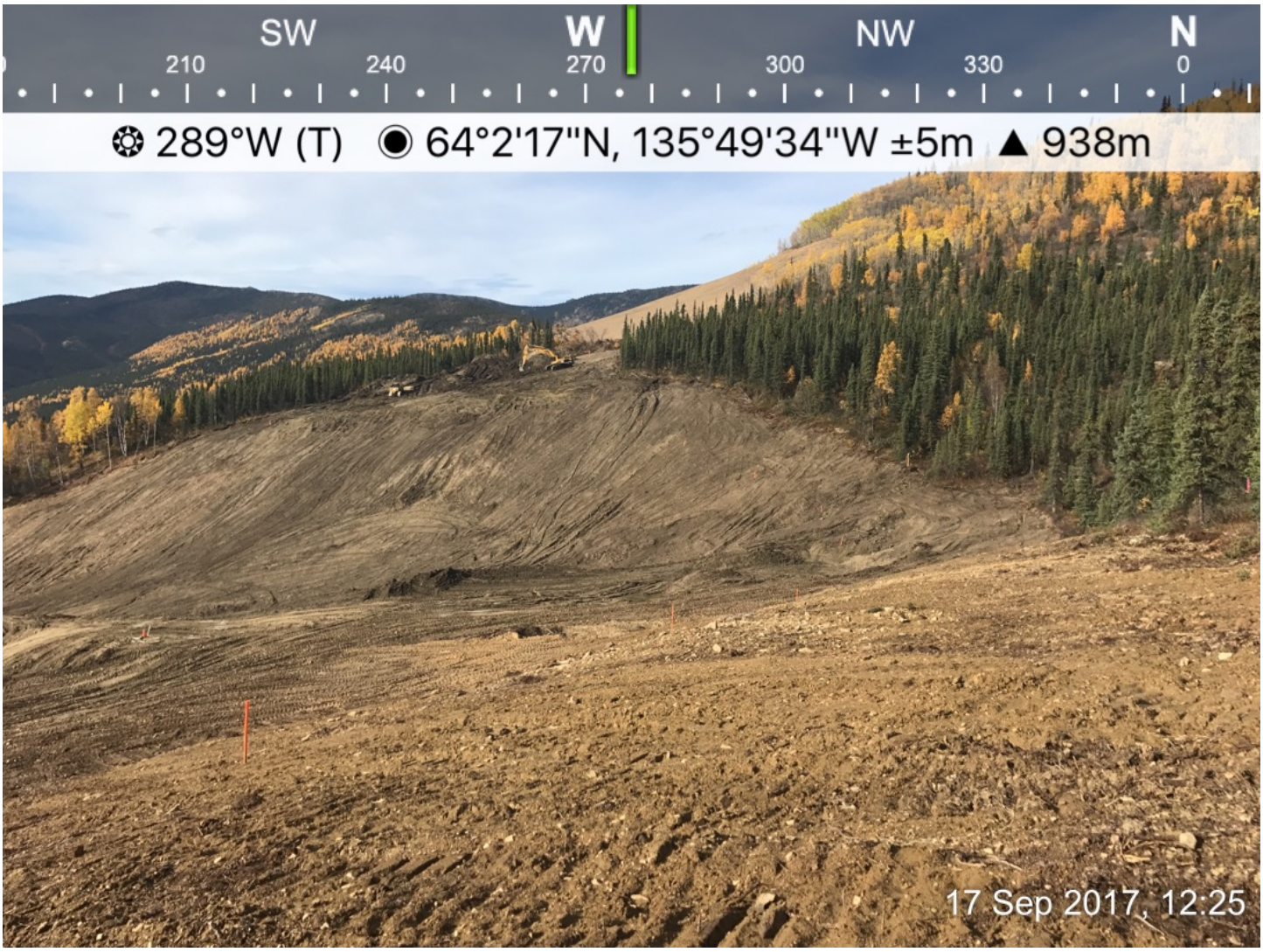


Photo 1: Embankment excavation progress is focused on the west abutment.



Photo 2: Some frozen materials have been exposed and are still quite cold. The IR thermometer read -10°C, which seems too low to be correct, but is clearly frozen. It is difficult to tell if this material is Type 3 bedrock on such a small excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 18, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Partly cloudy, 14°C to 2°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the topsoil piles from the center valley of the dam footprint, and excavation to Type 3 bedrock along the west abutment. Excavation has reached the boundary between colluvium and bedrock where ice lenses are common. Lenses up to 5 cm thick were observed in the cut. The ice appears to melt quickly once exposed.
- Recommendations:
  - BGC recommended excavating down beyond the thick ice lenses, to a depth where the fractures are spaced further apart. BGC will monitor excavation progress tomorrow to evaluate how the materials change with depth.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None.
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
		None

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None.



Photo 1: This excavation is Pelly's first bench near the top of the west abutment. A cluster of visible ice lenses approximately 2.5 m below original ground surface is highlighted with the red line. The lenses are up to 5 cm thick and the clusters seem to be laterally discontinuous. They appear to be most common in the uppermost Type 3 bedrock. BGC will observe further excavation tomorrow.

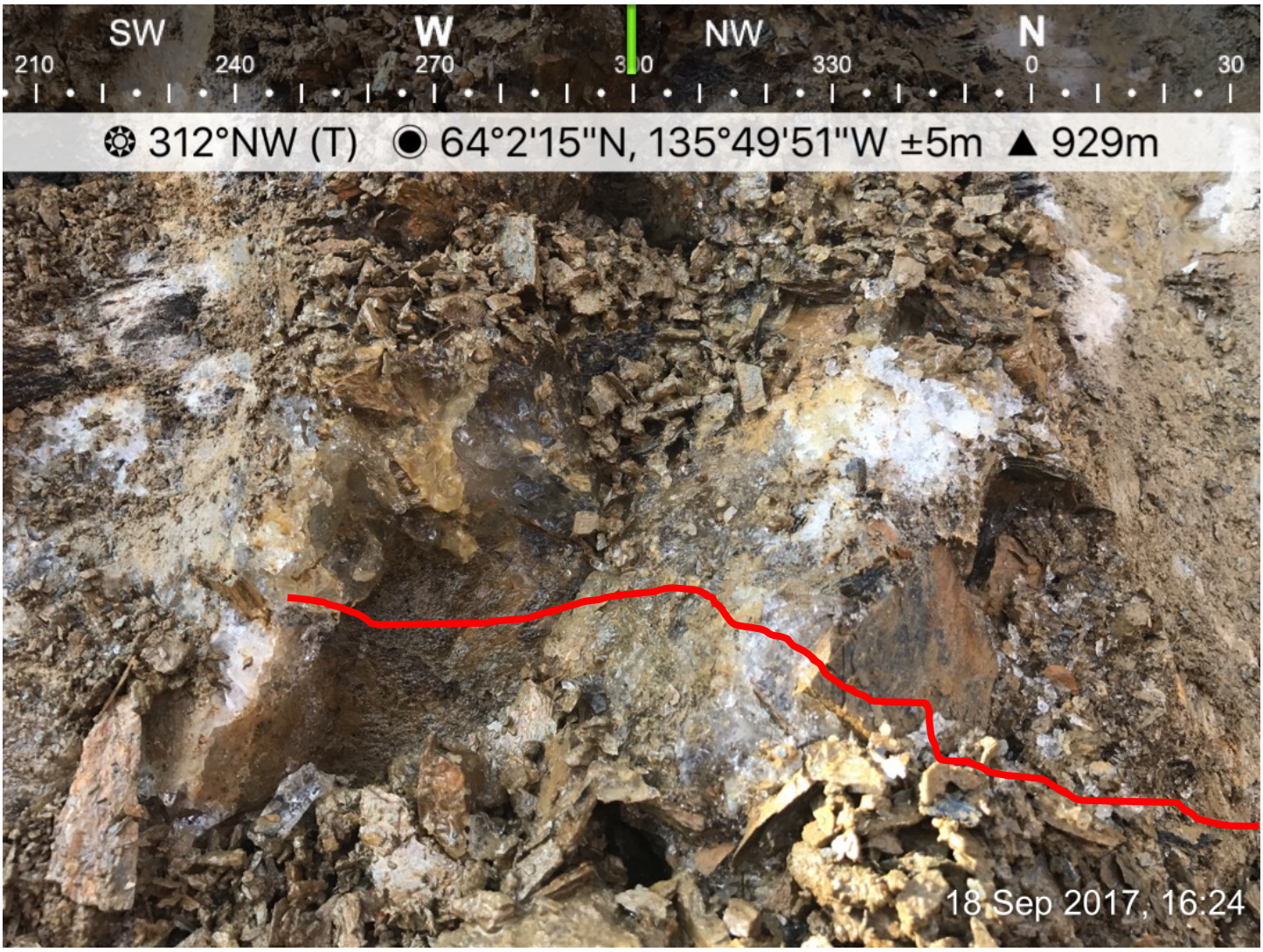


Photo 2: A close up of the ice lenses shown in Photo 1.



Photo 3: The same cut 30 m to the south. No visible ice present. The line is the estimated top of Type 3 bedrock, excavation will proceed at least 0.5 m into Type 3 bedrock in order to confirm the lack of visible ice and the continuation of bedrock. The top of Type 3 bedrock at this location is considered to be acceptable level of excavation and the overburden is considered 'suitable material' and can be used for fill products if it meets gradation and other specifications.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 19, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Partly cloudy, 13°C to 2°C

Summary and Observations

- Summary and Observations:
  - Topsoil removal continued from the piles in the center valley of the dam footprint
  - Excavation to Type 3 bedrock continued on the west abutment. There is some ice in the fractures of the Type 3 bedrock. BGC is currently gauging the extent of excavation required to satisfy the foundation improvement plan requirements.
- Recommendations:
  - BGC will continue evaluating excavation progress tomorrow, ideally completing the first approval of excavation to Type 3 bedrock.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Select Drain Fill gradation tests: SA6, SA7, SA8, SA9, SA10
- BGC Recommendations:
  - The crushing operator has adjusted their screens to get more coarse material, and now there is some material larger than 12.5 mm. The acceptability of the material should be addressed in an RFI.

2) Communications (no follow up required):

No.	Personnel	Description
		None

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-001	Request for increase in fines content specification for Select Drain Fill. Request for clarification on material overlying underdrain pipe trench.	BGC to respond

Safety Issues: None.

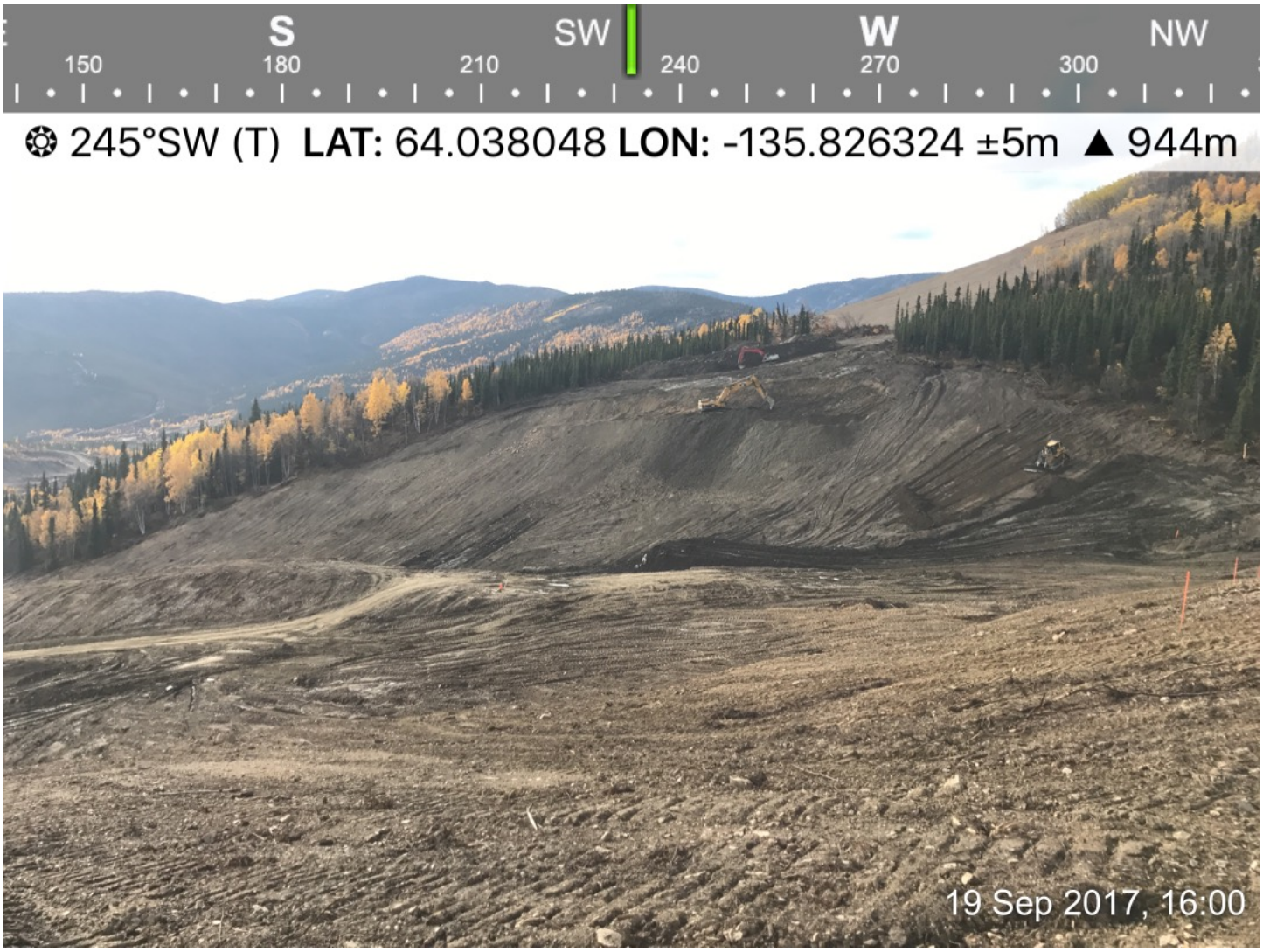


Photo 1: Current excavation progress along west abutment.



Photo 2: A view of typical excavation progress along west abutment. Note thin ice lenses in fractures of Type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 20, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Light rain, 12°C to 2°C

Summary and Observations

- Summary and Observations:
  - Topsoil removal continued from the piles in the center valley of the dam footprint
  - Excavation to Type 3 bedrock continued on the west abutment. BGC approved the first area of excavation to Type 3 bedrock.
  - Clearing began in the additional area up the valley addressed in Pelly RFI 003.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

No.	Personnel	Description
		None

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-001	Request for increase in fines content specification for Select Drain Fill. Request for clarification on material overlying underdrain pipe trench.	BGC to respond

Safety Issues: None.

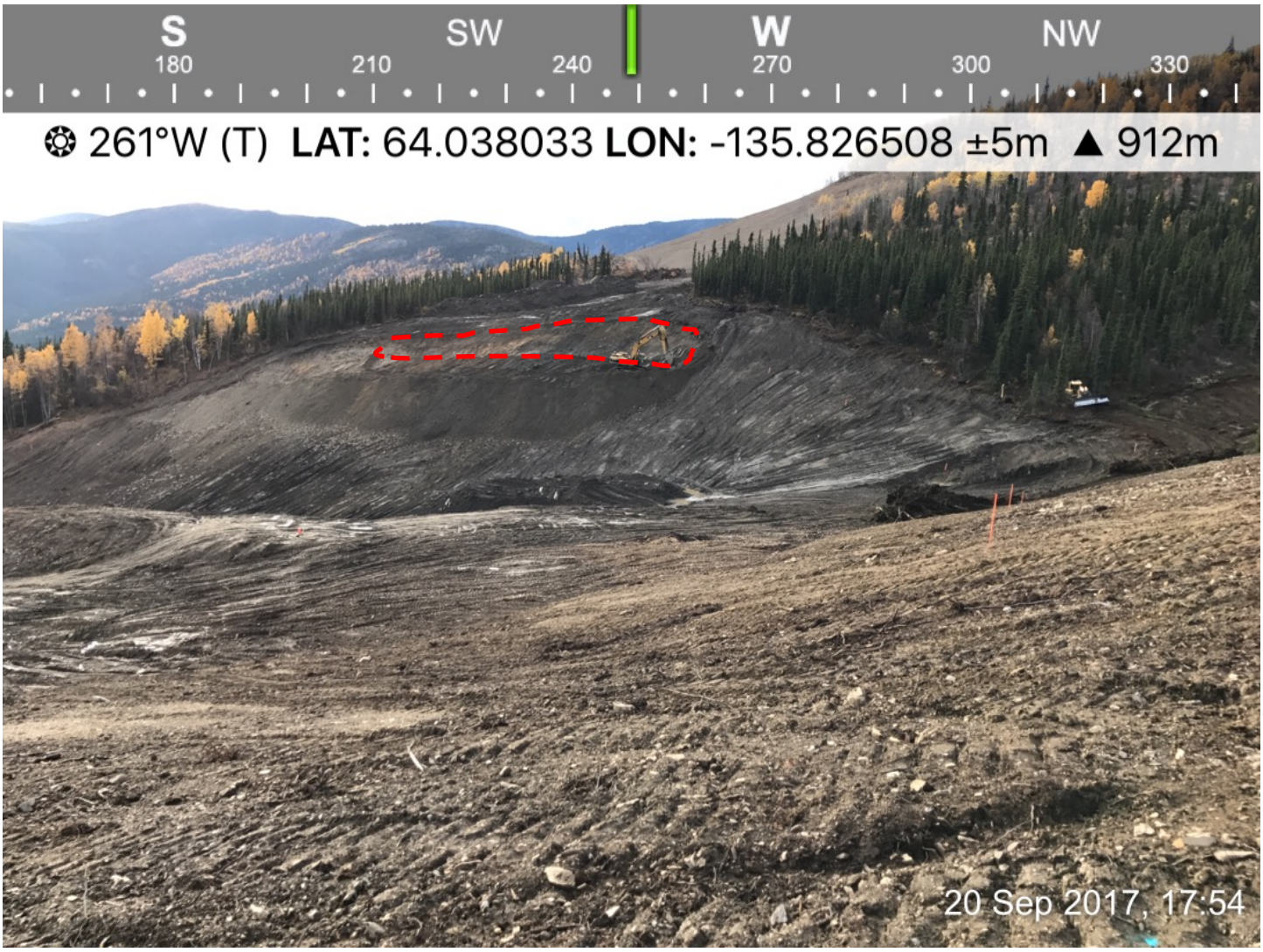


Photo 1: Current excavation progress along west abutment. Area in red is approximately the area approved today. Note the dozer clearing on the right.



Photo 2: Southern half of area approved as excavated to Type 3 bedrock. 1.5 to 2.5 m had been removed over the area. Areas with visible ice lenses in factures of bedrock and areas with excessive water from ice melt were excavated prior to approval.



Photo 3: Example of upper Type 3 bedrock boundary (green paint). Despite the similar strength of both materials, the weathered bedrock shows the fabric of the parent rock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 21, 2017 Day Shift
Construction:	JDS Mining, Pelly, NuWay	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Light rain, 10°C to 0°C

Summary and Observations

- Summary and Observations:
  - Topsoil removal continued from the piles in the center valley of the dam footprint. The primary pile is nearly removed.
  - Excavation to Type 3 bedrock continued on the west abutment. BGC approved the Section 2 for excavation to Type 3 bedrock. The rate of excavation has increased now that the operator and engineers have a better idea of what to look for.
  - The crushing operator has exhausted the limited supply of coarse tailings borrow near the current crusher location. They have requested to move to another location, with more cobbles and less silt, as soon as possible. JDS is arranging the move.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
BGC to JDS	Foundation Approval 01, confirming excavation to Type 3 bedrock in Sections 1 and 2

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-001	Request for increase in fines content specification for Select Drain Fill. Request for clarification on material overlying underdrain pipe trench.	BGC to respond

Safety Issues: None.



Photo 1: Current excavation progress along west abutment. Photo 2 is a detail at the arrow location.



Photo 2: Example of the stonger bedrock. Excavating to a 'clean' surface is difficult due to the strength and fractures of the rock. Near the hammer has been dug back to confirm bedrock has been reached. This location was approximately 1 m below original ground, shallow compared to other areas on the slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 22, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Morning rain, 8°C to 1°C

Summary and Observations

- Summary and Observations:
  - The topsoil stockpile in the center of the valley has been removed, two more remain on the east side of the ridge.
  - Pelly has begun removing the piles of unsuitable material (high fines content melted permafrost).
  - Excavation to Type 3 bedrock did not continue today due to weather.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
BGC to JDS	Response to EPCM-RFI-001
BGC to JDS	Issued drawings: 03-04, 03-05, and 05-06 in Rev 1.
BGC to JDS	Issued Specifications summary

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: The roads are slick after two days of rain. A truck delivering fuel to site got stuck on the access road today. Travel is difficult and slow.



Photo 1: Excavation to Type 3 bedrock to date. No progress today. The slopes and roads are saturated and travel is difficult.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 23, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Rain, 10°C to 3°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the piles of unsuitable material (high fines content melted permafrost) in the valley bottom.
  - Excavation to Type 3 bedrock continued. Section 3 was approved, and the next bench was started.
  - Ice was not encountered in the southern half of this last bench, and the ice in the northern area was discontinuous and relatively warm (0 to -2°C). After the excavation had been exposed for a short time, 2 or 3 small seeps appeared. These are expected to dry up after the icemelt source is exhausted in the next day or so.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
BGC to JDS	Foundation approval FND02

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: North area of Section 3, excavated to Type 3 bedrock.



Photo 2: Typical material encountered. Note the discontinuous rock types.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 24, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Cloudy, 14°C to 4°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the piles of unsuitable material (high fines content melted permafrost) in the valley bottom.
  - Excavation to Type 3 bedrock continued along the west abutment.
  - Discussed suitability of the material being excavated from the slope for use as embankment fill. Some of the particles are large, boulder size, and there are cobbles larger than 150 mm (10%?). Segregation during the excavation would be difficult and screening is not currently planned. Currently the drawings and specifications call for the embankment to be constructed entirely of material smaller than 150 mm. JDS to issue an RFI whether the material currently being encountered is suitable for use as embankment fill.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Colluvium on the southern end of the abutment is blockier, contains more larger particles.



Photo 2: Cut in excavated material for next bench. This cut is through the finer colluvium representative of about half the slope. Note the excavation into natural ground on the left (red line).



Photo 3: View of ridge down the center of the gulch, has not yet been excavated to Type 3 bedrock. Note the areas of coarser colluvium. This is similar to the variability encountered on the west abutment currently being excavated.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 25, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Rain, 10°C to 3°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the piles of unsuitable material (high fines and water content melted permafrost) and topsoil in the valley bottom.
  - Excavation to Type 3 bedrock continued along the west abutment, though slower due to the larger excavator being down for repair (last 2 days).
  - The ice on the north slope appears to be limited to the 300 mm immediately above Type 3 bedrock. This makes identification of the bedrock difficult. There may be areas which require more excavation in the spring, as the embankment is being built.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
Pelly to BGC and back	CC204-RFI-005 issued and answered, regarding elevations of underdrain pipework

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Example of excavation into hard bedrock. The colluvium above this material is composed of cobbles and boulders of the nearby bedrock, so determination of whether an excavation is in colluvium or in-situ rock is difficult. Cleaning the slope of the larger particles is not practical. If these cobbles (and in some places, boulders) are considered unsuitable, they will need to be removed by hand immediately prior to placement of an embankment lift.



Photo 2: North slope after removal of most overburden. Excavation to Type 3 bedrock is not yet complete in most of the photo. Note that the bucket teeth marks are visible in areas with ground ice.



Photo 3: Example of frozen colluvium. This sample is representative of material 150 mm to 300 mm above Type 3 bedrock. This material is difficult to excavate until melted, so it is typically left exposed until melted.



Photo 4: Excavation progress on west abutment slope. In the next couple days, the excavated material will begin to be hauled to stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 26, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Morning Rain, -2°C to 12°C

Summary and Observations

- Summary and Observations:
  - Pelly continued removal of the piles of unsuitable material (high fines and water content melted permafrost) and topsoil in the valley bottom.
  - Excavation to Type 3 bedrock continued along the west abutment, though slower due to the larger excavator being down for repair (last 3 days).
  - Approved Section 4 of excavation to Type 3 bedrock on west abutment.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Approved foundation Section 4 above green paint. Note that identification of bedrock through pictures is more difficult than in person.



Photo 2: Excavation progress on west abutment slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 27, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Morning Rain, 5°C to 8°C

Summary and Observations

- Summary and Observations:
  - Sampled and tested a potential Select Fill source in heap footprint on east embankment. Material meets the gradation specification and will be sampled in bulk for liner interface testing.
  - Little progress excavating to Type 3 bedrock along the west abutment due to other work and crew changeover. Pelly is working on removing the rest of the unsuitable material in the valley bottom.
  - Discussed rest of season plan with Pelly (Jason Abel) and JDS (Matt, Roman and Jamie). Plan is to:
    - Finish excavating to Type 3 bedrock in embankment footprint
    - Stockpile excavated suitable soils in embankment footprint, while attempting to separate materials containing cobbles from those without
    - Install underdrain piping, Select Drain Fill, geotextile, and cover with Structural Fill approximately up to grade
    - Continue placing Structural Fill in embankment until no longer practical due to temperature
    - In January/February, cut temporary diversion ditches above embankment construction area to prevent Ann Gulch flow from entering cleared area
    - Remove snow from cleared area, place above temporary ditches to melt in spring
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-002	Suitability of oversize material produced in excavation to Type 3 bedrock	BGC to respond

Safety Issues: None



Photo 1: Excavation progress on west abutment slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 28, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Morning Rain, 2°C to 9°C

Summary and Observations

- Summary and Observations:
  - Pelly continued excavating to Type 3 bedrock along the west abutment. Pelly is working on removing the rest of the unsuitable material in the valley bottom.
  - Weekly Pelly meeting today, no new items to discuss.
  - Pelly expects to begin moving excavated material from the west abutment to stockpile in the next couple days.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
BGC to JDS	Reply to EPCM-RFI-002
BGC to JDS	Foundation Approval 03

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation progress on west abutment slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 29, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Sunny, -2°C to 8°C

Summary and Observations

- Summary and Observations:
  - Pelly continued excavating to Type 3 bedrock along the west abutment. Pelly is working on removing the rest of the unsuitable material in the valley bottom.
  - Most of today's progress on the west abutment consisted of bailing the existing bench material further down the slope. Not much fresh excavation.
  - A test area was excavated on the ridge running down the middle of Ann Gulch. The bedrock level was found to be variable and difficult to determine without over-excavation to confirm.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

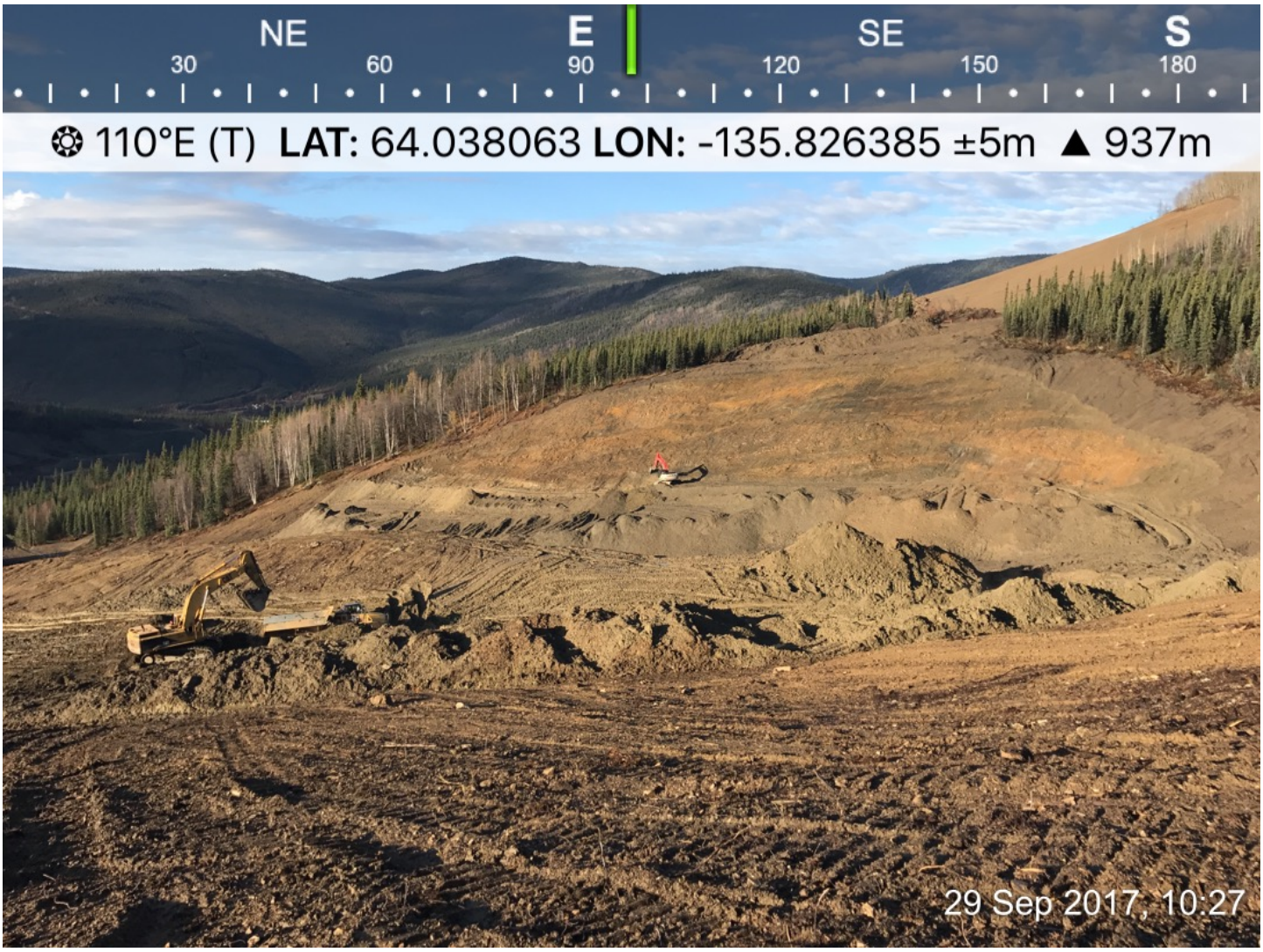


Photo 1: Excavation progress on west abutment slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	September 30, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Sunny, -1°C to 5°C

Summary and Observations

- Summary and Observations:
  - Pelly continued excavating to Type 3 bedrock along the west abutment. Pelly is working on removing the rest of the unsuitable material in the valley bottom.
  - Approved two areas as excavated to Type 3. The north slope is still frozen and excavation is difficult. There is a significant volume of excavated materials waiting for Pelly to begin moving to stockpile.
- Recommendations:
  - None.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

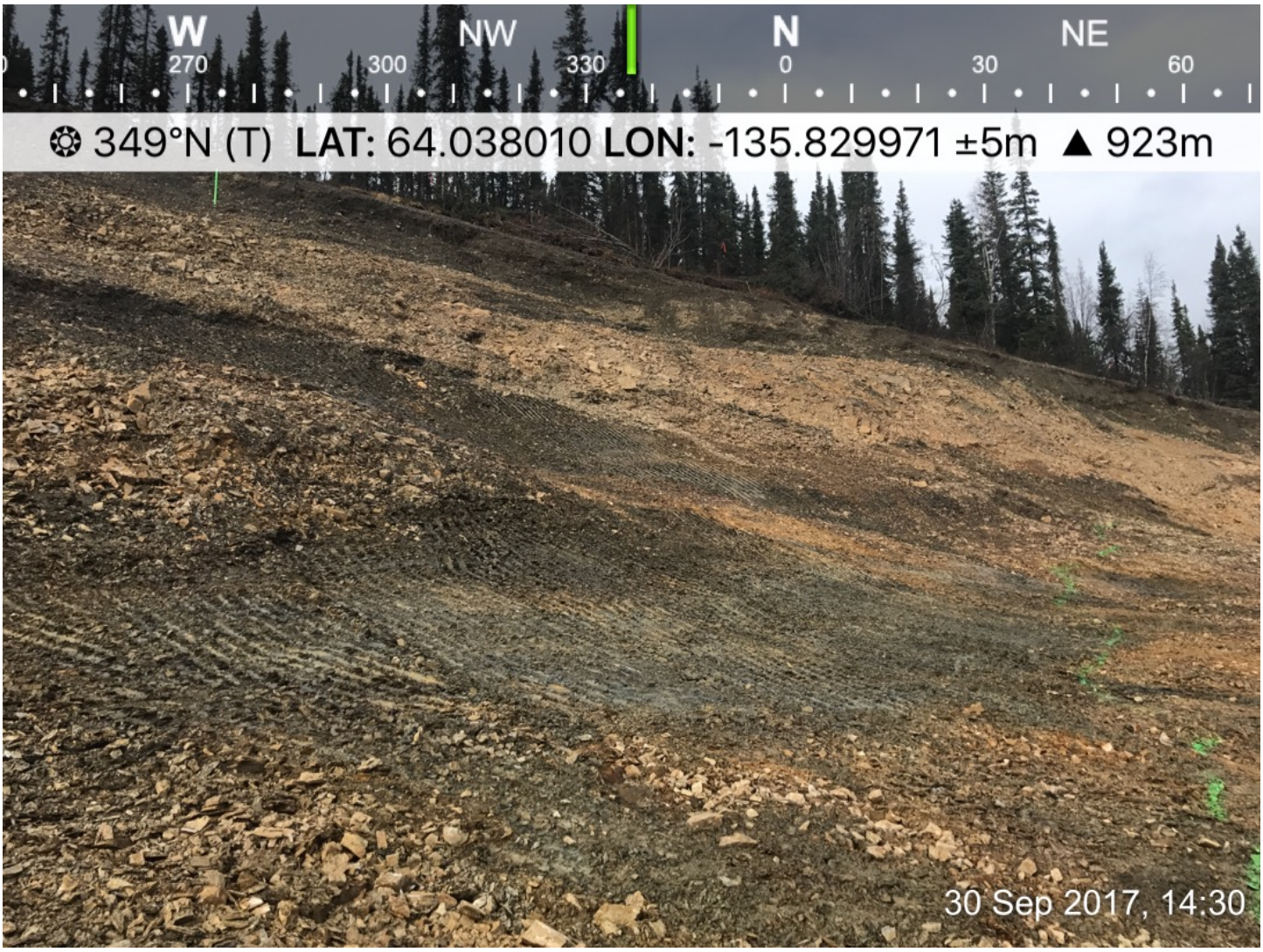


Photo 1: North area approved as excavated to Type 3 bedrock to the left of the green paint.



Photo 2: South area approved as excavated to Type 3 bedrock to the right of the green paint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 1, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Overcast, -2°C to 6°C

Summary and Observations

- Summary and Observations:
  - Topsoil removal is complete. Pelly began stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge.
  - Type 3 bedrock is relatively shallow on the ridge, approx. 1 m in most places. Bedrock is dipping ~30° to the NW on the ridge, nearly parallel to the ground surface, which makes identification of Type 3 rock difficult for the excavator operator. Much of the bedrock is strong and coming up in large blocks, see photo. It is not practical for the excavator operator to remove all these cobbles/boulders without ripping more. These will need to be removed prior to placement of fill.
  - The material being excavated on the ridge and on the east abutment is not frozen. There is still frozen overburden in the north and northwest slope, however. There is permafrost melting in the area recently cleared to the north. The temperature of frozen ground is between -3° and -1°C.
  - There is are two areas where water is seeping up through the overburden. Both are in the valley bottom, see photos.
  - BGC took a large sample of overburden from the east abutment for laboratory testing as Select Fill (liner subgrade).
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Example of the unsuitable material stockpile. Most material is frozen at the surface due to overnight temperatures, and has very little shear strength below. The stockpile area is nearly 'full' right now because the surface of the first lift is not trafficable. The stockpile is expected to dry with time, and freeze with winter, so more lifts may be possible in the future. The material was mostly thawed and had been allowed to weep in-situ prior to placement, and therefore did not slough or run after being placed. I believe this material may be dry enough to be used as fill next year.



Photo 2: CAT 365 with a cleanup bucket (flat edge) excavating the top off frozen colluvium on the north side of the heap embankment footprint. A thin layer of the frozen soil melts quickly once exposed and produces the reflective sheen.



Photo 3: Surface of the excavated frozen material shown above in Photo 2. This soil is -2°C.



Photo 4: Water seeping up through the saturated overburden. The arrow points to a plume of clear water flowing into the puddle. Pelly foreman mentioned that this was approximately the location of an old borehole, which could be causing the seep. Pelly's plan is to dig a trench around the east side of the ridge to direct this flow away from the underdrain work area.



Photo 5: On the left, two hoes are excavating to Type 3 bedrock on the east side of the ridge. Center shows the large excavator loading a haul truck with overburden removed from the west abutment. Pelly is stockpiling this material for use as Structural Fill on the east side of the ridge, see Photo 6. This photo is taken from the far north end of the heap embankment footprint, near the location of the PLS sump.



Photo 6: Stockpile of material to be used as fill on east side of ridge. Photo taken from the south end of the ridge.



Photo 7: Example of excavation to Type 3 bedrock on ridge. Arrows point to in-place rocks. The loose cobbles and boulders will need to be removed prior to placement of Structural Fill. This is difficult to do with the excavators.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 2, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Overcast, -4°C to 4°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge.
  - BGC gave preliminary approval for some of the area excavated along the west side of the ridge. The excavation has not yet been surveyed, so official approval is pending.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Continuing excavation to Type 3 bedrock and moving excavated material to stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 3, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio	**Weather:**	Mostly Sunny, -2°C to 8°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge.
  - BGC approved some of the area excavated along the west side of the ridge. The excavation has not yet been surveyed, so official approval is pending, to be issued tomorrow.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Example of area excavated to Type 3 bedrock on west slope of the ridge running down the middle of Ann Gulch. Bedrock bedding dips nearly parallel to the ridge.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 4, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Tony Monasterio, Roy Morlan	**Weather:**	Light Rain, 0°C to 6°C

Summary and Observations

- Summary and Observations:
  - BGC Staff changeover today.
  - Pelly continued stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge and in the PLS sump area.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Foundation preparation Excavation to type 3 bedrock within the HLF embankment footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 5, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Light Rain, 1°C to 8°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge and in the PLS sump area.
- Recommendations:
  - A monitoring well (BGC16-091) within the footprint of the HLF embankment appears to have been buried during construction work related to select fill stockpile. It is recommended that location be staked and an attempt to locate the well for plugging and abandonment be made once the stockpile is excavated.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Foundation preparation Excavation to type 3 bedrock within the HLF embankment footprint.



Photo 2: Select Fill stockpile management activities within the footprint of HLF embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 6, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rainy, 1°C to 8°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge, and excavating to Type 3 bedrock on the west side of the ridge and in the PLS sump area.
  - Nuway, will produce Overliner Drain Fill material from the placer tailings and steiner material next week (after October 10) when they return from break. Once this a batch of this material is ready it will be sampled.
- Recommendations:
  - A monitoring well (BGC16-091) within the footprint of the HLF embankment appears to have been buried during construction work related to select fill stockpile. It is recommended that location be staked and an attempt to locate the well for plugging and abandonment be made once the stockpile is excavated.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

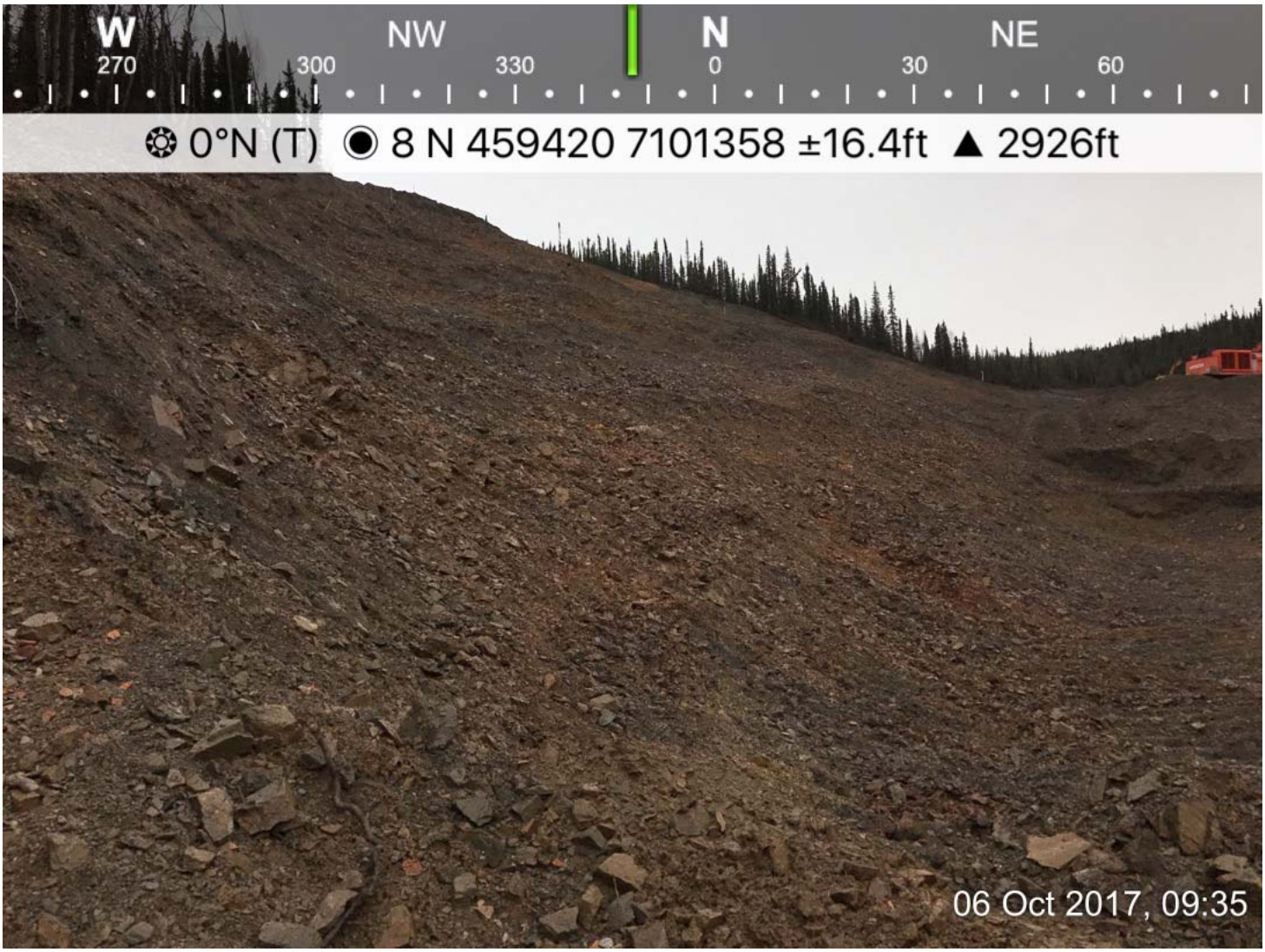


Photo 1: Foundation preparation Excavation to type 3 bedrock within the HLF embankment footprint.



Photo 2: Drain fill aggregate stockpile at the Nuway processing facility.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 7, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, 1°C to 8°C

Summary and Observations

- Summary and Observations:
  - Construction at the HLF has been temporarily suspended pending resolution of permitting issues. It is anticipated that the issue will be resolved October 10 or sooner.
  - Nuway, will produce Overliner Drain Fill material from the placer tailings and steiner material next week (after October 10) when they return from break. Once this a batch of this material is ready it will be sampled.
  - BGC performed mapping of the exposed right abutment face.
- Recommendations:
  - A monitoring well (BGC16-091) within the footprint of the HLF embankment appears to have been buried during construction work related to select fill stockpile. It is recommended that location be staked and an attempt to locate the well for plugging and abandonment be made once the stockpile is excavated.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Panoramic photo of the area of the right abutment cleared to type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 8, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow and Rain, 0°C to 5°C

Summary and Observations

- Summary and Observations:
  - Pelly received approval to resume work in the area of the HLF mid-day. They continued moving excavated material to the stockpiles.
  - Nuway, will produce Overliner Drain Fill material from the placer tailings and steiner material next week (after October 10) when they return from break. Once this a batch of this material is ready it will be sampled.
  - BGC completed mapping of the exposed right abutment face and development of a summary memo.
- Recommendations:
  - A monitoring well (BGC16-091) within the footprint of the HLF embankment appears to have been buried during construction work related to select fill stockpile. It is recommended that location be staked and an attempt to locate the well for plugging and abandonment be made once the stockpile is excavated.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Typical bedrock outcropping at area dug to type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 9, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -4°C to 3°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge.
  - Nuway, will produce return to work on October 10 after a holiday break. They will continue to produce concrete aggregate and switch to Overliner Drain Fill material from the placer tailings and steiner material on the 15 (estimated). Once this a batch of this material is ready it will be sampled.
- Recommendations:
  - A monitoring well (BGC16-091) within the footprint of the HLF embankment appears to have been buried during construction work related to select fill stockpile. It is recommended that location be staked and an attempt to locate the well for plugging and abandonment be made once the stockpile is excavated.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Moving excavated from the embankment footprint that is being moved to the select fill stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 10, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy and Rain, -1°C to 5°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge and excavating to type 3 foundation along the right abutment. (***Photo 1***)
  - Section 7 of the embankment foundation was inspected and approved. No ground ice or freezing ground temperatures were observed in this area. (***Figure 1***)
  - Nuway, will produce return to work on October 10 after a holiday break. They will continue to produce concrete aggregate and switch to Overliner Drain Fill material from the placer tailings and steiner material on the 15 (estimated). Once this a batch of this material is ready it will be sampled.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

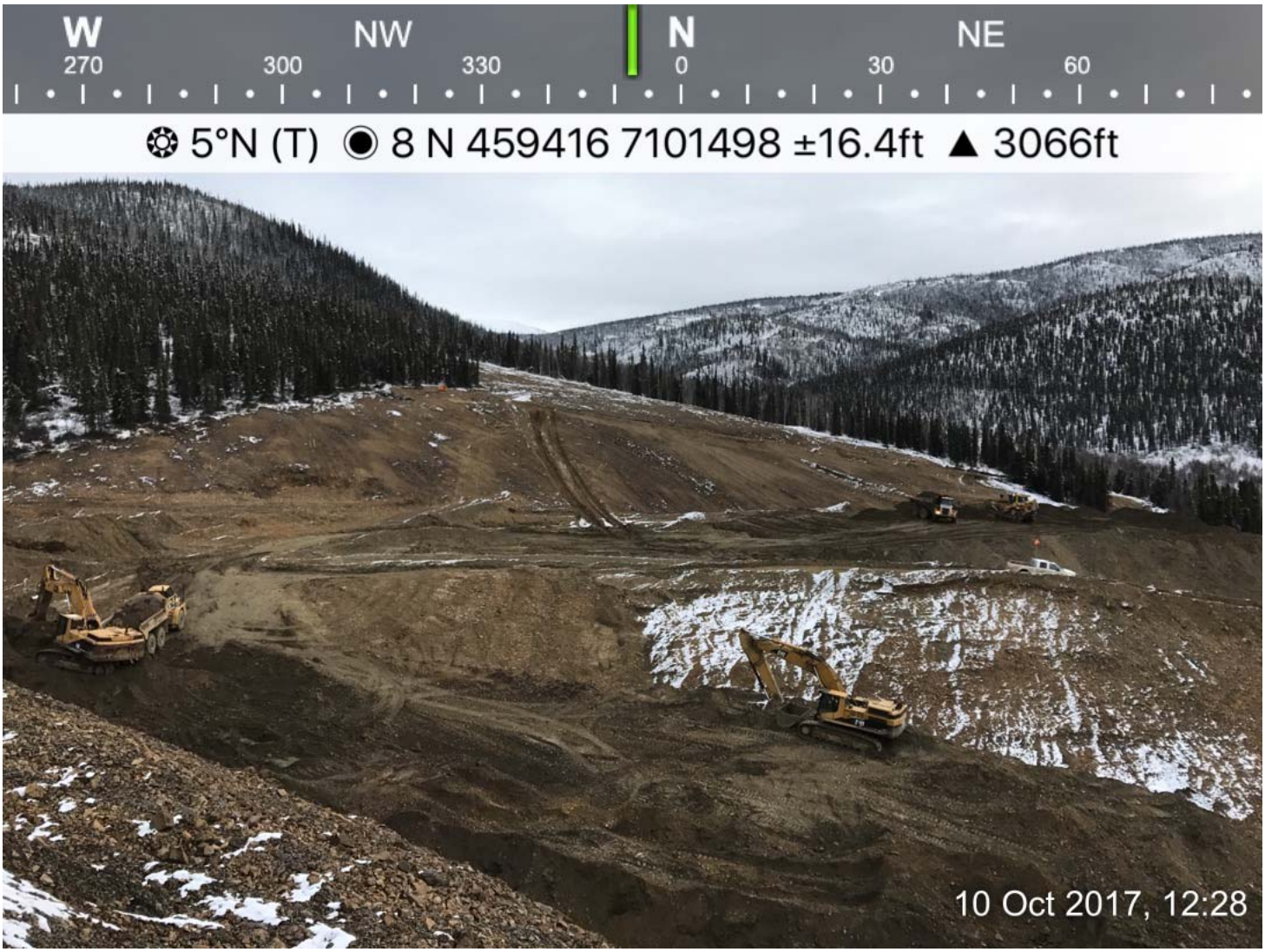


Photo 1: Excavation to type 3 bedrock and stockpile management.

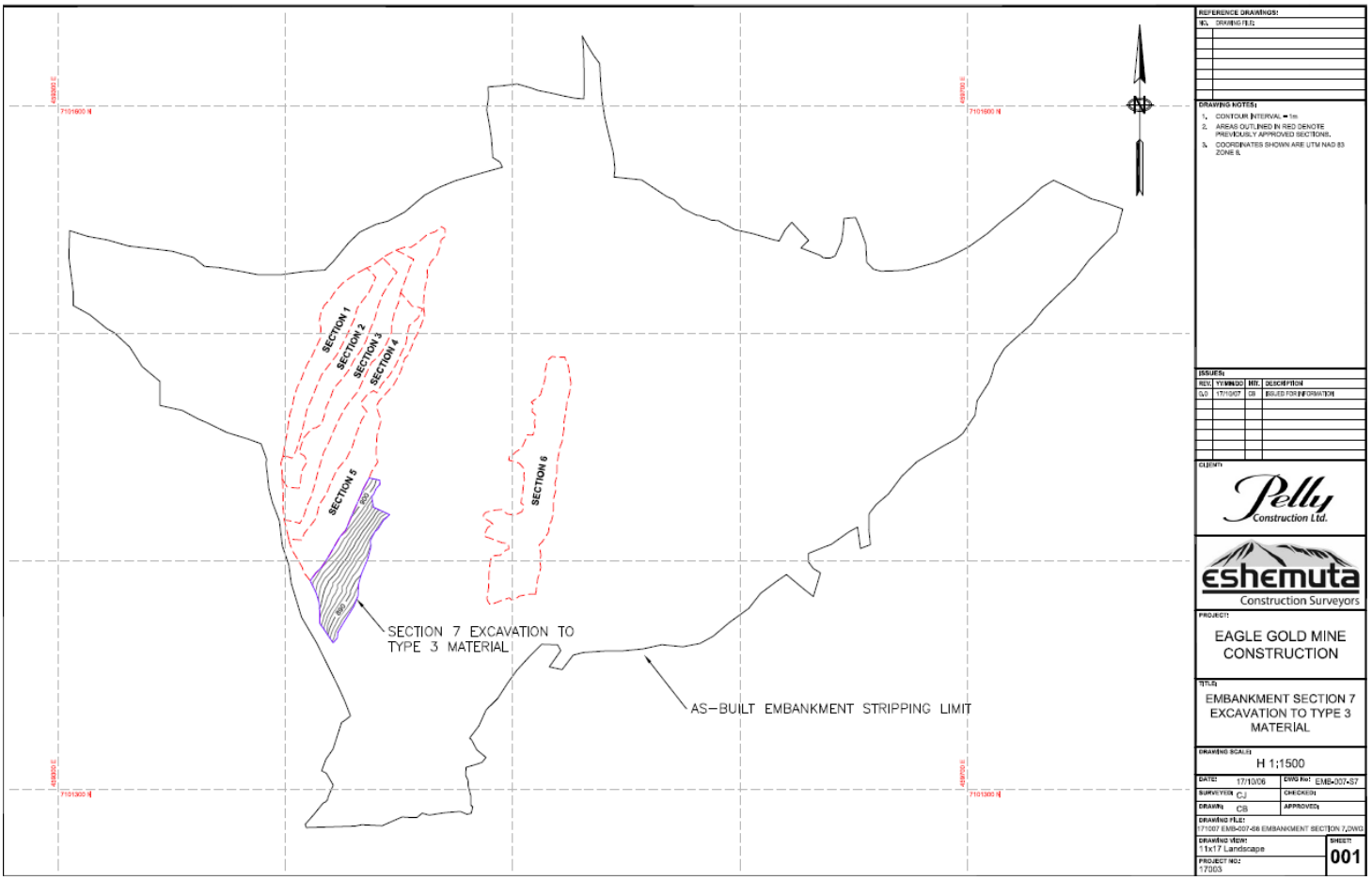


Figure 1: Section 7 of embankment foundation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 11, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -4°C to 4°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge and excavating to type 3 foundation along the right abutment. (***Photo 1***)
  - Nuway, will produce return to work on October 10 after a holiday break. They will continue to produce concrete aggregate and switch to Overliner Drain Fill material from the placer tailings and steiner material on the 15 (estimated). Once this a batch of this material is ready it will be sampled.
  - EMR visited the site and took a tour of the HLF construction area.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation to type 3 bedrock and stockpile management. Excavation completed today is below the snow line.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 12, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -3°C to 3°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge and excavating to type 3 foundation along the right abutment. (***Photo 1***)
  - Nuway, will switch from concrete aggregate to Overliner Drain Fill material from the placer tailings and steiner material on the 15 of October (estimated). Once this a batch of this material is ready it will be sampled and all samples will be shipped.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation to type 3 bedrock and stockpile management.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 13, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -3°C to 1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. No foundation excavation was performed today. (***Photo 1***)
  - JDS will deliver placer tailings from an area northeast of the control pond to Nuway tomorrow. Nuway, will be ready to switch from concrete aggregate to Overliner Drain Fill material tomorrow.
  - BGC is working with JDS to return to an area of the left abutment to perform a test pit along a fault that was identified.
  - BGC is discussing running gradation on site for the structural fill that will be used to cover the underdrain before construction starts. Most material visually appears to be 8" or under. Large chunks (>8") of clayey material near the surface of the stockpiles which were wet or became wet during the rains have now formed internal ice. (***Photo 2***) These frozen chunks will have to be removed prior to placement of the fill in the drain trenches. Its likely frozen material is located mostly near the exposed surface of the pile.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Stockpile excavation within the footprint of the HLF.

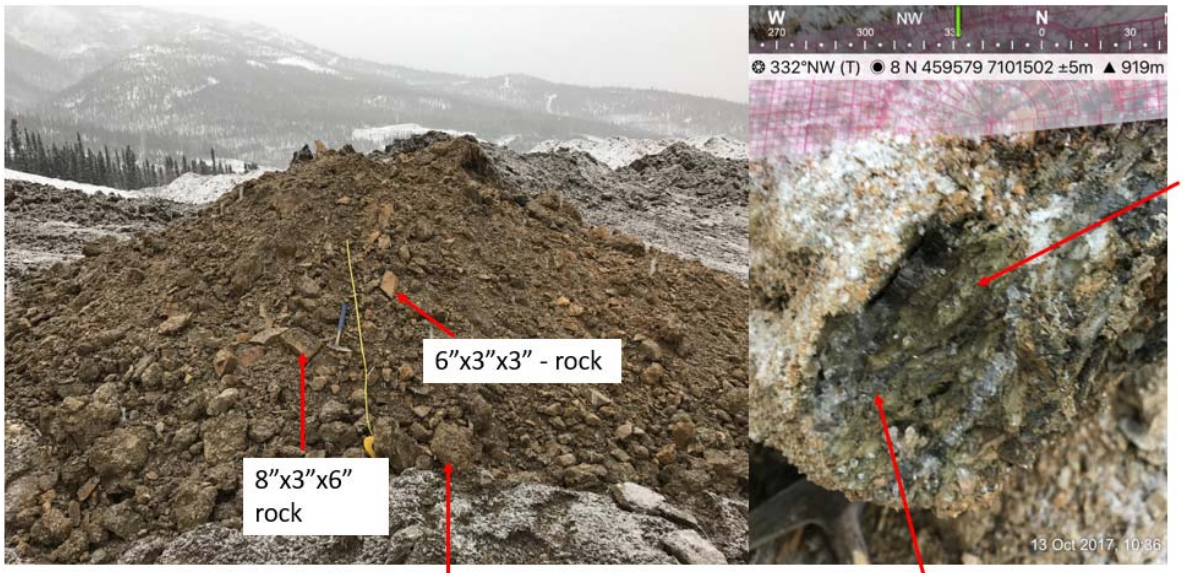


Photo 2: Structural fill stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 14, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -6°C to 1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. No foundation excavation was performed today.
  - Placer tailing (***Photo 1***) from an area northeast of the control pond and a small sample of Steiner material (***Photo 2***) was processed by Nuway into ODF. Grain size analysis run on the placer tailings material showed very little fines (<3% on average). Grain size analysis for the Steiner material is pending, however, visually the material appears to have generated scientifically more fine sand than the placer tailings. Samples of the placer tailings and Steiner material were collected for liner puncture and shear testing as well as permeability. Sample will be shipped with Smalls on October 17.
  - BGC is working with JDS to return to an area of the left abutment to perform a test pit along a fault that was identified.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Placer tailings from directly north of the control pond processed to ODF. Some sand present but very little fines observed.



Photo 2: Steiner material processed into ODF. Gradation is pending but visually the material appears to have broken down more than the tailings and generated a high amount of fine sand.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 15, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -7°C to 1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. No foundation excavation was performed today. (***Photo 1***)
  - Samples were collected from the material excavated within the footprint of the foundation to perform on-site gradation.
  - The on-site Tetratech soils laboratory is being moved and will be available to continue grain size analysis on Monday (October 16).
  - Samples were prepared for shipment to off-site labs for liner shear and puncture testing. (***Photo 2***)
  - BGC is working with JDS to return to an area of the left abutment to perform a test pit along a fault that was identified.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Movement of overburden material from the underdrain footprint to the stockpile on east side of the embankment footprint.



Photo 2: Samples to be shipped to the Queens University and BGC laboratories for testing with the designed liner system.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 16, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -9°C to -1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. No foundation excavation was performed today. (***Photo 1***)
  - The on-site Tetratech soils laboratory is being moved and will be available to continue grain size analysis on Monday (October 17).
  - Samples were prepared for shipment to off-site labs for liner shear and puncture testing. Shipment will leave October 18.
  - BGC is working with JDS to return to an area of the left abutment to perform a test pit along a fault that was identified.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Movement of overburden material from the underdrain footprint to the stockpile on east side of the embankment footprint.

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 17, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -5°C to -1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge and resumed excavation to type 3 bedrock on the central nob near approval Area 6. (***Photo 1***)
  - A gradation sample of the Steiner material processed to ODF was prepared in the on-site Tetratech lab. The on-site lab does not have the ability to run the fines portion with a hydrometer, therefore, the fines fraction is an estimate. A full gradation will be completed with the samples sent to off-site labs.
  - A drainage test was performed on the Steiner material processed into ODF. The material is free draining.
  - Two samples of the Structural Fill was collected to be sent to Tetratech's lab in Whitehorse for proctor and full gradation analysis.
  - BGC is working with JDS to return to an area of the left abutment to perform a test pit along a fault that was identified.
  - Pelly has requested quality certifications for geotextile and HDPE pipe to be used in the underdrain construction.
  - Pelly has requested the maximum recommended bend radius for the HDPE pipe from the manufacturer in order to better understand field fitting limitations.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation of stockpiled material at the HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 18, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, -3°C to 1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. (***Photo 1***) Some foundation excavation was also performed.
  - JDS and Pelly is developing RFIs related to the plugging and abandonment of wells within the HLF footprint and the use of placer tailings in place of structural fill or select fill above the underdrain construction. (***Photo 2***)
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Stockpile management of material located on the north side of the HLF embankment footprint.



Photo 2: Potential material to be used in place of structural fill in backfilling the underdrain trench above the drain installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 18, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, Snow, -9°C to 1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. (***Photo 1***) A higher amount of oversize material (ie >8") is being deposited in the structural fill stockpile. BGC requested that trucks with high amounts of oversize material be stockpiled in a separate rockfill stockpile. Pelly identified and area and setup a rockfill stockpile today.
  - and digging to type 3 foundation. (***Photo 2***)
  - Samples were taken of the gravely placer tailings material for on-site gradation testing and to test at Tetratech's lab in Whitehourse. The gravely placer tailings material may be used instead of Material 2 or Material 3 when backfilling the underdrain trench to grade since it has become too cold to moisture condition those materials.
  - Field testing was performed on the gravely placer tailings material. The material is moderately weathered (W3); strong (R4); and hard (H3). The material is subangular and visually appears to have less than 5% fines. (***Photo 3***)
  - EPCM-RFI-007 was delivered to BGC and response was provided to JDS. The RFI and response discussed the method to plug and abandon monitoring hole BH-BGC16-091 as well as other borings within the HLF footprint.
- Recommendations:
  - Test fill be performed using the placer tailings gravel to determine compaction requirements and method to protect geotextile from puncture.
  - Care should be taken to stockpile material with oversize (>8") in the rockfill stockpile.
  - Larger chunks of consolidated soil material should be broken up before loading to determine if a significant amount of oversize material exists.
  - Material high in organics should be segregated and included in the structural fill or rockfill stockpiles.
  - Frozen materials should be segregated per the approved Foundation Improvement Plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Hardness and Strength testing performed on placer tailings gravel.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
JDS	EPCM-RFI-007 was delivered to BGC.
BGC	Response to EPC-RFI-007.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Stockpile management of material located on the north side of the HLF embankment footprint.



Photo 2: Excavation to type 3 material.



Photo 3: Hardness and strength testing on gravelly placer material.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 20, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, Snow, -10°C to -1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. (***Photo 1***)
  - Pelly continued to excavate to type 3 foundation within the HLF embankment footprint.
- Recommendations:
  - Test fill be performed using the placer tailings gravel to determine compaction requirements and method to protect geotextile from puncture. BGC is developing a work plan for the test fill estimated to be complete in draft form October 21. Once complete it will be provided to JDS and Pelly to begin planning execution.
  - Although mostly in conformance to date the constructor should take care to ensure that following criteria is consistently met:
    - Care should be taken to not place material with oversize (>8") in the structural fill stockpile.
    - Larger chunks of consolidated soil material should be broken up before being deposited in the structural fill stockpile to determine if a significant amount of oversize material exists, if its frozen, or if it contains a significant amount of clay.
    - Material high in organics should be segregated and not included in the structural fill or rockfill stockpiles.
    - Frozen materials should be segregated per the approved Foundation Improvement Plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Results from field gradation testing for the Steiner Material processed to ODF was completed. The results showed low fines (<4%). However, the material is high in sand and fine gravel with 47% of the material smaller than 12.5mm.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
JDS	EPCM-RFI-007 was delivered to BGC.
BGC	Response to EPC-RFI-007.
TetraTech	Sieve Analysis Report SA1 delivered to BGC.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation to type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 21, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, Snow, -10°C to -1°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge. (***Photo 1***)
  - Pelly continued to excavate to type 3 foundation within the HLF embankment footprint. (***Photo 2***)
- Recommendations:
  - Test fill be performed using the placer tailings gravel to determine compaction requirements and method to protect geotextile from puncture.
  - Although mostly in conformance to date the constructor should take care to ensure that following criteria is consistently met. BGC, Pelly, and JDS met to discuss this on October 21:
    - Care should be taken to not place material with oversize (>8") in the structural fill stockpile.
    - Larger chunks of consolidated soil material should be broken up before being deposited in the structural fill stockpile to determine if a significant amount of oversize material exists, if its frozen, or if it contains a significant amount of clay.
    - Material high in organics should be segregated and not included in the structural fill or rockfill stockpiles.
    - Frozen materials should be segregated per the approved Foundation Improvement Plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Material was delivered TetraTech's on-site QC personnel to take to their Whitehorse lab for testing when they leave on Sunday (October 22). The samples included:
    - BGC-GPT-01: Two buckets of the gravely placer tailings to be used as underdrain trench backfill. Grain size analysis will be performed on the sample.
    - BGC-SF-01: Two buckets of Material 3 (Structural Fill) taken from the stockpile on the east side of the HLF embankment footprint. A proctor and grain size analysis will be performed on this sample.
  - Results from field gradation testing for the Steiner Material processed to ODF was completed. The results showed low fines (<4%). However, the material is high in sand and fine gravel with 47% of the material smaller than 12.5mm.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
TetraTech	Sieve Analysis Report SA1 delivered to BGC on October 20.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

North East Elevation

❁ 243°SW (T) ◉ 8 N 459501 7101587 ±10m ▲ 924m



Photo 1: Material being loaded for stockpiling at the HLF.



Photo 2: Area on the valley bottom partially cleared to type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 22, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, Snow, -8°C to -4°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge.
  - Pelly continued to excavate to type 3 foundation within the HLF embankment footprint. (***Photo 1***) The depth to Type 3 material was identified across the northern half of the valley. (***Photo 2***) Pelly has laid a thin layer (between 10 and 20cm) of structural fill across excavated areas in the valley for traction.
  - Pipe was fused and is staged along the road leading to the event pond. (***Photo 3***).
- Recommendations:
  - Test fill will be performed using the placer tailings gravel to determine compaction requirements and method to protect geotextile from puncture.
  - Although mostly in conformance to date the constructor should take care to ensure that following criteria is consistently met. BGC, Pelly, and JDS met to discuss this on October 21:
    - Care should be taken to not place material with oversize (>8") in the structural fill stockpile.
    - Larger chunks of consolidated soil material should be broken up before being deposited in the structural fill stockpile to determine if a significant amount of oversize material exists, if its frozen, or if it contains a significant amount of clay.
    - Material high in organics should be segregated and not included in the structural fill or rockfill stockpiles.
    - Frozen materials should be segregated per the approved Foundation Improvement Plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
BGC	BGC provided minor comments to Pelly's ITP for underdrain construction. The comments referenced the use of compaction tracking as QC of the pipe trench backfill material instead of the QC requirements for structural fill since that material will no longer be used.
BGC	BGC provided JDS and Pell with a draft test fill procedure for comment. JDS and Pelly will provide input on the location and equipment available.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

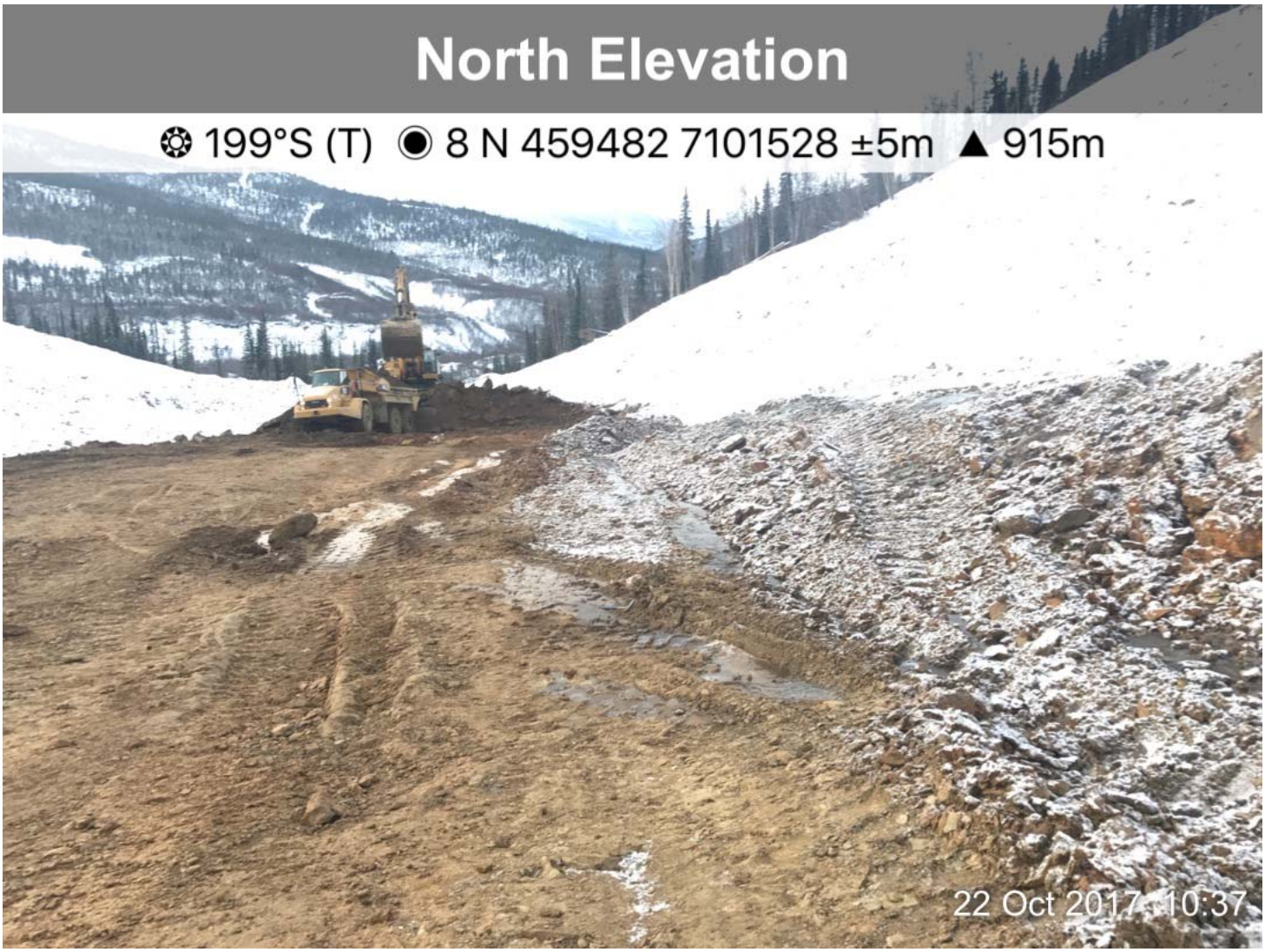


Photo 1: Material being loaded for stockpiling at the HLF. Some structural fill has been spread on the top of the cleared foundation to assist with traction.



Photo 2: Shallow test pit dug in the valley bottom showing type 3 rock in the foundation.



Photo 3: Fused pipe being temporarily stored near the event pond access road.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	1406006
Client:	Victoria Gold	**Date and Shift:**	October 23, 2017 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, Snow, -8°C to -4°C

Summary and Observations

- Summary and Observations:
  - Pelly continued stockpiling overburden on the east side of the ridge.
  - Pelly continued to excavate to type 3 foundation within the HLF embankment footprint. (***Photo 1, 2***). To aid traction Pelly periodically scrapes the foundation area with a dozer (***Photo 3***).
- Recommendations:
  - Test fill will be performed using the placer tailings gravel to determine compaction requirements and method to protect geotextile from puncture.
  - Although mostly in conformance to date the constructor should take care to ensure that following criteria is consistently met. BGC, Pelly, and JDS met to discuss this on October 21:
    - Care should be taken to not place material with oversize (>8") in the structural fill stockpile.
    - Larger chunks of consolidated soil material should be broken up before being deposited in the structural fill stockpile to determine if a significant amount of oversize material exists, if its frozen, or if it contains a significant amount of clay.
    - Material high in organics should be segregated and not included in the structural fill or rockfill stockpiles.
    - Frozen materials should be segregated per the approved Foundation Improvement Plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications:

Personnel	Description
BGC	BGC approved Pelly's pipe installation ITP.
BGC	BGC provided JDS and Pell with a draft test fill procedure for comment. JDS and Pelly will provide input on the location and equipment available.

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation to type 3 material in the embankment central valley.



Photo 2: Shallow test pit dug to verify type 3 bedrock.



Photo 3: Dozer scraping off loose material for better haul truck traction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	April 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny, 0°C to 8°C

Summary and Observations

- Summary and Observations:
  - Pelly continued excavation of the 'plug' of overburden near the exfiltration sump. Drain was installed and is working. Today water was allowed to begin draining.
  - Pelly continued removing topsoil near the PLS sump area.
  - BGC shift change; Tony Monasterio left site and Roy Morlan arrived on site.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	April 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, 2°C to 9°C

Summary and Observations

- Summary and Observations:
  - Water was allowed to drain near the exfiltration sump. (***Photo 1***)
  - BGC inspected the foundation areas approved last year now that snow has melted. No slope movement or failures were observed and only minor surface cleaning will be needed once embankment material placement starts. Berms and trenches at the toe of the abutment installed last year to divert water will need to be removed. (***Photos 2 and 3***)
  - No earthworks were performed at the HLF today.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Water draining from the area of the exfiltration sump.



Photo 2: Photograph of the right abutment foundation approved last year.



Photos 3: Photograph of embankment's right abutment.



Photo 4: Photograph of cleared area near the event pond.

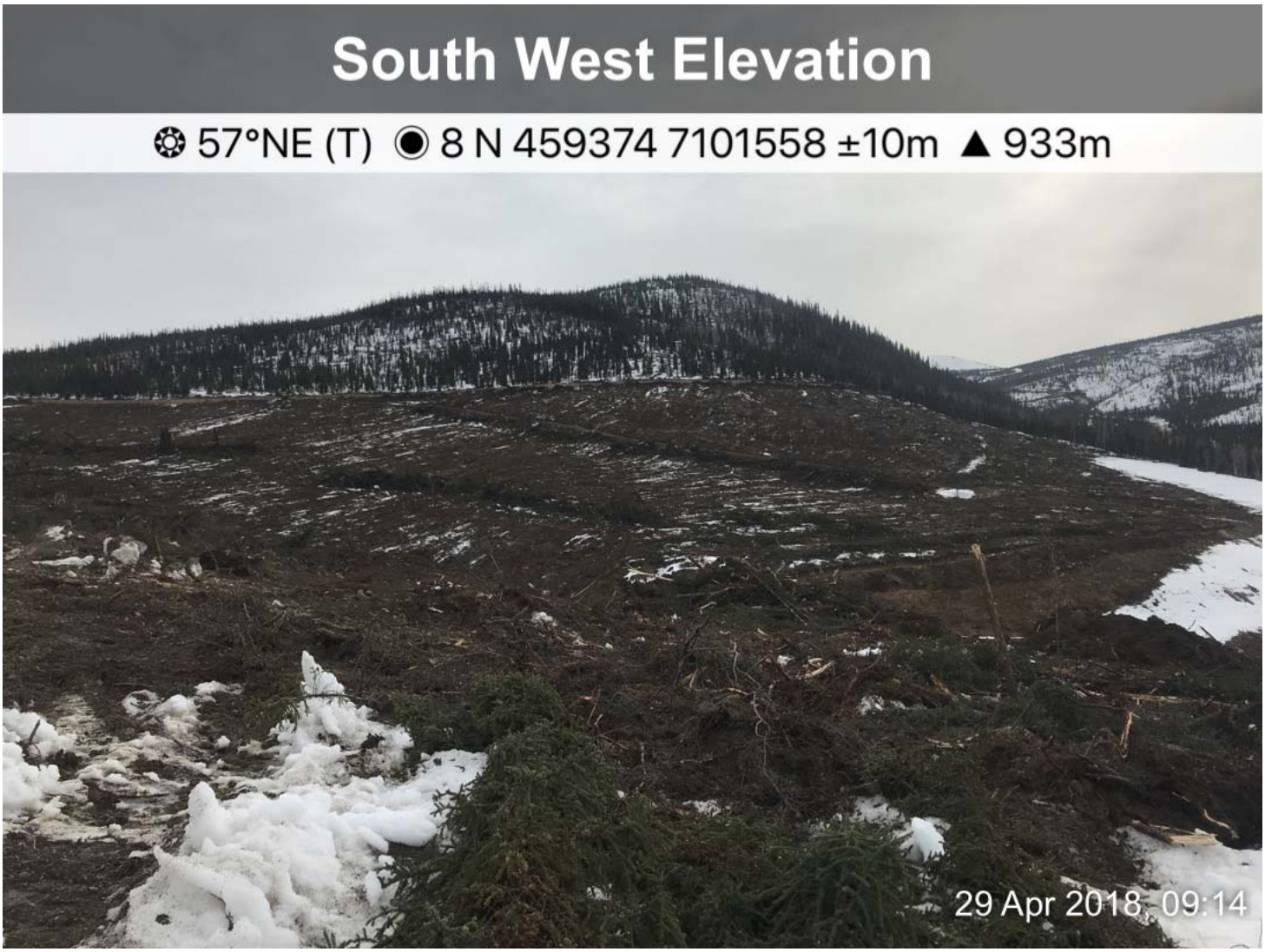


Photo 5: Photograph of the clearing progress within the Phase I heap leach footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	April 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny, 1°C to 11°C

Summary and Observations

- Summary and Observations:
  - Freshet continued to drain from the heap leach facility area towards the drain pipes installed at the exfiltration sump. (***Photo 1***)
  - Pelly continued digging to Type 3 bedrock at the rock knob near the right abutment. Near surface ice was observed throughout most of this area and was removed (***Photos 2 and 3***).
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Water draining the HLF area toward the drains installed near the exfiltration sump.



Photo 2: Excavation to type 3 bedrock.



Photos 3: Large pieces of frozen near surface material being excavated from the embankment foundation footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, 1°C to 10°C

Summary and Observations

- Summary and Observations:
  - A section of embankment foundation excavation was approved. (***Photo 1 and Photo 2***). Pelly is completing the foundation sign off document and should deliver it May 2.
  - Pelly began removing surface ice and excavating to embankment foundation at the toe of the right abutment. Spoils from this excavation include about 50% ice. This material will need to be segregated from the structural fill pile (***Photo 3***).
  - Pelly marked the downstream embankment footprint in the field (***Photo 4***). Water flow into this area will likely need to be diverted and/or drained before completing the excavation to embankment foundation.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

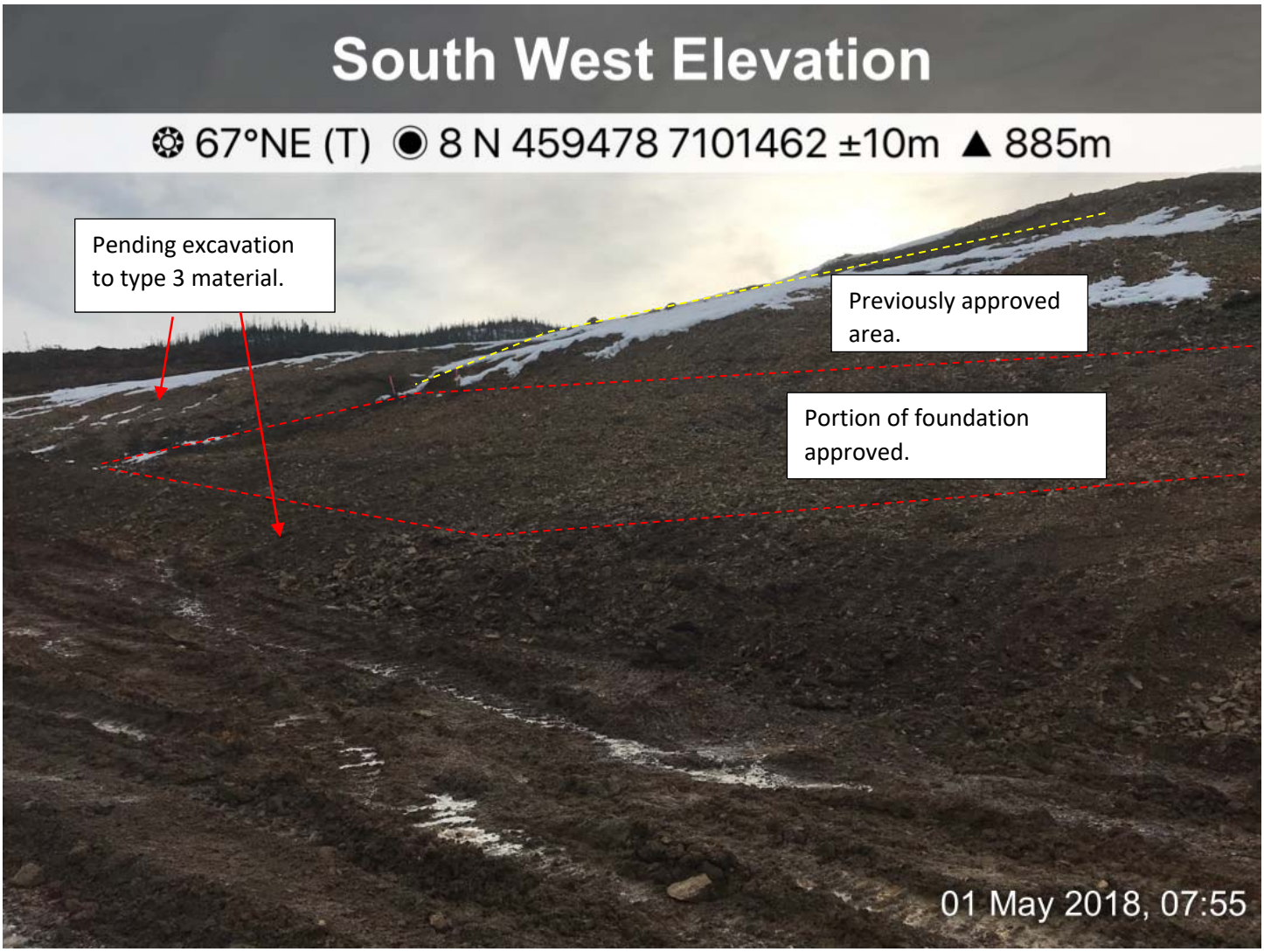


Photo 1: 1st portion of the foundation approved today.

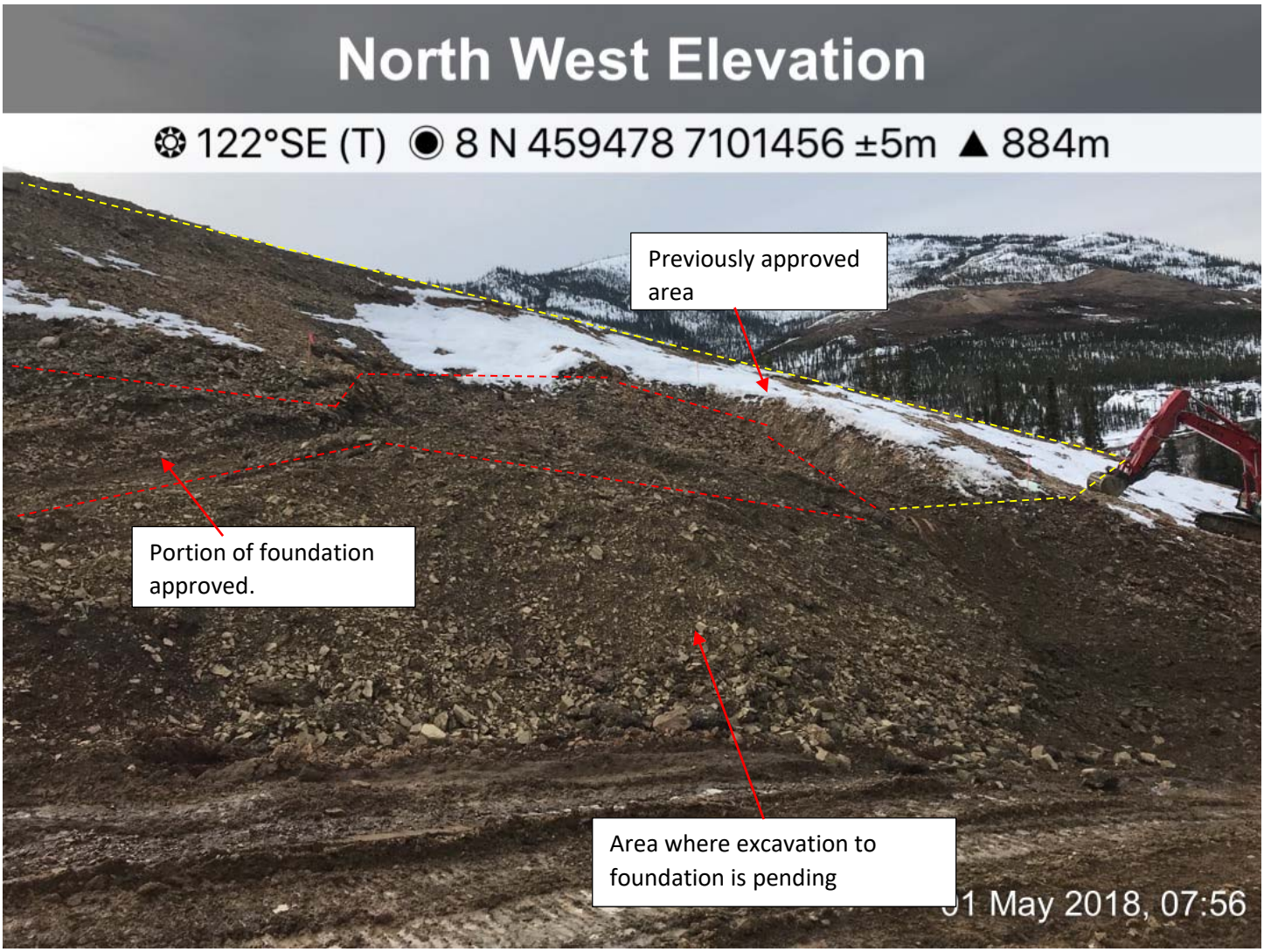
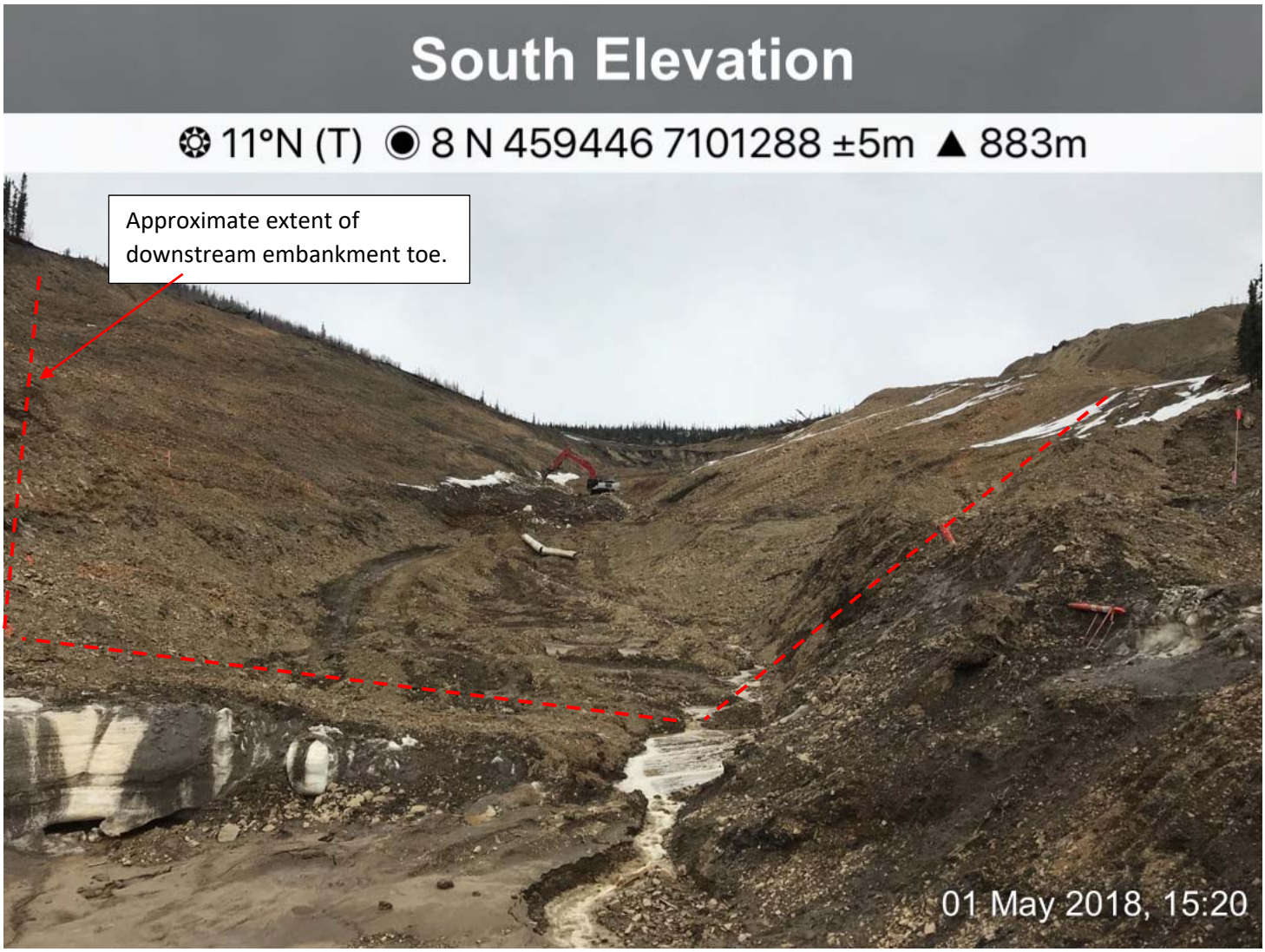


Photo 2: Remaining portion of foundation approval completed today.



Photos 3: Photograph of ice and ice rich material excavated from right abutment toe.



Photos 4: Photograph of ice and ice rich material excavated from right abutment toe.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, snow, -6°C to 7°C

Summary and Observations

- Summary and Observations:
  - No work was performed at the embankment footprint. Pelly was arranging a transport to haul structural fill and ice waste excavated the previous day. The excavator working at the heap leach embankment was moved to work on other parts of the site.
  - Section 10 of the heap leach embankment foundation approval paperwork was signed and delivered to Pelly and JDS.
  - BGC provided recommendations and input on alternative ballast to the fabriform specified in the design.
  - JDS provided an RFI to BGC (Subcontractor RFI CC204-RFI-006) related to the use of rockfill in the embankment (See ***Section 3***).
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC is providing Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment and Pelly will be providing an estimated volume of structural fill and rockfill that is expected to be generated for construction. Once this information is available we can determine the best way to configure the rockfill within the embankment.

Safety Issues: None

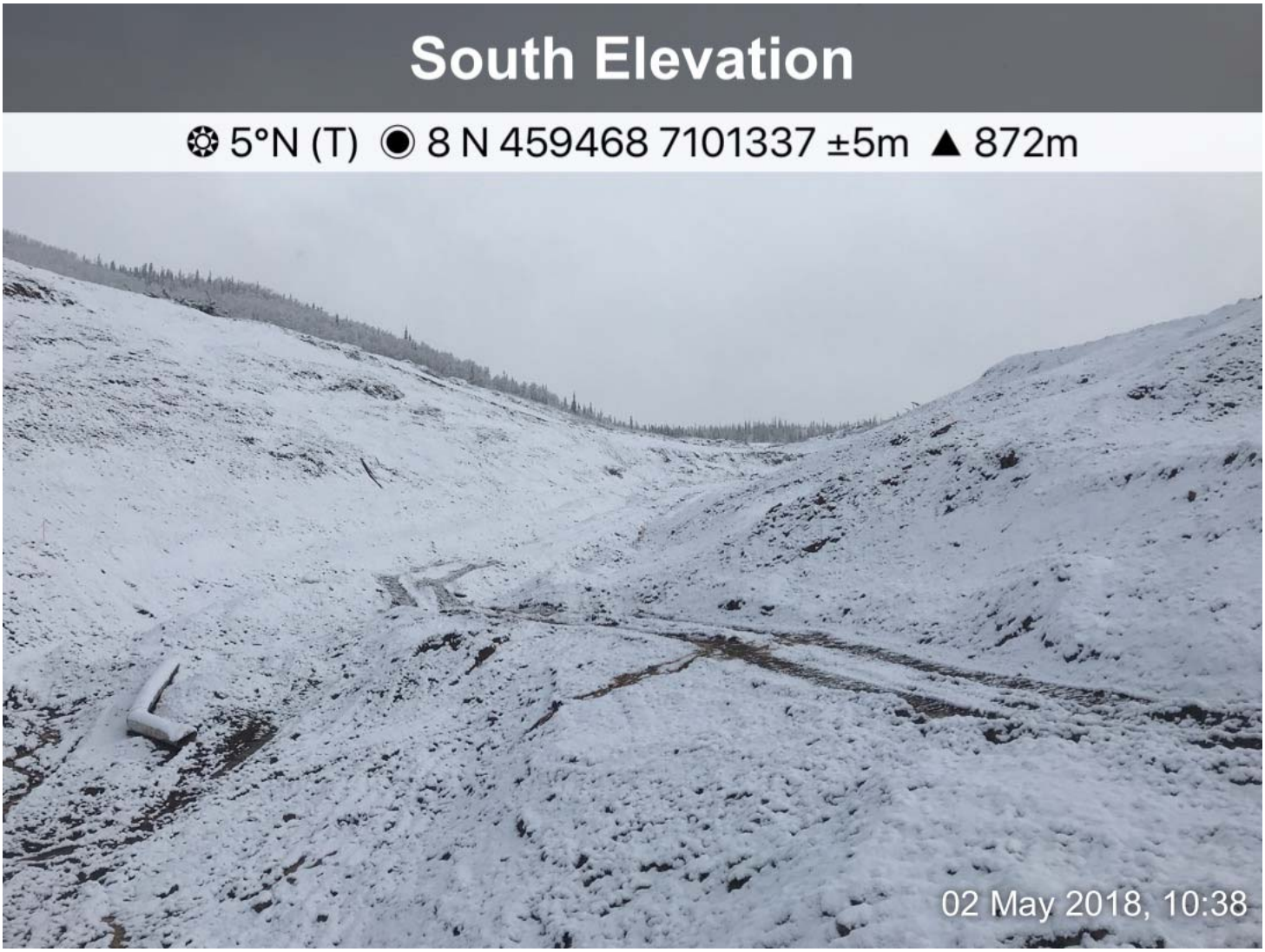


Photo 1: Photograph of the embankment valley looking upstream.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, snow, -2°C to 8°C

Summary and Observations

- Summary and Observations:
  - No work was performed at the embankment footprint. Pelly was arranging a transport to haul structural fill and ice waste excavated on May 1.
  - BGC is developing a work plan for a rockfill test fill.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC is providing Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment and Pelly will be providing an estimated volume of structural fill and rockfill that is expected to be generated for construction. Once this information is available we can determine the best way to configure the rockfill within the embankment.

Safety Issues: None



Photo 1: Photograph of the embankment valley looking upstream.

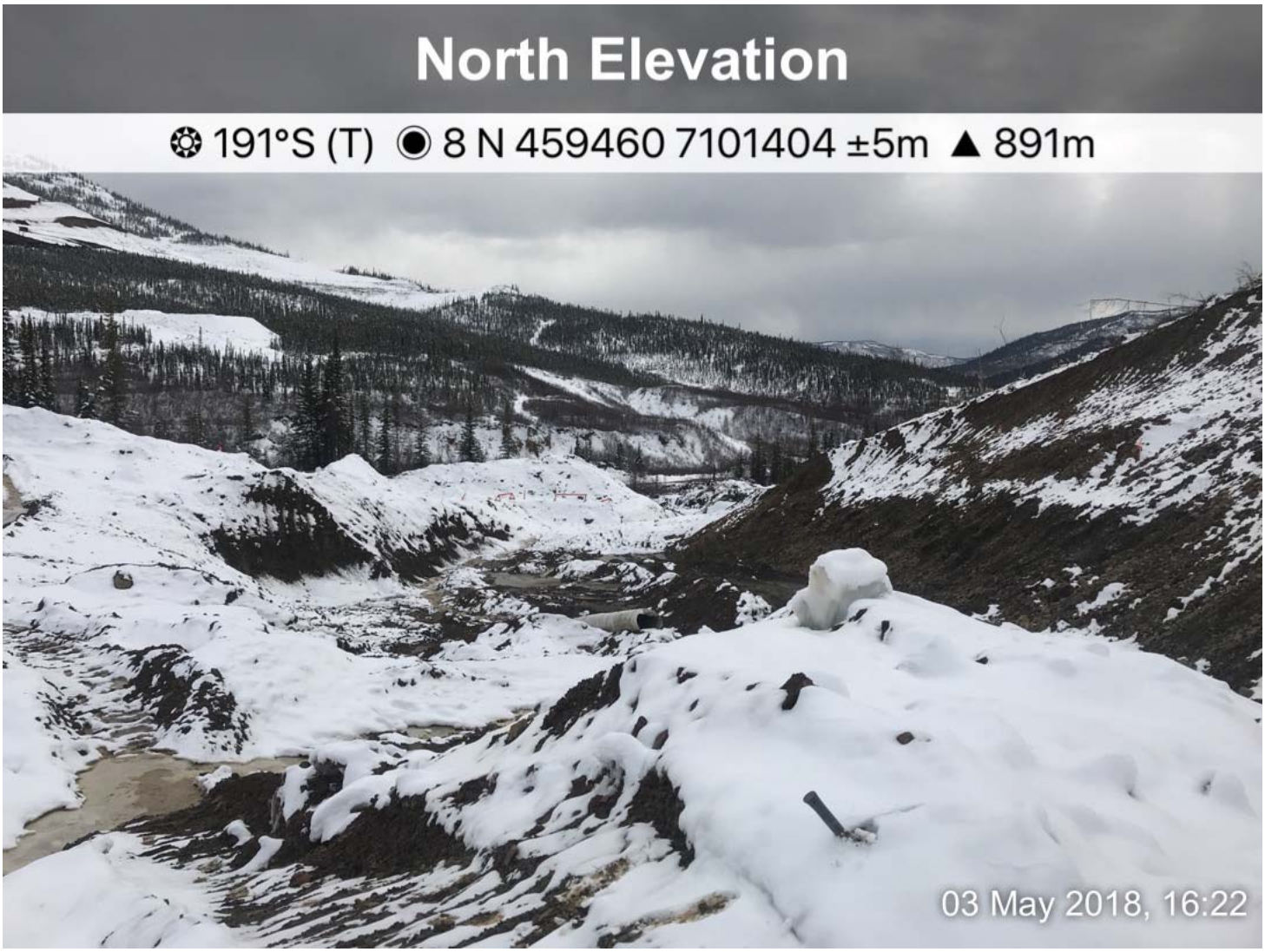


Photo 2: Heap leach embankment valley looking downstream.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 3°C to 13°C

Observations and Recommendations

- Observations and Recommendations:
  - Work excavating to type 3 embankment foundation resumed late in the day.
  - BGC, JDS, and Pelly discussed foundation requirements at the toe of the embankment near the monitoring vault. Trenching will be conducted downstream of the embankment toe near the monitoring vault to determine where type 3 bedrock is and so we can begin looking at potential solutions, if needed. BGC will oversee the excavation. Photographs showing the location of the current embankment toe footprint is included as ***Photos 1***.
  - Material recently excavated from the ADR plant foundation is courser than the structural fill previously excavated but mostly appears to meet the max size for structural fill. Although this material generally meets gradation requirements if the material produced becomes bonier (ie has gaps between cobble size material and sand size material or has structurally supported by material > 19mm) it can be blended with the Structural Fill already excavated to bring it into specification. This will help prevent gap grading in the final product. Care will need to be taken to not mix too much bonier material creating a product that is no longer structurally supported by a well graded mix of material. (***Photos 2 through 4***)
  - Some oversize (>8") pieces are present (<5%) that do not meet the criteria for Structural Fill. This material should be segregated out prior to placement at the embankment (***Photo 5***).

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC is providing Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment and Pelly will be providing an estimated volume of structural fill and rockfill that is expected to be generated for construction. Once this information is

		available we can determine the best way to configure the rockfill within the embankment.

Safety Issues: None



Photo 1: Photograph of the embankment valley looking upstream.



Photo 2: Structural Fill Stockpile at the ADR Plant.



Photo 3: Coarser fill being excavated at the ADR. This material appears to be suitable for use as Material 3 – Structural Fill. However, oversize pieces (>8") are present and will need to sorted out in order to meet the Structural Fill specifications.



Photo 4: Coarser fill being excavated at the ADR. This material appears to be suitable for use as Material 3 – Structural Fill.

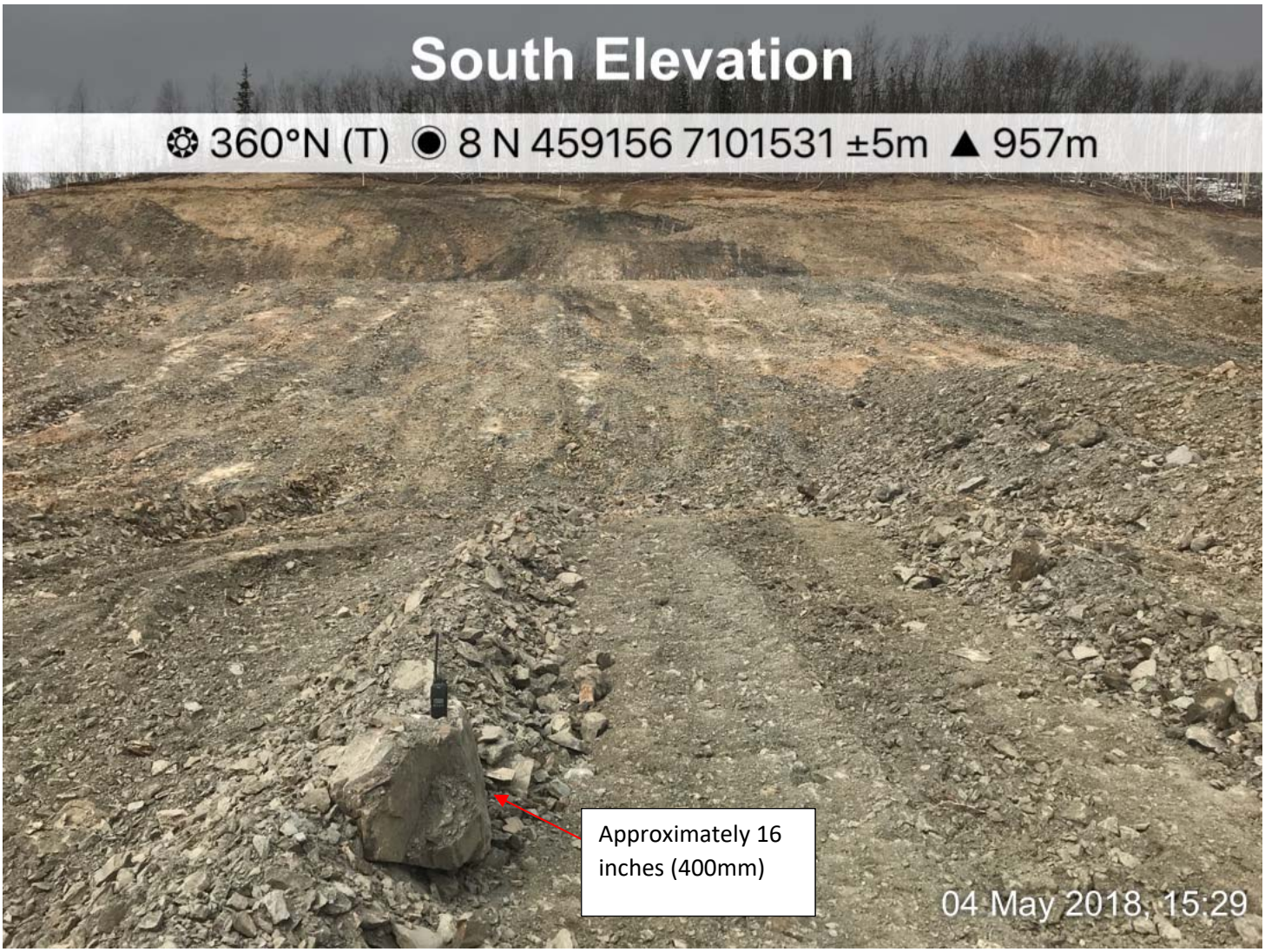


Photo 5: Coarser fill being excavated at the ADR. Larger pieces (>8") will need to be sorted out before placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 0°C to 12°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly moved the previously excavated piles from the embankment footprint (***Photo 1***).
  - Stockpiling of Structural Fill Material continued at the ADR plant footprint (***Photo 2***).
  - Pelly excavated some colluvial material from near the embankment toe. (***Photo 3 and 4***)
  - Pelly is planning a method to dewater the area at the toe of the embankment in order to excavate to type 3 bedrock. (***Photo 5***).

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC provided Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment. Pelly will be providing an estimated volume of the rockfill, where it will be placed, and a method to place it. BGC will review this and include it in the response to the RFI.

Safety Issues: None

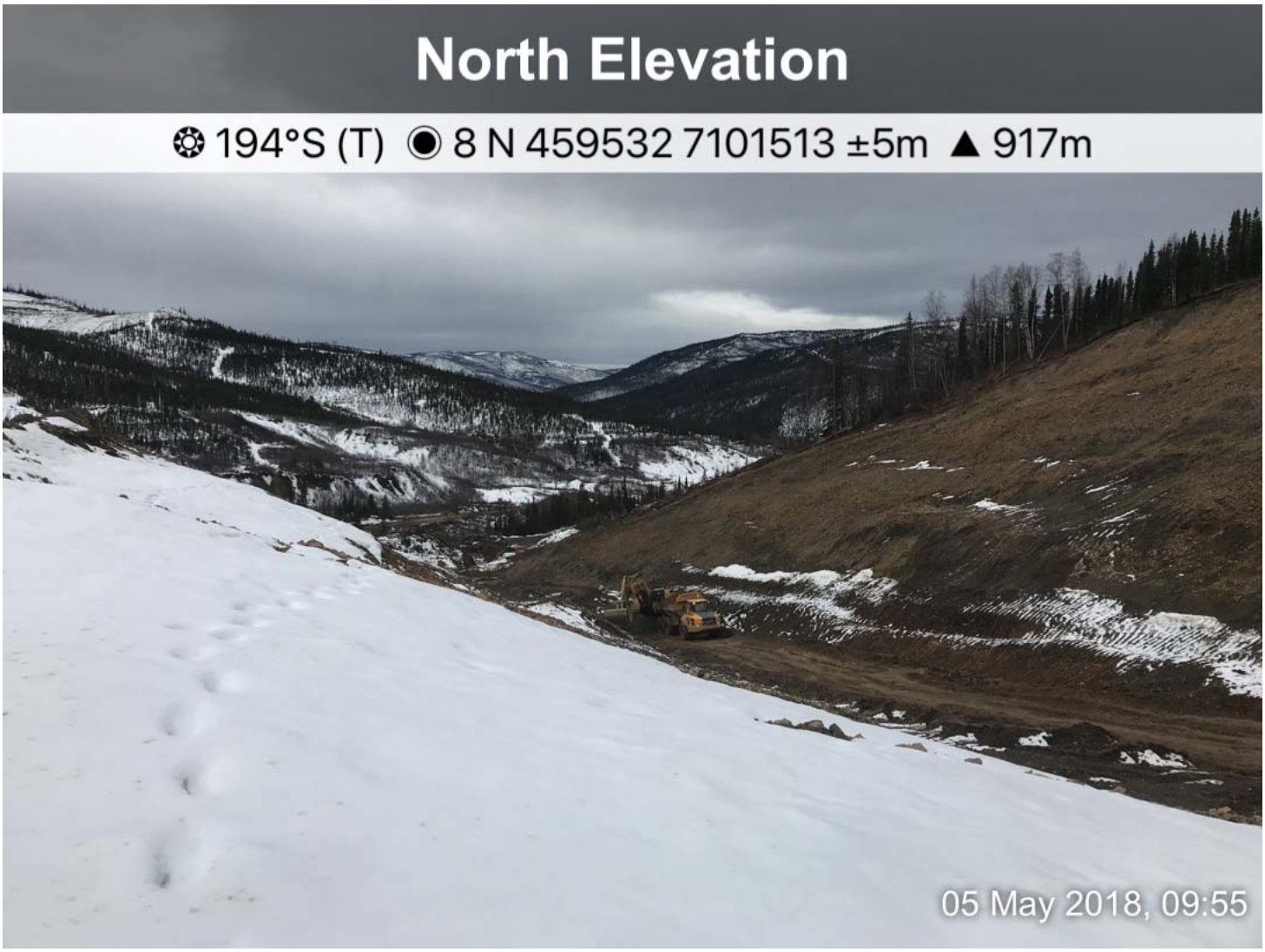


Photo 1: Hauling previously excavated piles from the embankment footprint.



Photo 2: Structural Fill Stockpile at the ADR Plant.



Photo 3: Excavation of colluvium near the toe of the embankment.



Photo 4: Colluvium being excavated from near the embankment toe.



Photo 5: Areas near to of the embankment should be dewater in order to excavate to type 3 bedrock.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 2°C to 12°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly cleared an area to type 3 foundation along the rock nob. This area will be surveyed and approved tomorrow. (***Photo 1***).
  - Pelly will excavate the remaining area at the toe of the right abutment that still requires approval. Over the winter ice developed in the valley and appears to have loosened this zone and portions of the foundation above that have already been approved (***Photo 2***). Additionally, portions of the unapproved area are still frozen (***Photo 3***). Additional excavation will be required in both the unapproved and approved zones to remove loose type 3 material and to remove ice.
  - Material continues to be excavated at the ADR Plant foundation and stockpiled for use as Structural Fill. The material being excavated is blocker but still usable as Structural Fill. Blockier material is pushed over the side of the pile allowing segregation of oversize pieces. (***Photo 4***).

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC provided Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment. Pelly will be providing an estimated volume of the rockfill, where it will be placed, and a method to place it. BGC will review this and include it in the response to the RFI.

Safety Issues: None



Photo 1: Excavation to type 3 foundation along the rock nob in the embankment footprint.

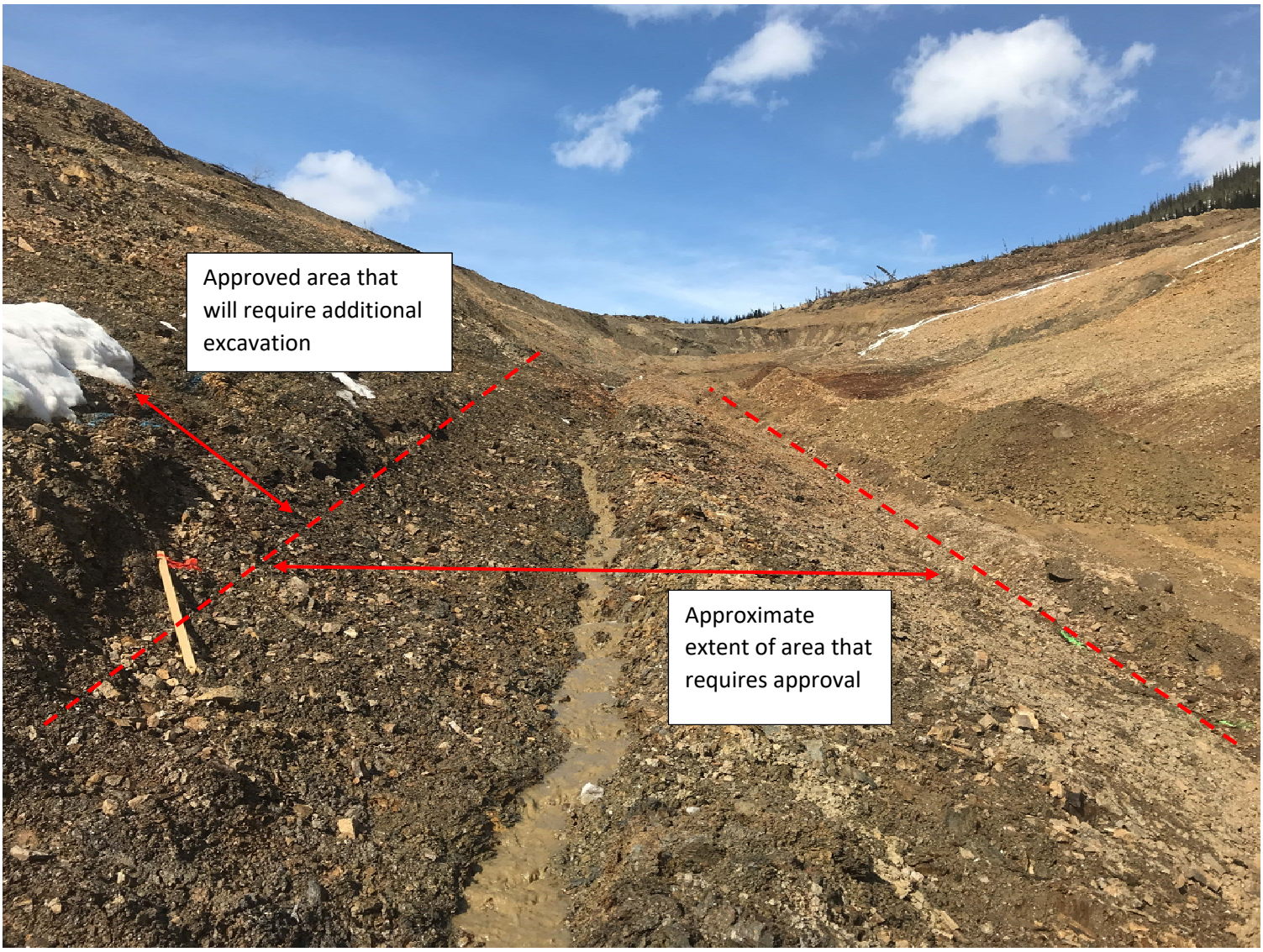


Photo 2: Structural Fill Stockpile at the ADR Plant.



Photo 3: Example of ice growth along the surface of type 3 bedrock.

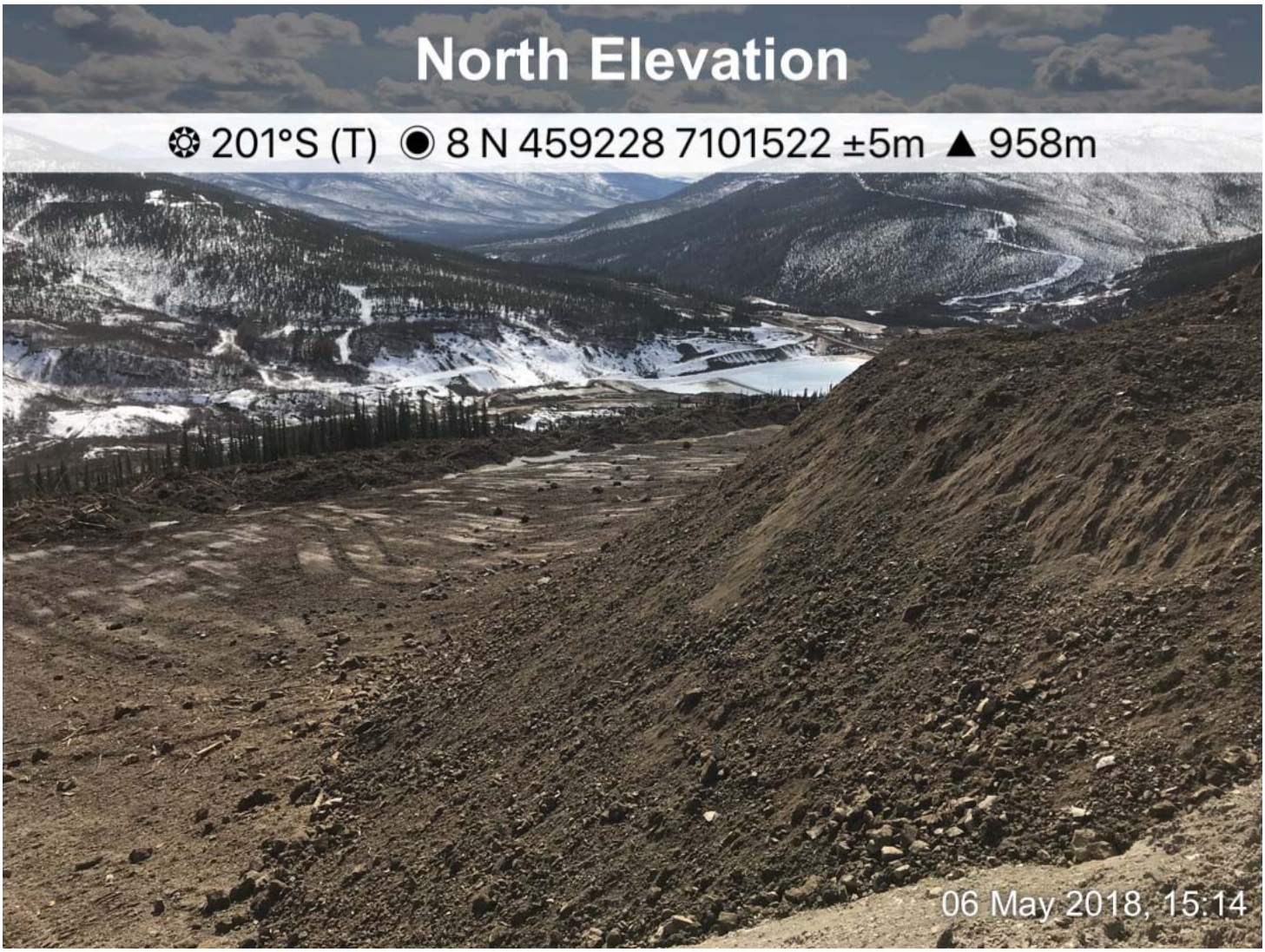


Photo 4: Structural fill stockpile at the ADR plant. Blockier material is being pushed over the edge of the pile allowing oversize pieces to be sorted out.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow/rain -2°C to 9°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly cleared an area to type 3 foundation along the right abutment. (***Photo 1***). This area was directly exposed to the sheet of ice that was excavated from the valley earlier this year and needed additional excavation to remove frost jacked near surface rock. A minimum amount of material was removed (between 0.3 and 0.5 m) in order to reach a zone that was confined enough to possibly not have been affected. These areas are still frozen and once they thaw they should be inspected again to ensure that the material is not too loose. If the surface material is loose it should be cleaned off before placing embankment fill. (***Photo 2 and 3***).
  - Section 11 along the rock nob was surveyed and approved today.
  - Pelly's surveyor collected the current elevations along the alignment of the underdrain and the current surface elevation along the center valley near the toe of the right abutment. This information will be used to evaluate the alignment of the underdrain now that the location of bedrock is known. It will also be used to interpret the location of bedrock at the toe of the embankment.
  - Material continues to be excavated at the ADR Plant foundation and stockpiled for use as Structural Fill.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC provided Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment. Pelly will be providing an estimated volume of the rockfill, where it will be placed, and a method to place it. BGC will review this and include it in the response to the RFI.

Safety Issues: None



Photo 1: Excavation to type 3 foundation along the base of the right abutment.

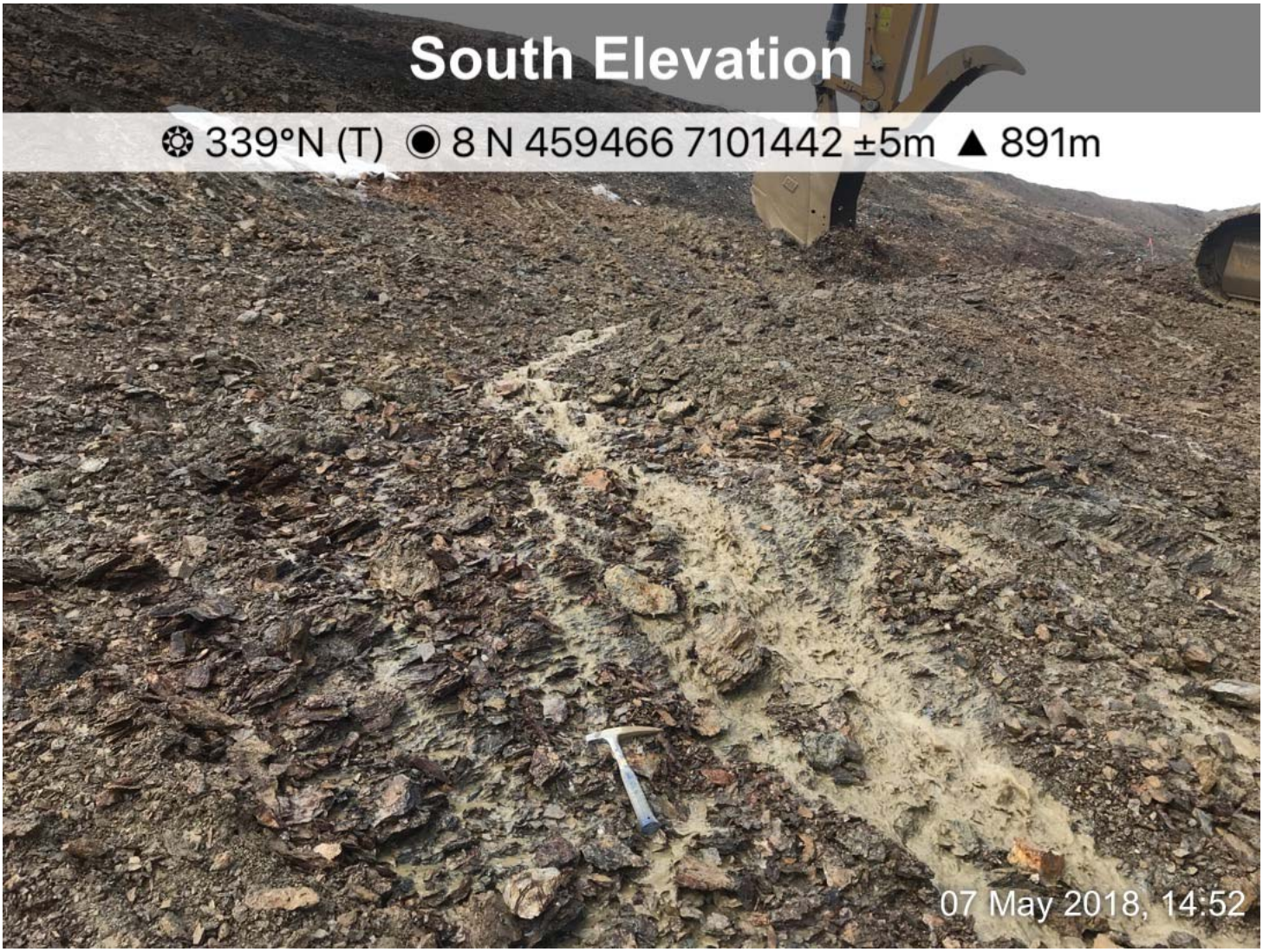


Photo 2: Embankment foundation cleared of frozen surface material.

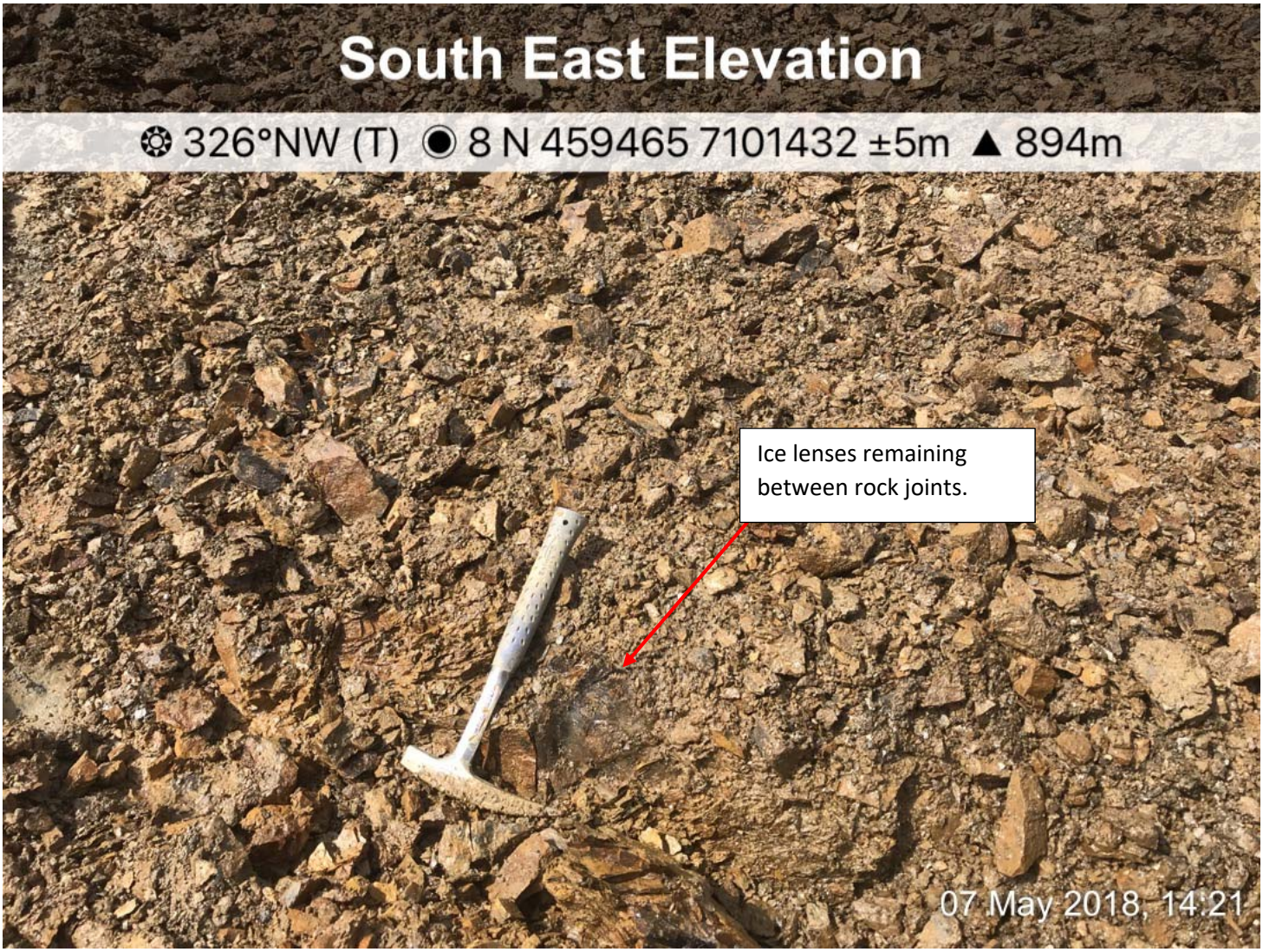


Photo 3: Example of frozen type 3 foundation material still contains ice filling in joints. The area should be inspected again once the ice has melted to ensure that the slope face is not loose.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 1°C to 14°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly cleared an area to type 3 foundation along the right abutment up to the toe of the embankment. This area did not appear to have ice in the type 3 bedrock. (***Photo 1 and 2***).
  - Section 12 along the right abutment was approved and picked up by Pelly's surveyors. (***Photo 3***).
  - Pelly began excavation of the colluvium deposits near the left side of the embankment toe near the monitoring vault (***Photo 4***).
  - Material continues to be excavated at the ADR Plant foundation and stockpiled/regraded for use as Structural Fill. (***Photo* 5**)

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC provided Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment. Pelly will be providing an estimated volume of the rockfill, where it will be placed, and a method to place it. BGC will review this and include it in the response to the RFI.

Safety Issues: None

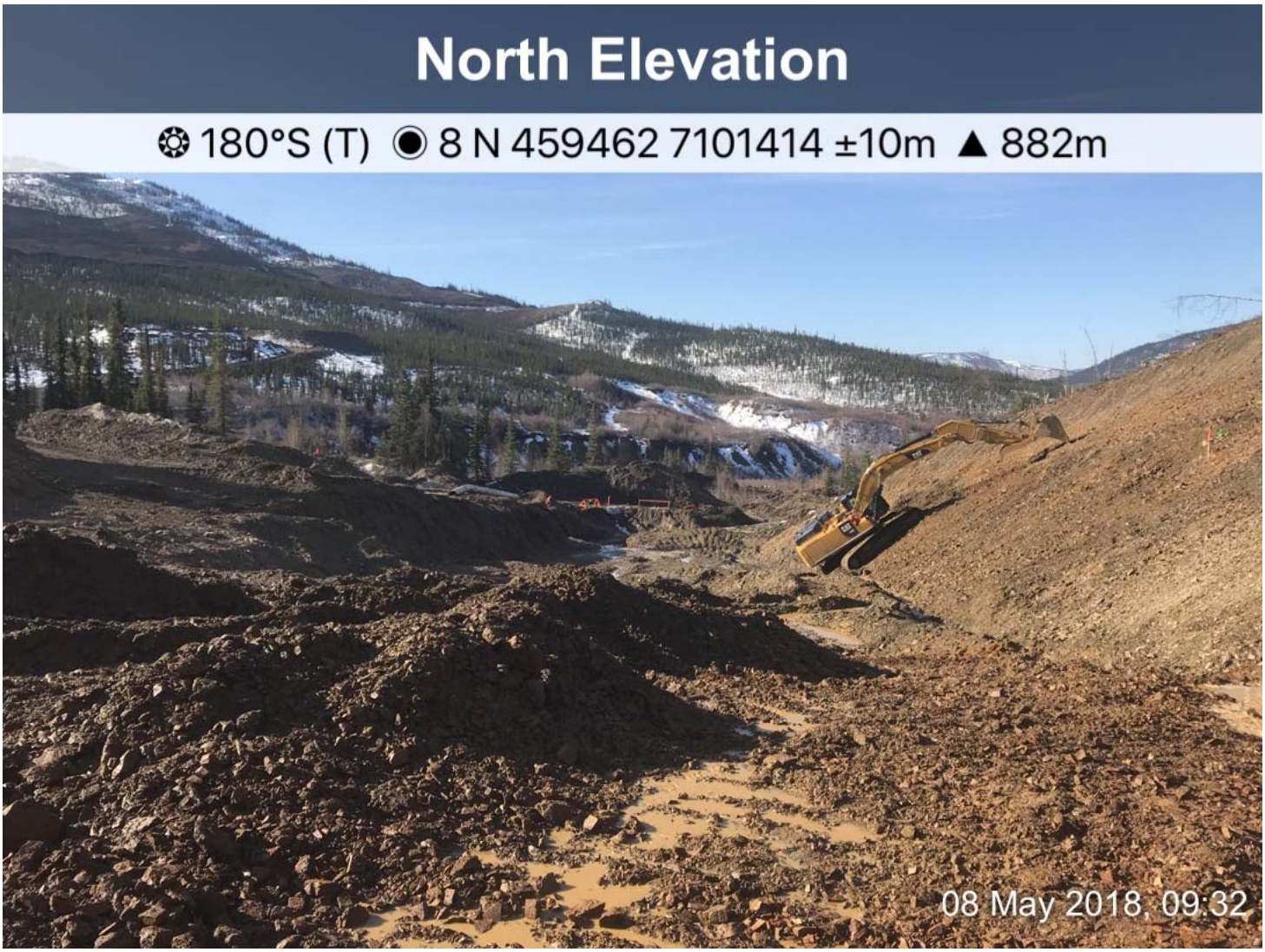


Photo 1: Excavation to type 3 foundation along the base of the right abutment near the toe of the embankment.

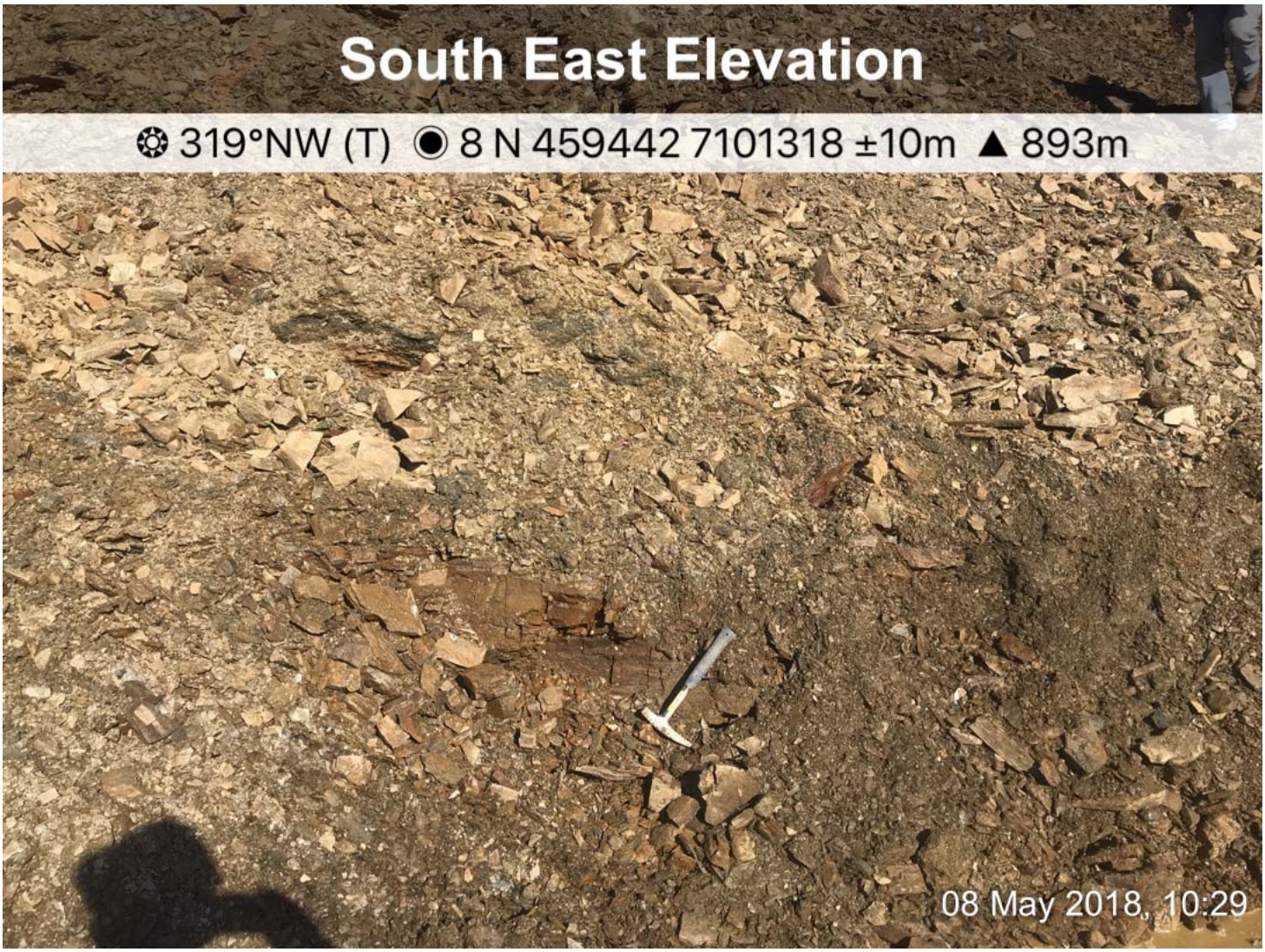


Photo 2: Exposed type 3 bedrock along the right abutment near the toe.

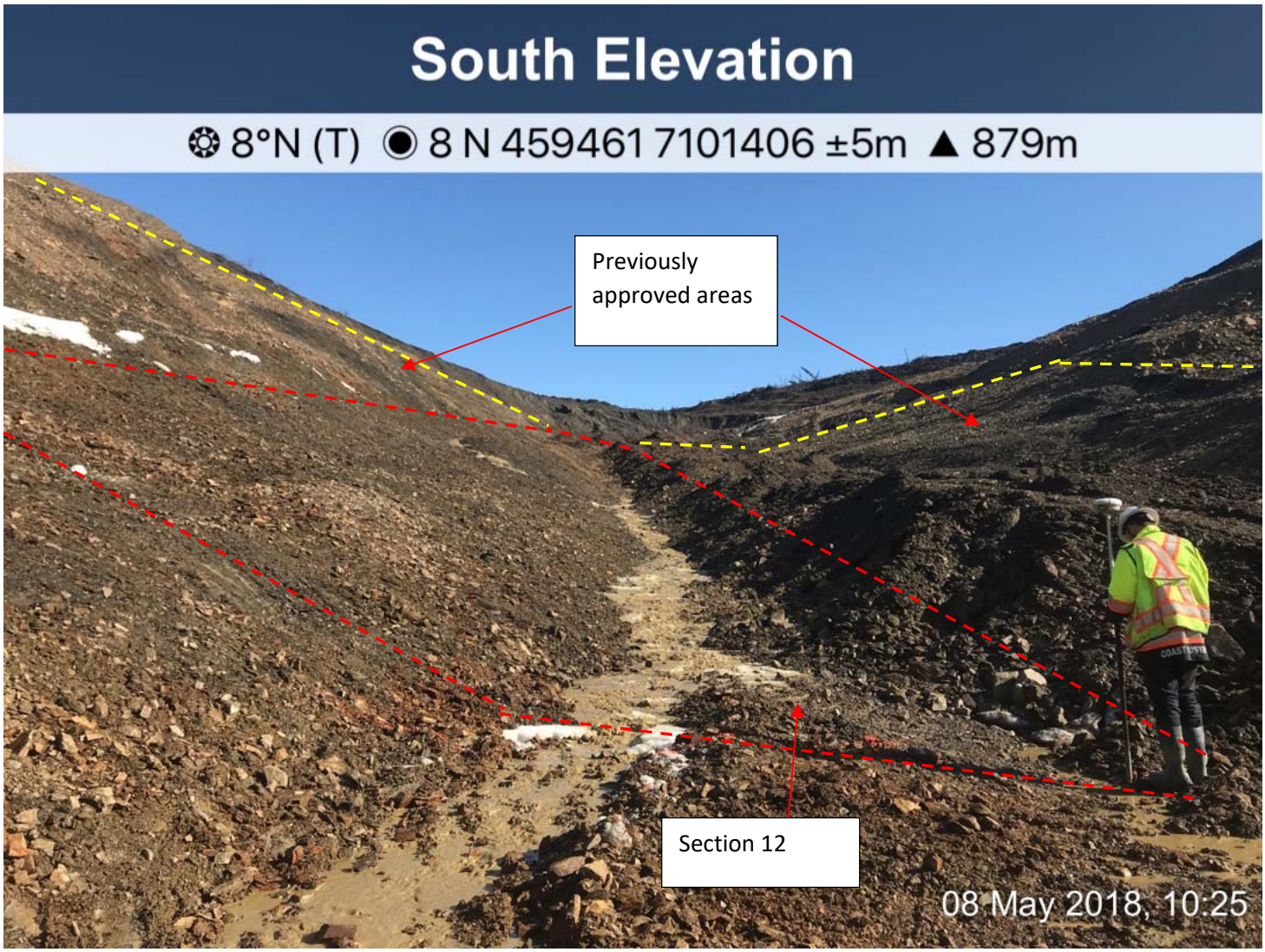


Photo 3: Section 12 approved this morning.



Photo 4: Excavation along the left side of the embankment toe.



Photo 5: Structural Fill pile at the ADR plant excavation.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 3°C to 18°C

Observations and Recommendations

- Observations and Recommendations:
  - Section 13 along the right abutment was approved and picked up by Pelly's surveyors. (***Photo 1***).
  - Pelly moved stockpiled material previously excavated from the embankment foundation. (***Photo 2***).
  - Pelly had difficulty hauling material from the valley to the final stockpile, apparently exacerbated by the presence of melt water flowing from the ground later in the day (after 2pm) and a steep slope. Pelly repeatedly had to use a dozer to cut down areas of muddy pulverized type 3 material to create a dense surface for the haul trucks (***Photo 3***). This likely resulted in a lowering of the valley bottom. This issue was also observed in late 2017, reported in the daily reports, and discussed with JDS and Pelly. Pelly should take care not to lower the embankment foundation beyond the type 3 material surface as it could have implications on the pipe trench design, fill requirements, closure pipe design, in-heap pond design, and water control requirements if groundwater is encountered. Once the valley bottom has been cleared of stockpiled material and excavated to type 3 foundation it should be surveyed to determine how its current elevation will affect the current design.
  - Material continues to be excavated at the ADR Plant foundation and stockpiled/regraded for use as Structural Fill.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	The use of a rockfill zone along the face of the embankment was approved in the 2017 EPCM-RFI-002. The current RFI was generated because Pelly believes that the less structural fill will be available than previously thought and that this upstream face may need to be reconfigured to a rockfill 'core'. BGC provided Pelly with estimated volumes for use of rockfill as a zone along the face of the embankment. Pelly will be providing an estimated volume of the rockfill, where it will be placed, and a method to place it. BGC will review this and include it in the response to the RFI.

EPCM-RFI-012	Related to the configuration of the toe of the embankment.	Received today. Formal written response pending.
CC204-RFI-007	Related to the closure sump piping.	Received today. Formal written response pending.

Safety Issues: None

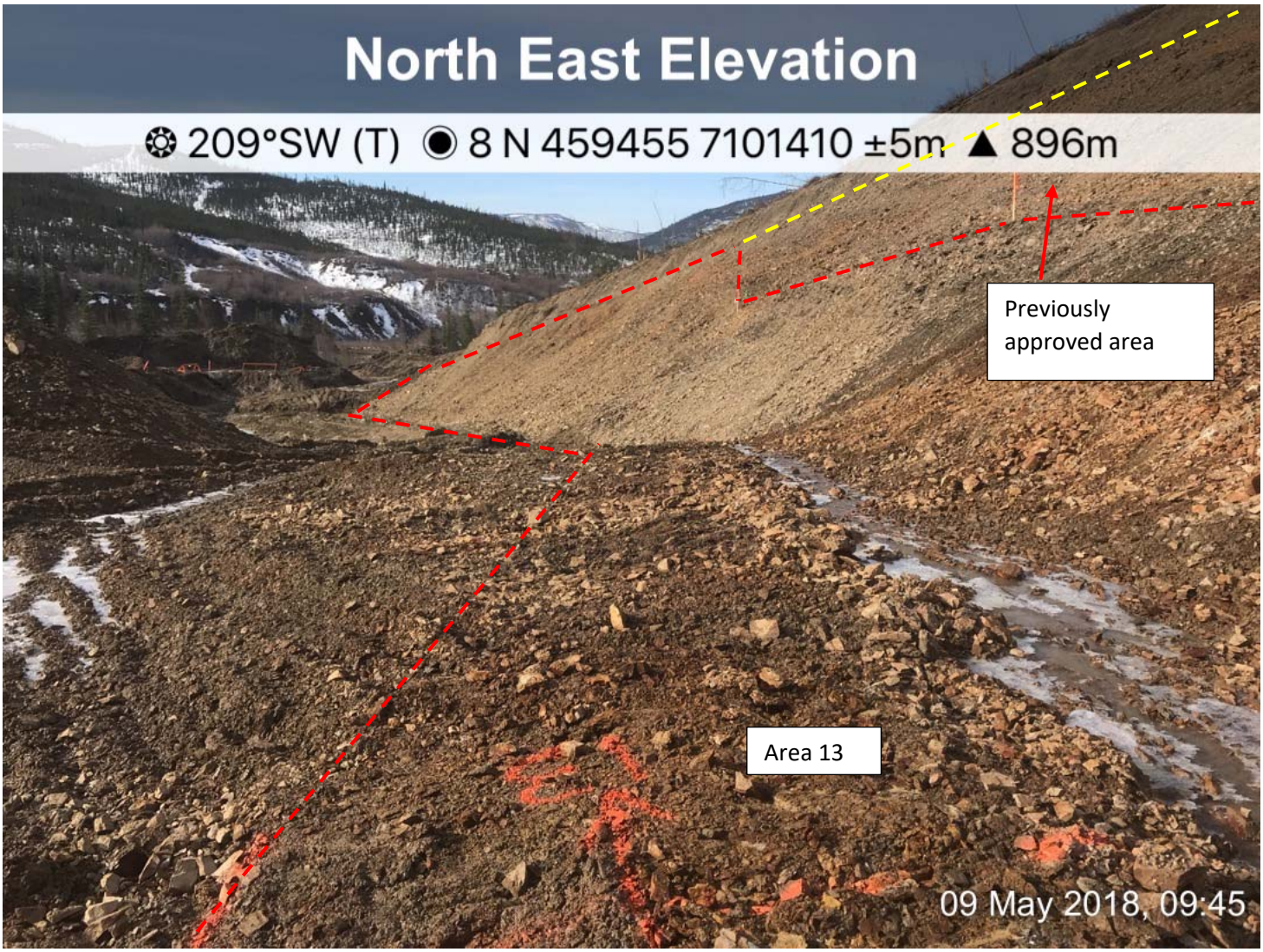


Photo 1: Section 13 excavated to type 3 bedrock.



Photo 2: Pelly loading material from the embankment valley to the stockpile.



Photo 3: Pelly scraping the valley surface to create a dense road for the haul trucks.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 1°C to 13°C

Observations and Recommendations

- Observations and Recommendations:
  - The remaining area of Section 14 was cleared to type 3 foundation. (***Photo 1***).
  - Pelly completed moving stockpiled material previously excavated from the embankment foundation. (***Photo 2***).
  - The areas at the toe of the embankment near the monitoring vault remains saturated. This area cannot be cleared to type 3 foundation material until water has been controlled and the area is allowed to drain. Excavation of this area while the ground is saturated may result in over-excavation.
  - Material continues to be excavated at the ADR Plant foundation and stockpiled/regraded for use as Structural Fill.
  - Responses to CC204-RFI-006 and CC204-RFI-007 were provided to Pelly and JDS. A verbal response to EPCM-RFI-012 was provided to Pelly and JDS. A written response is pending completion of drawing revisions.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	Written response provided to Pelly and JDS on May 10, 2018.
EPCM-RFI-012	Related to the configuration of the toe of the embankment.	Verbal response provided to Pelly and JDS. A written response is pending completion of drawings.
CC204-RFI-007	Related to the closure sump piping.	Written response provided to Pelly and JDS on May 10, 2018.

Safety Issues: None



Photo 1: Section 14 being excavated to type 3 bedrock.



Photo 2: Pelly loading material from the embankment valley to the stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 4°C to 17°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly's surveyor picked up the area for Section 14 foundation approval. (***Photo 1***).
  - Pelly worked on managing water in the area where the pipe trench will be installed under the embankment and the quality of discharge to Dublin Gulch. This included:
    - Installing a pipe to direct water from the in-heap pond area across the right abutment. (***Photo 2***).
    - Digging a sump to allow faster water exfiltration and to also serve as a settling pond to reduce discharge of silt into Dublin Gulch. Sump is located approximately 8m from the embankment toe and was reported as approximately 5m deep. (***Photo 3***)
  - JDS, Pelly, and BGC will discuss backfilling this sump as part of the HLF construction. A portion of this area will likely serve as the pipe trench foundation. Backfill in this area should conform with the structural fill or site grading fill requirements, depending on the material that will be used. The portion of the pipe trench that crosses this section may also need to be protected from loss of water into the fill.
  - Pelly excavated the wet area at the toe of the embankment. Much of the area has reached type 3 bedrock or better. (***Photo 4***) The final excavation depth appears approximately 2m deeper than the design elevation.
  - Material continues to be excavated at the ADR Plant foundation and stockpiled/regraded for use as Structural Fill.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	Written response provided to Pelly and JDS on May 10, 2018.
EPCM-RFI-012	Related to the configuration of the toe of the embankment.	Verbal response provided to Pelly and JDS. A written response is pending completion of drawings.
CC204-RFI-007	Related to the closure sump piping.	Written response provided to Pelly and JDS on May 10, 2018.

Safety Issues: None

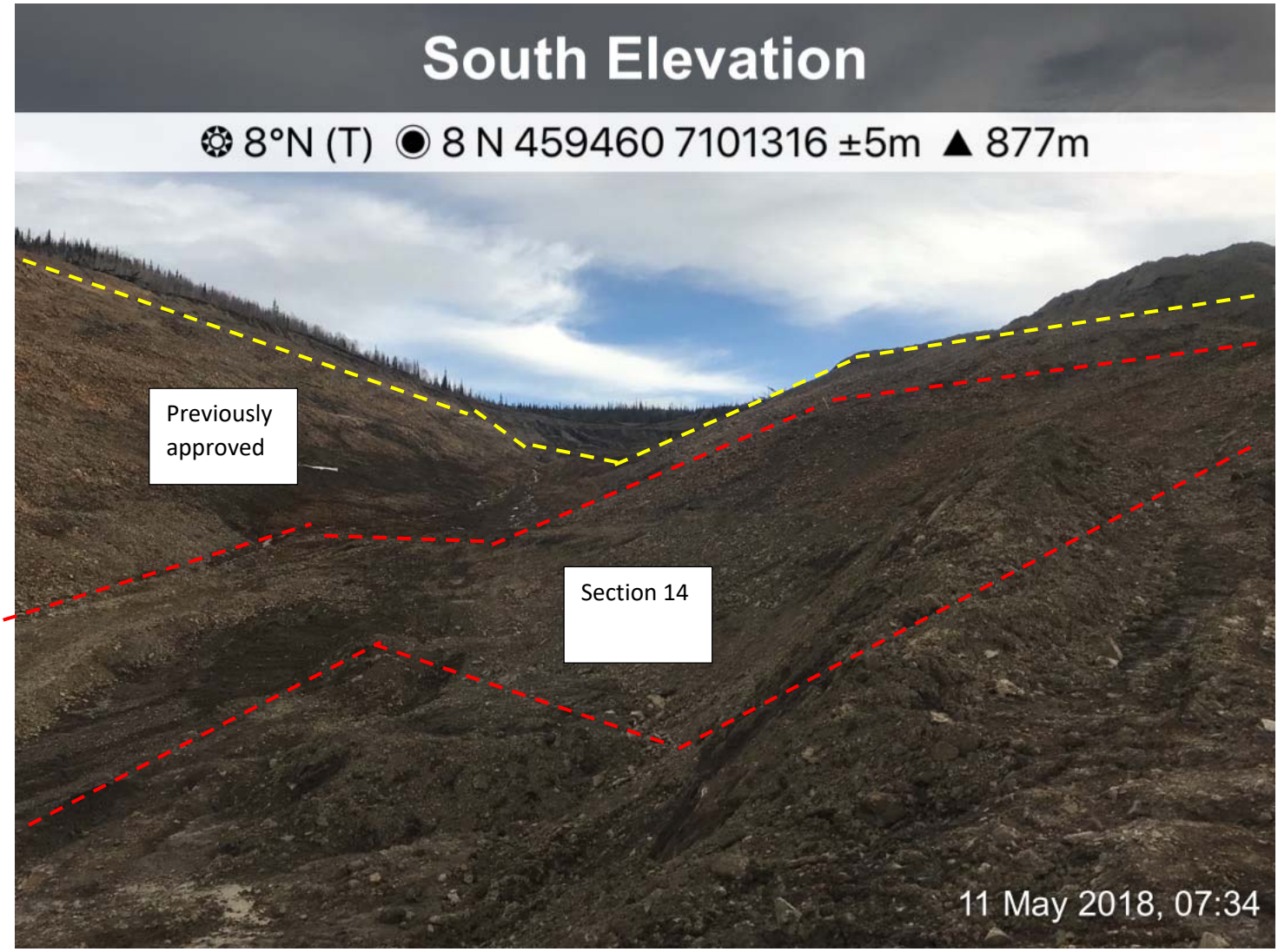


Photo 1: Approximate area of Section 14 area approved today.



Photo 2: Pelly moving piping towards the right abutment for use in water control.



Photo 3: Exfiltration sump/ settling pond excavated downstream of the embankment toe.



Photo 4: Area at the to of the embankment excavated to type 3 or better.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 1°C to 14°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly's surveyor developed a 1m contour topographic map to help determine the new alignment of the pipe trench underneath the embankment. The pipe trench will be field fitted to lowest point in the valley. (***Photo 1***).
  - Section 15 was approved by BGC and picked up by Pelly's surveyor. (***Photo 2***). Although type 3 bedrock was located in this area significant cleaning of material excavated from the exfiltration sump and shaping of the contact between the toe and colluvium remains. (***Photo 3***). Pelly will remove this material tomorrow.
  - Pelly planned to dig to type 3 bedrock at the embankment toe. BGC requested that a trench be dug near the toe of the embankment to determine the depth to bedrock. Bedrock was encountered at the bottom of the trench. However, determining type 3 bedrock depth in this area was difficult because the ground was saturated. (**Photo 4**).
  - Material continues to be excavated at the ADR Plant foundation and stockpiled/regraded for use as Structural Fill.
  - Response to EPCM-RFI-012 was delivered to JDS.
  - CC204-RFI-008 was delivered to BGC by Pelly.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	Written response provided to Pelly and JDS on May 10, 2018.
EPCM-RFI-012	Related to the configuration of the toe of the embankment.	Written response provided to Pelly and JDS on May 12, 2018.
CC204-RFI-007	Related to the closure sump piping.	Written response provided to Pelly and JDS on May 10, 2018.
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Pending.

Safety Issues: None



Photo 1: Pelly's surveyor picked up the valley topography.

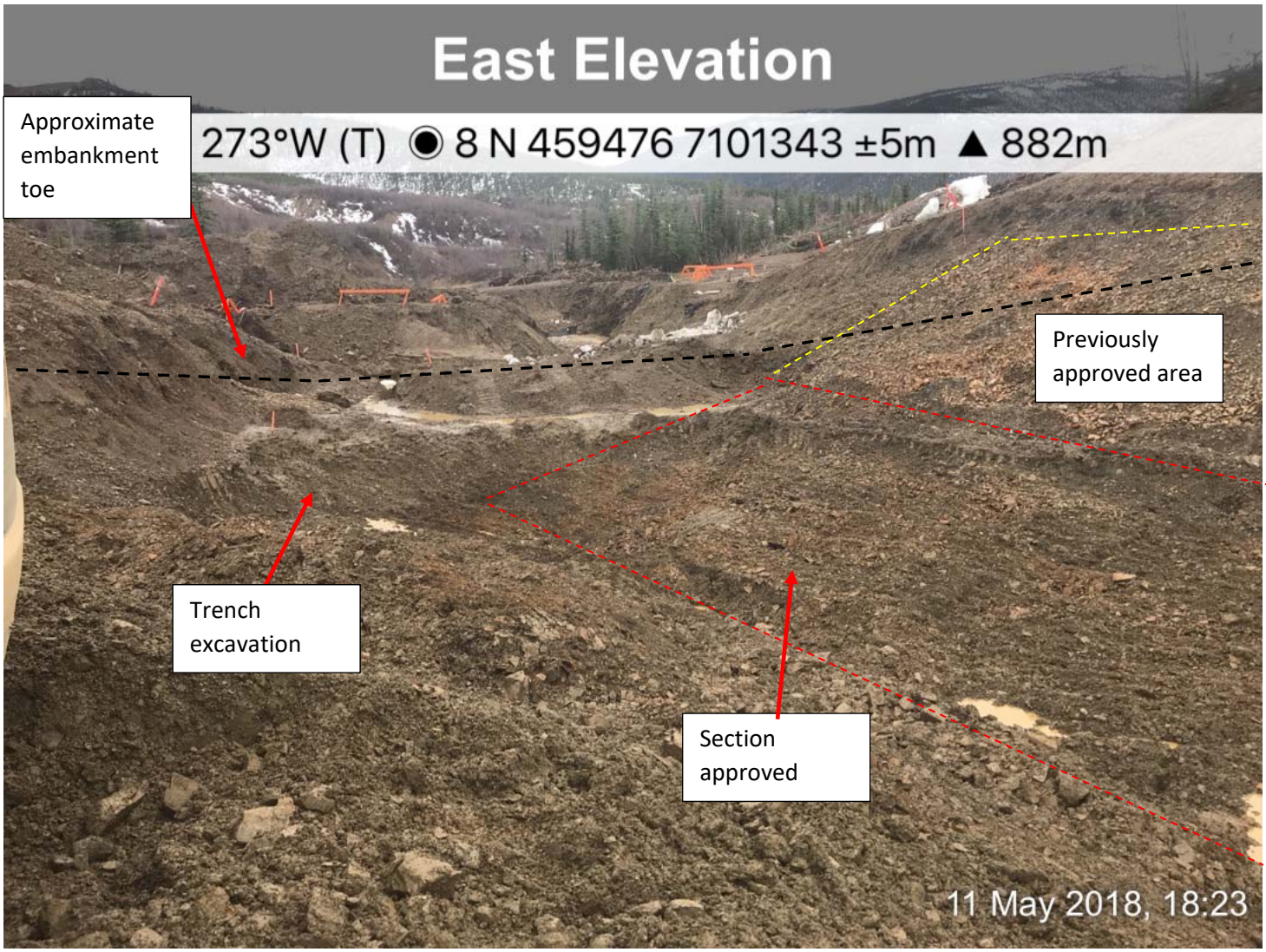


Photo 2: Area approved to type 3 bedrock and location where trench was excavated.

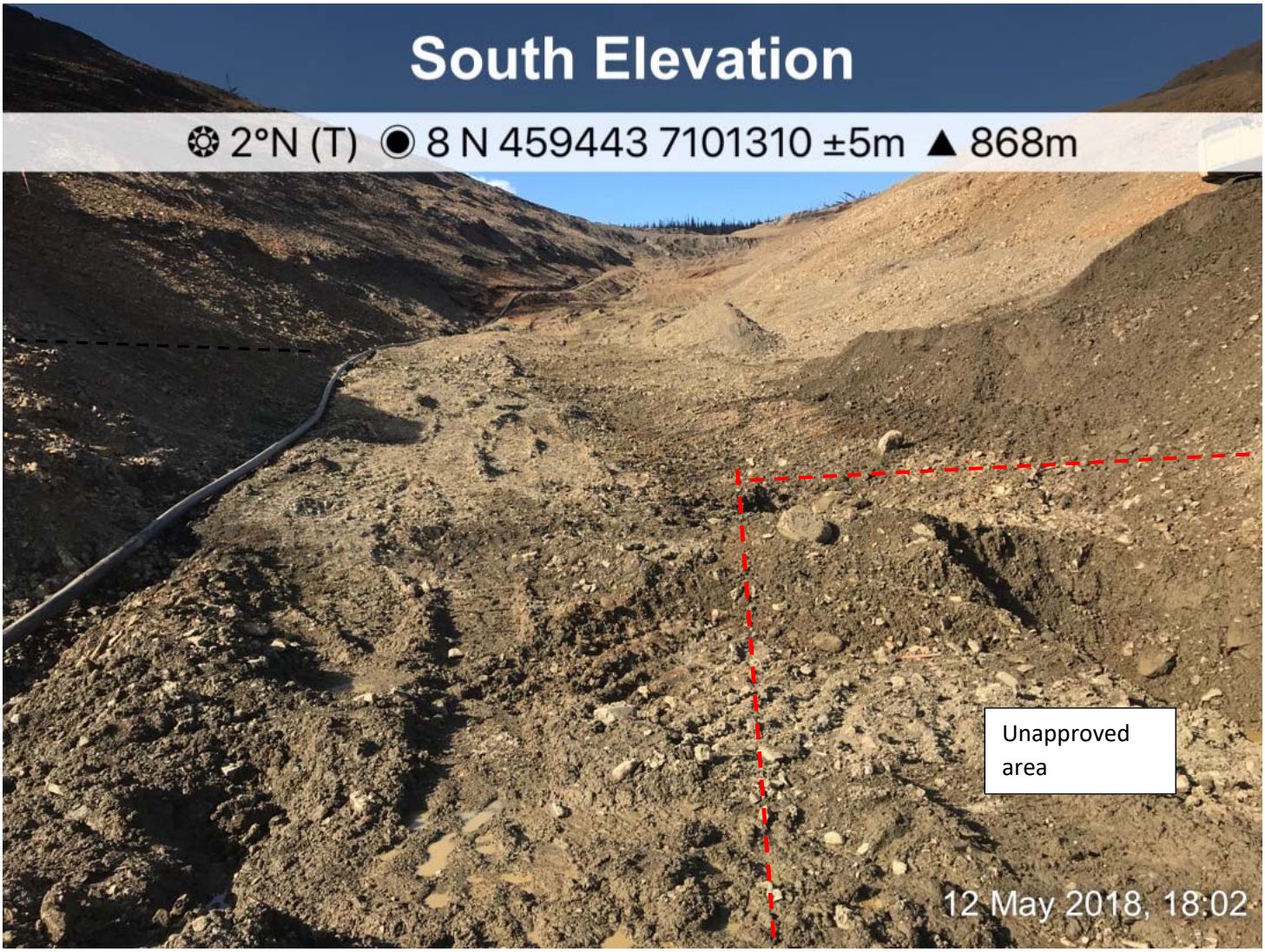


Photo 3: Approved area with piles and loose material.

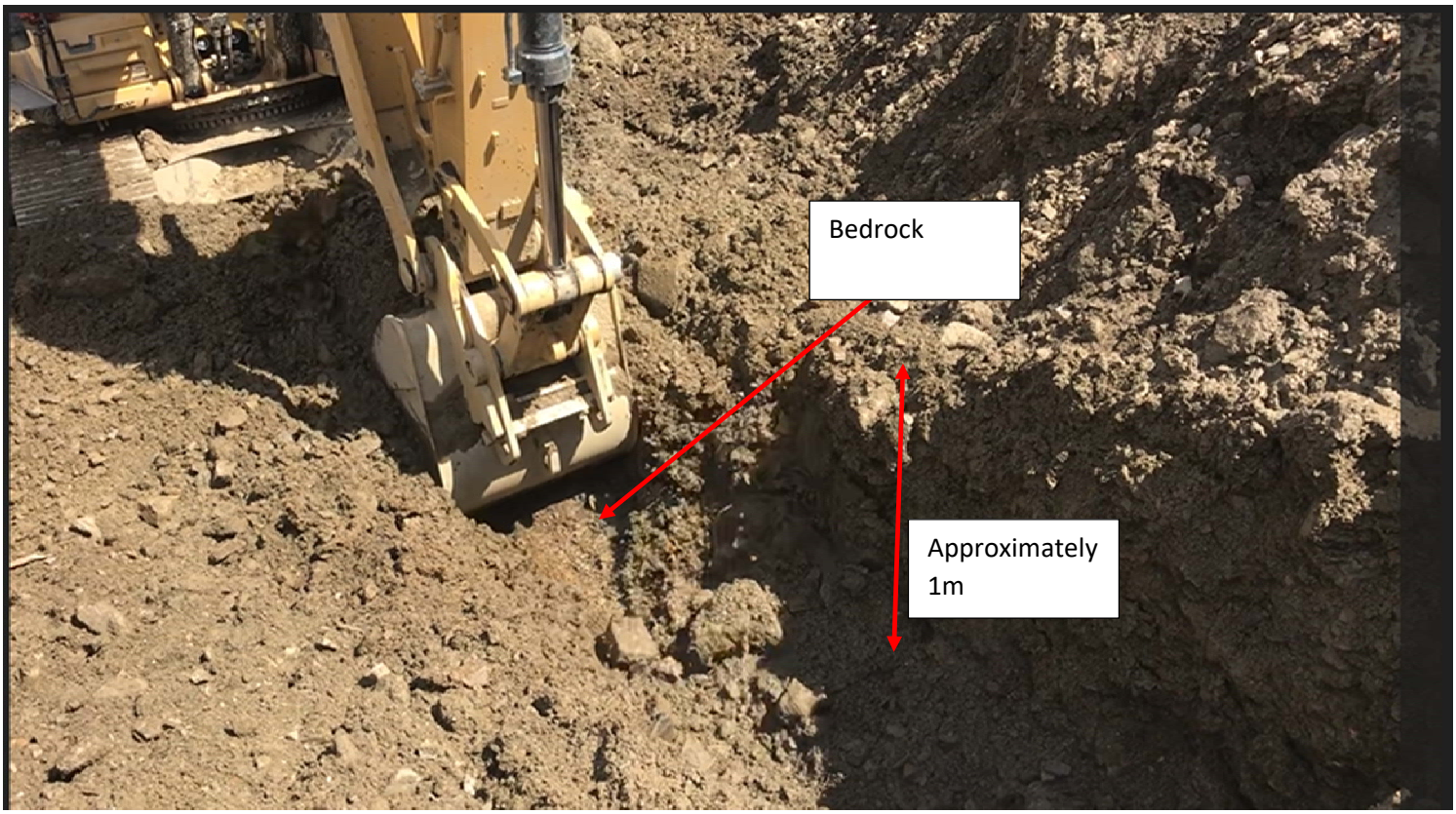


Photo 4: Excavation of trench to type 3 material.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 4°C to 14°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly's excavated the remaining portion of the embankment near the monitoring vault and shaped the colluvium around the toe. The colluvium areas were wet and soft. However, further excavation was not going lead to drier, dense material. These sloped areas were left to dry and will be inspected again prior to the embankment fill to determine if further treatment will be needed. (***Photo 1 and 2***).
  - Pelly's surveyor picked up the last portion of the embankment approvals to type 3 bedrock.
  - Pelly staged excavated material. This material appears to meet the requirements for structural fill. However, the material is saturated and should be allowed to drain prior to placement. (***Photo 3***)
  - Pelly and BGC worked on development of a cut plan for the portion of the drain trench now that type 3 material has been exposed and grades are known. Grades in this portion of the pipe trench are close to the original design grades with grade breaks shifting some. (***Figure 1***) The intent of the plan is to reduce the amount of cut required while digging the trench and to ensure the trench and drain fill are installed in the near surface bedrock.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-006	Pelly requested to use of rockfill from blasting in place of structural fill in the HLF embankment.	Written response provided to Pelly and JDS on May 10, 2018.
EPCM-RFI-012	Related to the configuration of the toe of the embankment.	Written response provided to Pelly and JDS on May 12, 2018.
CC204-RFI-007	Related to the closure sump piping.	Written response provided to Pelly and JDS on May 10, 2018.
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Pending.

Safety Issues: None

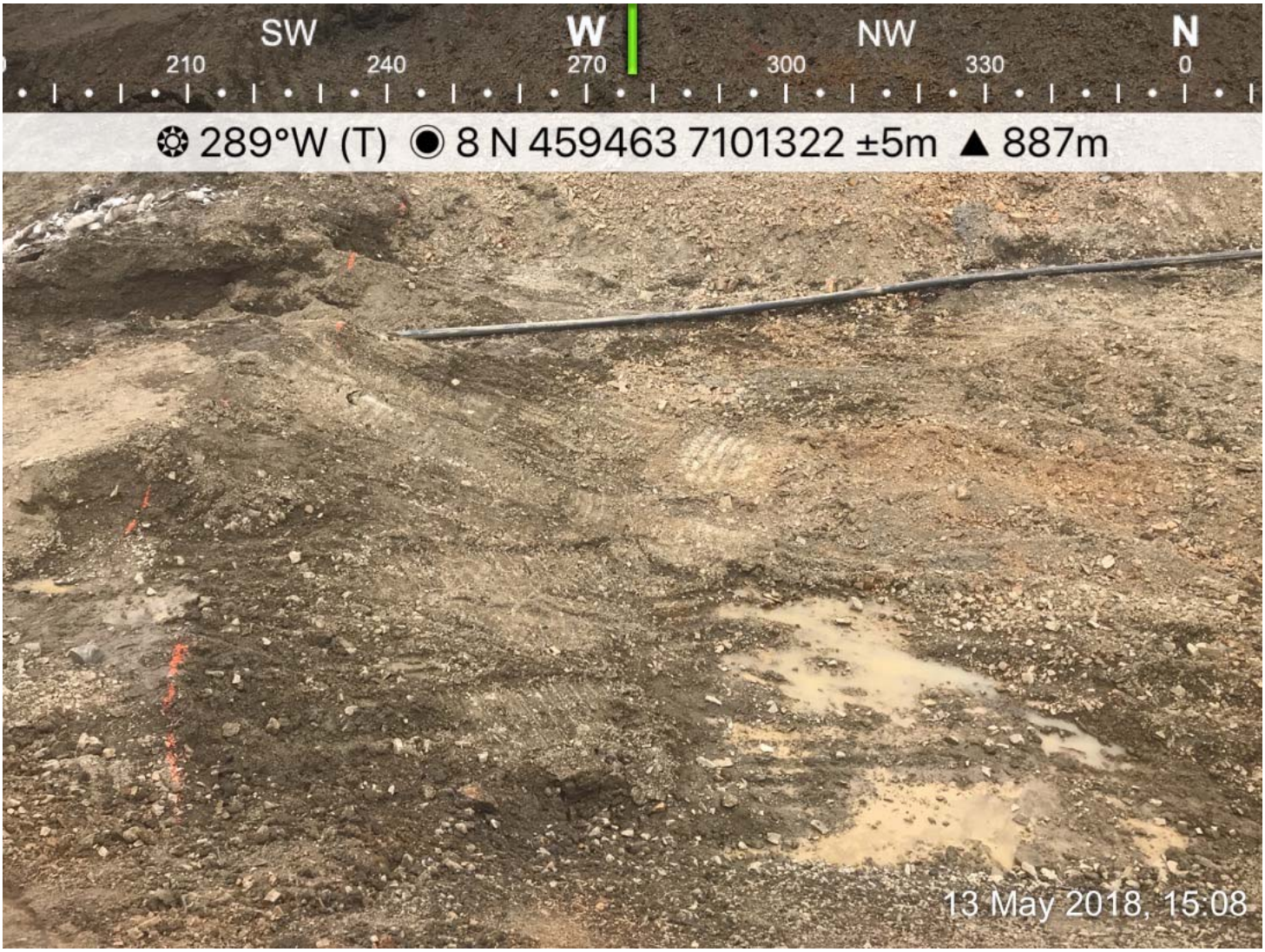


Photo 1: Excavated area at the toe of the embankment near the monitoring vault.



Photo 2: Shaped area. Colluvium was wet and soft. This area was left and was left to be inspected again when the area has dried.



Photo 3: Material in the background being moved for staging. Wet material should be allowed to drain prior to use.

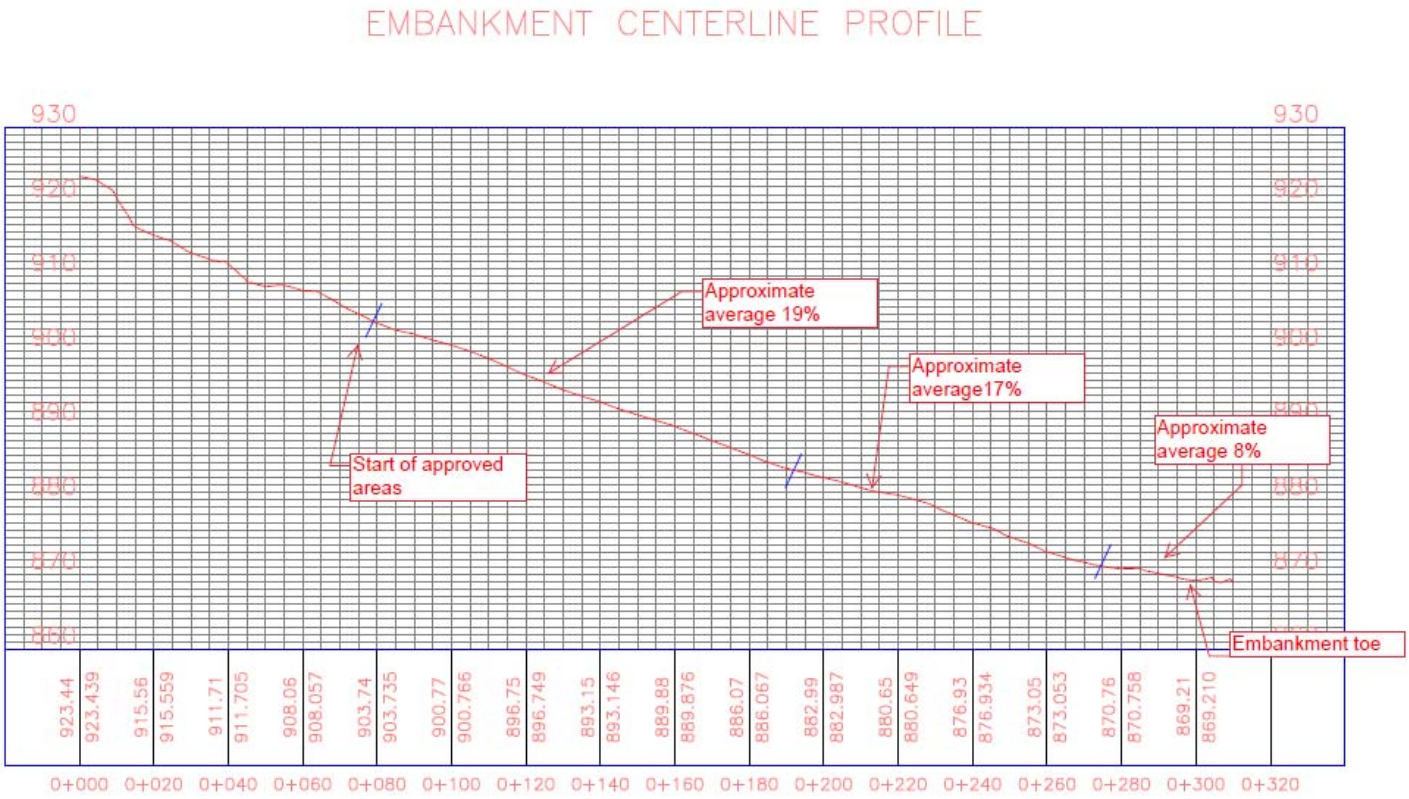


Figure 1: Approximate grades.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 5ºC to 11ºC

Observations and Recommendations

- Observations and Recommendations:
  - Pelly's stepped back an area near the embankment toe to lessen the slope and make it more stable. (***Photo 1***)
  - Pelly began digging the pipe trench under the embankment. Survey was present through most of it in order to get measure depth, grade, and levelness. Once complete Pelly plans on developing an as-built and providing it to BGC for review and approval of the pipe trench foundation. (***Photo 2***)
  - Material excavated from the pipe trench is too course and jagged to be used as Material 3 - structural fill or Material 2 - select fill. (***Photo 3***). Rock fragments are too large to be used in 30 cm lifts. The material may be stockipiled as Material 8 – Rockfill for future use. A test fill for rockfill material is pending.
  - The right abutment area cleared to type 3 foundation was inspected to determine the level of effort needed for cleanup prior to placement of embankment fill. Areas with exposed phyllite appear to have weathered significantly and will likely need to be excavated during embankment fill. (***Photo 4 and 5***)
  - Excavation continues at the ADR plant. Material being stockpiles appears to be suitable for the structural fill if larger diameter pieces are segregated. (***Photo 6***)
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Pending.
CC204-RFI-009	Related to material take-off quantities.	Pending.

Safety Issues: None

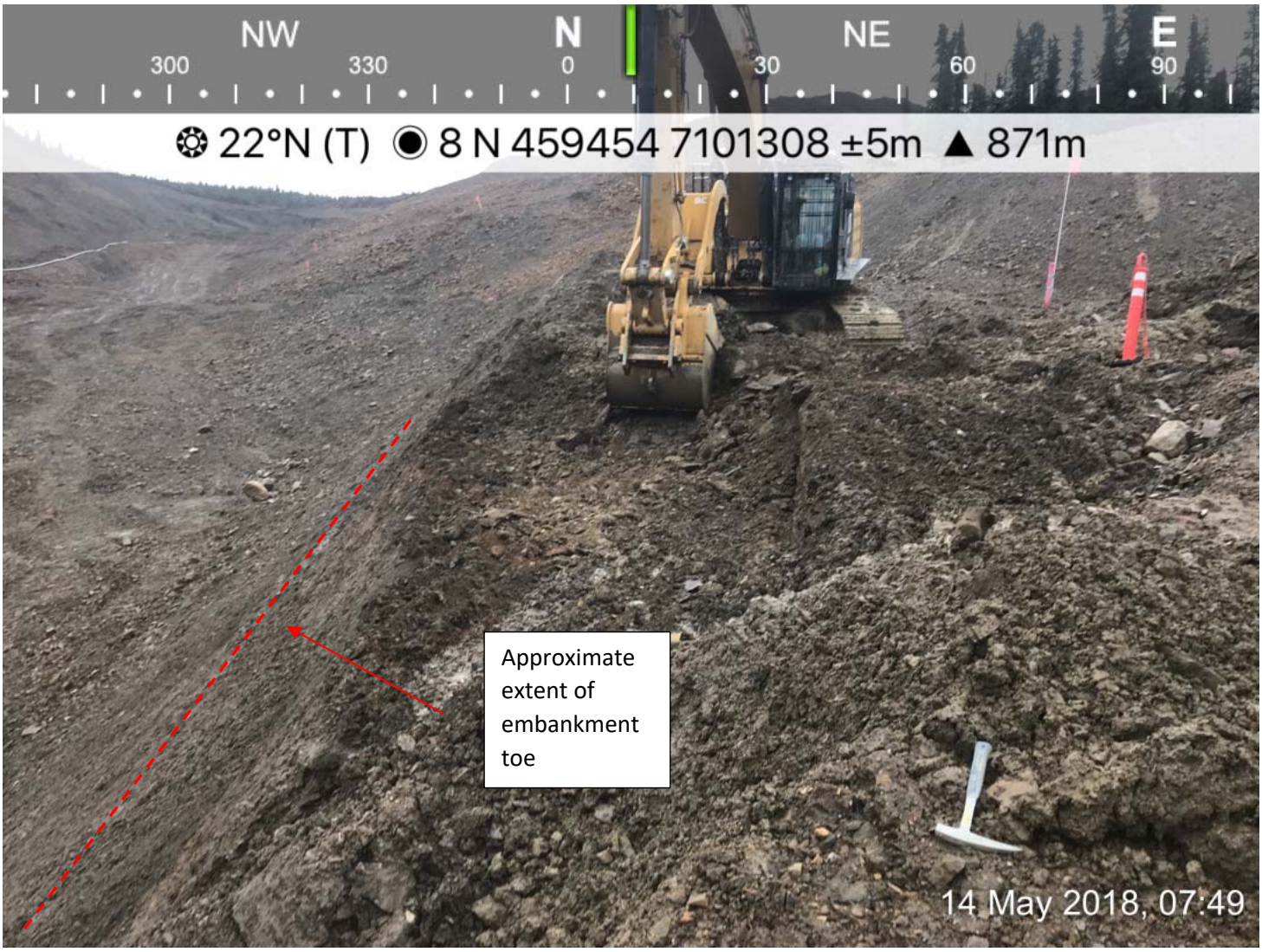


Photo 1: Pelly stepping back a steep slope near the embankment toe.

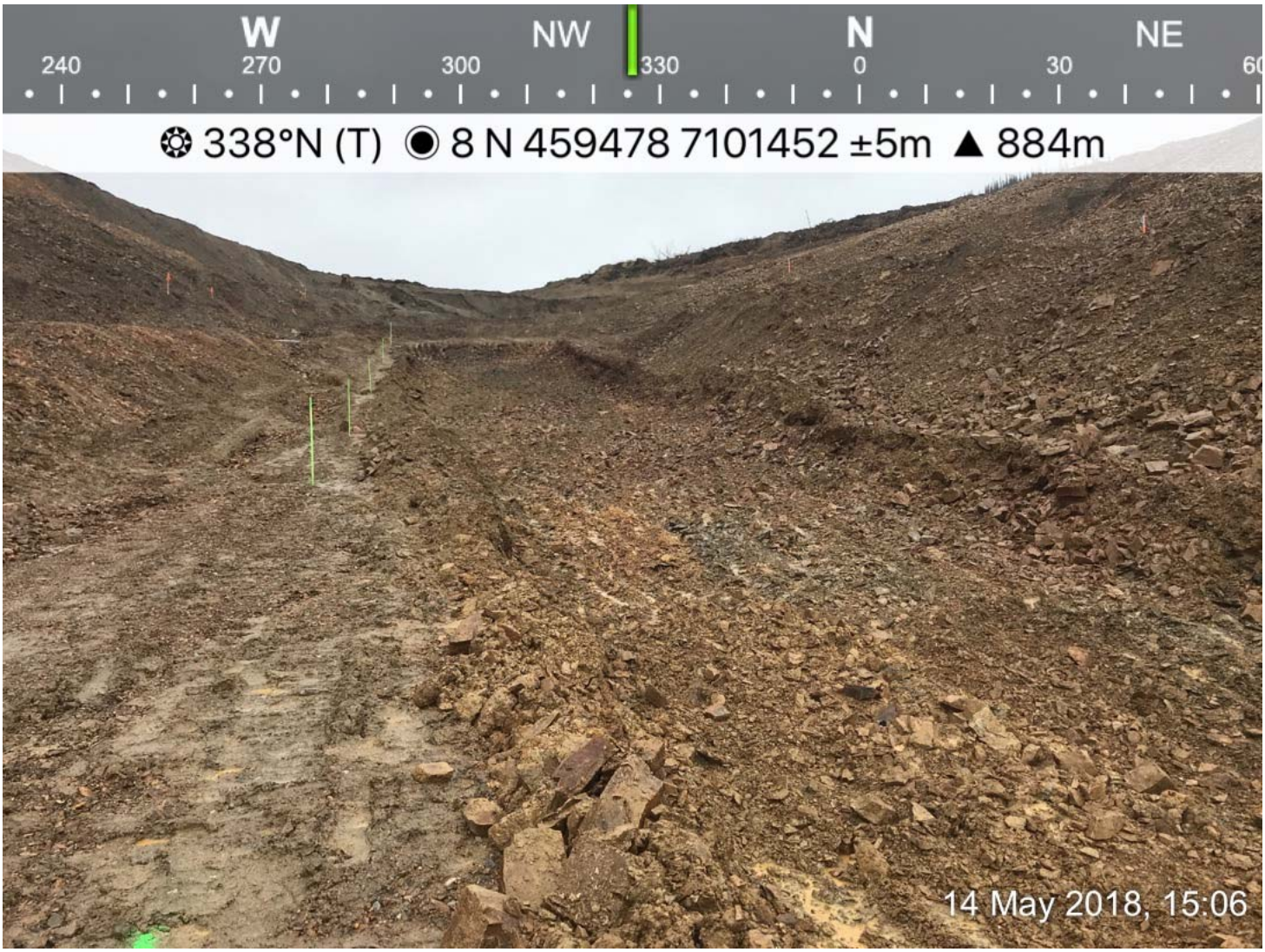


Photo 2: Pelly began digging the pipe trench through the embankment footprint. Excavation is leaving jagged rocks at the bottom. The pipe trench bottom will have to be smooth prior to placement of the geotextile to prevent punctures.



Photo 3: Excavated material consists of large jagged pieces that is not suitable to be used as select fill or structural fill.



Photo 4: Course outcrops appear somewhat lose.



Photo 5: Exposed phyllite layers in the abutment appear to have broken down and are now soft and weak.



Photo 6: Excavation at the ADR Plant.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rainy 3°C to 15°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly continued digging the pipe trench under the embankment. Survey helped to ensure level, depth, and width. (***Photo 1***)
  - Areas within the first 30m of trench were surveyed for approval. (***Photo 2***). Some blocky jagged rocks will have to be removed by hand prior to placement of the geofabric to ensure that it won't be punctured.
  - Material excavated from the pipe trench is too course and jagged to be used as Material 3 - structural fill or Material 2 - select fill. (***Photo 3***). Rock fragments are too large to be used in 30 cm lifts. The material may be stockipiled as Material 8 – Rockfill for future use. A test fill for rockfill material is pending.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill. (***Photos 4 and 5***)
  - Pelly excavated the area of embankment toe again to help water drain from this area. Previously approved areas driven on by heavy equipment have shown a tendency to pulverize when wet. Loose mud and rock at the toe may need to be excavated again prior to placement of embankment fill. (***Photo 6***)
  - During and before the recent rains areas of the trench received surface and near surface water flows. Approved areas should be protected from machinery when wet to prevent the need to further excavate after approval (***Photo 7***).
  - Excavation continues at the ADR plant.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Pending.
CC204-RFI-009	Related to material take-off quantities.	Pending.
CC204-RFI-010	Related to horizontal linear seam in the liner system.	Pending.

Safety Issues: None



Photo 1: Roughed out underdrain trench.



Photo 2: Section within the first 30m of underdrain pipe trench ready for approval.

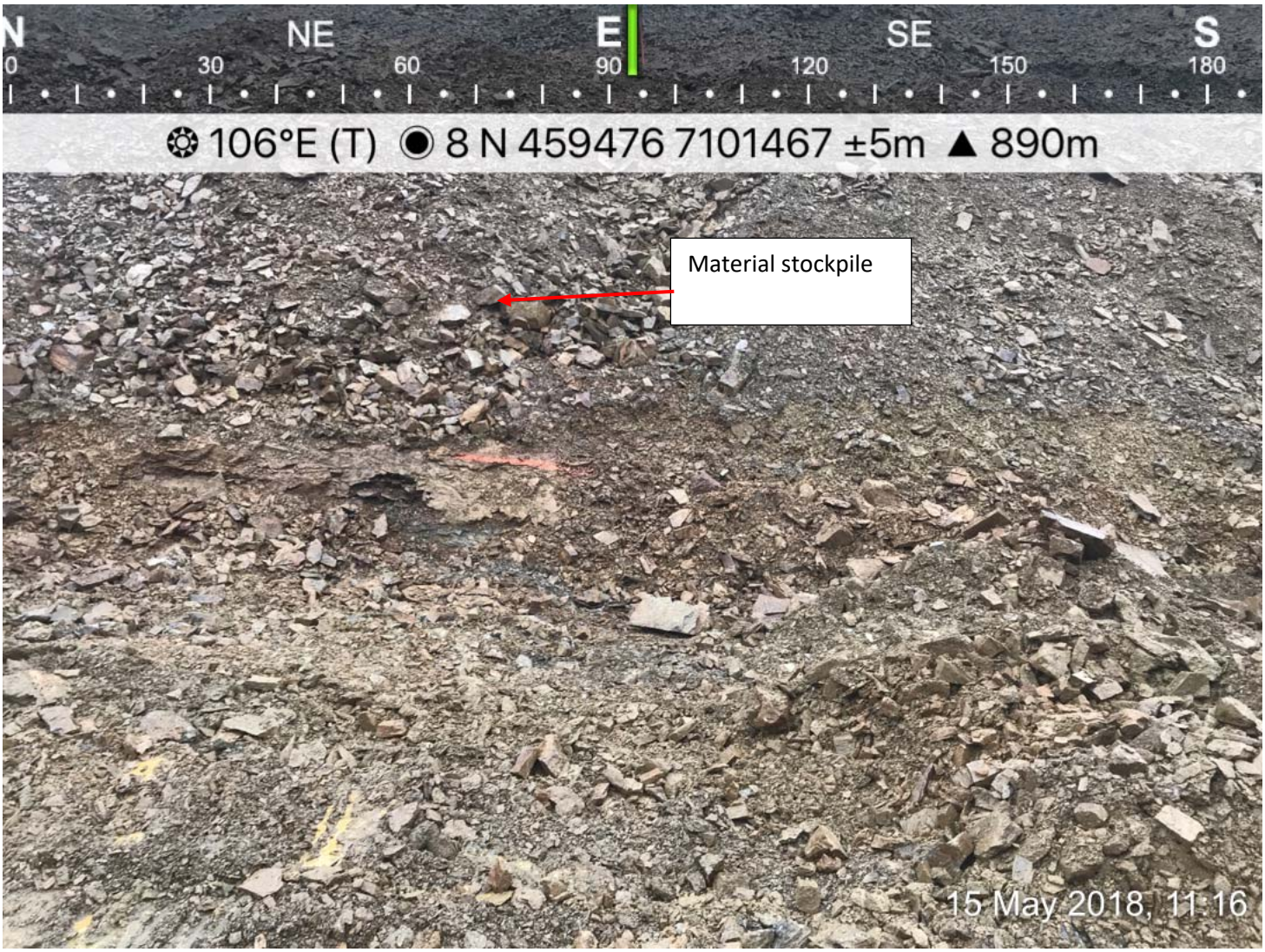


Photo 3: Material stockipile. Large percentage of rocks >8".

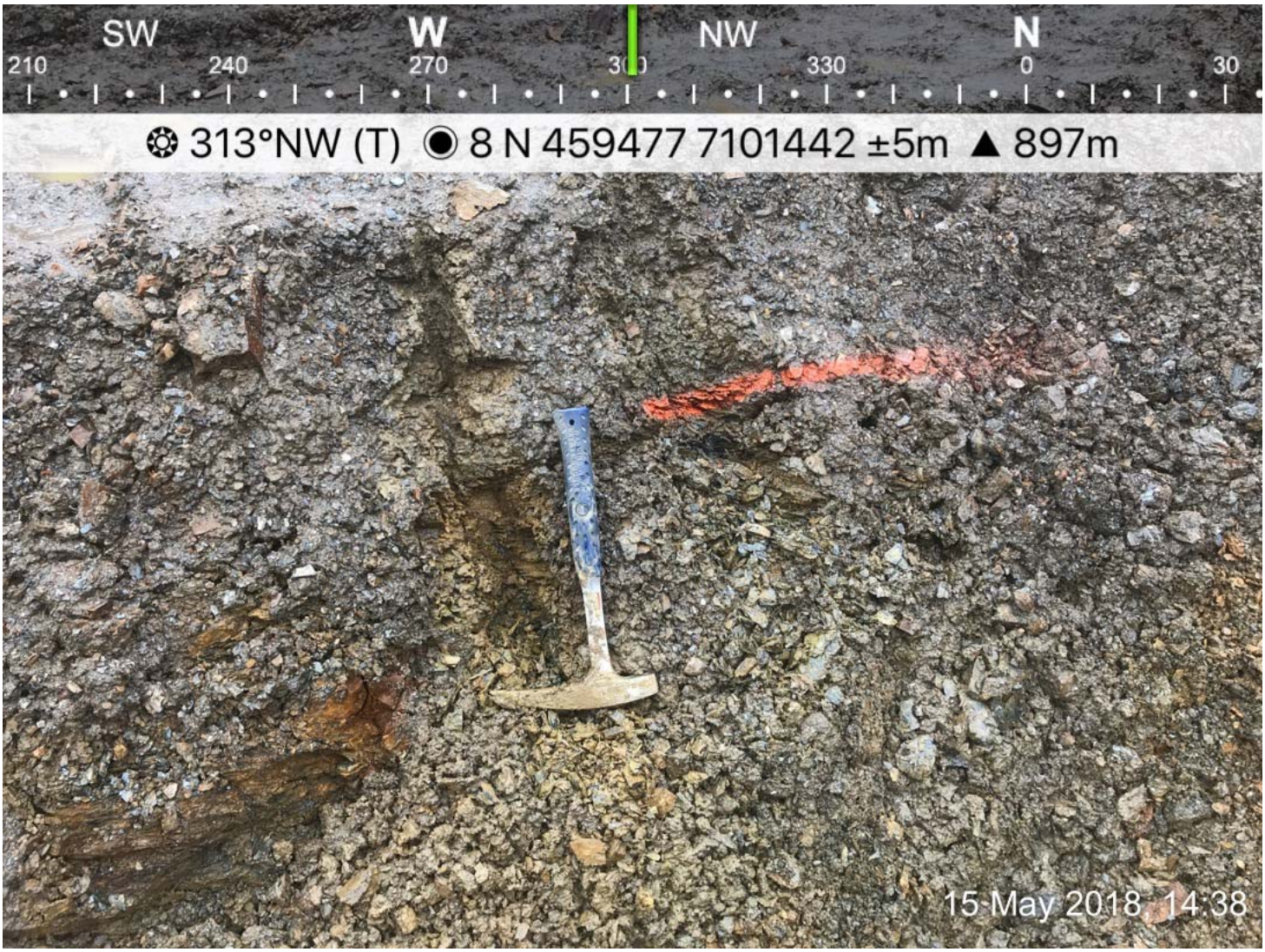


Photo 4: Line delineating pulverized material that will need to be removed painted along the edges of the underdrain pipe trench.

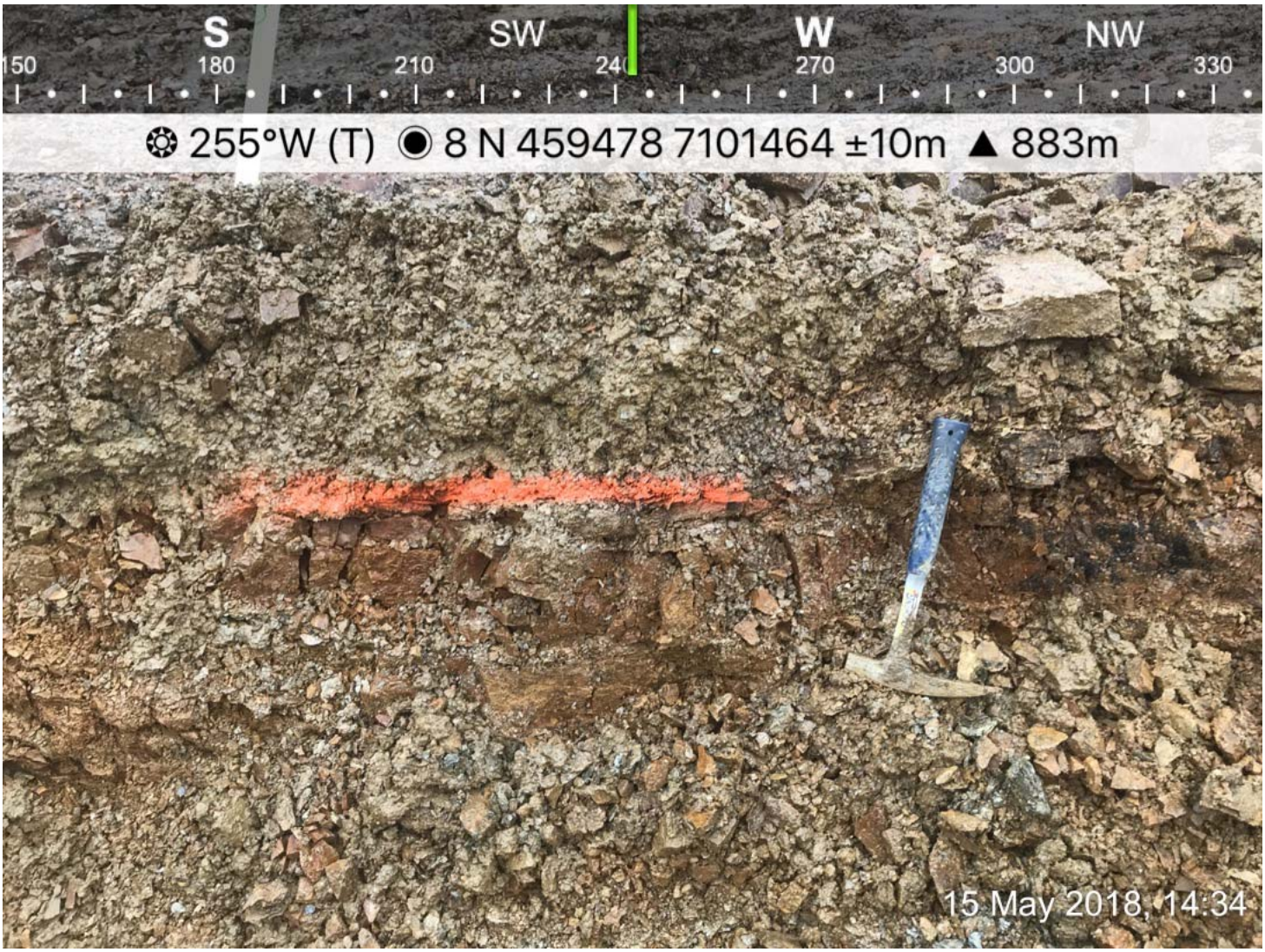


Photo 5: Line delineating pulverized material that will need to be removed painted along the edges of the underdrain pipe trench.



Photo 6: Excavator widening the channel near the toe to allow pooled water to drain.

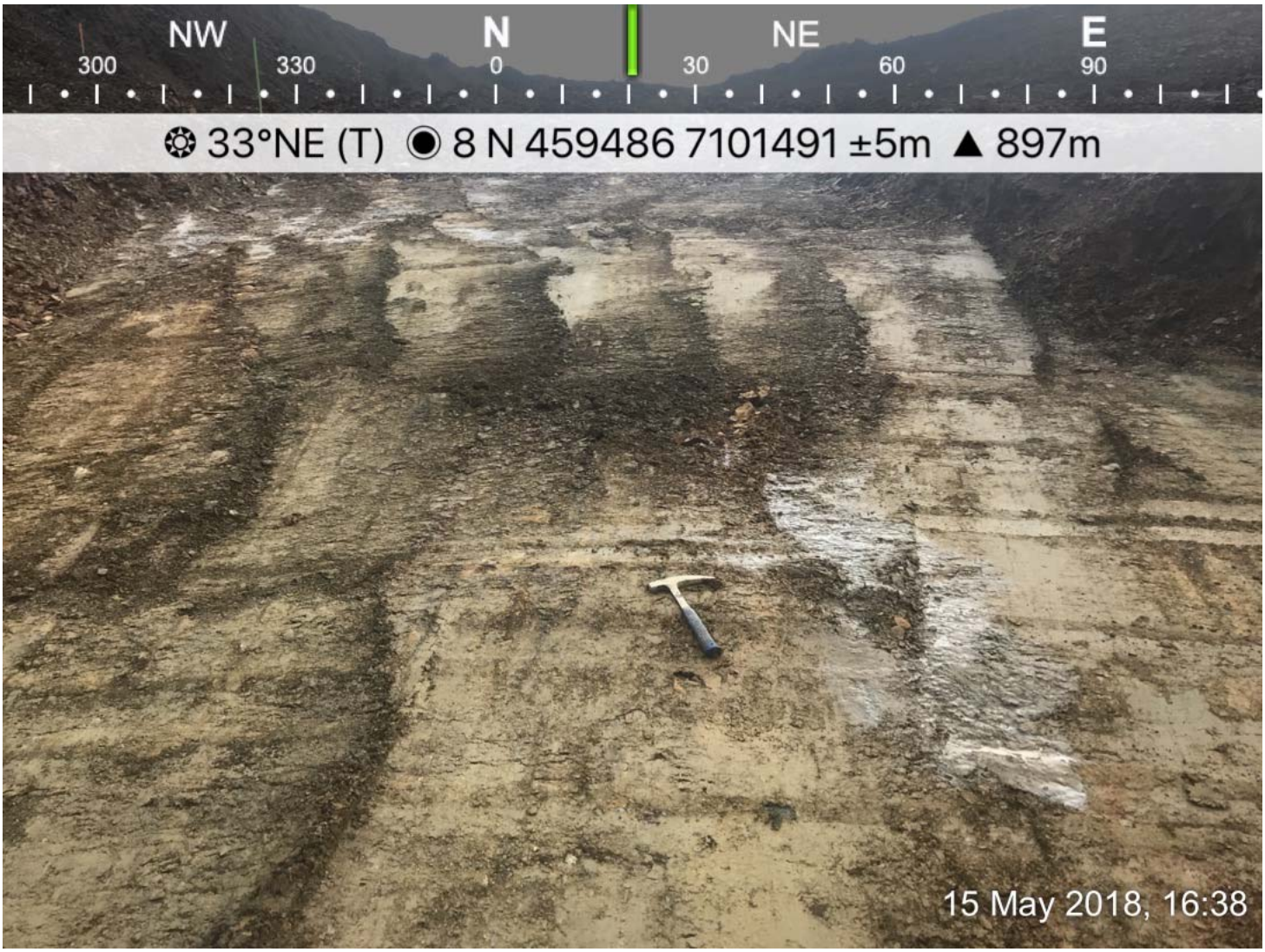


Photo 4: Water seeping from the prepared underdrain trench bottom. Prepared areas should be protected from heavy machinery traffic when wet to prevent the need to re-prepare these sections.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rainy 0°C to 16°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly continued digging the pipe trench under the embankment. Survey helped to ensure level, depth, and width. (***Photo 1***). An approximately 150m section is ready for approval. Pelly is producing the approval cross sections and maps. Some blocky jagged rocks will have to be removed by hand prior to placement of the geofabric to ensure that it won't be punctured.
  - Area at the toe of the embankment is still wet and receiving water. It is being allowed to drain (***Photo 2***).
  - Pelly worked on cleaning an area near the in-heap pond to type 3 foundation (***Photo 3***).
  - Material excavated from the pipe trench is too course and jagged to be used as Material 3 - structural fill or Material 2 - select fill. Rock fragments are too large to be used in 30 cm lifts. The material may be stockipiled as Material 8 – Rockfill for future use. A test fill for rockfill material is pending.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Excavation continues at the ADR plant.
  - Troy Meyer with BGC left site. He was on site between May 14 through May 16.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Pending.
CC204-RFI-009	Related to material take-off quantities.	Pending.
CC204-RFI-010	Related to horizontal linear seam in the liner system.	BGC Response delivered to JDS and Pelly on May 16.
CC204-RFI-013	Related to the liner at the closure sump.	Received May 16. Pending.
CC204-RFI-014	Related to use of geotextile throughout the project.	Received May 16. Pending.

Safety Issues: None



Photo 1: Prepared section of trench.



Photo 2: Wet area at the toe of the embankment.



Photo 3: Pelly clearing the remaining portion of the west side of the rock knob to type 3.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 4°C to 21°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly continued digging the pipe trench under the embankment. Survey helped to ensure level, depth, and width. (***Photo 1***). Pelly is working on the approval documents. Some blocky jagged rocks will have to be removed by hand prior to placement of the geofabric to ensure that it won't be punctured. (***Photo 2***). Loose and rocky materials from adjacent stockpiles has fallen into the excavation in some areas and should be cleaned out. (***Photo 3***).
  - Area at the toe of the embankment is still wet and receiving water. Pelly began excavating this area. (***Photo 4***).
  - BGC is discussing the best method to build the toe of the embankment in this areas.
  - Material excavated from the pipe trench is too course and jagged to be used as Material 3 - structural fill or Material 2 - select fill. Rock fragments are too large to be used in 30 cm lifts. The material may be stockipiled as Material 8 – Rockfill for future use. A test fill for rockfill material is pending.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Excavation/ pile grading continues at the ADR plant.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.
CC204-RFI-009	Related to material take-off quantities.	Closed: BGC responded May 17.
CC204-RFI-010	Related to horizontal linear seam in the liner system.	Closed: BGC responded May 16.
CC204-RFI-012	Related to drain pipe wrapping.	Open: Received May 17. Pending response.
CC204-RFI-013	Related to the liner at the closure sump.	Closed: Received May 17. BGC responded May 17.
CC204-RFI-014	Related to use of geotextile throughout the project.	Closed: Received May 17. BGC responded May 17.

CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.

Safety Issues: None



Photo 1: Prepared section of trench.

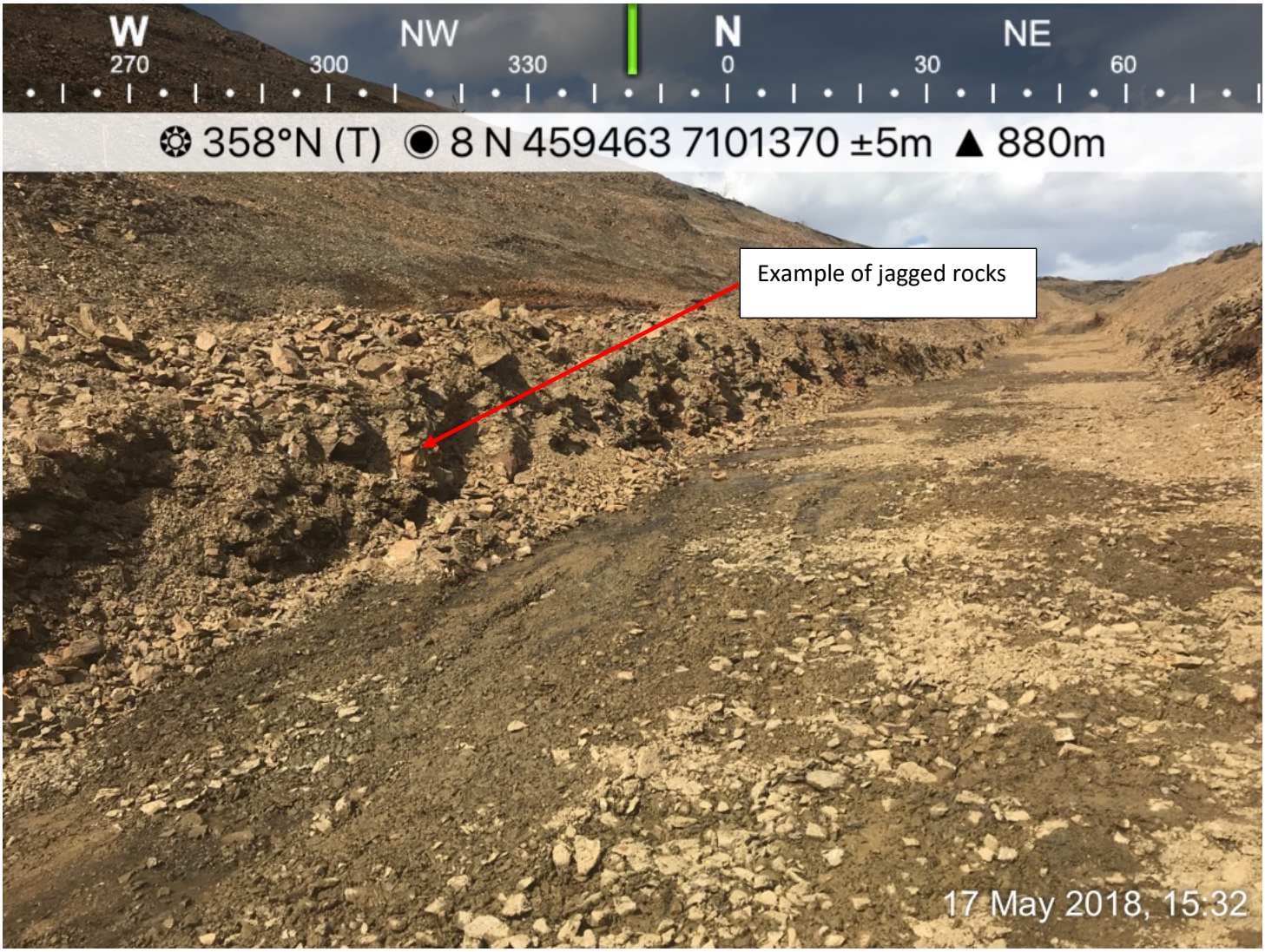


Photo 2: Jagged rocks that can puncture the geotextile will have to be dealt with.



Photo 3: Pelly clearing the remaining portion of the west side of the rock knob to type 3.



Photo 4: Pelly excavating trench in wet area at the toe.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 4ºC to 21ºC

Observations and Recommendations

- Observations and Recommendations:
  - Pelly continued digging the pipe trench under the embankment. Survey helped to ensure level, depth, and width. (***Photo 1***). Pelly is working on the approval documents. Some blocky jagged rocks will have to be removed by hand prior to placement of the geofabric to ensure that it won't be punctured. Loose and rocky materials from adjacent stockpiles has fallen into the excavation in some areas and should be cleaned out.
  - Pelly excavated the area at the toe of the embankment near the monitoring vault. Additional excavation is required. Pelly is working on water control to dry this area and to keep it from refilling with water before proceeding with further excavation. (***Photo 2***).
  - BGC is discussing the best method to build the toe of the embankment in this areas. Type 3 bedrock appears to drop significantly for the last 10m of embankment toe. BGC has recommended that the entire embankment toe be founded on type 3 bedrock (see ***Figure 1***). Pelly will continue excavation to type 3 bedrock once water control has been established.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Excavation/ pile grading continues at the ADR plant.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.
CC204-RFI-009	Related to material take-off quantities.	Closed: BGC responded May 17.
CC204-RFI-010	Related to horizontal linear seam in the liner system.	Closed: BGC responded May 16.
CC204-RFI-012	Related to drain pipe wrapping.	Open: Received May 17. Pending response.
CC204-RFI-013	Related to the liner at the closure sump.	Closed: Received May 17. BGC responded May 17.

CC204-RFI-014	Related to use of geotextile throughout the project.	Closed: Received May 17. BGC responded May 17.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.

Safety Issues: None



Photo 1: Trench excavation towards the monitoring vault.

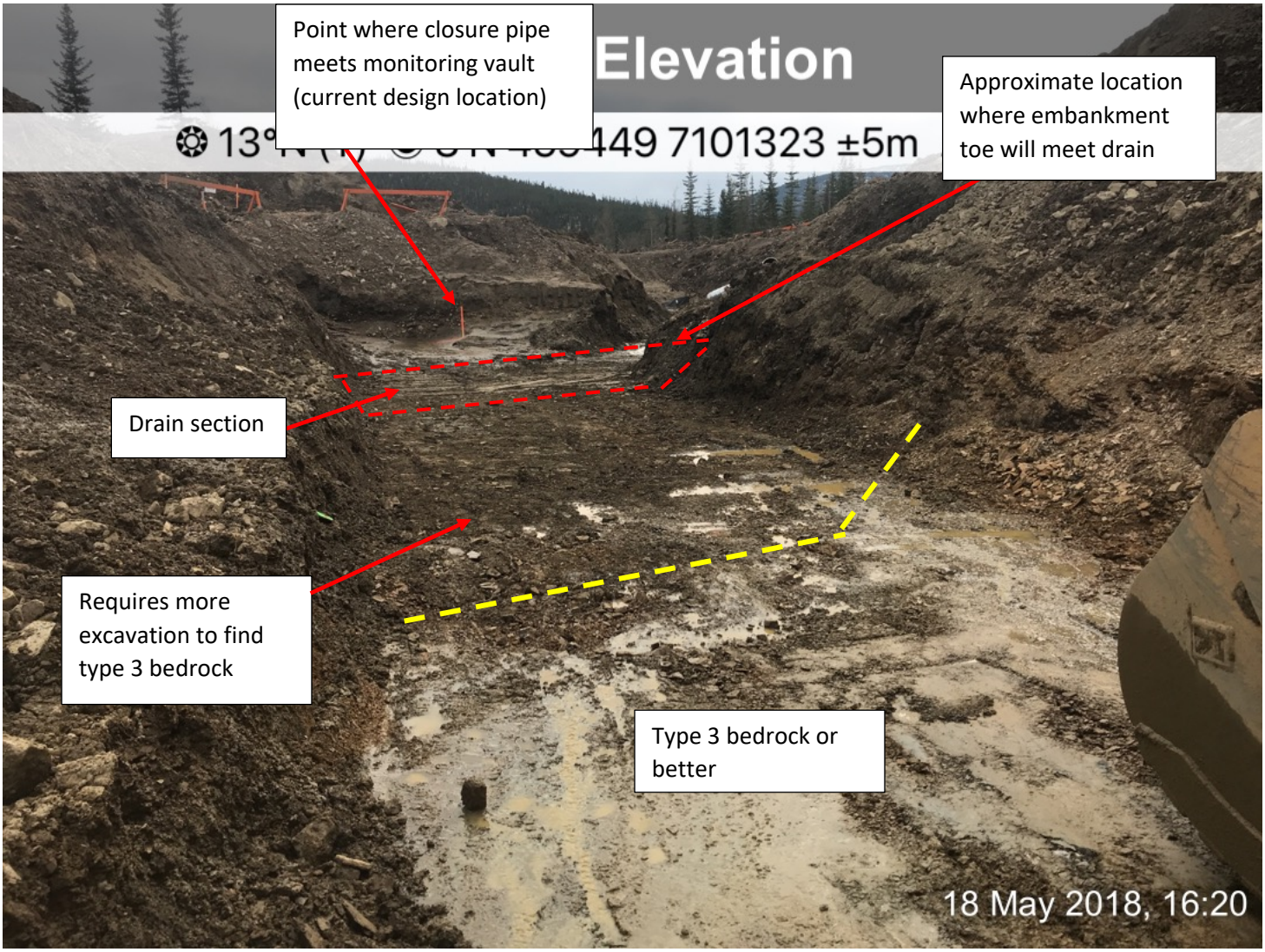


Photo 2: Additional work required at the embankment toe.

Concept for embankment toe completion near monitoring vault.

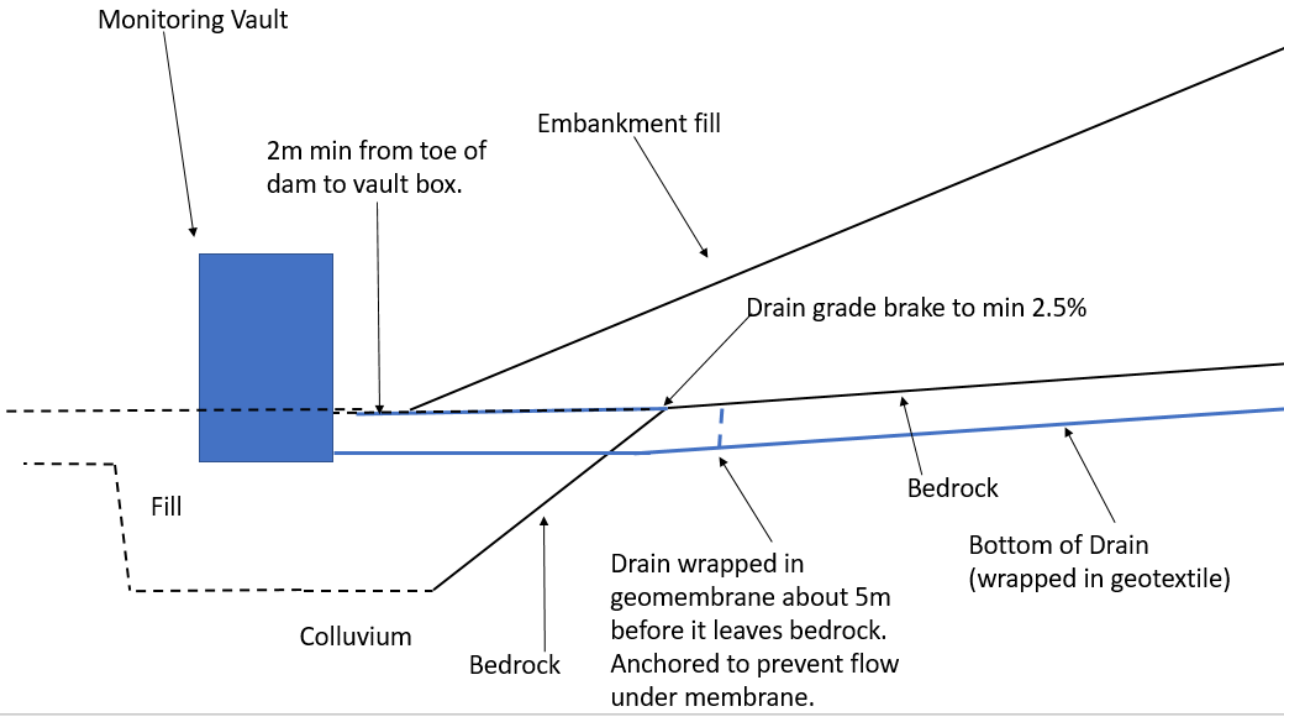


Figure 1: Concept for toe completion near monitoring vault

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 9ºC to 21ºC

Observations and Recommendations

- Observations and Recommendations:
  - Pelly created a ditch and sump downstream of the embankment toe to allow water to drain prior to resuming excavation.
  - Pelly excavated the area of the in-heap pond. Material on the west side of the excavation was frozen. The excavation still requires a large amount of material removal before it is at final grade. (***Photo 1***).
  - BGC and Pelly discussed using a placer tailings deposit as backfill material for the toe of the HLF embankment. This material was inspected by BGC and found to be too poorly graded to be used as fill. (***Photo 2***)
  - A Rockfill Test Fill 01 was completed in the footprint of the HLF embankment. (***Photo 3***). It was determined that using the material excavated from the embankment drain trench as fill at the toe of the embankment is appropriate in 0.5m lifts. The number of passes needed to compact the material will be finalized once the settlement data is reviewed by BGC. However, preliminary estimates are 3 to 4 passes with 12 ton, smooth drum, vibratory roller. Details documenting the test fill and results will be presented in a brief memo developed by BGC.
  - BGC has recommended that the entire embankment toe be founded on type 3 bedrock. Pelly will continue excavation to type 3 bedrock once water control has been established.
  - Neway has resumed crushing material. (***Photo 4***) Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and reported that it has less than 6% fines.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Excavation/ pile grading continues at the ADR plant.
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.

CC204-RFI-012	Related to drain pipe wrapping.	Closed: Received May 17. BGC responded May 19.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.

Safety Issues: None



Photo 1: Pelly excavating the in-heap pond area.

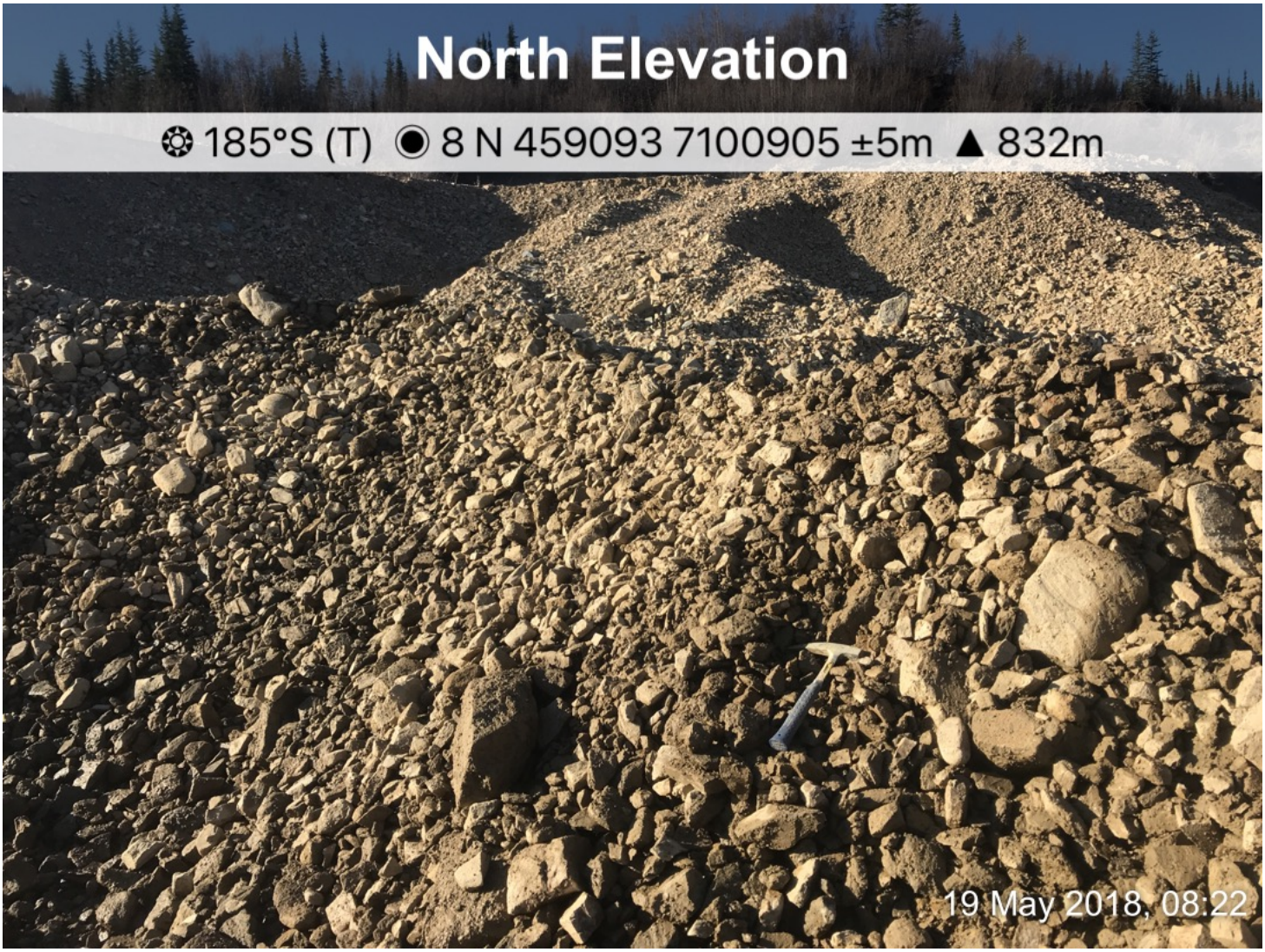


Photo 2: Areas of poorly graded cobbles and boulders rejected for use as embankment toe backfill.



Photo 3: Testing compaction properties of the rockfill excavated from the drain trench for use as fill under the embankment toe.

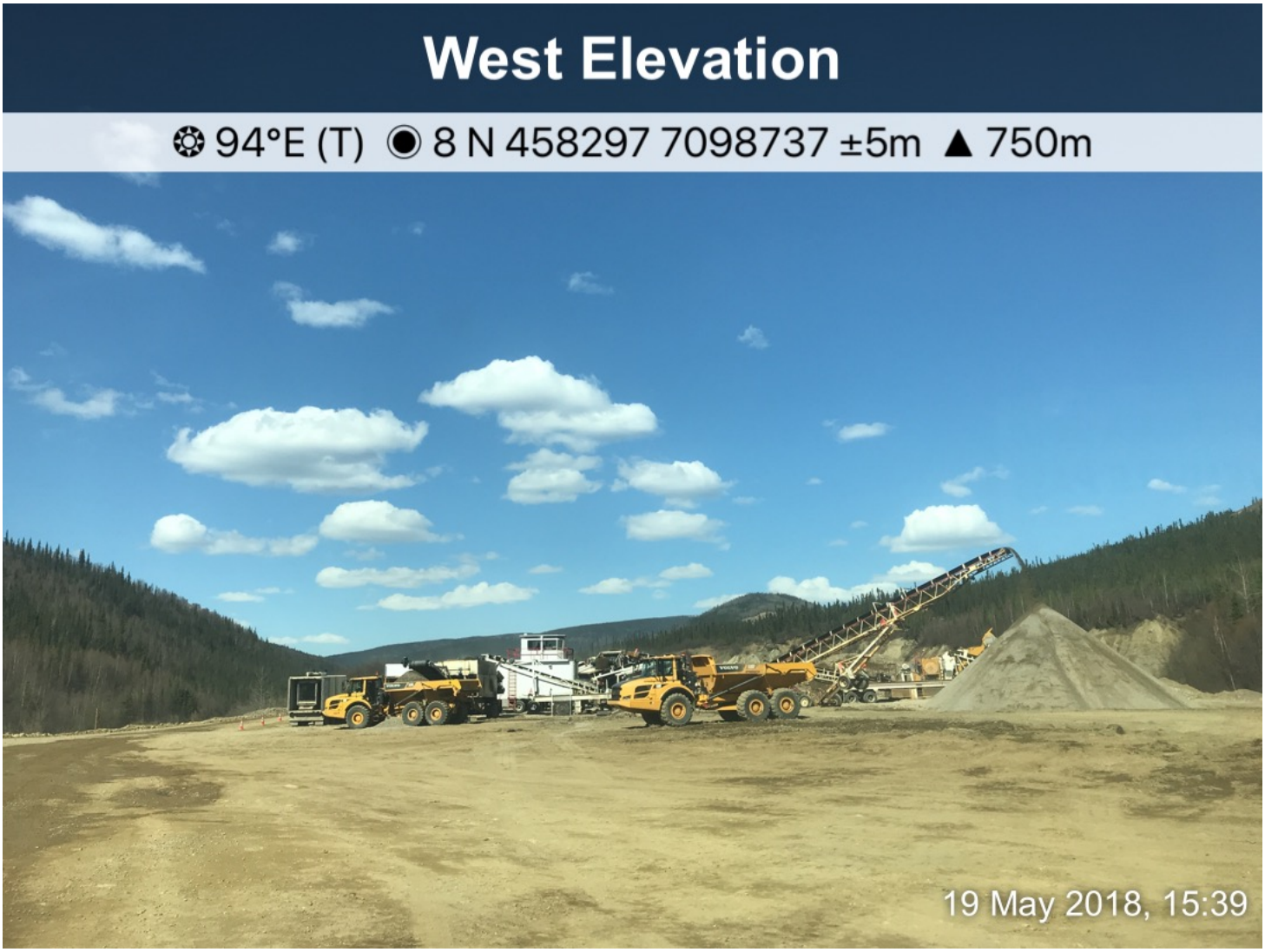


Photo 4: Neway producing concrete aggregate.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 8°C to 20°C

Observations and Recommendations

- Observations and Recommendations:
  - Pelly excavated the toe area of the embankment. Type 3 bedrock was exposed in most of the excavation. Two meters of the toe remained in wet colluvium. This area could not be excavated due to water running into the excavation area. The area around the toe will have to be excavated and sloped to create more room to work in when fill is placed. (***Photo 1 and 2***)
  - Due to the geometry of the bedrock at the toe Pelly and JDS has asked for additional clarification on how to complete the doe and drain. JDS will provide an RFI to BGC tomorrow. Victoria Gold Environmental will be consulted in developing a solution in this area to ensure it complies with requirements for discharge and closure.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regrading the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment. (***Photo 3 and 4***)
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.
CC204-RFI-012	Related to drain pipe wrapping.	Closed: Received May 17. BGC responded May 19.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.

Safety Issues: None

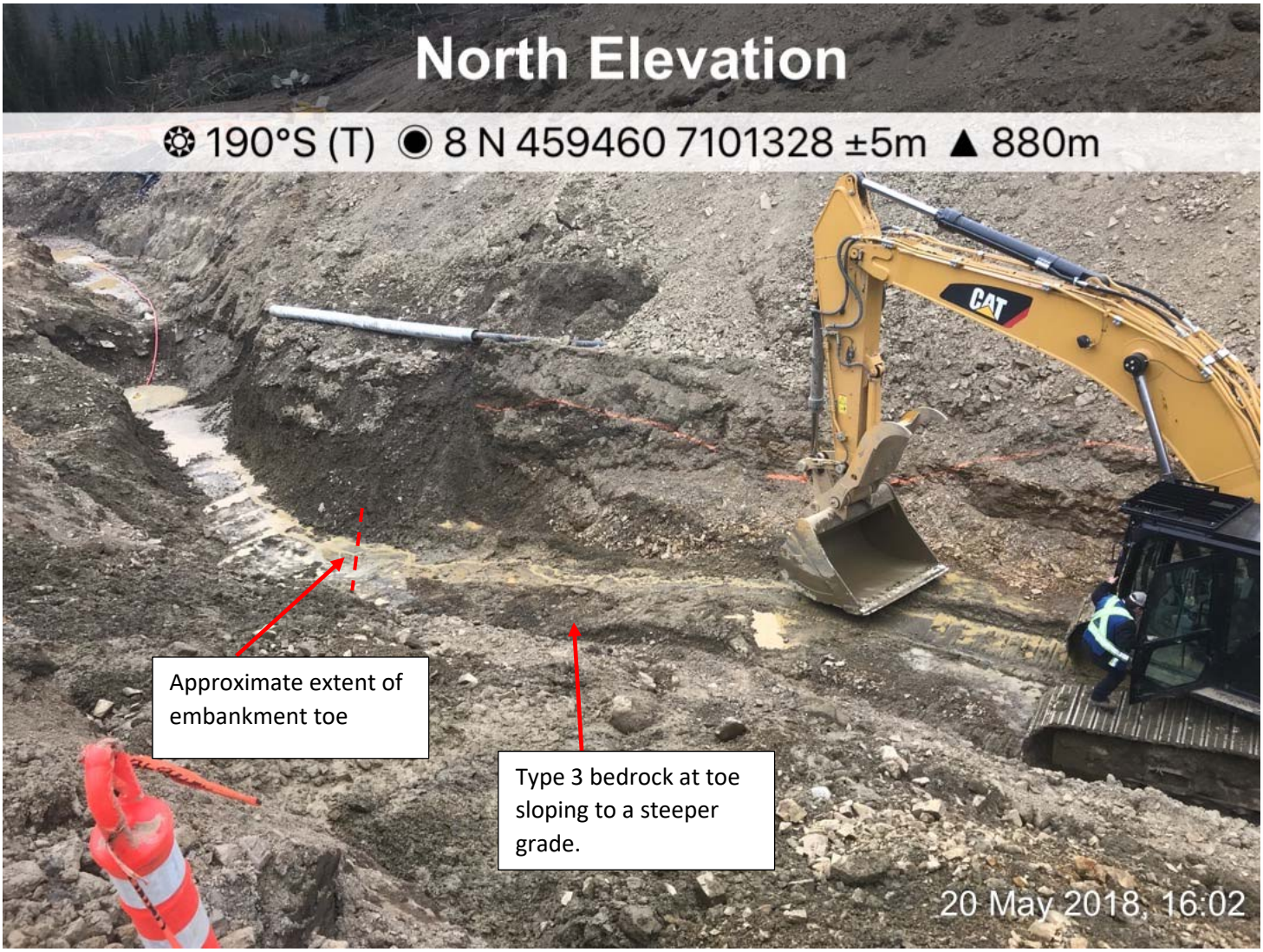


Photo 1: Pelly excavating the in-heap pond area.



Photo 2: Area at the toe is very wet and water continues to infiltrate into the excavation making identification of type 3 bedrock very difficult. Excavation is also narrow and will need to be widened and sloped for safety and working space.



Photo 3: ADR stockipile. Majority of material looks suitable for Structural Fill.



Photo 4: Larger material at the toe of the pile may not be suitable as Structural Fill. BGC should be present during haul out to determine when this material should be segregated as Material 7 – Compacted Rockfill.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 4°C to 15°C

Observations and Recommendations

- Observations and Recommendations:
  - No work was performed at the HLF embankment area today.
  - Rainwater inundated the excavation at the toe of the embankment. (***Photo 1***). Rainwater has rutted the bottom of the washed some material, including jagged rocks into the trench. (***Photo 2***). The trench bottom should be cleaned of debris before placing geotextile.
  - Due to the geometry of the bedrock at the toe Pelly and JDS has asked for additional clarification on how to complete the doe and drain. JDS and Pelly have delivered an RFI to BGC regarding this issue. BGC has provided verbal direction and a conceptual sketch for the construction modifications (***Figure 1***). BGC is developing a new detail drawing to serve as guidance. Victoria Gold Environmental should review the final drawing to ensure it complies with requirements for discharge and closure. BGC expects a formal response to be complete this week.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability. (***Photo 3***).
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regrading the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.
CC204-RFI-012	Related to drain pipe wrapping.	Closed: Received May 17. BGC responded May 19.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Pending response.

Safety Issues: None

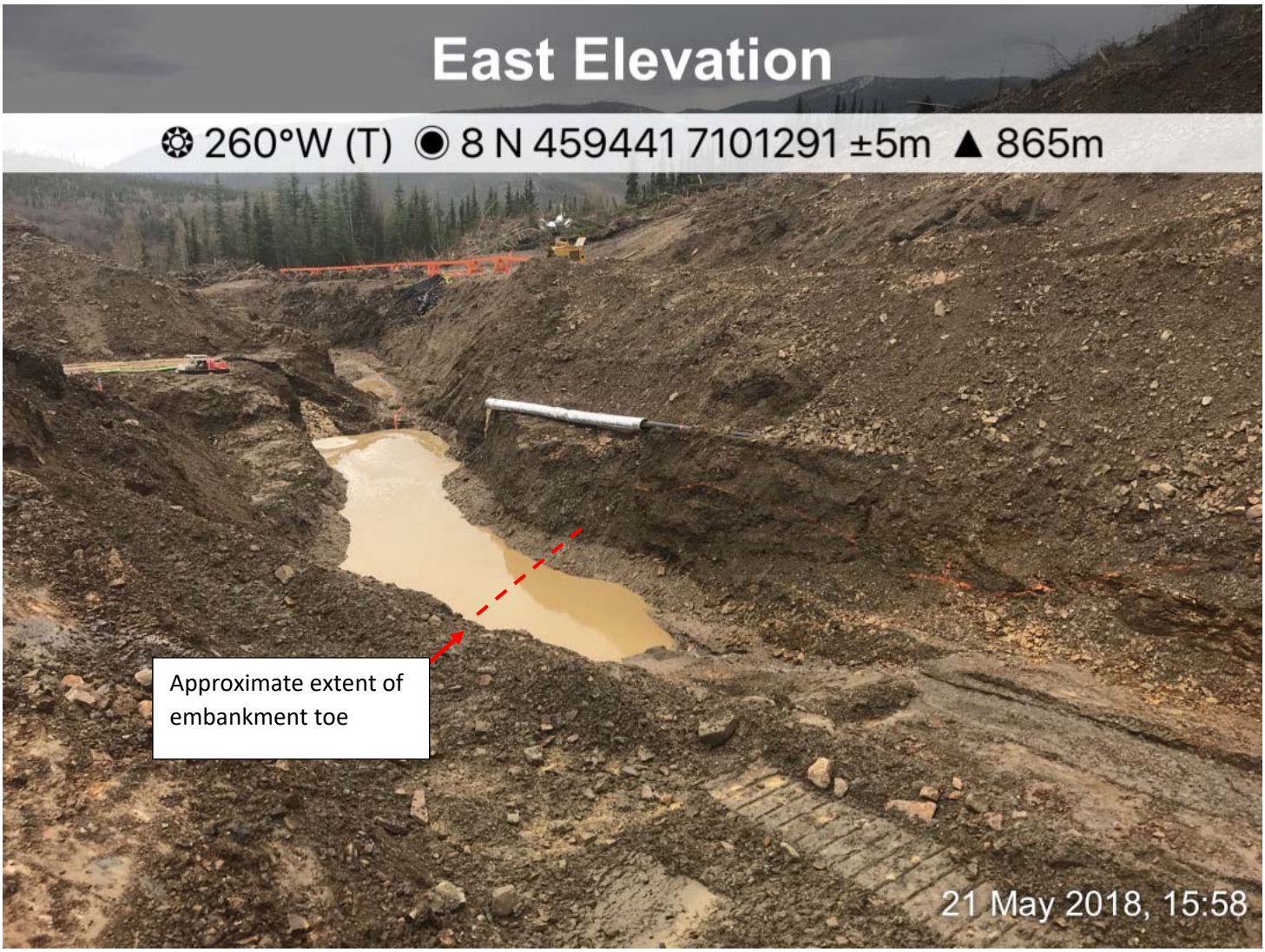


Photo 1: Water inundation at the embankment toe.



Photo 2: Example of rutting and debris in the embankment trench that will need to be cleaned prior to placement of material.

Concept for embankment toe completion near monitoring vault.

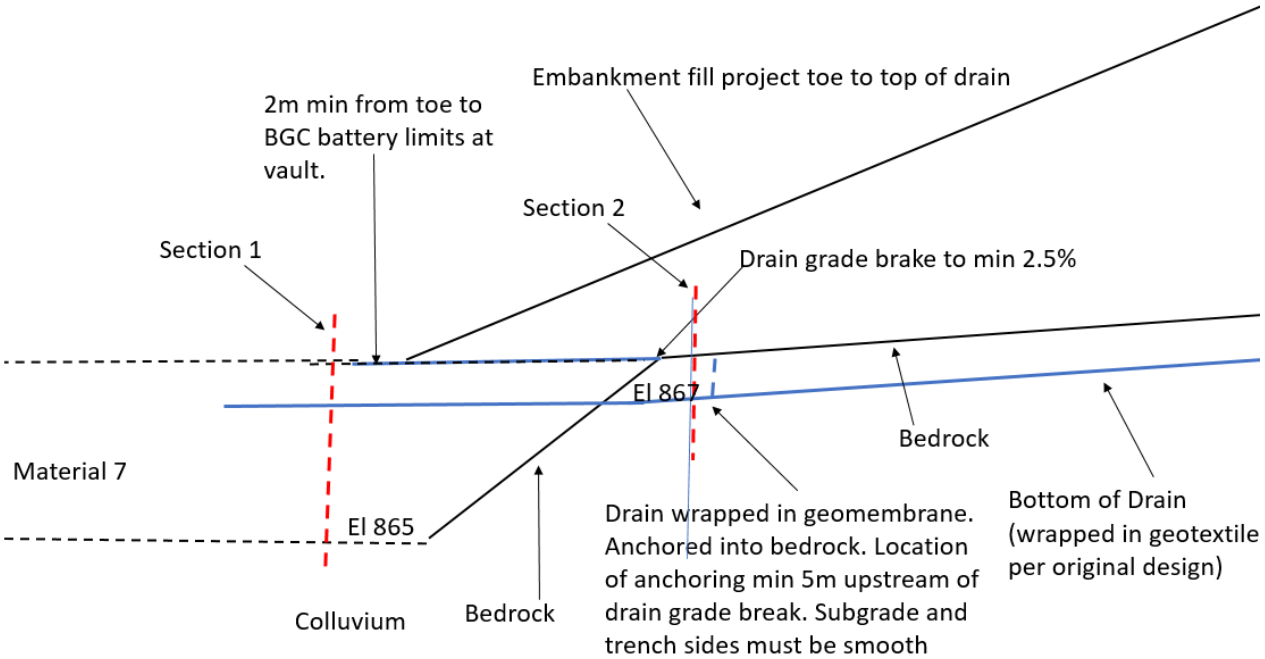


Figure 1: Concept for completion of embankment toe.



Photo 3: Neway crusher.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 3°C to 17°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - No construction was performed at the HLF embankment area today. (***Photo 1***)
  - Pelly is in the process of redirecting and removing water from the area of the embankment toe. (***Photo 2***)
  - BGC sent a RFI to JDS to provide Pelly. The RFI requests water management details for all construction in the valley this season and protections over the winter. Recent rains have cause minor damage to the pipe trench excavation. Once fill/geosynthetics are placed and subgrade is prepared in areas like the embankment and the in-heap pond damage from surface water flow can result in significant rework. The storm water management plan should also cover protection of the stockpiles to avert erosion into streams, instability, and contamination. Victoria Gold should also review Pelly's water management plan to ensure that it complies with their intent and permitting requirements.
  - BGC verbally discussed Pelly developing a stockpile management plan. To date stockpile management has been adequate. However, a stockpile management plan should be developed to ensure that materials are mistakenly borrowed for the wrong use and that quantities are tracked.
- Open Observations and Recommendations:
  - Rainwater inundated the excavation at the toe of the embankment. Rainwater has rutted the bottom of the washed some material, including jagged rocks into the trench. The trench bottom should be cleaned of debris before placing geotextile.
  - Due to the geometry of the bedrock at the toe Pelly and JDS has asked for additional clarification on how to complete the toe and drain. JDS and Pelly have delivered an RFI to BGC regarding this issue. BGC has provided verbal direction and a conceptual sketch for the construction modifications. BGC is developing a new detail drawing to serve as guidance. Victoria Gold Environmental should review the final drawing to ensure it complies with requirements for discharge and closure. BGC expects a formal response to be complete this week.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regrading the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.
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1) QA/QC Results:

QA/QC Results

- QA/QC:

- o None
- BGC Recommendations:
  - o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Open: Pending BGC response.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Pending response.
BGC-RFI-001	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Pending response.

Safety Issues: None



Photo 1: Water was being drained from the embankment construction area.



Photo 2: Pelly removed incoming runoff from the area around the toe of the embankment using a gasoline powered centrifuge pump.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Report	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 23, 2018
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Dan Granda	**Weather**	Cloudy, 3° to 17° C

Observations and Recommendations

- Observations and Recommendations from Today:
  - No construction was performed at the HLF embankment area today.
  - Pelly is in the process of redirecting and removing water from the area of the embankment toe.
  - BGC Responded to CC204-RFI-008.
  - Dan Granda arrived on site. Roy Morlan and Dan Granda spent some overlap time on site. Roy Morlan left site.
- Open Observations and Recommendations:
  - BGC verbally discussed Pelly developing a stockpile management plan. To date stockpile management has been adequate. However, a stockpile management plan should be developed to ensure that materials are mistakenly borrowed for the wrong use and that quantities are tracked. Storm water erosion and water control at the piles should also be taken into account.
  - Rainwater inundated the excavation at the toe of the embankment. Rainwater has rutted the bottom of the washed some material, including jagged rocks into the trench. The trench bottom should be cleaned of debris before placing geotextile.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regrading the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

No.	Personnel	Description
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3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Closed: BGC responded on May 23.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending Response.
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Pending Response.
EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. JDS Delivered to Pelly May 23. Pending Response.

Safety Issues: None.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Rain/Wet Snow 2ºC to 6ºC

Observations and Recommendations

- Observations and Recommendations from Today:
  - No construction was performed at the HLF embankment area today. (***Photo 1***)
  - Embankment toe was observed with no change but surface runoff from today's storm event. (***Photo 2***)

- Open Observations and Recommendations:
  - Today's storm event inundated the excavation at the toe of the embankment. Rainwater has rutted the bottom of the washed some material, including jagged rocks into the trench. The trench bottom should be cleaned of debris before placing geotextile.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

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1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-008	Related to the use of electrofusion of HDPE pipes within the pipe trench.	Closed: Response delivered to JDS May 23.
CC204-RFI-015	Related to event pond underdrain.	Open: Received May 17. Pending response.
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Pending response.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response.

Safety Issues: None



Photo 1: Surface water from storm event on the embankment construction area.



Photo 2: Runoff around the toe of the embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Sunny 10°C to 16°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - No construction was performed at the HLF embankment area today. (***Photo 1***)
  - Embankment toe was observed with no change. (***Photo 2***)
  - Pelly is actively evaluating on-site compactors on site meeting effective weight at the drum of 9,000 kg.
  - Vegetation and tree clearing was performed by excavators on the limits of the HLF area (***Photo 3***)
  - Select Drain Fill batch currently has 4.2% fines from EBA gradation tests.

- Open Observations and Recommendations:
  - Today's storm event inundated the excavation at the toe of the embankment. Rainwater has rutted the bottom of the washed some material, including jagged rocks into the trench. The trench bottom should be cleaned of debris before placing geotextile.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

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1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-015	Related to event pond underdrain.	Closed: Sent May 25.
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response.

Safety Issues: None



Photo 1: Looking downstream of embankment construction area.



Photo 2: Toe of the embankment.



Photo 3: Vegetation and tree clearing.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Visited HLF project area with JDS Mining and Pelly representatives to discuss storm water management options. (***Photo 1***)
  - No construction was performed at the HLF embankment area today (***Photo 2***).
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg.
  - Vegetation and tree clearing was performed by excavators continued.
  - Select Drain Fill production suspended until tomorrow due equipment resources focused on concrete aggregate.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

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1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response. Visited site with Pelly and JDS to discuss options.

Safety Issues: None

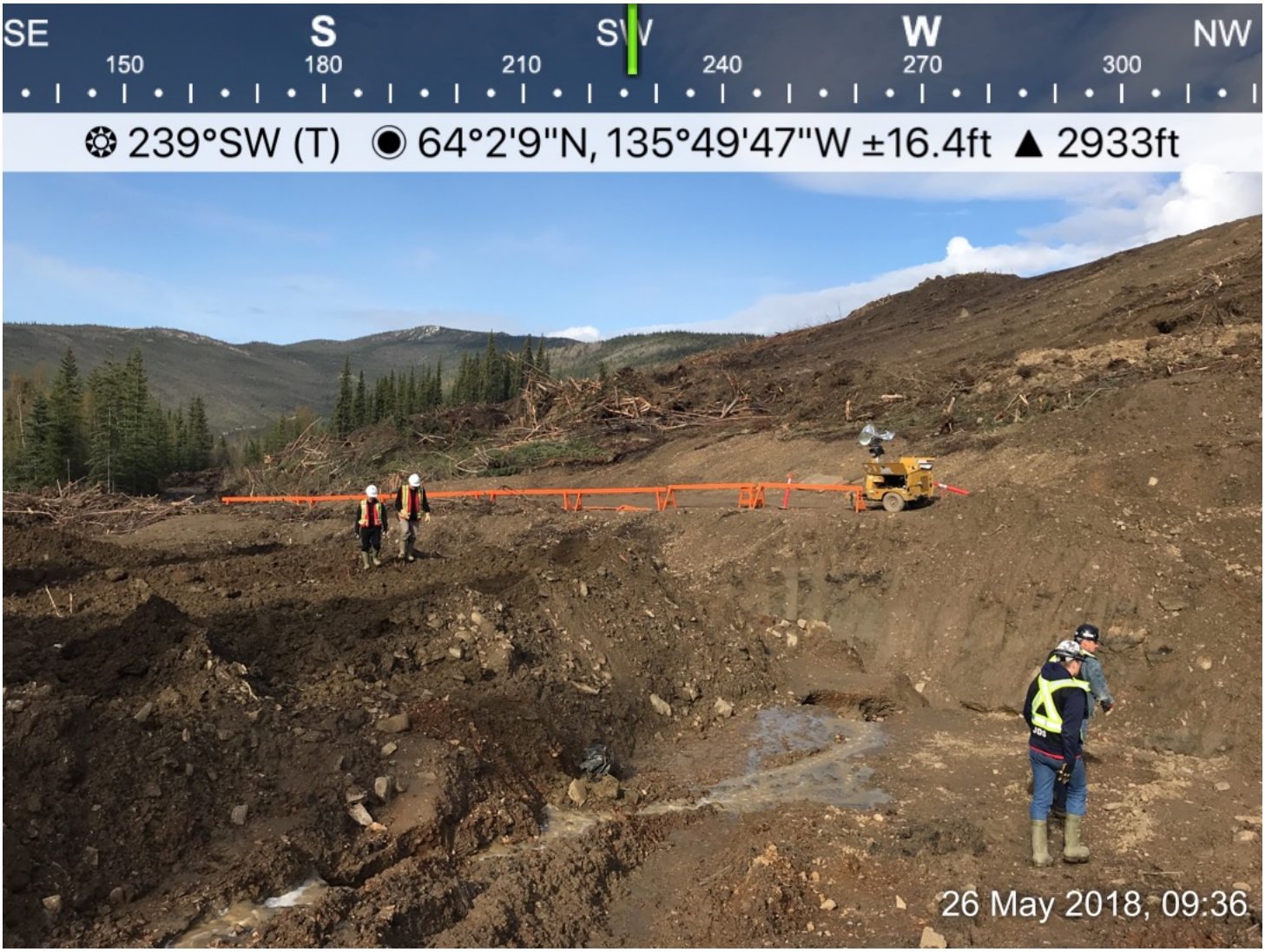


Photo 1: Observing runoff and site conditions with JDS mining and Pelly.



Photo 2: Upstream view of HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Rain 10ºC to 15ºC

Observations and Recommendations

- Observations and Recommendations from Today:
  - Visited HLF project area with Pelly representatives to see how current draining efforts are working. (***Photo 1***)
  - No construction was performed at the HLF embankment area today (***Photo 2***).
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg.
  - Vegetation and tree clearing was performed by excavators continued.
  - Select Drain Fill production restarted in afternoon/evening.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

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1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response. Visited site with Pelly and JDS to discuss options.
CC204-RFI-018	HLF Monitoring Holes Location	Open: Received May 27.
CC204-RFI-019	HLF Liner Subgrade Preparation	Open: Received May 27.
CC204-RFI-020	HLF Underdrain System	Open: Received May 27.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-024	Monitoring and Boring holes location	Open: Received May 27.

Safety Issues: None



Photo 1: Observing runoff bypass systems placed with Pelly.



Photo 2: Upstream view of HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Runoff bypass installed by Pelly continues to work. (***Photo 1***)
  - Identified possible seeps from abutments during dry weather that may affect compaction of embankment materials. (***Photo 2)***
  - No construction was performed at the HLF embankment area today (***Photo 3***).
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg. Tentative meeting Friday June 1st, 2018 to discuss option is set.
  - Vegetation and tree clearing was performed by excavators on the North side of project limits.
  - Select Drain Fill production continues.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

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1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response. Visited site with Pelly and JDS to discuss options.
CC204-RFI-018	HLF Monitoring Holes Location	Closed: Response sent May 28.
CC204-RFI-019	HLF Liner Subgrade Preparation	Open: Received May 27.
CC204-RFI-020	HLF Underdrain System	Open: Received May 27.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-024	Monitoring and Boring holes location	Closed: Response sent May 28.

Safety Issues: None



Photo 1: Runoff bypass systems placed with Pelly working.



Photo 2: Identified possible seeps on left abutment.



Photo 3: Downstream view of HLF

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Runoff bypass installed by Pelly continues to work. (***Photo 1***)
  - Identified possible seeps from right abutments during dry weather that may affect compaction of embankment materials at Stat 0+45. (***Photo 2)***
  - No construction was performed at the HLF embankment area today (***Photo 3***).
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg. Meeting Friday June 1st, 2018 at 9 AM to discuss option is set.
  - Vegetation and tree clearing was performed by excavators on the North side of project limits.
  - Select Drain Fill production continues.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response. Visited site with Pelly and JDS to discuss options.
CC204-RFI-019	HLF Liner Subgrade Preparation	Closed: Response sent May 28.
CC204-RFI-020	HLF Underdrain System	Open: Received May 27.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.

Safety Issues: None



Photo 1: Runoff bypass systems placed with Pelly working.



Photo 2: Identified possible seeps on right abutment Station 0+40 which will be further observed.



Photo 3: Downstream view of HLF

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Runoff bypass installed by Pelly continues to work. (***Photo 1***)
  - Sediments collection visible in sump pumped out by Pelly. (***Photo 2***)
  - No construction was performed at the HLF embankment area today (***Photo 3***).
  - Seep observed on both right and left abutments and should be considered in water management plans (***Photos 4 and 5***).
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg. Meeting Friday June 1st, 2018 at 9 AM to discuss option is set.
  - Vegetation and tree clearing was performed by excavators on the North side of project limits.
  - Select Drain Fill production continues.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Open: Received May 21. Figures presented as partial response May 25.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: Delivered to JDS May 22. Open: JDS delivered to Pelly May 23. Pending Response. Visited site with Pelly and JDS to discuss options.
CC204-RFI-020	HLF Underdrain System	Open: Received May 27.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-031	Split Coupling	Open: Received May 30.
CC204-RFI-032	Monitoring Well Decommissioning	Open: Received May 30.

Safety Issues: None



Photo 1: Runoff bypass systems placed with Pelly working.



Photo 2: Pelly had used their pump to drain a portion of a sump, exposing all the sediment collected.



Photo 3: Downstream view of HLF

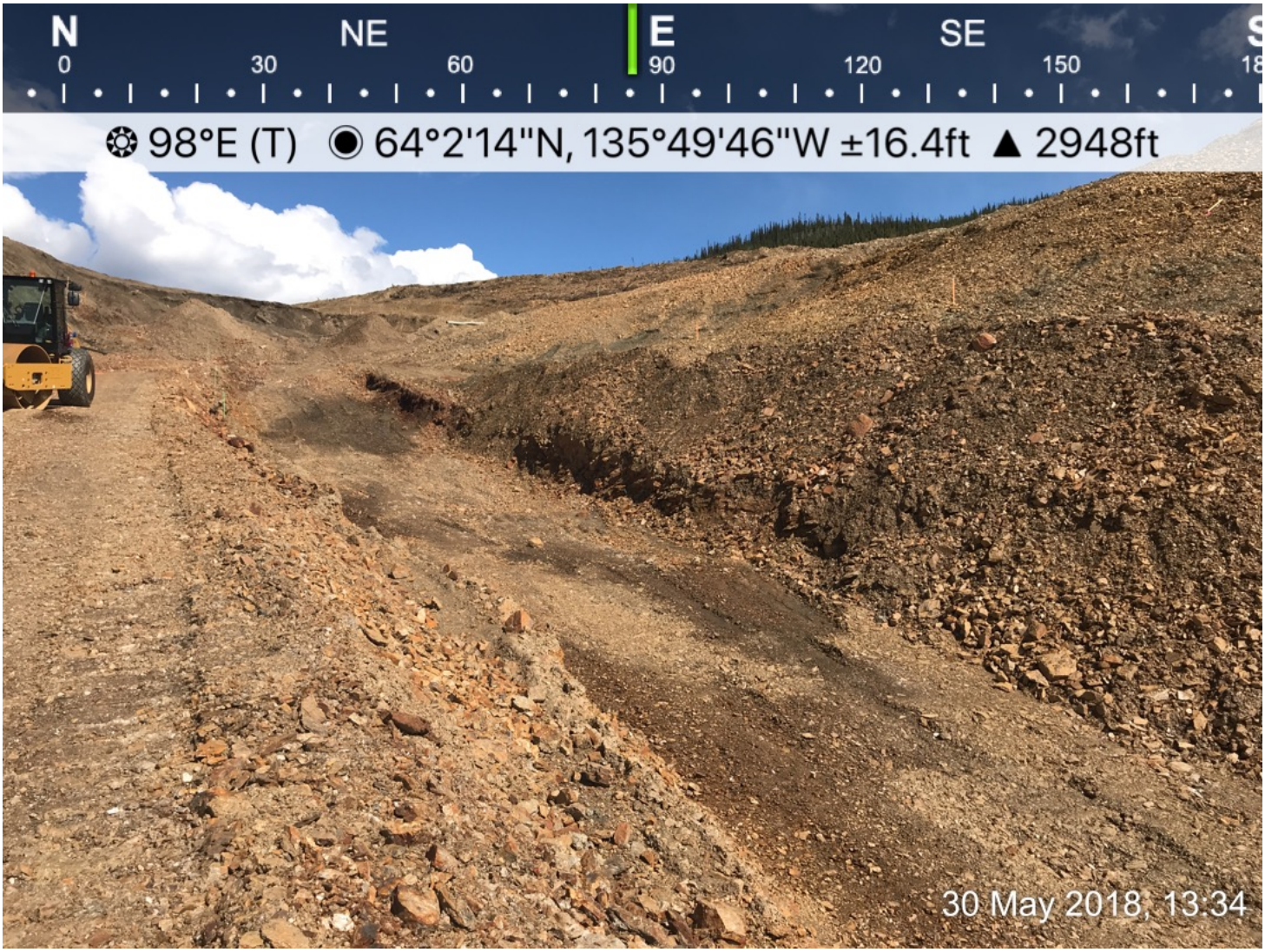


Photo 4: Seeps identified on the upstream side of the currently excavated underdrain area (east abutment), possible connection to artesian well to be determined.

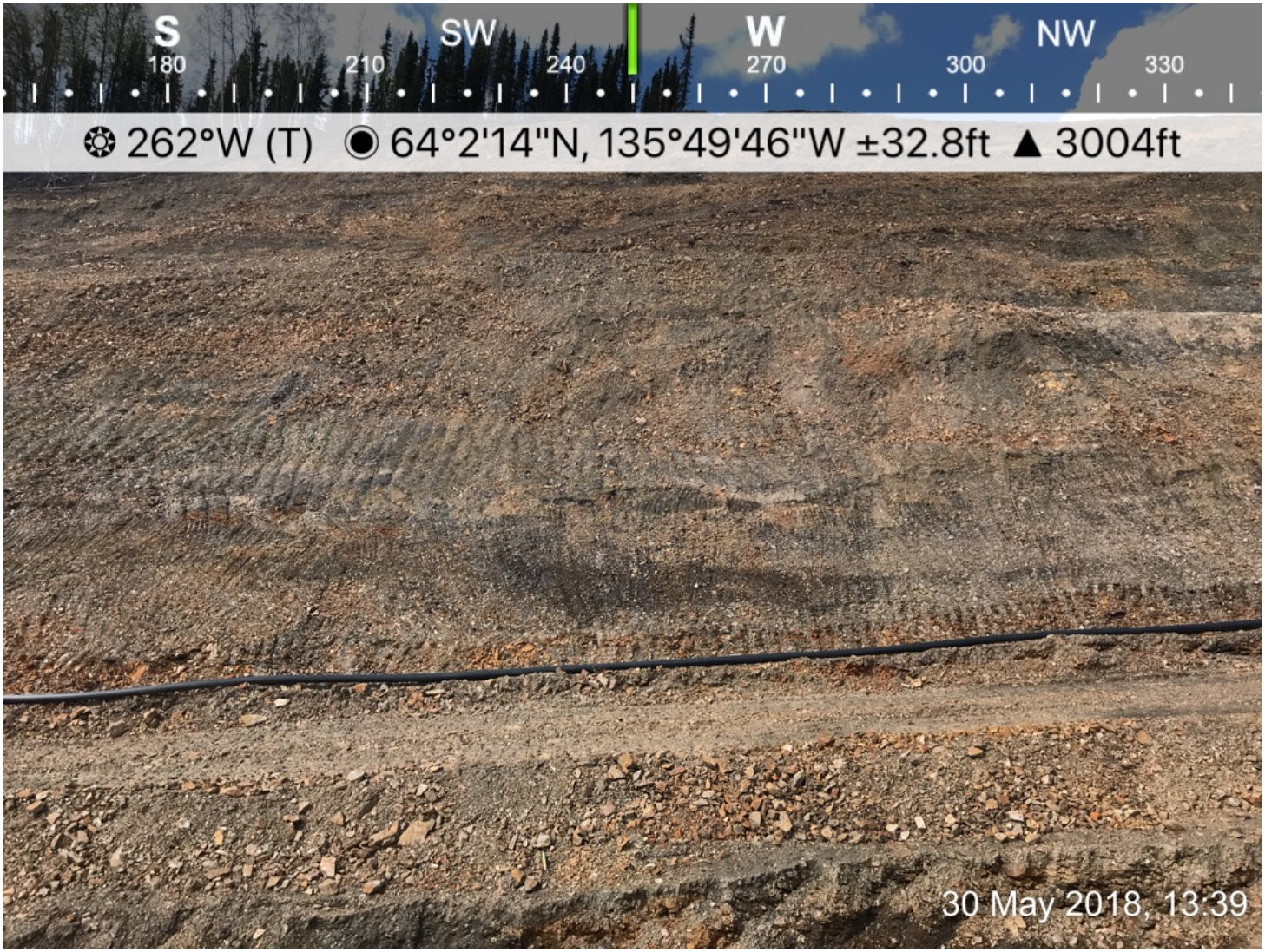


Photo 5: Seeps identified on the west abutment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	May 31, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Rain 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Runoff bypass installed by Pelly continues to work. (***Photo 1***)
  - After short duration rainfall, runoff was observed on excavated area. (***Photo 2***)
  - No construction was performed at the HLF embankment area today (***Photo 3***).
  - Erosion channels and damage observed by sump area (***Photo 4)***
  - BGC Engineer located and sampled Select Fill – Material 2 for HLF Embankment Foundation at Toe ***(Photo 5***) lab results pending.
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg. Meeting Friday June 1st, 2018 at 9 AM to discuss option is set.
  - Select Drain Fill production continues.
  - Measured flow of artesian source (Hole ID: DG17-847C, 154.25 metres deep, angled with true azimuth of 50 degrees and a dip of -45 degrees) upstream of HLF, approximately 10 Litres per minute was estimated as the output seepage.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-017	Related to details at the toe of the embankment.	Closed: Delivered to JDS May 31.
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Open: JDS delivered to Pelly May 23. Plan rejected with observations, waiting for re-submittal.
CC204-RFI-020	HLF Underdrain System	Closed: Delivered to JDS May 31.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-031	Split Coupling	Open: Received May 30.
CC204-RFI-032	Monitoring Well Decommissioning	Open: Received May 30.

Safety Issues: None



Photo 1: Runoff bypass systems placed with Pelly working.



Photo 2: During a short rain event, the observed runoff concentrated on the west side of the underdrain excavation but also on the east side of the excavation in certain parts.



Photo 3: Downstream view of HLF, small pockets of wet zones were observed after rainfall, similar to pictures taken during dry days.



Photo 4: Potential erosion channels were observed on entry path to sump – downstream zone of work area.



Photo 5: Select Fill for Embankment Foundation at toe source (RFI-017) was observed by BGC Field Engineer, samples taken and send for testing with Tetra Tech representative.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Sunny/Overcast/Rain 5°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Runoff bypass installed by Pelly continues to work. (***Photo 1***)
  - During inspection with Pelly, Pelly wanted to use their pump to see how fast they could drain the downstream pump. (***Photos 2, 3 and 4***), estimated approximately 20 minutes to drain sump.
  - No construction was performed at the HLF embankment area today (***Photo 5***).
  - Continued to observe seeps, Pelly was made aware of locations during inspection (***Photo 6)***
  - Inspected runoff interception ditch at elevation 940 m, part of the Phase 1 Water Management Plan. (***Photo 7)***
  - Inspected runoff interception ditch at elevation 1010 m, to provide additional run off control during construction (***Photo 8***).
  - The results of the sampled locations for Select Fill – Material 2 for HLF Embankment Foundation Toe did not pass fines content requirements, other locations will be assessed tomorrow that can meet the requirement.
  - Pelly is actively evaluating on-site and off-site compactors to meet effective weight at the drum of 9,000 kg. BGC participated on meeting Friday June 1st, 2018 at 9 AM to discuss equipment, equipment that meets specification is available and supplier will contact Pelly.
  - Select Drain Fill production continues.

- Open Observations and Recommendations:
  - The trench bottom should be cleaned of debris before placing geotextile, jagged rocks should be cleared before geotextile placement.
  - Neway continued crushing material. Their primary focus at this moment is to produce concrete aggregate. However, as a byproduct they are also producing Select Drain Fill. The piles they are generating of Select Drain Fill will undergo one more screening process to produce the correct gradation. This screening will happen at a later time. EBA's QC has tested the gradation of the partially screened Select Drain Fill Stockpile and has verbally reported that it has less than 6% fines. Select Drain Fill requires less than 5% fines. JDS has inquired if using <7% fines would be adequate under the HLF. BGC has asked EBA to collect a sample of the final SDF product if a batch is produced with >5 % fines (assuming up to 7% fines) to analyze at their Whitehorse lab for permeability.
  - Prepared foundation that has been driven on by heavy equipment when wet tends to pulverize, as observed in previous daily reports from this season and 2017 and discussed on site. Ground surface layers that need to be removed because they were pulverized after approval were marked along the trench. The minimum trench depth discounts these loose areas as they will have to be removed prior to placement of embankment fill.
  - Pelly's on-site compactors are less than 6,000 kg effective weight at the drum. This is less then minimum requirement of 9,000 kg for compaction of the embankment fill materials. Pelly is reviewing options to have a larger compactor available for construction.
  - Excavation/ pile grading continues at the ADR plant. Some material is being used for road construction. Most of the material produced to date from this area meets the requirements for Material 3 – Structural Fill. As reported in previous daily reports, there are some larger boulders being produced that will need to be picked out before use. Material has been segregated by regarding the piles and pushing larger boulders off slopes. However, this will result in larger rockfill zones at the bottom of the piles. BGC will have to be present during fill loadout to determine when and how much of these bottom areas need to be segregated so rockfill is not placed in structural fill zones of the embankment.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:

o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-001 EPCM-RFI-013	Related to protection of construction from surface water runoff.	Closed. Plan received June 1.
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-031	Split Coupling	Open: Received May 30.
CC204-RFI-032	Monitoring Well Decommissioning	Closed. Response sent June 1.
BGC-RFI-002	Embankment Underdrain Construction Plan	Open: Send to JDS June 1.

Safety Issues: None



Photo 1: Runoff bypass systems placed with Pelly working.



Photo 2: Pelly turned on the pump to test how fast it could drain a sump.



Photo 3: Pump test started at 3:16 pm.



Photo 4: Pump end started at 3:36 pm.



Photo 5: Downstream view of HLF, small pockets of wet zones were observed.

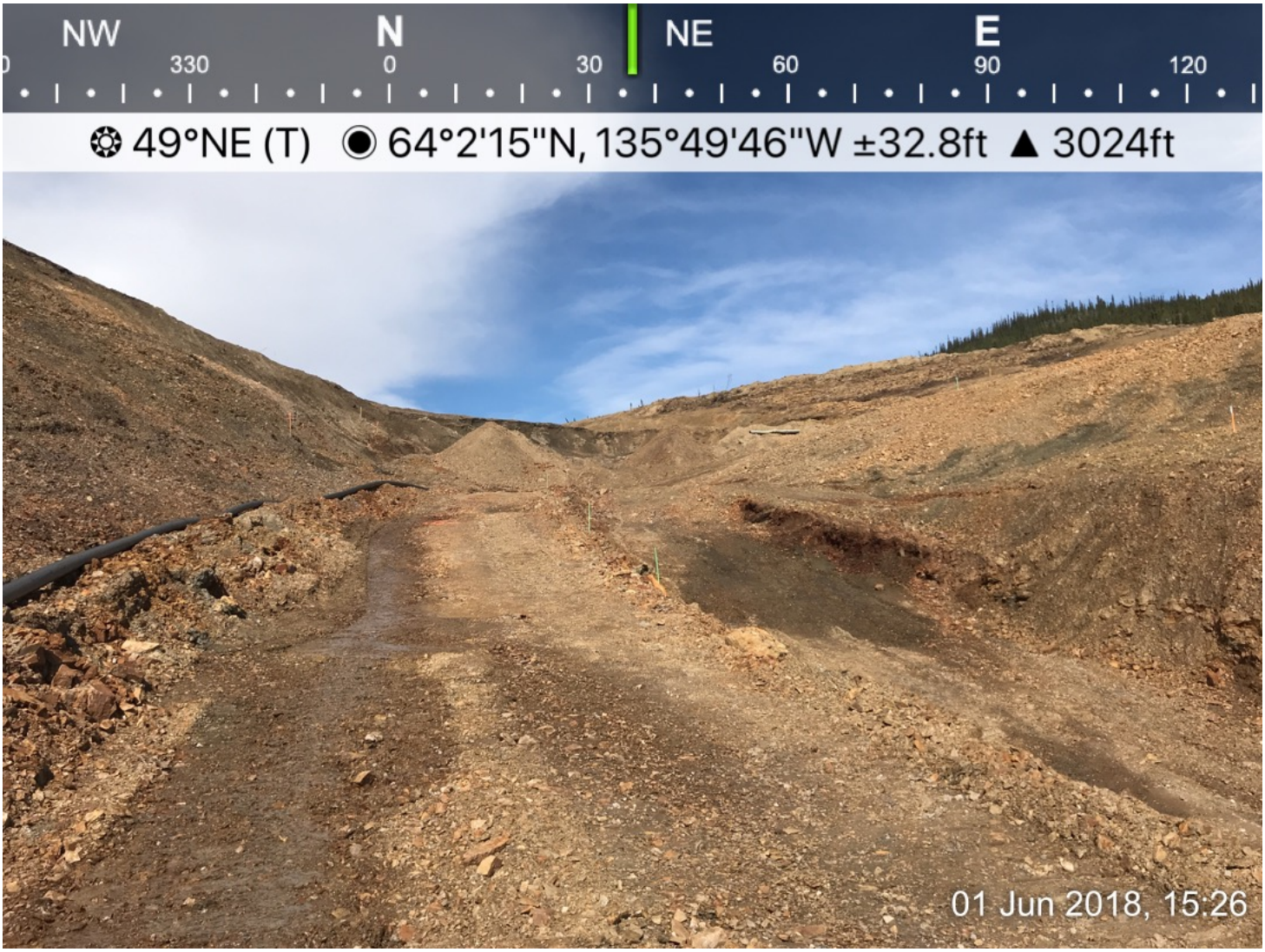


Photo 6: Upstream view of HLF, right side wet side continues to be observed and is suspected to be connected to artesian well upstream towards the East.



Photo 7: Inspected runoff interception ditch at elevation 940 m with Pelly.



Photo 8: Inspected runoff interception ditch at elevation 1010 m (per Pelly's staff).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Sunny/Overcast/Rain 5°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - In preparation for construction, BGC visited Neways production area with EBA (Tetra Tech) QC to visually inspect the Select Drain Fill (Material 5) (***Photos 1 and 2***).
  - Pelly (Surveyor and Engineering Rep.) and BGC located piezometers in the embankment footprint, only 3 out of 8 were found intact with casings, the remaining 5 have likely been buried or destroyed during earthworks. An excavator was used to gently move material on recorded locations and digging up to 2 metres to attempt discovery of casing or pvc material and confirm locations (***Photo 3***)
  - BGC used the opportunity of having an excavator to conduct in-situ test pits to help determine depths to competent material. Between elevation 920 to 1010 m, no suitable foundation material was found at a depth of 2 meters. Between elevation 905 to 920 m, frozen material and ice were found at depths of 1.5 to 2 metres, with no suitable foundation material. (**Photos 4, 5 and 6**)
  - No construction was performed at the HLF embankment area today (***Photo 7 and 8***).

- Open Observations and Recommendations:
  - Located sources for Select Fill – Material 2 after further testing. Attaching gradation results as an attachment, this material can be used for RFI -017, toe embankment construction. Pelly aware of location, within excavator reach from toe of embankment construction.
  - Discussed with Pelly that toe embankment construction will commence tomorrow, BGC will be present during operation.
  - Will discuss with Pelly the plan with Midnight Sun Drilling as they arrive to site June 4th.
  - BGC recommends labeling Stockpiles produced by Neway and construction efforts commence.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-021	HLF In-Heap Sump	Open: Received May 27.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-031	Split Coupling	Open: Received May 30.
BGC-RFI-002	Embankment Underdrain Construction Plan	Open: Send to JDS June 1.

Safety Issues: None



Photo 1: Visited material production Neway, picture shows the stockpile of Select Drain Fill (Material 5) to be used for the underdrain construction.



Photo 2: BGC visually inspected Material 5, Select Drain Fill.



Photo 3: Pelly and BGC were present during location of piezometers on footprint.



Photo 4: BGC used the opportunity to dig test pits to help determine depths to suitable foundation.



Photo 5: BGC noted ice and frozen layers at depths of 1.5 to 2 metres.



Photo 6: Ice fragment found within the first 2 metres of digging, ground was semi frozen and could not dig further.

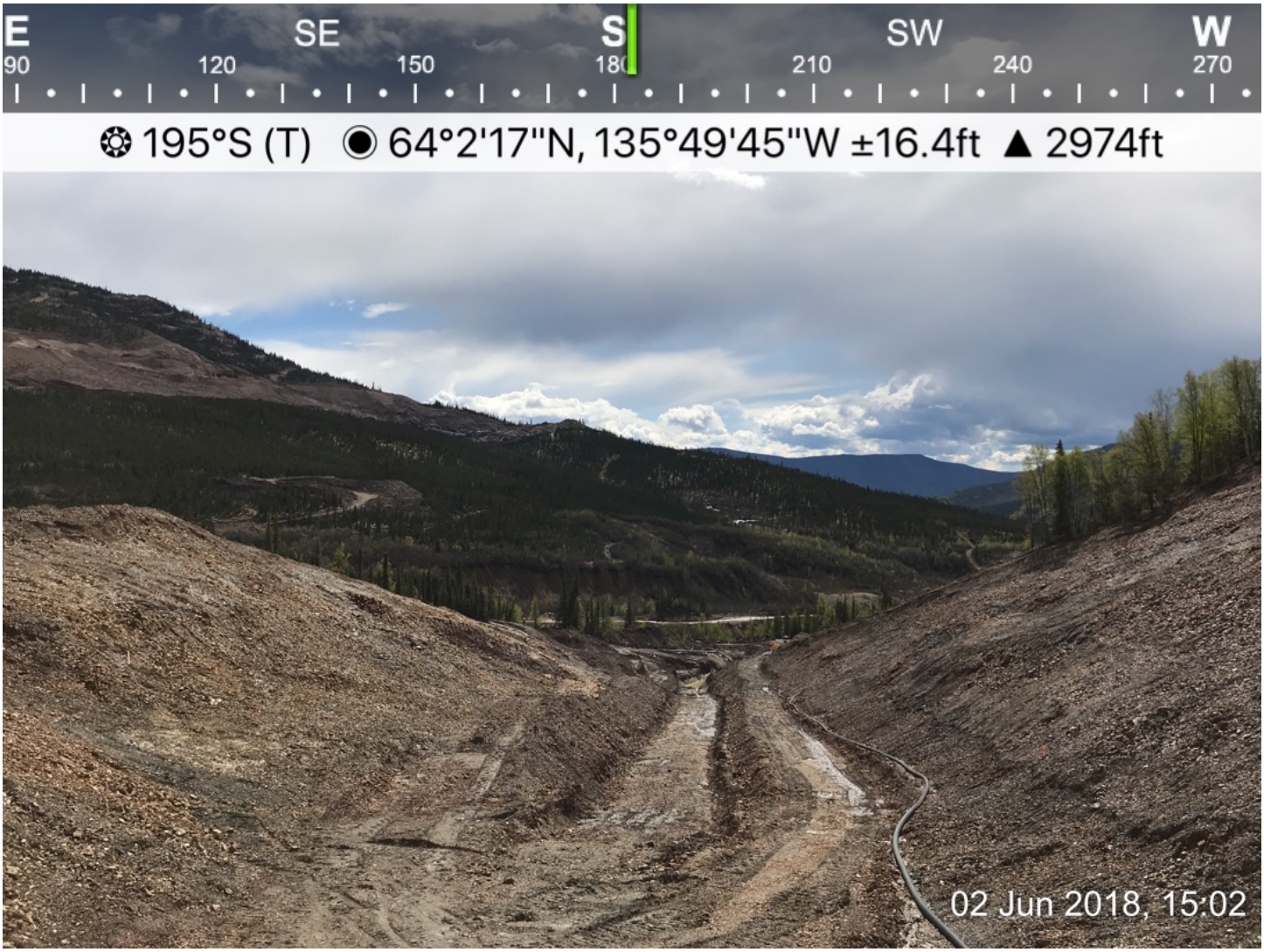


Photo 7: Downstream view of HLF after rain event and thunderstorms



Photo 8: View of HLF from toe to upstream.

ATTACHMENT

Gradation for Material 2 – Select Fill

RFI 017 – Toe of Embankment

SIEVE ANALYSIS REPORT

ASTM C136 & C117

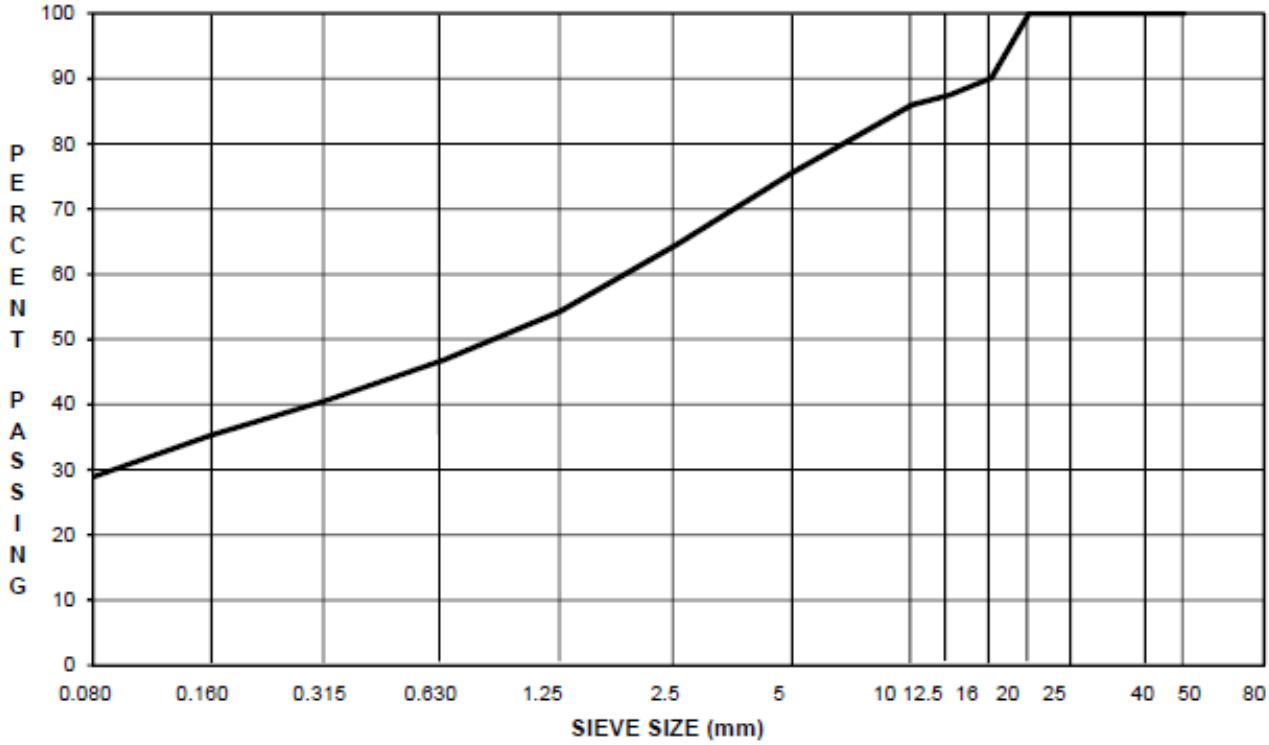
Project:	Eagle Gold Project	Sample Number:	SA1 - 15:05 hrs
Project No.:	704-ENG.WARC03532-01	Date Sampled:	May 31, 2018
Client:	JDS	Sampled By:	JB/DG Tested By: JB
Attention:	Mr. Clint Abel	Specification:	See Remarks
Description:	Proposed Select Material II for RFI-17	Fracture (2 faces):	N/A
Location:	Heap Leach Pad- 2 m S. of BGC-09-A6-3	Moisture Content:	16.1%

Aggregate Gradation (% Passing)

Sieve Size (um)	50000	40000	28000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit														
Lower Limit														
Test Result	100	100	100	100	90	87	86	76	65	54	47	41	35	28.9

Remarks: SDF Spec: 12.5 mm - 100%; No. 200 - 0-5%

Reviewed By: _____ C.E.T.



Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Sunny/Overcast/Rain 5°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Construction was performed at the HLF embankment area today, with RFI-017 Embankment Toe prep (***Photo 1-3***).
  - Embankment toe was approved and river cobble and rocks were placed and shovel compacted. Construction to be resumed tomorrow (***Photo 4***).

- Open Observations and Recommendations:
  - Will discuss with Pelly the plan with Midnight Sun Drilling as they arrive to site June 4th.
  - BGC recommends labeling Stockpiles produced by Neway and construction efforts commence.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-021	HLF In-Heap Sump	Closed: Response sent June 3.
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-031	Split Coupling	Closed: Response sent June 3.
BGC-RFI-002	Embankment Underdrain Construction Plan	Open: Send to JDS June 1.

Safety Issues: None



Photo 1: Began conducting RFI-017 excavation at 1:00 PM.



Photo 2: Rejected material was mucked out with a slope to help with drainage.



Photo 3: Material was getting denser as excavation progressed.



Photo 4: BGC approved foundation and river cobbles were placed to protect from erosion for next shift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Sunny/Overcast/Rain 5°C to 15°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Construction continued at the HLF embankment area today, with RFI-017 Embankment Toe (***Photo 1-5***).
- Open Observations and Recommendations:
  - Will discuss with Pelly the plan with Midnight Sun Drilling as they arrive to site June 4th.
  -
-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
BGC-RFI-002	Embankment Underdrain Construction Plan	Closed: Pelley discussed and BGC reviewed.

Safety Issues: None



Photo 1: Continued RFI-017, excavator shovel compacted river cobbles to bridge.



Photo 2: Accepted first layer and surveyed for as-built info.

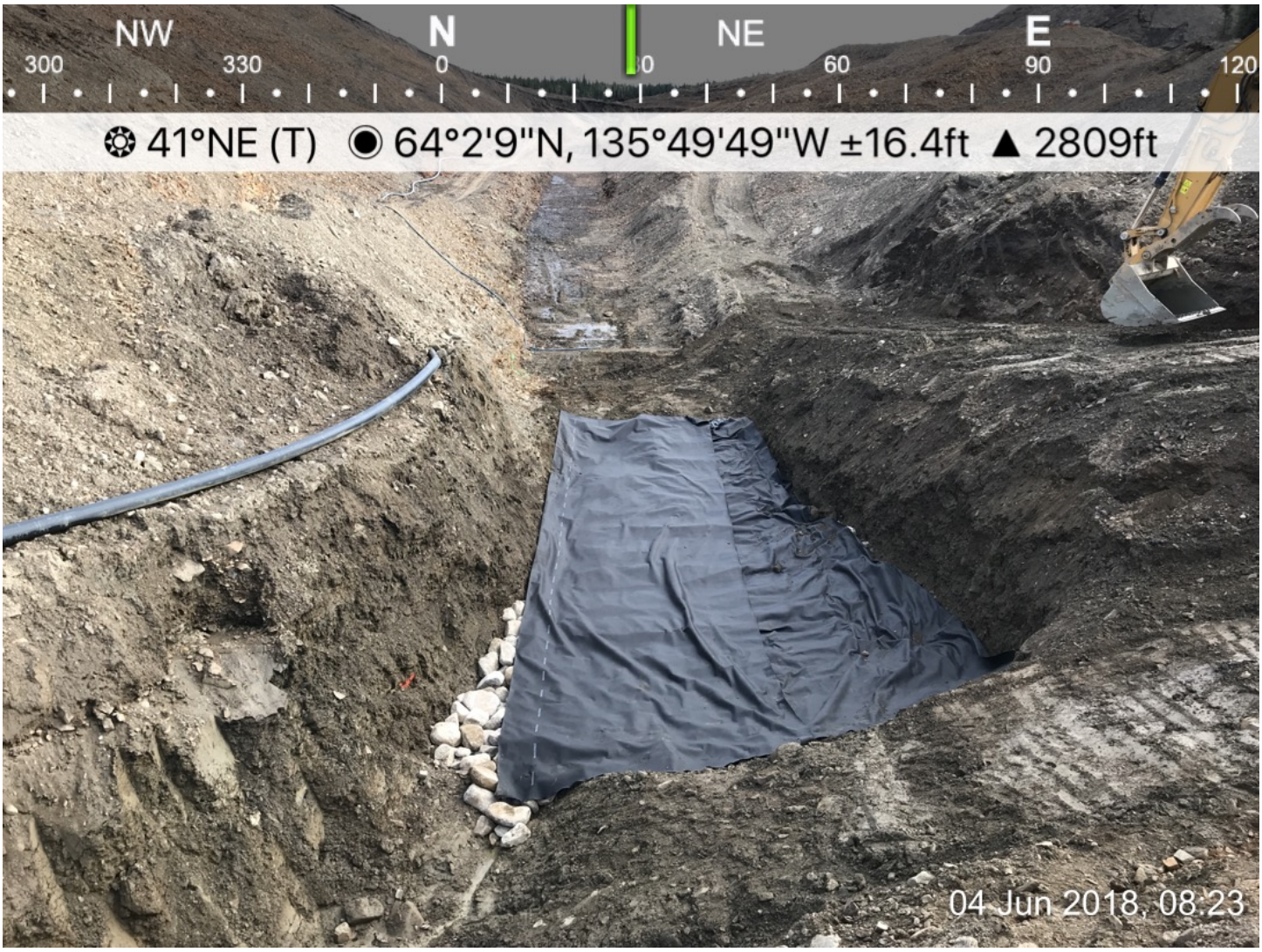


Photo 3: Placed geogrid and geotextile on deepest area.



Photo 4: Placed geotextile on remaining area excavated.



Photo 5: Placed material on top of geotextiles.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Overcast/Rain/Hail 5°C to 12°C

Observations and Recommendations

- Observations and Recommendations from Today:
  - Construction continued at the HLF embankment area today, with RFI-017 Embankment Toe (***Photo 1-7***).
  - Midnight Sun drilled in the area of the artesian well but was unable to locate or seal.
  - Worked with Pelly surveyor for as-build info gathering and final grading of RFI-017, confirmed areas in underdrain trench that meet width requirements.

- Open Observations and Recommendations:
  - Stockpile areas for Type 2 material may be needed as the project needs for this material grow.
  - Potential Type 2 material sources have been identified and will require gradation tests to confirm.
  - Pelley will implement water management plan before underdrain installation begins.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
BGC-RFI-002	Embankment Underdrain Construction Plan	Closed: Pelley discussed and BGC reviewed.

Safety Issues: None



Photo 1: Continued RFI-017, excavator re-mixed layers with coarser material to achieve better compaction.

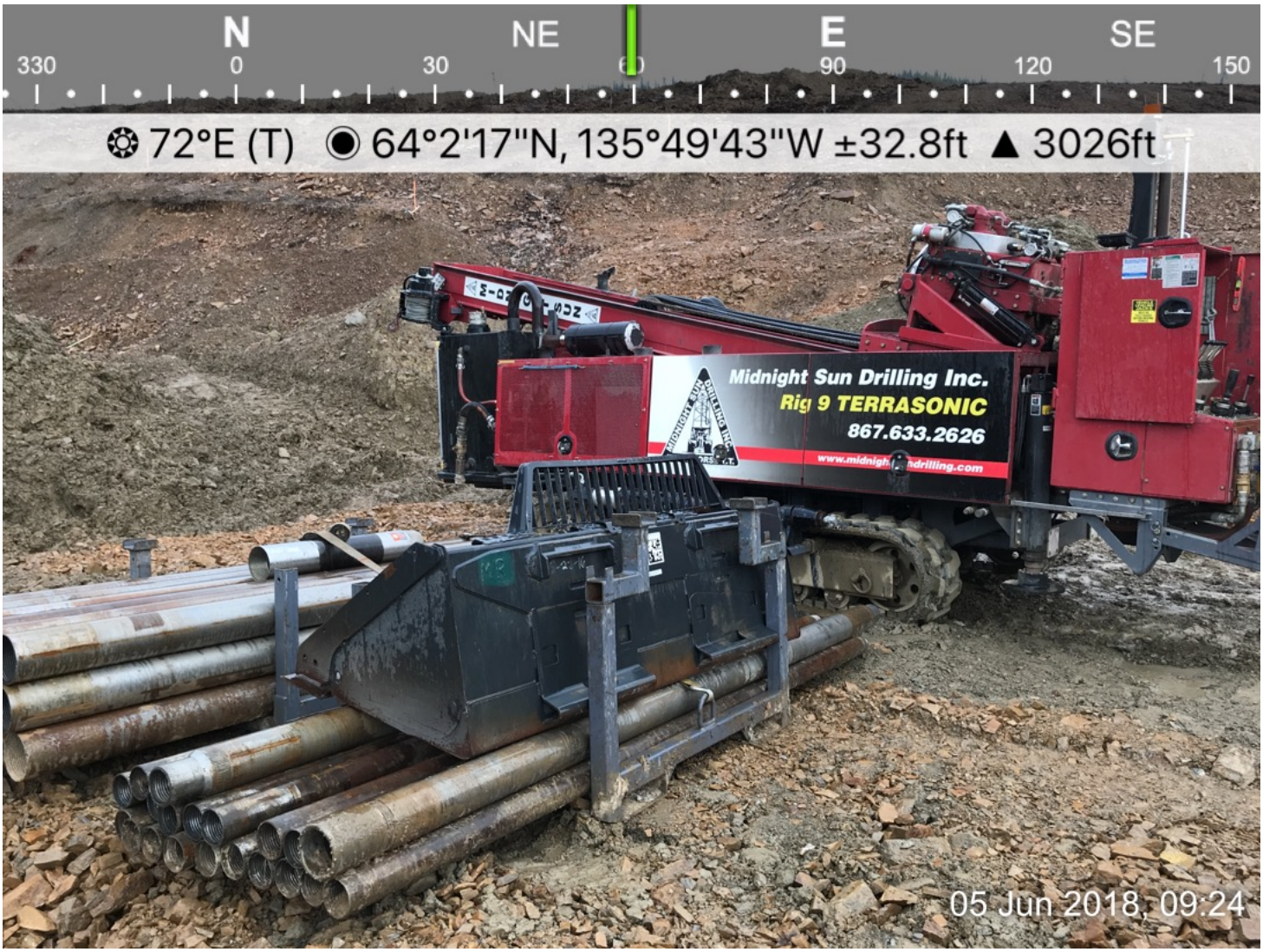


Photo 2: Midnight Sun Drilling arrived at site, positioned itself on the artesian well area under direction from Pelly.



Photo 3: Pelly placed material to raise up the current downstream sump collect runoff from upstream.



Photo 4: Phase 2 of RFI-017 was accepted and surveyed.



Photo 5: Geotextile was place before placing type 2 material to finalize RFI -017. BGC communicated via radio with both source excavator for type 2 and excavator placing, an articulated rock truck hauled material between excavators.



Photo 6: Field plan was placed for excavator to spread type 2 material and compact with shovel.



Photo 7: Due to very intense rainfall, work stopped due to moisture effects on type 2 material, expected to finalize final grading for surface to be ready for underdrain design placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda	**Weather:**	Continuous Rain 5ºC to 10ºC

Observations and Recommendations

- Observations and Recommendations from Today:
  - Construction continued at the HLF embankment area today, with RFI-017 Embankment Toe (***Photo 1-4***).
  - RFI-017 was halted due to excess moisture and continuous rain affecting compaction and behavior of Type 2 material.
  - Located and made plans for access to close down wells (***Photo 5***).
  - Midnight Sun drilled and sealed the unnamed well next to MW10-AG5 (***Photo 6***).
  - Pelly build a sump/embankment to start implementing Phase 1 Water Management Plan (***Photo 7***).

- Open Observations and Recommendations:
  - New sources of Type 2 material have been identified and geotechnical tests by EBA/Tetra Tech will be conducted.
  - A small test pit is recommended on the artesian well area to help identify possible source or direction of source.
  - BGC will continue to monitor driller (Midnight Sun's activities) as they continue to decommission wells in HLF.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.

Safety Issues: None



Photo 1: Continued RFI-017.



Photo 2: Continuous rainfall was observed to have over saturated Type 2 Material.



Photo 3: Materials were mixed, Type 2 material from south facing slopes and free drainage were used but the compaction was not adequate. The left grayish side was the compacted Type 2 from June 5 and the right side wetter surface is the compacted Type 2 of June 6.



Photo 4: A different source for Type 2 was selected and blended with some type 3 but the compaction was not adequate and the placement of this material on the toe of the embankment was canceled due to saturation and inability to compact with shovel bucket.



Photo 5: Pelly and BGC identified DG10-399C and made plans for Pelly equipment to make access for Midnight Sun Drillers



Photo 6: Midnight Sun sealed borehole Unnamed well by MW10-AG5.



Photo 7: Pelley started with the Phase 1 Management Plan to control runoff on underdrain trench.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda / Elliot Matthews	**Weather:**	Continuous Rain 5ºC to 10ºC

Observations and Recommendations

- Observations and Recommendations from Today:
  - RFI-017 was halted due to excess moisture and continuous rain affecting compaction and behavior of Type 2 material (***Photo 1***).
  - Midnight Sun drilled and sealed MW10-AG5 (***Photo 2***).
  - BGC and QC (EBA) took samples of new possibly source for Material Type 2 (***Photo 3***).
  - QC (EBA) conducted nuclear density gauge tests on new possible (***Photo 4***).
  - Over saturations observed throughout HLF site (***Photo 5***).

- Open Observations and Recommendations:
  - New sources of Type 2 material have been identified and geotechnical tests by EBA/Tetra Tech are being conducted.
  - A small test pit is recommended on the artesian well area to help identify possible source or direction of source.
  - BGC will continue to monitor driller (Midnight Sun's activities) as they continue to decommission wells in HLF.
  - Nuclear Density tests showed the following; Material by berm and slope had a dry density of 17.39 kN/m^3 and moisture of 14%, material that was oversaturated and soft had a dry density of 18.88 kN/ m^3 and moisture of 16%, material that was compacted by tracks of excavator or bulldozer has a dry density of 21.9 kN/ m^3 and moisture of 9%. No recommendations are provided at this time as geotechnical tests in the lab continue.
  - Escorted Elliot Matthews (BGC QA) from Mayo to Site.

-

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.

Safety Issues: None



Photo 1: Due to continuous rain and moisture, no work was done on RFI-17 Toe Embankment.



Photo 2: Midnight Sun Drilling continuing on MW10-AG5 well decommissioning.



Photo 3: BGC took samples of new possible locations for Type 2 – Select Fill, three samples were taken.



Photo 4: QC (EBA) used nuclear density gauge to measure dry density and moisture content in-situ to understand how variable the material can behave.



Photo 5: View from upstream after the rainstorms, presenting saturation throughout site.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda / Elliot Matthews	**Weather:**	Overcast/Rain 5ºC to 10ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Midnight Sun drilled DG10-399C to 182 m (***Photo 1***).
  - Rainfall continued to affect the HLF site; natural saturation prevented placement and compaction of Type 2 material (***Photo 2)***.
  - A potential new source for Type 2 material (proposed by Pelly) was sampled from the Process Plant area and submitted for lab testing (***Photo 3***).
  - HDPE pipe fusing and current fused pipes were inspected (***Photo 4 and 5***).

- Observations and Recommendations (OPEN):
  - New sources of Type 2 material have been identified and geotechnical tests by EBA/Tetra Tech are being conducted.
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow.
  - BGC should continue to monitor drilling (conducted by Midnight Sun) as they continue to decommission wells in the HLF.
  - BGC should evaluate mix options for Type 2 material (Type 2 mixed with granular material sources), lab tests pending.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8.

Safety Issues: None



Photo 1: Midnight Sun drilled DG10-399C.



Photo 2: Rainfall and moisture continue to oversaturate surfaces and stockpiles of Type 2 material.



Photo 3: BGC took samples from new locations for potential sources of Type 2 material – Potential new Select Fill, from the Process Plant area, was suggested by Pelly.



Photo 4: BGC visited Pelly's work area for fusing HDPE pipe.



Photo 5: HDPE pipes continue to be fused in preparations for the drain construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda / Elliot Matthews	**Weather:**	Sunny 5ºC to 12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Midnight Sun grouted DG10-399C (***Photo 1***).
  - BGC/Pelly used a window of fair weather (clear skies and sun) to attempt placing Type 2 material on the embankment toe (***Photo 2)***.
  - Type 2 material on all sources were still oversaturated and the first load was rejected upon arrival at the embankment toe (***Photo 3, 4 and 5***).
  - JDS suggested testing of new potential replacement material for the oversaturated Type 2 material (***Photo 6***), it was not accepted due to failing technical specifications criteria (not enough fines).
  - Pelly continued work on the underdrain trench by putting vampire drains to help with water management (***Photo 7).***
  - Type 2 material was excavated and spread out in an open area to encourage soil drying in anticipation of future placement attempts (***Photo 8***).

- Observations and Recommendations (OPEN):
  - Potential new sources of Type 2 material have been identified and geotechnical tests by EBA/Tetra Tech are being conducted.
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow.
  - BGC should evaluate mix options for Type 2 material (Type 2 mixed with granular material sources), lab tests pending for other potential new sources of Type 2 material.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8.

Safety Issues: None



Photo 1: Midnight Sun grouted DG10-399C.



Photo 2: Today was a sunny day and BGC/Pelly prepared the surface of the toe embankment in anticipation of placing Type 2 material.



Photo 3: Type 2 material excavation was supervised by BGC.



Photo 4: BGC observed a small excavation from the Pelly excavator (immediately after excavation).



Photo 5: BGC noticed the previous small excavation filled with water (26 minutes after initial excavation). Water was not from run off or rain but derived from the saturated material around the excavation.



Photo 6: A representative from JDS suggested testing the waste material from the Neway crusher as an alternative for Type 2 material. Grain size analysis indicated the proposed alternative soil had less than 8% fines and was thereby below technical specification criteria. BGC rejected the proposed alternative soil based on the failing technical specification criteria.



Photo 7: Pelly continued working on the vampire drains to help guide runoff in underdrain trench.

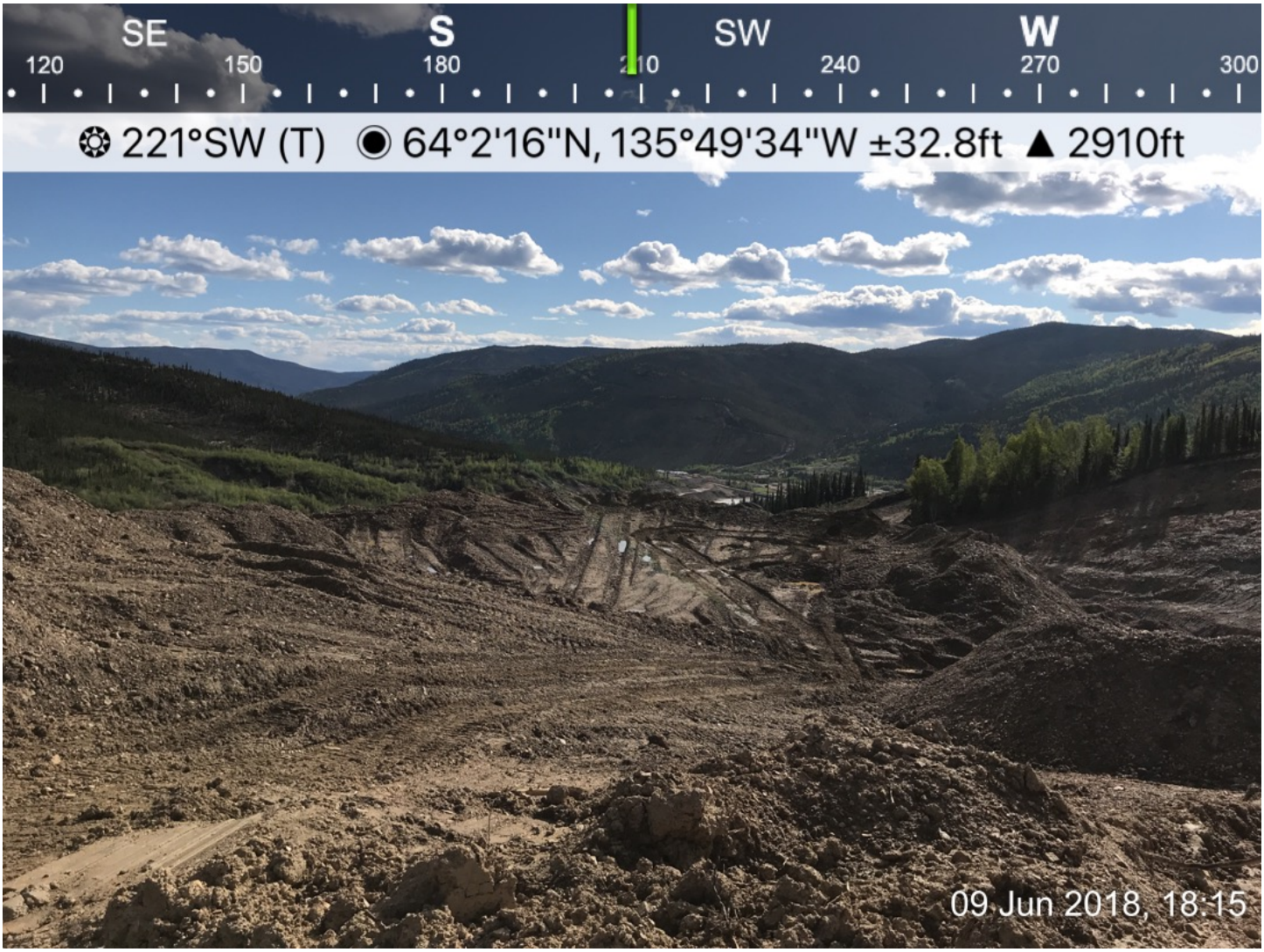


Photo 7: Type 2 material was spread out in an open area to encourage drying in anticipation of future placement attempts.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda / Elliot Matthews	**Weather:**	Sunny/overcast 5ºC to 15ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC contacted Pelly to initiate Type 2 material placement due to favorable weather at approximately 07:00 HRS (2 days without rainfall).
  - Construction (placement and compaction) of the toe embankment took place between 11:00 HRS and 19:00 HRS (***Photo 1 to 5***).

- Observations and Recommendations (OPEN):
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow.
  - BGC recommends JDS/Pelly develop a Type 2 material stockpile plan to improve material properties and optimize placement opportunities during construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8.

Safety Issues: None

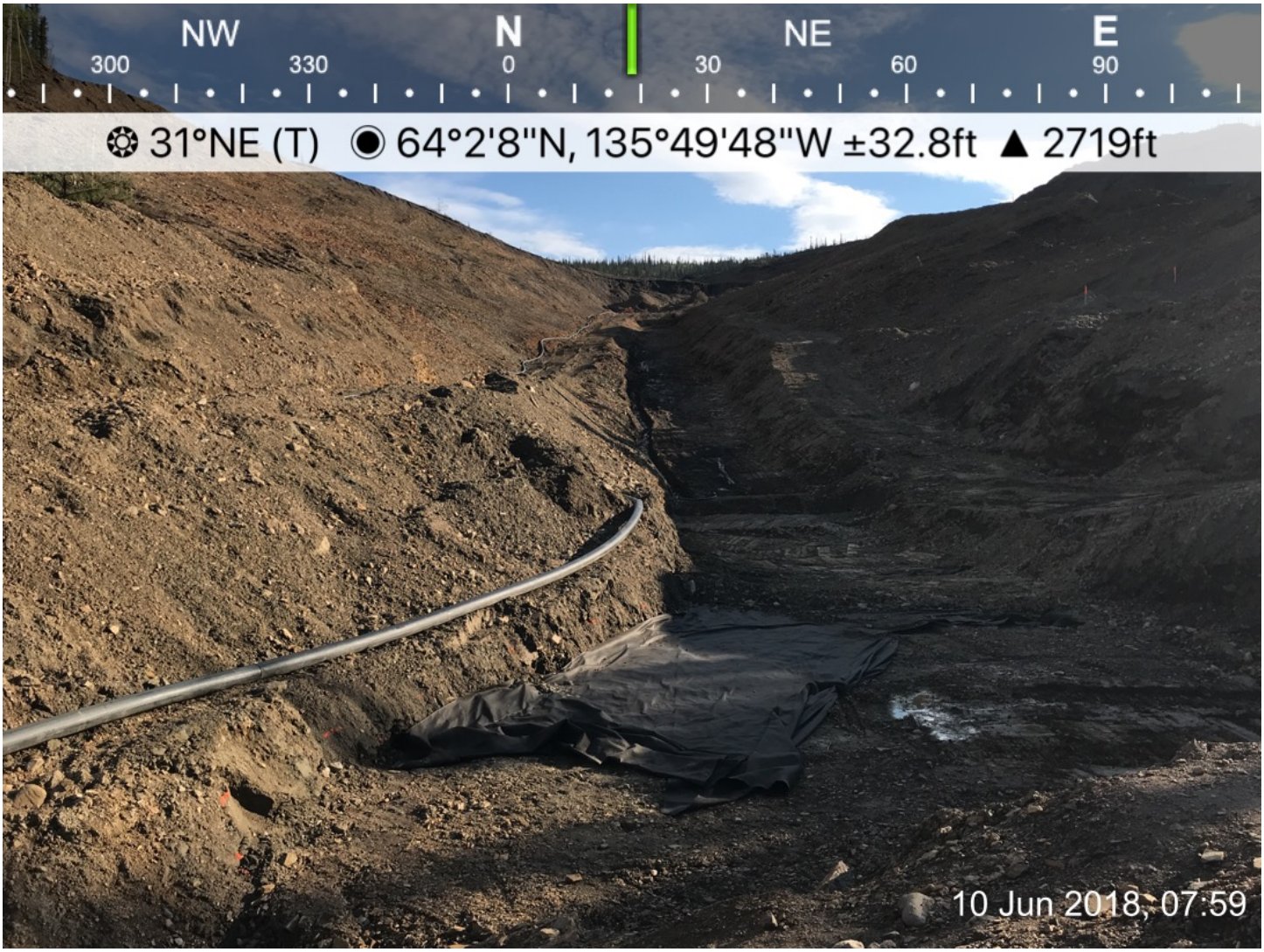


Photo 1: Embankment Toe at start of field work day- BGC representatives directed Pelly to remove damaged compacted Type 2 material before placement and compaction of new Type 2 material.



Photo 2: BGC representative (Elliot Matthews) was present at the embankment toe to observe procedures of geotextile placement and removal of material not accepted.



Photo 3: BGC representative (Daniel Granda) was present at the source area to approve Type 2 material stockpiles before hauling to the embankment toe.



Photo 4: Pelly finalizing excavator compaction of Type 2 material (RFI-017) for the embankment toe.



Photo 5: Surveyor confirmed grade during placement and compaction at the embankment toe. Acceptance of the embankment toe foundation is pending Pelly's final compaction with tamper/small compactor and vampire drains.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Daniel Granda / Elliot Matthews	**Weather:**	Rain/overcast 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No construction due to weather (***Photo 1 to 3***).
- Observations and Recommendations (OPEN):
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow.
  - BGC recommends JDS/Pelly develop a Type 2 material stockpile plan to improve material properties and optimize placement opportunities during construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8.
BGC-RFI-004	HDPE Pipe Joint Test	Open. Sent: June 10.
BGC-RFI-006	Phase 2 Management Plan	Open. Sent: June 11.
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11.

Safety Issues: None



Photo 1: Storm event saturated site, vampire drains working to bring runoff to pump.



Photo 2: Entire site had ponded water.



Photo 3: Material Type 2 area from yesterday was found to be saturated with ponds.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Sunny 7°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC rotation. Dan Granda left site and Roy Morlan returned to site.
  - No construction was performed in the HLF today. BGC met with Pelly and JDS to plan a path forward for construction.
  - Water control appears adequate for construction of the drain. Pelly will begin drain construction the morning of June 13. The path forward will include:
    - Pelly will extend the 'Vampire Drains' past the toe of the embankment.
    - Pelly will work from the bottom of the valley up completing the proper depth and width for the drain trench as they go. A survey crew will be present as they dig. Pelly will move stockpiles of Material 7 – Rockfill located along the trench sides as they go. (***Photo 1***).
    - Geotextile will be placed in the drain trench as they work their way up. Pelly will attempt to use large rocks (small boulder size rocks) as ballast hand placed on the geotextile. These rocks will be hand removed prior to placement of drainfill. If these rocks appear to damage the geotextile Pelly will have to cease the use of them and replace damaged geotextile. BGC has recommended the use of drainfill rock as ballast.
    - Finger drains will be constructed connecting to the pipe trench. A preliminary design of 3 finger drains leading from the right abutment between pipe trench stations 0+300 and 0+150 is being developed. (***Photos 2 and 3***).
    - BGC observed waste piles (material high in organics and silt) stored at the toe of the HLF embankment (***Photo 4***). Some material that was determined suitable for Material 7 – Rockfill is being stored on either side of the drain trench (***Photo 5***). At the ADR excavation Material 7 – Rockfill is being stored on top of a leveled platform of Material 3 – Structural Fill (***Photo 6***). Areas of the Material 3 – Structural fill stockpile have been borrowed for use in construction of the embankment drain toe. Total volumes and materials and stockpile delineation is unclear and a Materials Management Plan should be completed.

- Observations and Recommendations (OPEN):
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow. A drain that would capture this flow as well some upstream flow on this side of the rock knob is in development.
  - Type 2 material stockpile plan to improve material properties and optimize placement opportunities during construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

CC204-RFI-022	HLF Embankment Fill	Open: Received May 27. Pending response from BGC.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8. Pending BGC response to items 5 and 6. All other items to be responded to by others.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Open. Sent: June 10. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None

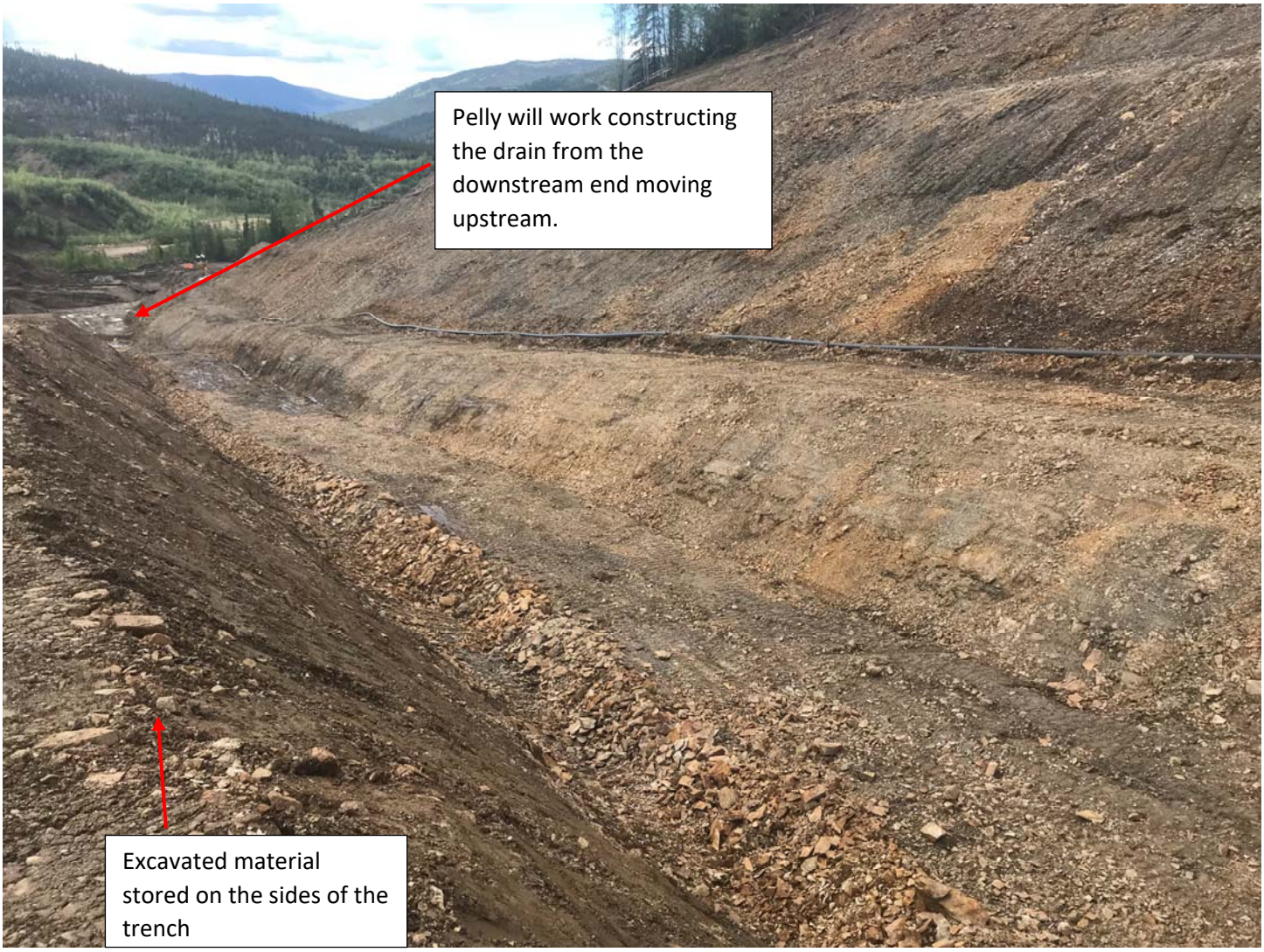


Photo 1: Photograph of the downstream portion of the underdrain that Pelly will be working on June 13.

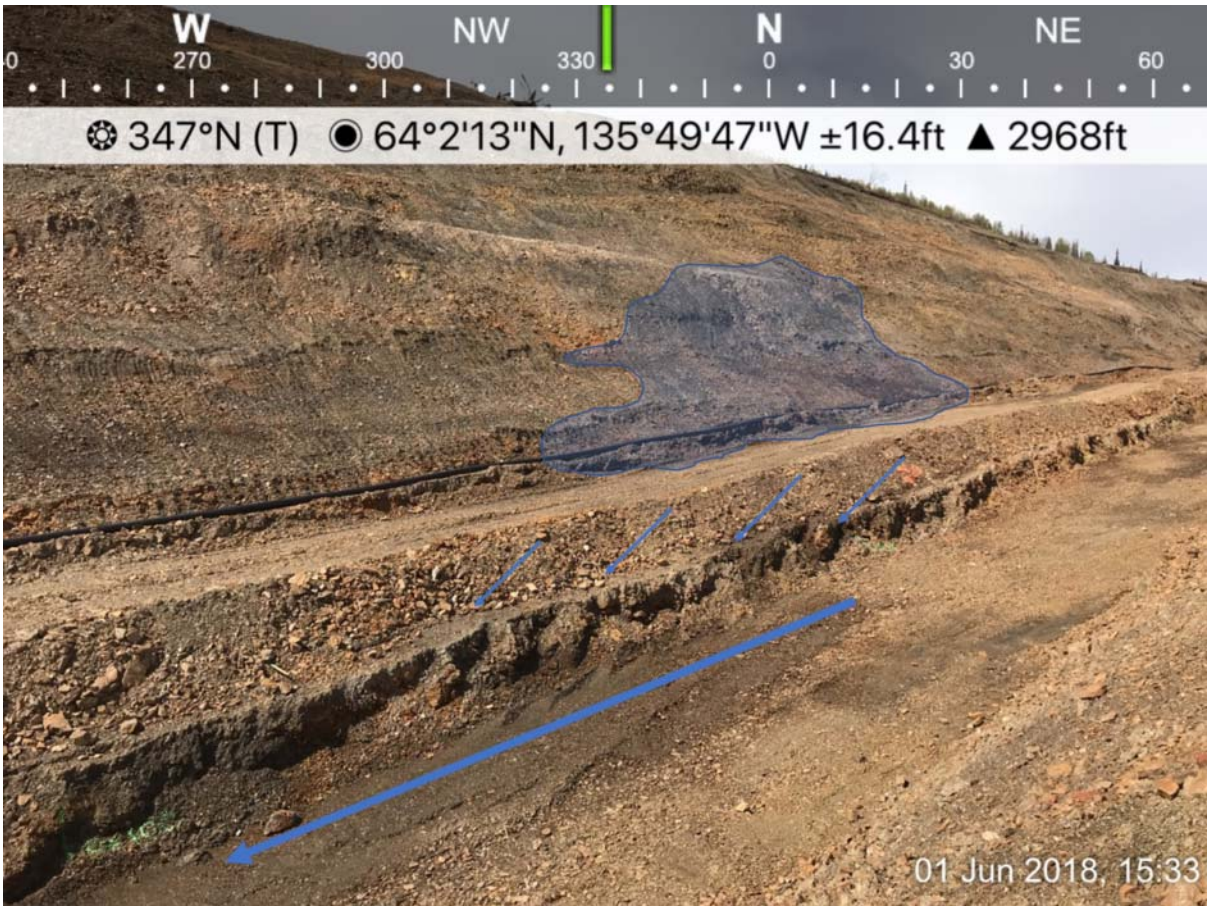


Photo 2: Finger drains to be constructed in this area near drain trench stations 0+250. Drains will be constructed in bedrock. Photograph shows a layer of rockfill that has been placed over the bedrock. This fill will have to be removed to construct the drains.



Photo 3: Finger drains to be constructed in this area near drain trench stations 0+175. Drains will be constructed in bedrock. Photograph shows a layer of rockfill that has been placed over the bedrock. This fill will have to be removed to construct the drains.

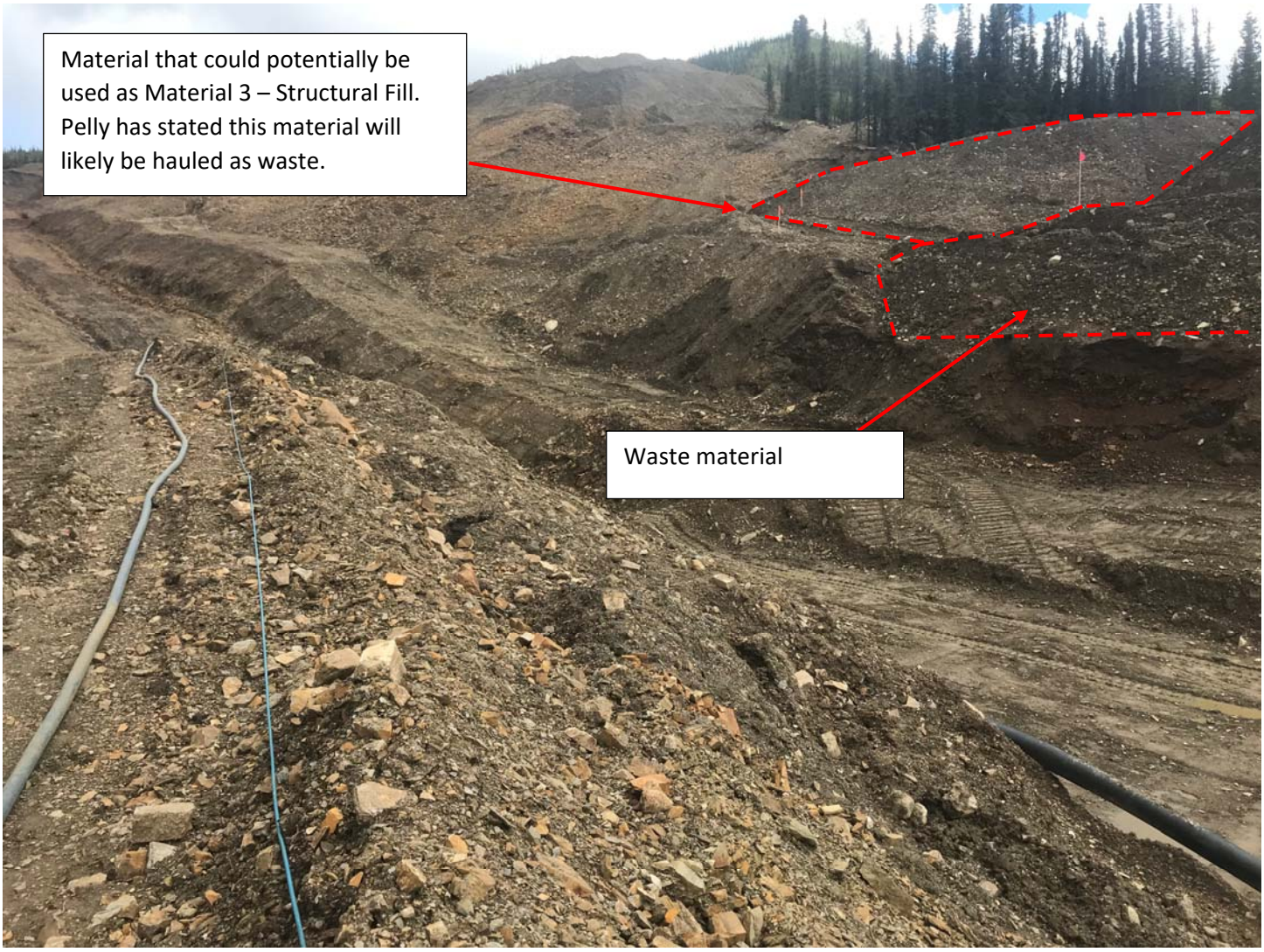


Photo 4: Waste material currently stored near the HLF toe.

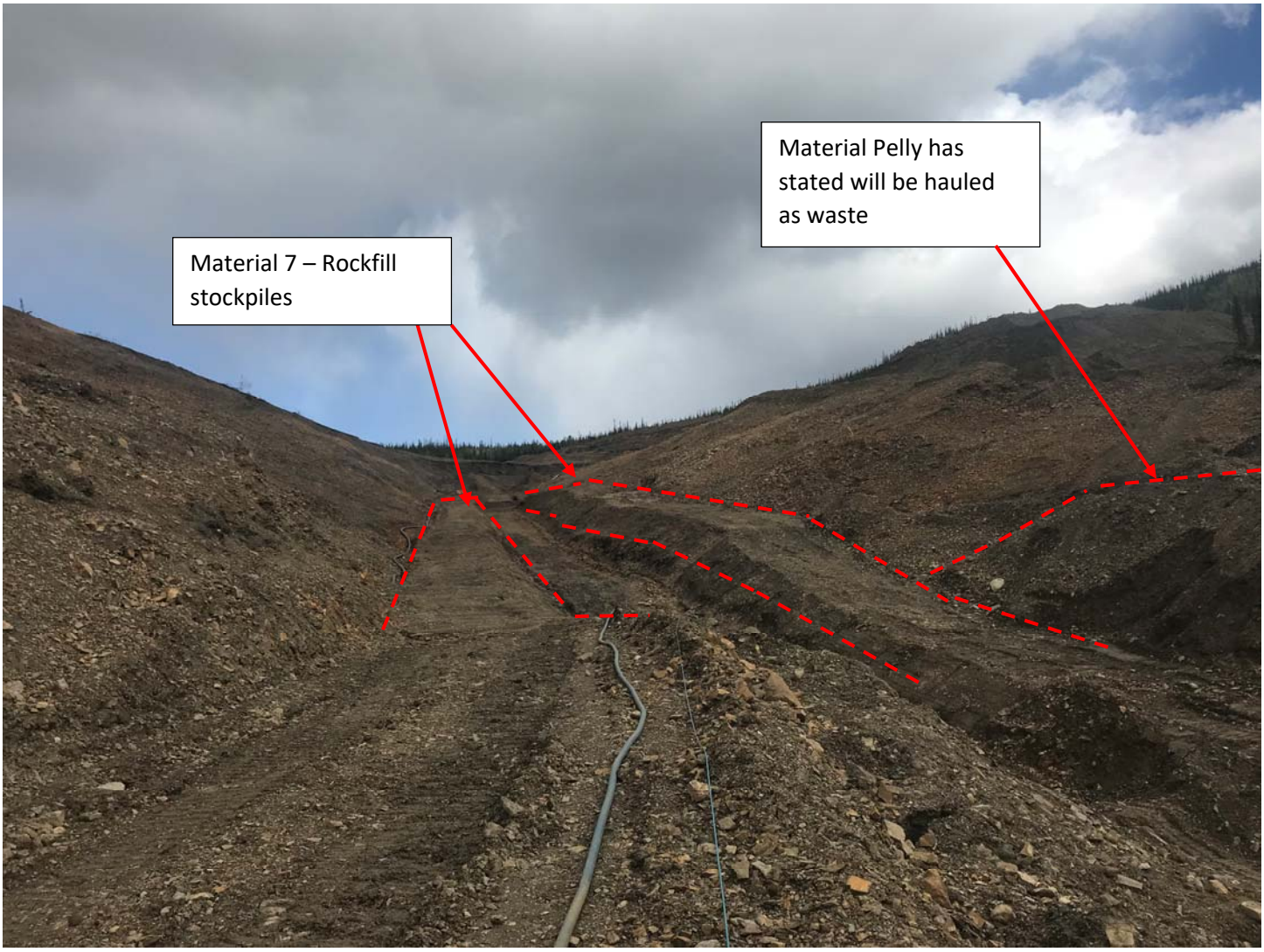


Photo 5: Material 7 – Rockfill.

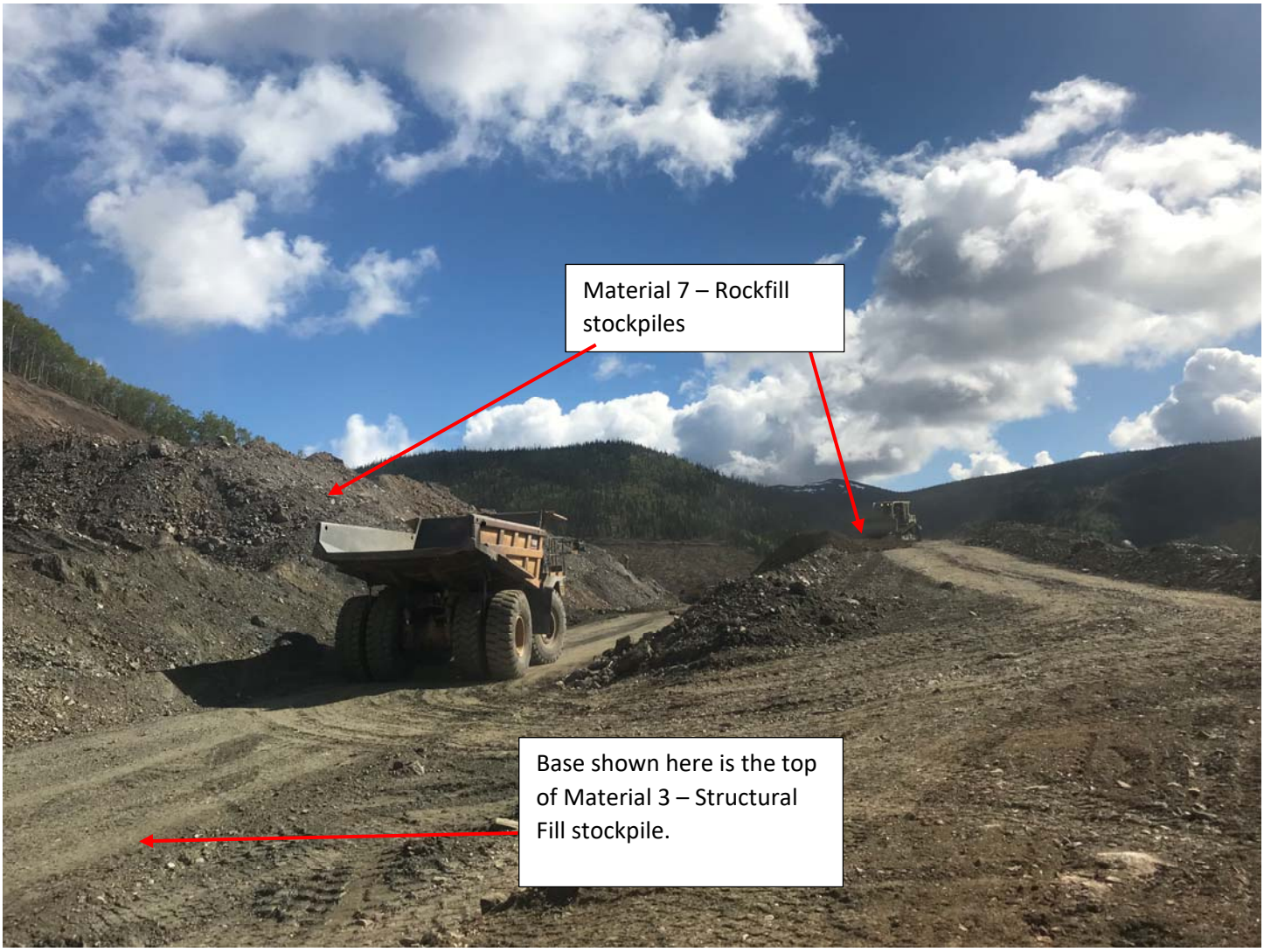


Photo 6: Material 7 – Rockfill piles being stockpiled at the ADR construction site.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Cloudy 4°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly worked with BGC to identify the top of bedrock and to determine how much more excavation is required to complete the trench to the proper size along its entire alignment. (***Photo 1***).
  - Pelly graded the area at the toe of the embankment and used the blade of a small excavator to seal the surface. (***Photo 2***).
  - Pelly began preparations to test the closure pipe for leaks.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area.

- Observations and Recommendations (OPEN):
  - A small test pit is recommended for the artesian well area to characterize localized groundwater flow. A drain that would capture this flow as well some upstream flow on this side of the rock knob is in development.
  - Total volumes and materials and stockpile delineation is unclear for Materials 7, 3, and 2. Material used at the toe of the embankment (Material 2) has a low optimum moisture for construction, is very wet, and in an area that receives runoff during rain. A materials management plan should be developed. It should also include planning to improve material properties and optimize placement opportunities during construction for Material 2. The overall plan should also include anticipated and current volumes updated periodically of all materials generated or procured. This will help plan and identify material needs before an issue arises and allow better tracking of QA/QC testing.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - QC: QC testing performed on over liner drain fill shows that production consistently meets gradation requirements.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27. Pending response from BGC.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8. Pending BGC response to items 5 and 6. All other items to be responded to by others.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.

CC204-RFI-036	Finger Drain Design	Open: Received June 13. Pending BGC response.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Open. Sent: June 10. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Pelly exposing top of bedrock in areas that have been covered by fill piles.



Photo 2: Embankment toe area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Cloudy 4°C to 21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly performed a shift change today, limiting the amount of work that was completed at the HLF.
  - Pelly continued preparations to test the closure pipe for leaks.
  - Pelly surveyed the toe area of the embankment. The portion where the fill area meets the type 3 bedrock is less than 2% slope (1.8%). BGC approved the remaining area which was over 2% slope. BGC discussed using Material 2 to regrade the area that was too horizontal and tie it into the type 3 bedrock. (***Photo 1***)
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - Pelly's operator worked on water control near the Material 3 – Structural Fill stockpile late in the day.
  - Pelly did not perform excavation at the pipe trench today.
  - BGC and EBA collected a sample from the Material 7 – Rockfill to perform a rough gradation estimate. This rough gradation estimate will be used to determine if there will be piping issues if the embankment construction is reconfigured by Pelly to place Material 3 – Structural Fill over Material 7 – Rockfill. If the results of the sample show piping will be a concern or if the results are border-line transition, zoning will have to be designed or a true gradation for both materials will have to be completed for further analysis. (***Photos 2 and 3***)

- Observations and Recommendations (OPEN):
  - The test pit and drain at the artesian hole on the east side of the embankment will be completed after the Material 3 – Structural Fill stockpile is cleared from this area or reconfigured in a way that it is not in the footprint of this drain.
  - JDS/Pelly are developing a materials management and tracking plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27. Pending response from BGC.
CC204-RFI-030	Steel Pipe Works	Open: Received June 8. Pending BGC response to items 5 and 6. All other items to be responded to by others.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.

CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.
CC204-RFI-036	Finger Drain Design	Closed: Received June 13. Answered June 14.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Open. Sent: June 10. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None

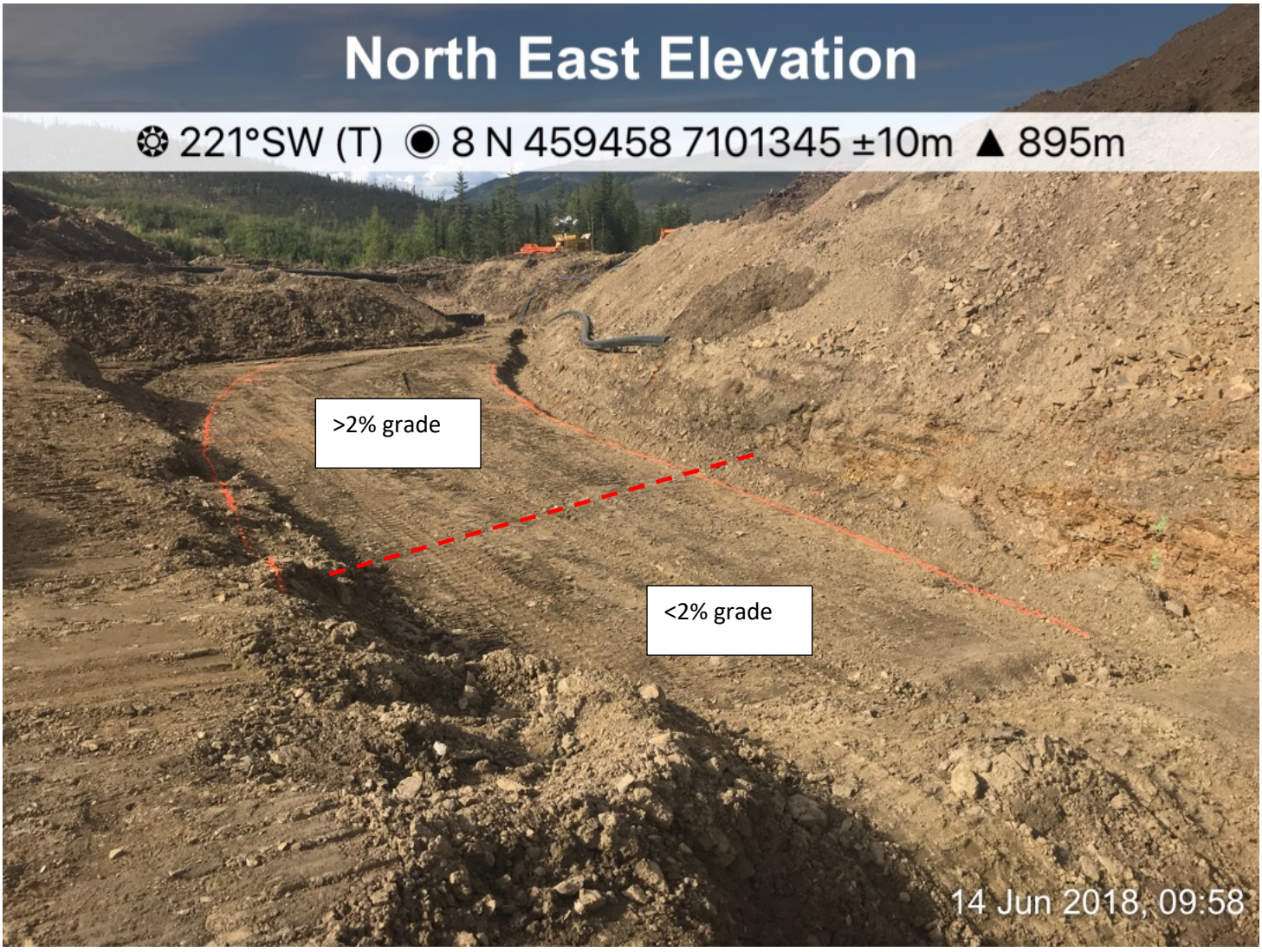


Photo 1: Area at the toe of the embankment.



Photo 2: Photograph of courser portion of the rockfill at the toe of the rockfill pile. Most likely segregated as the pile was pushed.



Photo 3: More representative photograph of rockfill being generated now. Approximately (visually estimated) 30% pieces >3"; 10% >8". One bolder (approximately 0.5m diameter observed in the photo).



Photo 4: Rock was moderately weathered/altered (W2-W3); strong (R4); and is moderately hard to hard (H4 to H3).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews/ Tory Meyer	**Weather:**	Cloudy 5°C to 23°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued preparations to test the closure pipe for leaks. (***Photo 1***)
  - No work was performed at the HLF pipe trench. (***Photo 2***).
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - Pelly's operator worked on water control near the Material 3 – Structural Fill stockpile all day.
  - BGC and EBA collected a sample from the Material 3 – Structural Fill to perform a rough gradation estimate.
  - Troy Meyer arrived on site.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Open: Received May 27. Pending response from BGC.
CC204-RFI-030	Steel Pipe Works	Closed: Received June 8. BGC responded to this RFI on June 15.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.
CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Closed. Sent: June 10. Pipe test to be performed June 16. Closed with ASTM procedure and JHA.
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS

BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Pipe was laid out in a ditch in preparation for the test.



Photo 2: HLF embankment area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews/ Tory Meyer	**Weather:**	Cloudy 11ºC to 24ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly performed the leak test on the closure pipe. The pipe passed the test. Pelly will develop a brief report explaining the testing procedure and execution. BGB will develop a short report discussing the results. The pipe tested should be marked for use as the closure pipe. (***Photo 1 and 2***)
  - Material was identified for use at the toe of the embankment. The material was transported to the toe and Pelly began installing it to improve the grade at the toe and build the trench side walls. (***Photo 3 and 4***).
  - While looking for material for use at the toe at the Material 3 stockpile BGC observed that an area along the north side of the stockpile consisted of material with high fines, max sizes approximately 6 inches, and a moderate amount of organics. I estimate that there is about 10,000 cubic meters of this material at this location. This material did not come from the embankment footprint excavation in 2017 and Pelly was not sure where the material originated from. However, the most likely source is road construction from this area. This material is not suitable as Material 3 – Structural Fill and should not be used in the embankment lifts. It should be moved or clearly marked so it is not mistakenly used in the embankment construction (***Photo 5***).
  - Pelly dug a test trench in the Material 3 stockpile on the east side of the embankment footprint. The Material is saturated at about 0.5m bgs. Water drained from the trench after excavation. This material will not be suitable for construction of the embankment in this state. A method to drain and dry this material should be devised before embankment placement begins. (***Photo 6***).
  - BGC recommends that Pelly delineate how much of the Material 3 stockpile is saturated prior to use at the embankment. Pelly should develop a model of usable vs currently saturated material in order to properly plan for construction.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA provided results for Material 7 and 3 gradation testing.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Closed: Received May 27. Response delivered on June 16, 2018.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.

CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Closed. Sent: June 10. Pipe test to be performed June 16. Closed with ASTM procedure and JHA.
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Pipe test in progress.



Photo 2 : Flange on opposite end of the pipe. No leaks observed at any of the pipe joints.



Photo 3: Surface material that had dried was excavated for use in construction at the toe.



Photo 4: Material was wet but not overly saturated.



Photo 5: Large organics in material observed at the north end of the Material 3 stockpile.



Photo 6: Flowing water observed from a shallow test pit dug at the top of the Material 3 Stockpile. Water present this shallow, this high up in the pile indicates sever saturation. Planning should be done to ensure that this material is usable at the time of construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews/ Tory Meyer	**Weather:**	Cloudy 11°C to 24°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly performed the leak test on the closure pipe. The pipe appeared to pass the test. Pelly will develop a brief report explaining the testing procedure and execution. BGB will develop a short report discussing the results. The pipe tested should be marked for use as the closure pipe. (***Photo 1 and 2***)
  - Material was identified for use at the toe of the embankment. The material was transported to the toe and Pelly began installing it to improve the grade at the toe and build the trench side walls. (***Photo 3 and 4***).
  - While looking for material for use at the toe at the Material 3 stockpile BGC observed that an area along the north side of the stockpile consisted of material with high fines, max sizes approximately 6 inches, and a moderate amount of organics. I estimate that there is about 10,000 cubic meters of this material at this location. This material did not come from the embankment footprint excavation in 2017 and Pelly was not sure where the material originated from. However, the most likely source is road construction from this area. This material is not suitable as Material 3 – Structural Fill and should not be used in the embankment lifts. It should be moved or clearly marked so it is not mistakenly used in the embankment construction (***Photo 5***).
  - Pelly dug a test trench in the Material 3 stockpile on the east side of the embankment footprint. The Material is saturated at about 0.5m bgs. Water drained from the trench after excavation. This material will not be suitable for construction of the embankment in this state. A method to drain and dry this material should be devised before embankment placement begins. (***Photo 6***).
  - BGC recommends that Pelly delineate how much of the Material 3 stockpile is saturated prior to use at the embankment. Pelly should develop a model of usable vs currently saturated material in order to properly plan for construction.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA provided results for Material 7 and 3 gradation testing.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-022	HLF Embankment Fill	Closed: Received May 27. Response delivered on June 16, 2018.
CC204-RFI-033	LDRS Pump Casing	Open: Received June 8. Pending BGC response.

CC204-RFI-034	Closure Drill Casing	Open: Received June 8. Pending BGC response.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-004	BGC requested a HDPE Pipe Joint Test.	Closed. Sent: June 10. Pipe test to be performed June 16. Closed with ASTM procedure and JHA.
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Pipe test in progress.



Photo 2 : Flange on opposite end of the pipe. No leaks observed at any of the pipe joints.



Photo 3: Surface material that had dried was excavated for use in construction at the toe.



Photo 4: Material was wet but not overly saturated.



Photo 5: Large organics in material observed at the north end of the Material 3 stockpile.



Photo 6: Flowing water observed from a shallow test pit dug at the top of the Material 3 Stockpile. Water present this shallow, this high up in the pile indicates sever saturation. Planning should be done to ensure that this material is usable at the time of construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews/ Tory Meyer	**Weather:**	Cloudy 7ºC to 22ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly constructed the side walls of the pipe trench (***Photo 1***).
  - Pelly began excavation of the first finger drain on the west side of the pipe trench (***Photo 2***).
  - BGC, Pelly, and JDS discussed land farming the Material 3 stockpile in preparation for its use in the embankment. Pelly will focus on construction of the drains before they are able to perform this work.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - BGC discussed the use of crusher reject material as Material 2 underneath the liner on the upstream face of the dam. BGC will further investigate this tomorrow.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-034	Closure Drill Casing	Closed : Received June 8. Response sent June 18, 2018
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Construction of trench side walls.



Photo 2: Excavation of finger drains.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Clear 11°C to 26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly compacted one 15 cm lift on the pipe trench toe walls (***Photo 1***).
  - Pelly completed excavation of the first finger drain on the west side of the pipe trench – Finger Drain 2 (***Photo 2***).
  - Pelly prepared the drain surface, placed geotextile, and some drain rock (***Photos 3 and 4***).
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - Crusher reject material was inspected and BGC received gradation results from EBA. The material is mostly well graded sand from 0.8mm to 2mm. Due to the materials lack of cohesion a small test placement will be needed to ensure that the material can be placed at a 2.5:1 slope and compacted using hand tampers. BGC will also verify the filter compatibility between the reject material and Material 3.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Compaction of the east trench wall at the toe of the embankment.

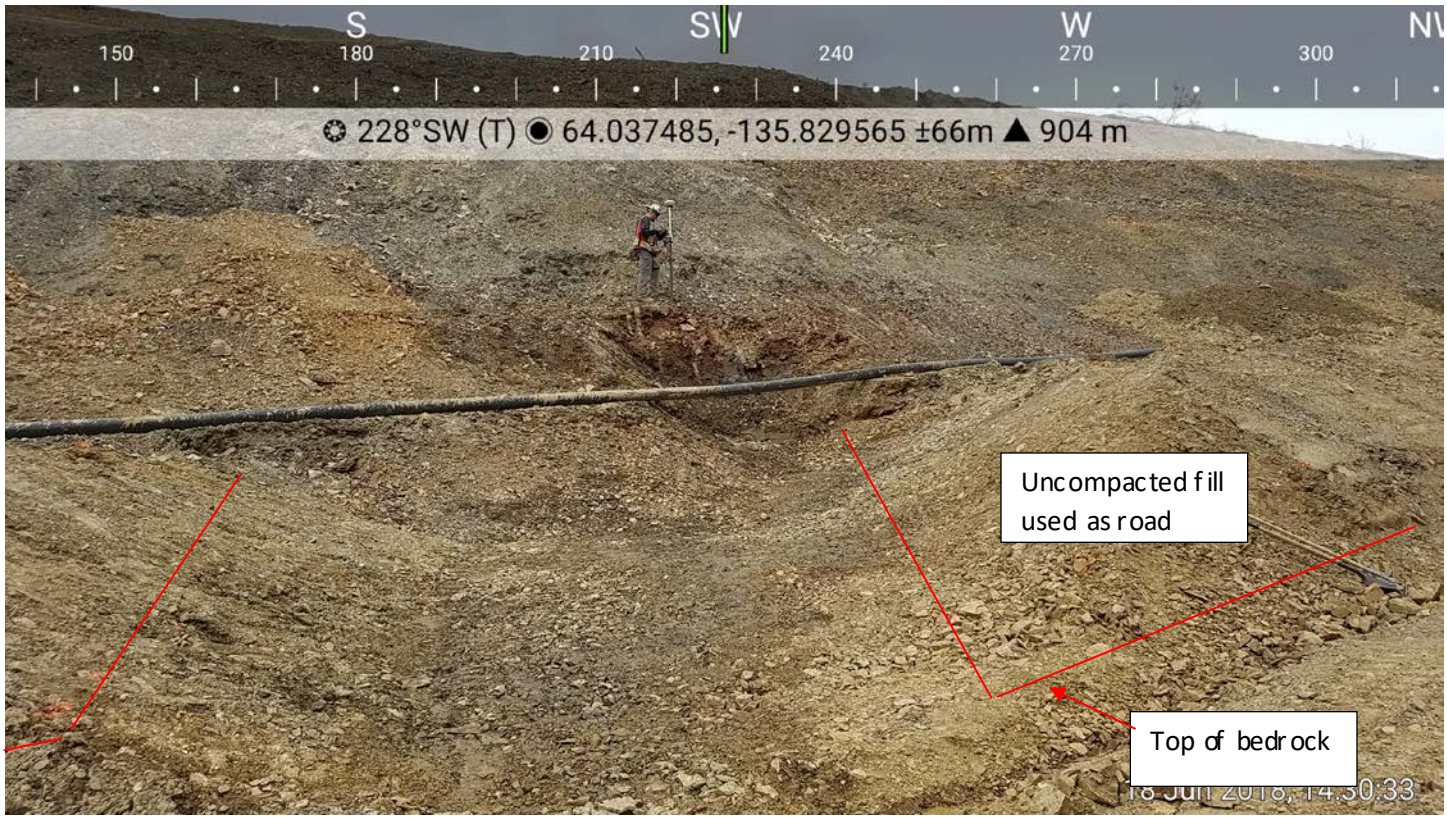


Photo 2: Finger Drain 2 excavation.



Photo 3: Geotextile placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Clear 11°C to 26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly compacted one additional 15 cm lift on the pipe trench toe walls (***Photo 1***). The pipe trench toe wall is now up to grade. However, the width of the trench still requires shaping.
  - Pelly completed the first finger drain (FD2). Pelly backfilled the temporary rockfill haul road to road grade using compacted structural fill (***Photo 2***). Loose, jagged material in the trench bottom will need to be cleared out before Pelly places material over the geotextile. Pelly reported constructing the drain using the wrong drain fill material. They delivered and installed 38" minus drain rock originally intended for an electrical substation construction. EBA provided BGC gradation results for this material. The material is compatible with the Material 5 drain fill which will be used in the pipe trench. BGC allowed the material to stay in FD2. However, future drains should be constructed with drain material required in the design.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - BGC has scheduled a proctor test with EBA on the crusher reject material. Filter compatibility compatibility calculations show no issues with use the material against Material 3. BGC estimates approximately 20,000 cubic meters of material will be needed.
  - BGC performed mapping of the western portion of the ADR plant rockwall (***Photo 3***).
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use. (***Photo 4***)

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - The artesian well should be investigated using a trench in order to complete the design for finger drain FD1.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS

BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Closed. Sent: June 11. Responded to on June 20.
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Compaction of the east trench wall at the toe of the embankment.

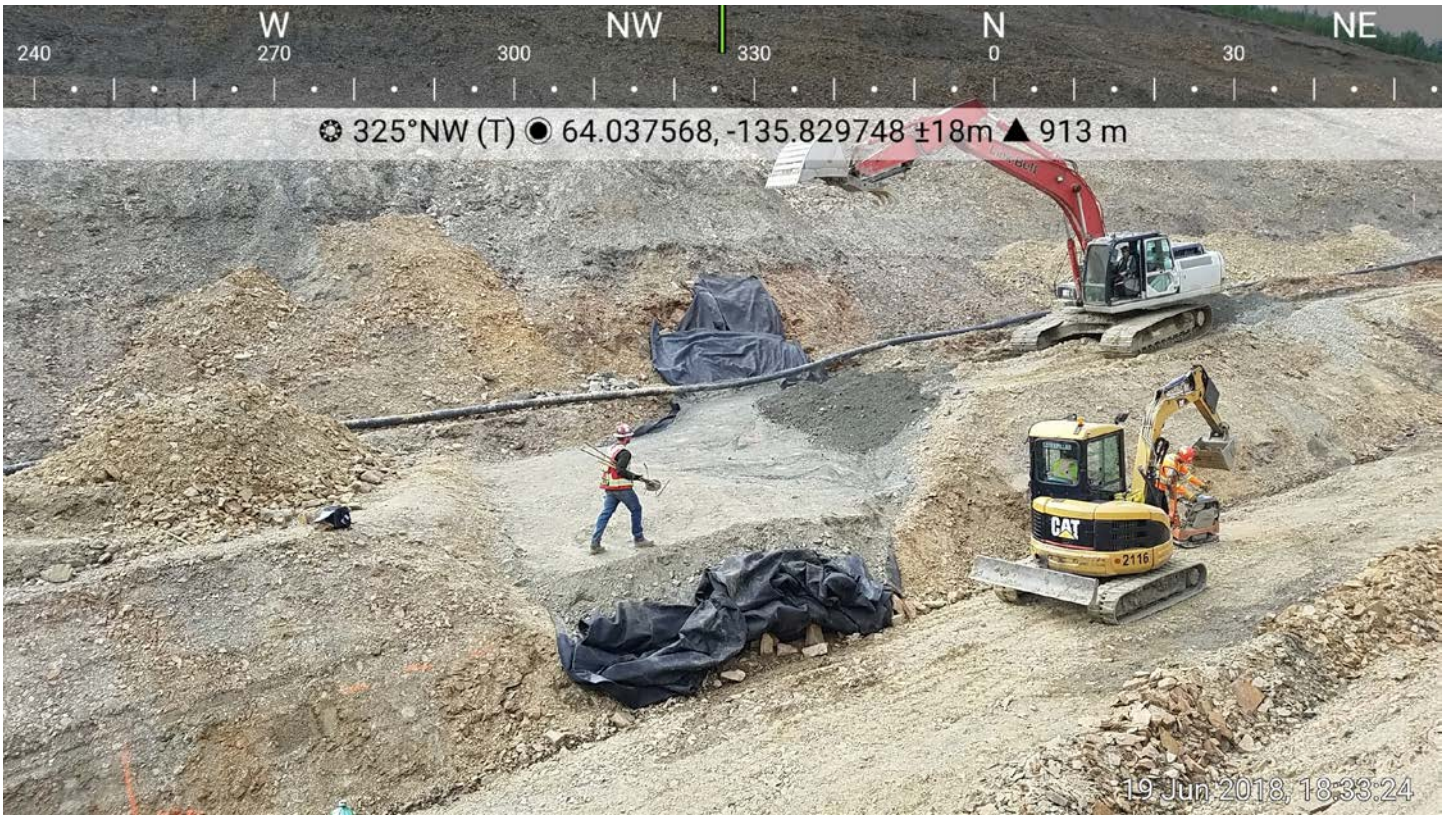


Photo 2: Building finger drain up to road grade.



Photo 3: West portion of the event pond rock wall.



Photo 4: Materials stored at ADR borrow. Finer material will need to be blended with courser material before placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Clear 12°C to 27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly completed the second finger drain. Pelly backfilled the temporary rockfill haul road to road grade using compacted structural fill (***Photo 1 and 2***). Loose, jagged material in in the pipe trench will need to be cleared out before Pelly places material over the geotextile.
  - Pelly continues work at the ADR plant and is generating rockfill for use in the embankment construction in this area. Pelly has built a road from the ADR plant foundation area to the location where the event pond will be excavated. They are stockpiling Material 7 – Rockfill in this area.
  - Pelly excavated a test pit around the artesian well to design the drain for this feature. BGC determined the seepage point and will provide Pelly with a design for the drain. (***Photo 3***)
  - BGC received CC204-RFI-037.
  - Pelly, JDS, and BGC discussed planning a rockfill test fill. Pelly has an idea for a location. BGC will follow up to finalize the location. A water replacement test will be performed in the test fill for determine density. BGC will follow up with Pelly to determine if all the equipment and materials needed to perform the test are on site (large capacity scale, thin walled geomembrane or thick plastic, flow meter or graduated container to measure volume).

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - Proctor test on the reject sand for use as Material 2 is still pending.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Open. Sent June 20. Pending response for BGC.

BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-006	BGC requested a Phase 2 Water Management Plan.	Closed. Sent: June 11. Responded to on June 20.
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None



Photo 1: Drain installation.



Photo 2: Pelly built the surface of the drain back to road grade using structural fill.

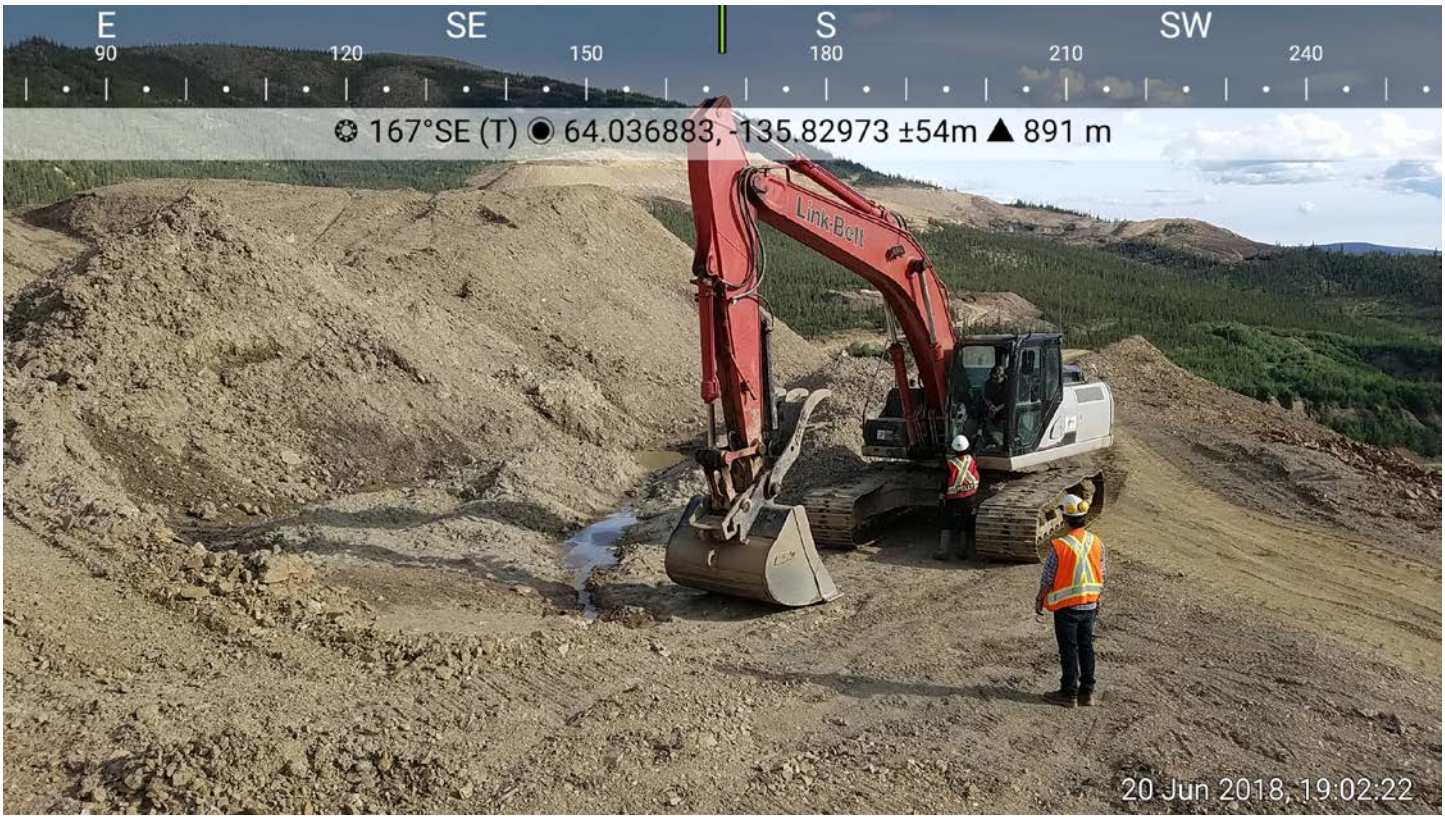


Photo 3: A trench was excavated around the artesian spring to develop a drain design to capture it.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Cloudy 8ºC to 21ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly had a shift change so no work was performed between 10am and 3pm.
  - Pelly partially constructed vampire drain through the toe of the embankment to aid in water control. (***Photo 1***)
  - As part of the water control Pelly removed the berm at the toe of the embankment and replaced it with 2 smaller berms (***Photo 1***).
  - Pelly added more fill above the completed drain to bring it up to road grade (***Photo 2***).
  - JDS delivered EPCM-RFI-020 related to ballast spacing and configuration.
  - Pelly developed a preliminary stockpile map for the ADR area. Pelly and BGC visited the ADR and revised the map to reflect actual conditions at the ADR stockpiles.
  - Underhill tested the use of their drone and image processing software to measure volumes. The surface created was detailed and visually appeared to be comparable to using plastic liner and water replacement. Underhill is still determining the best method to calculate volumes from the surface using the software they have one site. BGC recommends that the first density test pit in the rockfill test fill be excavated and shot with the drone. Then a water replacement test should be done so both methods can be compared.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - Proctor test on the reject sand for use as Material 2 is still pending.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.
  - BGC will follow up to finalize the rockfill test fill location. BGC will follow up with Pelly to determine if all the equipment and materials needed to perform the test are on site (large capacity scale, thin walled geomembrane or thick plastic, flow meter or graduated container to measure volume). Pelly and BGC will schedule a time to do the test.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Open. Sent June 20. Pending response for BGC.
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

Safety Issues: None

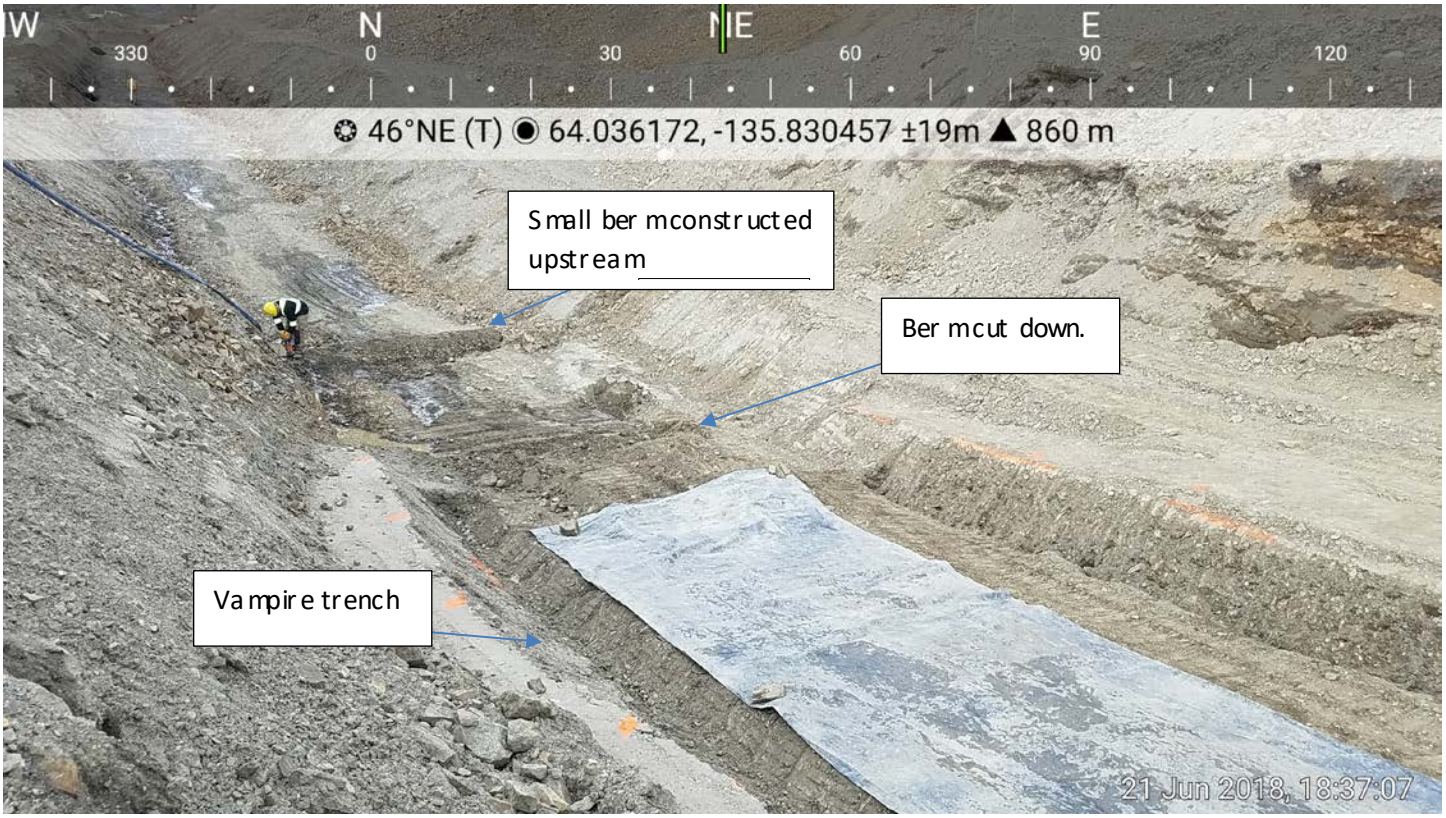


Photo 1: Vampire drain at the toe of the embankment. Berm at the toe was removed and two smaller berms built.



Photo 2: Completed drain.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Cloudy 8ºC to 22ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly completed detail work shaping the toe area of the embankment drain and tying it into upstream bedrock. (***Photo 1***)
  - In extending the vampire trenches through the completed toe construction Pelly damaged geotextile in 3 locations (***Photo 2***). The damage was minor and BGC allowed Pelly to cover the areas with low permeability fill (Material 2) and hand tamp the areas to a dense state.
  - Pelly cleaned the bottom of most of the pipe trench length. Vampire drains were not cleaned and will need jagged rocks removed or to be filled with drain rock before laying geotextile. There are also areas of the pipe trench near the toe that will need to be dug deeper. Pelly survey has marked the cuts needed in these areas in the field. (***Photo 3***)
  - BGC performed preliminary mapping of the area grubbed within the HLF footprint. Mapping focused on surficial slumping, cracking, or deformation that may be obvious from exposure of the ground to direct sunlight. No obvious deformation was observed. Wet areas at the surface were observed on the west side of the cleared area. (***Photo 4***)
  - BGC provided Pelly with pipe length, type, and diameter for the drain to be constructed from the artesian hole to the under drain pipe trench. This response was provided as an estimate via email to allow Pelly to order materials. BGC is completing a design memorandum for this drain, which will have the final construction details.
  - BGC send JDS BGC-RFI-008 via email which asks for a QC Plan from Pelly.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - Proctor test on the reject sand for use as Material 2 is still pending.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.
  - BGC will follow up to finalize the rockfill test fill location. BGC will follow up with Pelly to determine if all the equipment and materials needed to perform the test are on site (large capacity scale, thin walled geomembrane or thick plastic, flow meter or graduated container to measure volume). Pelly and BGC will schedule a time to do the test.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Open. Sent June 20. Pending response for BGC.
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BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Embankment toe area tied into upstream bedrock.

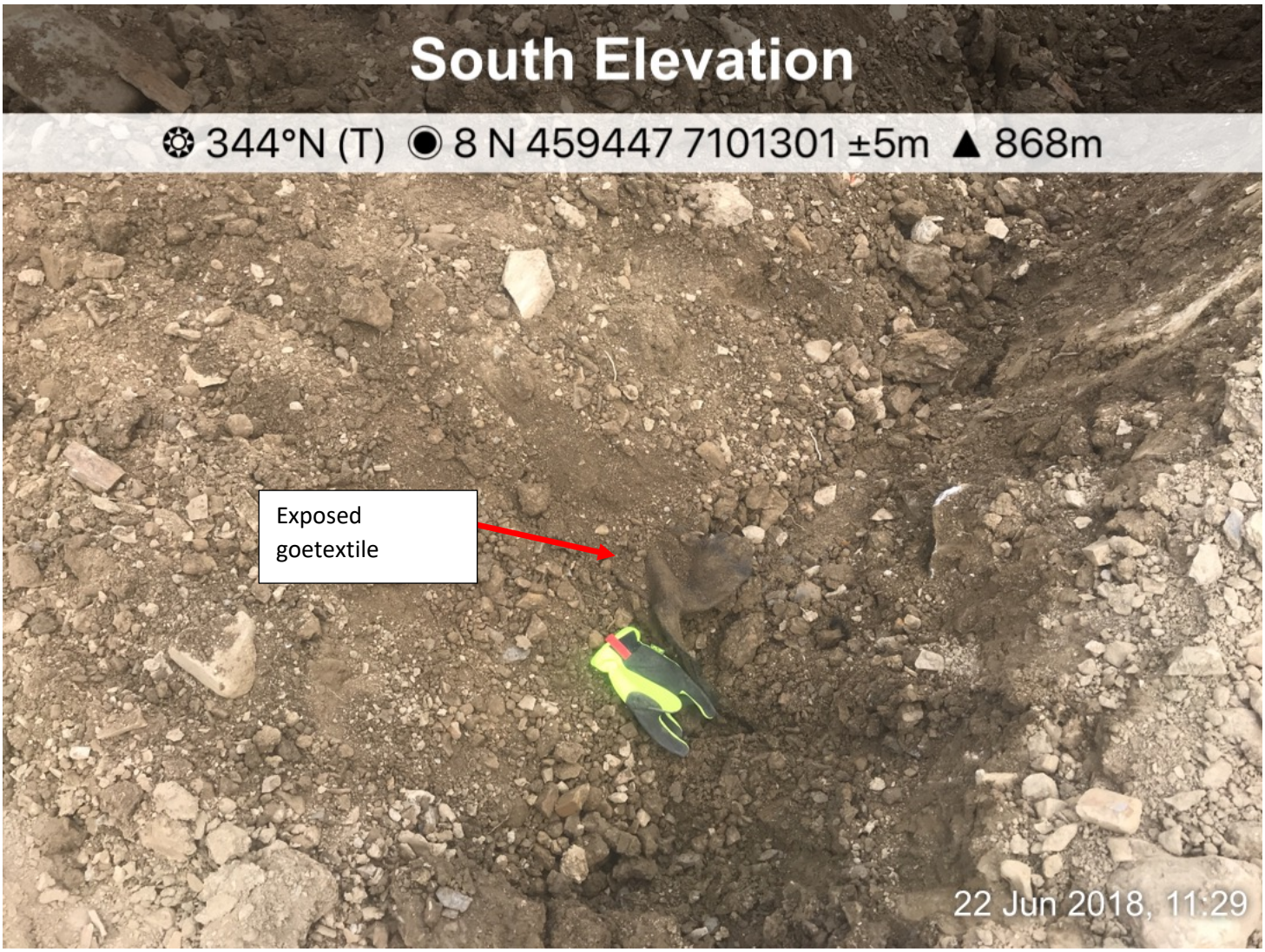


Photo 2: Exposed geotextile.

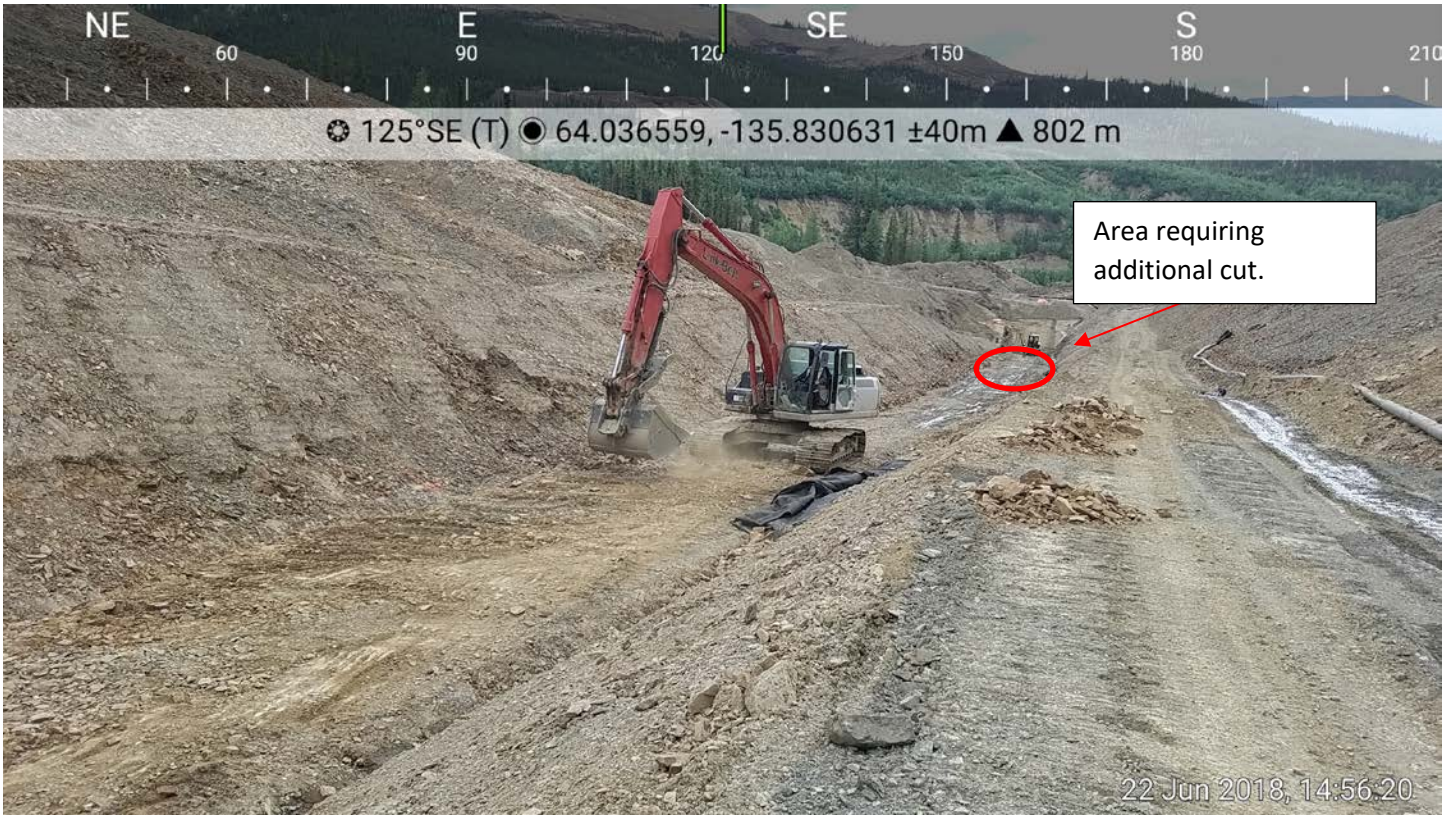


Photo 3: Excavator cleaning out main pipe trench.



Photo 4: Area cleared within the Phase 1 Heap Leach Pad.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 23, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Cloudy 8ºC to 22ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The area at approximately 0+090 of the pipe trench, located north of finger drain FD3, did not dewater as much as anticipated (***Photo 1***). Moisture is present in the road fill above the type 3 bedrock in this area presenting concerns that seepage in this area may result in wetting of the rockfill embankment lifts in this area and piping of fine material from the rockfill. The moisture in this area has two potential sources; seepage from the adjacent abutment at 0+090 and/or or a seep located upstream at approximately station 0+200 (***Photo 2***). Water from the seep at 0+200 is running along the surface of the road and seeping into the road fill. BGC proposed an additional drain at the 0+200 seepage point. Installing this drain first would allow us to control this seep and determine if a drain further downstream is required. Pelly did not want to excavate the drain at 0+200 until they filled the trench drain to this location. Because the finger drain construction ties into the trench drain and because BGC could not determine the source of the wetness at 0+090 until flow from the 0+200 seep was captured, BGC required that a drain also be installed at station 0+090 to capture potential flow from the abutment.
  - Pelly excavated and constructed the additional finger drain at approximately station 0+090. As with all the other finger drains constructed so far Pelly chose to construct the drain completely and fill over the drain to road grade. As with all the other finger drains constructed this way, Pelly will have to take care when removing the road before embankment lift placement to ensure that the drain is not damaged. Damage to the finger drain may result in excavation replacement of the drain. (***Photos 3 and 4***)
  - Pelly completed laying the geotextile in the drain trench a placing approximately 10 cm of drain fill in the trench up to station 0+070. BGC approved the foundation for placement from Station 0+010 to 0+070. Pelly placed geotextile and drain rock between stations 0+000 and 0+010. They stated that this was done to make placing the trench pipe easier. The construction between 0+000 and 0+010 is not complete. Pelly says they will remove the material at a later time to complete this construction. (***Photo 5***)

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.
  - BGC will follow up to finalize the rockfill test fill location. BGC will follow up with Pelly to determine if all the equipment and materials needed to perform the test are on site (large capacity scale, thin walled geomembrane or thick plastic, flow meter or graduated container to measure volume). Pelly and BGC will schedule a time to do the test.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Results from Reject Sand provided verbally. Written report from EBA pending.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Open. Sent June 20. Pending response for BGC.
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Wet zone at approximately 0+090.



Photo 2: Seepage zone at approximately 0+200.



Photo 3: Excavation of finger drain FD4.



Photo 4: Backfill of finger drain FD4.

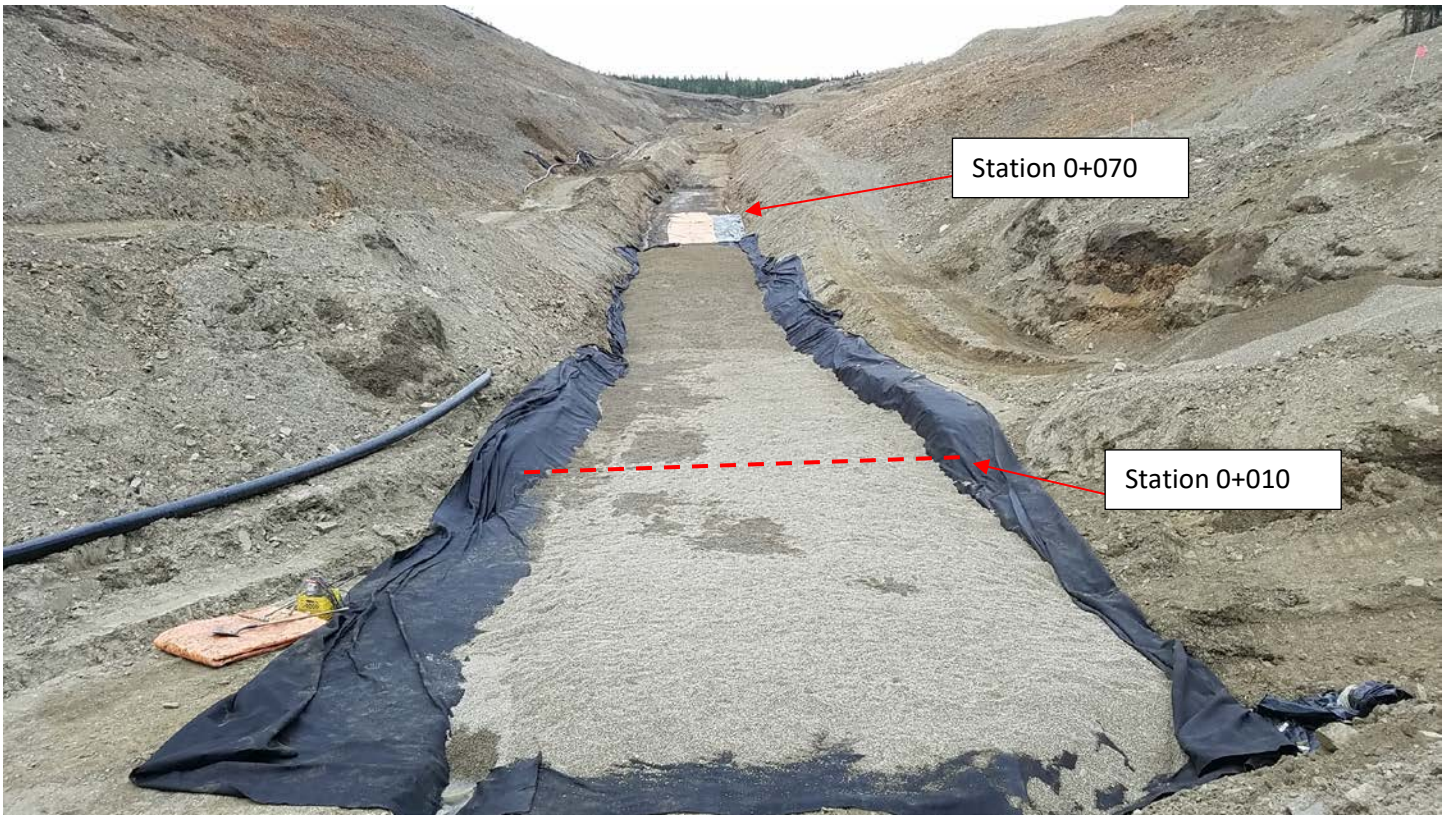


Photo 5: Portion of the trench drain where geotextile and drain rock was installed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Rain 8ºC to 22ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Geotextile and drain rock were placed to station 0+170 in the pipe trench. (***Photo 1***).
  - Pelly tied the three constructed finger drains into the drain trench. Because the drains were fully constructed this process was very laborious and the results of geotextile overlap sloppier than a typical drain installation, which was one of BGC concerns with fully constructing the finger drains in advance of the pipe trench. Because BGC does not believe Pelly has a valid method to properly tie constructed drains into the pipe trench BGC will require that geotextile be shown to properly overlap when a higher order drain enters a lower order drain before any drain fill is placed at that junction. (***Photo 2***).
  - BGC delivered memorandum BGC-FM-003 to JDS related to observations made during the pressure testing of the closure pipe.
  - BGC completed mapping at the ADR rockwall cut.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.
  - BGC will follow up to finalize the rockfill test fill location. BGC will follow up with Pelly to determine if all the equipment and materials needed to perform the test are on site (large capacity scale, thin walled geomembrane or thick plastic, flow meter or graduated container to measure volume). Pelly and BGC will schedule a time to do the test.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Open. Sent June 20. Pending response for BGC.

EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pipe trench.

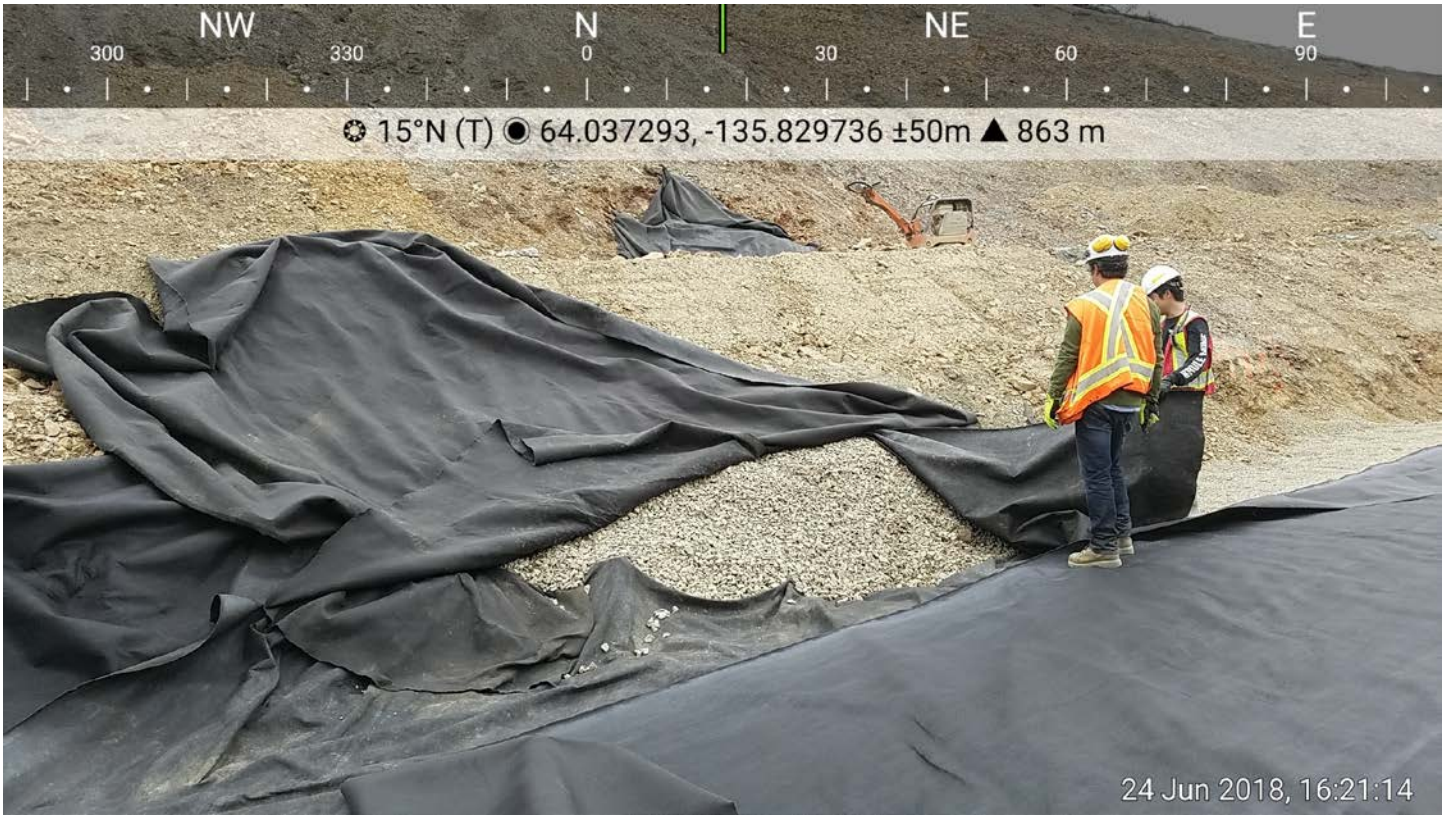


Photo 2: Intersection of finger drain and pipe trench.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Rain 8ºC to 19ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly moved the first 180m of piping into the pipe trench. (***Photo 1***)
  - BGC performed a final inspection of all pipe. One joint in the closure pipe was dented. BGC requested it be cut and re-fused. Pelly provided a joint report for this fusing. (***Photo 2 and 3***). All other sections of pipe were approved by BGC.
  - Pelly spaced and covered drain pipe to station 0+090. (***Photo 4***)
  - BGC delivered the response the CC204-RFI-037
  - Pelly identified a rockfill test fill location. BGC watched the foundation proof rolled with a loaded haul truck. The foundation is dense enough and large enough for a test fill. Test fill is planned for tomorrow. (***Photo 5***)

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - An area of material high in organics on the northern portion of the Material 3 stockpile in the embankment footprint should be delineated and segregated from the pile.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. Pelly is planning a to blend dryer ADR material with wetter embankment material on June 26.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA delivered proctor results for reject sand.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-037	Water control for construction using design features intended for permanent construction; field fitting changes to other pipe-works in the design.	Closed. Sent June 20. Response June 26, 2018.
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS

BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pelly installing pipe in the pipe trench.



Photo 2: Dented pipe joint.



Photo 3: Re-fusing pipe.



Photo 4: Filling pipe trench



Photo 5: Test fill foundation proof roll with loaded haul truck.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Matthews	**Weather:**	Rain 8ºC to 23ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued burying trench pipe with Material 5 to station 0+175. (***Photo 1***)
  - BGC and Pelly delineated contaminated material to be segregated out of the Material 3 stockpile.
  - Pelly began covering the pipe trench drain with geotextile. (***Photo 2***)
  - BGC and Pelly mixed saturated Material 3 from the embankment footprint with dry Material 3 from the ADR cut. A ratio of 2 ADR to 1 embankment load appears sufficient. Due to the high fines in most of the saturated material mixing was difficult and had inconsistent results. Due to inconsistent moisture in both stockpiles this mix ratio may change. (***Photo 3***)
  - BGC performed a 30 cm and 15 cm test fill of the reject sand Material 2. Both were compacted to 95% of the proctor with 3 passes from a 6 ton compactor without vibration. Moisture measured in the Material 2 was 3% lower than optimal. BGC has approved the use of Material 2 in 30 cm lifts to backfill the pipe trench to grade. However, additional moisture should be added at the borrow pile or in the haul truck before dumping. (***Photo 4***)
  - Pelly delivered the Phase 2 Water Management Plan.

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. Pelly is planning a to blend dryer ADR material with wetter embankment material on June 26.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA performed moisture and density testing on the Material 2 test fill. Written results pending.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
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BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pipe trench filled with Material 5 to Station 0+170.



Photo 2: Pelly covering pipe trench drain with geotextile.



Photo 3: Test to blend wet Material 3 from the embankment footprint with dryer Material 3 from the ADR excavation.



Photo 4: Test fills with Material 2 (sourced from crusher reject) to increase lift thickness to 0.3m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Rain 10ºC to 14ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly covered the pipe trench with geotextile up to station 0+175. (***Photo 1***) Geotextile was either overlapped by a minimum 0.5m or tack welded if the overlap was between 0.15m and 0.5m. A portion of the geotextile with less than 0.5m overlap was missed by the tack welding. BGC requested this area be completed before approval. However, Pelly buried this section with Material 2 backfill before completing the weld. BGC will require that this area be excavated by hand and the weld completed. (***Photo 2***)
  - Began placement and compaction of Material 2 in 30 cm loose lifts over the pipe trench drain material. Compaction was performed with a 6 ton compactor with no vibration. (***Photo 3***). Lift construction was uneven in some areas leading to low density sections in the fill. BGC has asked that Pelly place leveling lifts to bring the low spots up to the lift grade and to compact these areas. (***Photo 4***)
  - Pelly moisture conditioned the Material 2 at the borrow site prior to placement in the embankment pipe trench. (***Photo 5***).

- Observations and Recommendations (OPEN):
  - JDS/Pelly are developing a materials management and tracking plan.
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - Material 3 at the ADR borrow has thick zones of finer material being generated and stockpiled. This finer material should be blended with courser Material 3 before use.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA (Tetra Tech) collected a sample of the Material 2 to be shipped for laboratory analysis of permeability.
  - EBA (Tetra Tech) performed moisture content analysis on the Material 2.
  - EBA (Tetra Tech) performed in-situ testing of compacted Material 2.
  - EBA (Tetra Tech) delivered analytical reports for in-situ density and moisture tests performed for the Material 2 Test Fills.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Open: Sent June 7. Pending response from Pelly/JDS

BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pipe trench covered with geotextile.



Photo 2: General area marked by BGC to be hand excavated so geotextile can be welded.



Photo 3: Material 2 compaction over the pipe trench.



Photo 4: Material 2 compaction over the pipe trench.



Photo 5: Moisture conditioning Material 2 stockpile at the source.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Rain 8ºC to 22ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly hand dug the geotextile at station 0+140 and welded it properly.
  - Completed placement and compaction of under drain trench Material 2, lift 1 up to approximately station 0+145 (***Photo 1***)
  - Scarified surface and placed second lift of Material 2 up to approximately station 0+090. (***Photo 2***) The second lift will bring the Material 2 compacted surface to or above 30cm over the pipe trench drain fill.
  - Pelly continued to moisture condition the Material 2 at the borrow site prior to placement in the embankment pipe trench. (***Photo 3***).
  - Pelly had a shift change today.
  - BGC and Pelly are planning a Material 7 test fill and to dig test pits in the heap pad phase 1 area tomorrow.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA (Tetra Tech) delivered gradation results for ODF.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-003	Materials/Stockpile management plan	Closed: Sent June 7. Response sent to BGC June 27.
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: First pipe trench lift.



Photo 2: Second pipe trench lift.



Photo 3: Moisture conditioning at Material 2 pile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Rain 8°C to 19°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly completed a second lift over the pipe trench using Material 2. (***Photo 1***).
  - Localized pockets showed less density than what was achieved by most of the lift. It appears these areas are over wet. This was likely caused by leaving the lift spread but uncompacted over the rainy night. Rain falling directly on the fill and runoff coming from the right abutment and rock knob did not penetrate the first compacted lift readily and collected in the uncompact fill. Additionally some of the saturated pockets appeared to be higher in silt, which would have made them more susceptible to over loading with moisture. Since these areas were small and localized, confined within the lifts, and have rockfill placed directly on them in horizontal lifts, they were left in place without mitigation (***Photo 2***). However, future lifts of Material 2 should not be placed unless they are to be compacted the same day.
  - Pelly and BGC completed a Material 7 (Rockfill) Test Fill 01 with a loose lift thickness of 0.9m. (***Photo 3***). Density and moisture results were taken as a reference with the nuclear density gauge. Density results varied significantly (between 2050 and 2200 kg/m3), which is expected from gauge readings given the material. Moisture results collected from using the nuclear density gauge were approximately 4% and moisture results performed on a sample of the soily matrix in the field lab were reported at 3.5%. A water replacement test was performed on the rockfill to determine final density (***Photo 4***). Pelly will weigh the material excavated for the test on June 30. A test trench dug through the fill showed a densely packed matrix with little void space and little rock breakdown. (***Photo 5***)
  - Pelly sent a progress update on the QC plan. They are also requesting more information to complete the plan.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - EBA (Tetra Tech) collected a moisture sample from the Material 7 Test Fill.
  - EBA (Tetra Tech) collected in-situ density and moisture readings from the Material 7 Test Fill using the nuclear density gage.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Second Material 2 lift over the pipe trench.



Photo 2: Examples of low density pockets observed in the second lift of the fill.



Photo 3: Material 7 Test Fill compaction.



Photo 4: Water replacement test.



Photo 5: Trench wall in the 0.9m Material 7 Test Fill.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	June 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Rain 11°C to 19°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly began excavating the rockfill placed east and west of the underdrain pipe trench. (***Photo 1***)
  - Pelly excavated 10 test pits in the footprint of the in-heap pond and the phase 1 heap leach pad. (***Photo 2***) Additional test pits are scheduled for tomorrow in the footprint of the phase 1 heap pad. BGC logged the test pits and will provide a memo discussing our observations once all the test pits are complete.
  - Pelly weighed the material excavated for the water replacement test at Material 7 – Test Fill 01 using its crane. The results were provided to BGC.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-007	Material Type 2 Production/Stockpile Reserve Plan	Open. Sent: June 11. Pending response from Pelly/JDS
BGC-RFI-008	QC Management Plan	Open: Sent June 23. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Excavation of material around the underdrain pipe trench.



Photo 2: Test pit excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Cloudy 11°C to 22°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued excavating the rockfill placed east and west of the underdrain pipe trench. (***Photo 1***) It was reported to BGC by Pelly that this material is not being stockpiled for use at the embankment. It is being used in other parts of the mine site.
  - Only minor erosion damage was observed from the last several days of rains. Water control measures implemented by Pelly diverted most water from the construction zone. BGC does not recommend any repairs to the current construction with the exception of reconstituting the area of the drain beyond the toe when this part of the construction resumes. (***Photos 2, 3, 4***)
  - Pelly completed excavation of the test pits in the footprint of the in-heap pond and the phase 1 heap leach pad. (***Photo 5***). BGC logged the test pits and will provide a memo discussing our observations once all the test pits are complete.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech delivered reports for in situ testing of Material 2 at the embankment.
  - Tetra Tech delivered reports for in-situ and lab testing for the Material 7 Test Fill.
  - Tetra Tech delivered reports for gradation testing of the Material 4 being produced by Neway.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Excavation of road material in the embankment footprint.



Photo 2: Drain fill and geotextile at station 0+170 did not receive high flows of water or silt during rains.



Photo 3: Slight rutting from ground surface flow.



Photo 4: Area at the toe of the construction that will need reconstituting when construction in this areas resumes.



Photo 5: Excavation of test pits in the HL pad footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Rain 8ºC to 23ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly complete most of the excavation of the rockfill placed east and west of the underdrain pipe trench. (***Photo 1***)
  - Pelly excavated the colluvium around the toe of the embankment in preparation for embankment fill (***Photo 2***). The colluvium appeared dry, relatively dense, and free of ice.
  - Pelly excavated the area of the in-heap pond. (***Photo 3***). Spoils are being hauled to for disposal as waste.
  - BGC conducted point load testing of samples collected from the right abutment.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech delivered reports for gradation testing of the Material 2 and Material 4 being produced by Neway.
  - BGC conducted point load testing on rock samples from the right abutment.
- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Excavation of road material in the embankment footprint.



Photo 2: Colluvium sloped for embankment placement. The colluvium appeared dry, relatively dense, and free of ice.



Photo 3: Excavation around the in heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Rotation exchange, Roy Morlan left site, Dan Granda returned to site.
  - Pelly continued excavating rockfill placed east and west of the underdrain pipe trench. (***Photo 1***)
  - Pelly excavated the area of the in-heap pond. (***Photo 2***). Spoils are being hauled to for disposal as waste.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech delivered reports for gradation testing of the Material 2 and Material 4 being produced by Neway.
  - BGC (Ethan F.) provided QA of these gradation tests, results met requirements.

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Excavation of road material in the embankment footprint.



Photo 2: Excavation continued around the in-heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Seep identified and notified via email for drain installation approval (No approval was given July 4th). (***Photo 1***)
  - Pelly excavated the area of the in-heap pond. (***Photo 2***). Spoils are being hauled to for disposal as waste.
  - Organics were observed being burned, BGC advised Pelly to make sure ashes do not comingle to any construction material to do potential hydrophobic characteristics of ash (***Photo 3***).
  - 1 excavator was used for foundation preparation (***Photo 4***).

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  -

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

Safety Issues: None

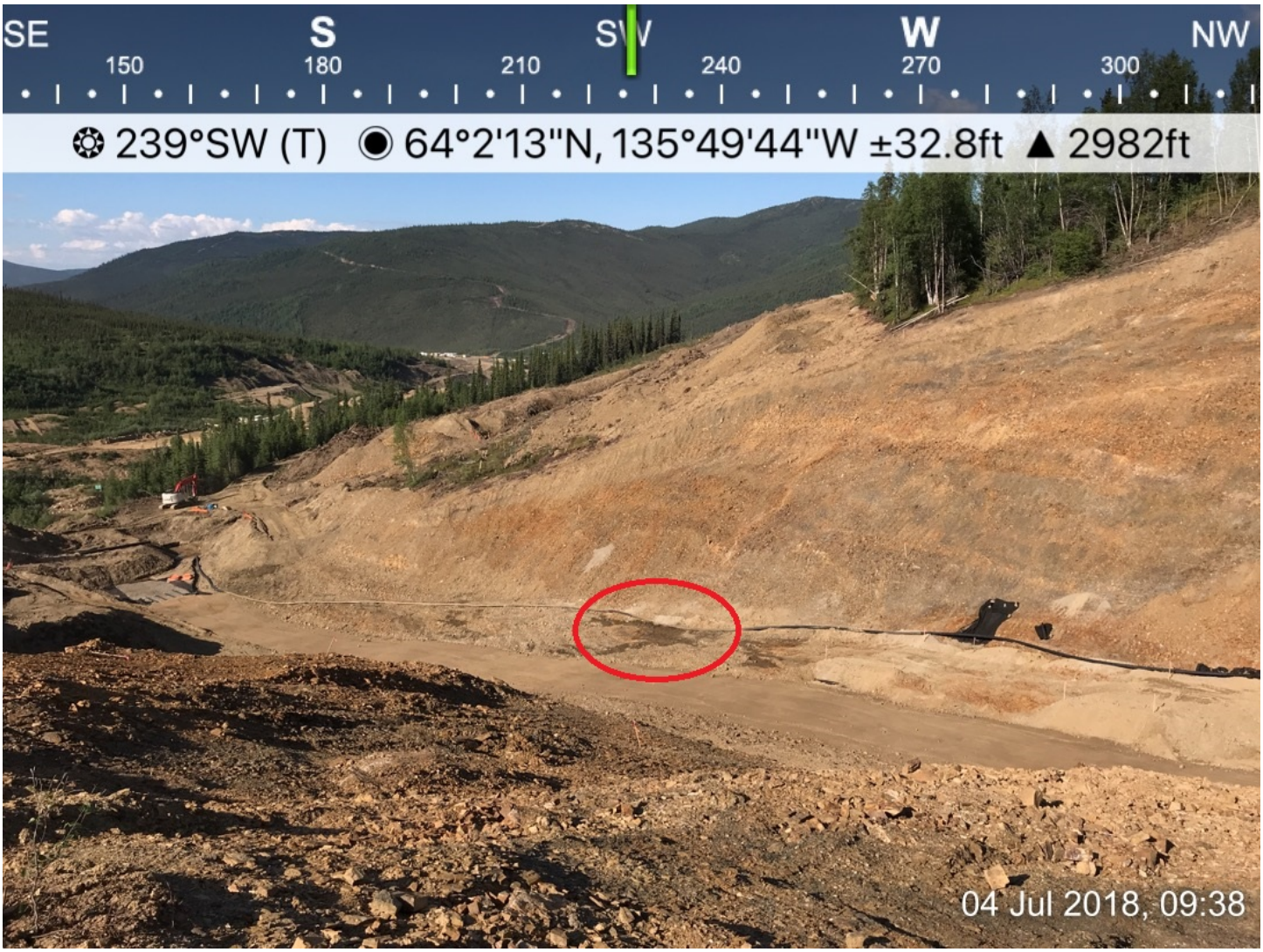


Photo 1: Seep identified and communicated to JDS/Pelly.



Photo 2: Excavation continued around the in-heap pond area.



Photo 3: Observed burning of organics on the upstream side of the HLF.



Photo 4: Excavator cleaning left abutment foundation for approval.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Seep identified and notified via email for drain installation approval (No approval was given July 4th). (***Photo 1***)
  - Through communication via email, construction of embankment was suspended at 7 AM, later accepted by 9 AM and construction began at 12 PM. (***Photo 2***)
  - Seep was re-confirmed as construction began, with flows observed between 5 L/min to 10L/min, the drain was dug and left for completion as embankment lifts started (***Photos 3-5***)
  - Pelly continued foundation preparations for final approval of first lift zone. (***Photo 6***).
  - Upon approval, Pelly began the first loose lift placement at 2:30 PM and continued until approximately 7:00 PM, the first loose lift was not finalized, planning to finish tomorrow for first compaction (***Photos 7-8***).

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Seep identified and communicated to JDS/Pelly, July 4 AM



Photo 2: JDS suspended construction of embankment as the finger drain was not warranted, finger drain was later accepted at 9 AM, construction started at 12 PM.



Photo 3: The seep was confirmed as water began pooling at the start of the drain construction.



Photo 4: Finger drain was completed, inspected and accepted pending final stage of drain construction. Flow ranging from 5 L/min to 10L/min was observed.



Photo 5: Finger drain was completed by hand digging to the border, very small tear was repaired with torch welding of geotextile, water began moving towards underdrain.



Photo 6: Excavator cleaning abutments foundation for approval.



Photo 7: After foundation for first lift was approved, the first haul trucks arrived for placements at 2:30 PM.

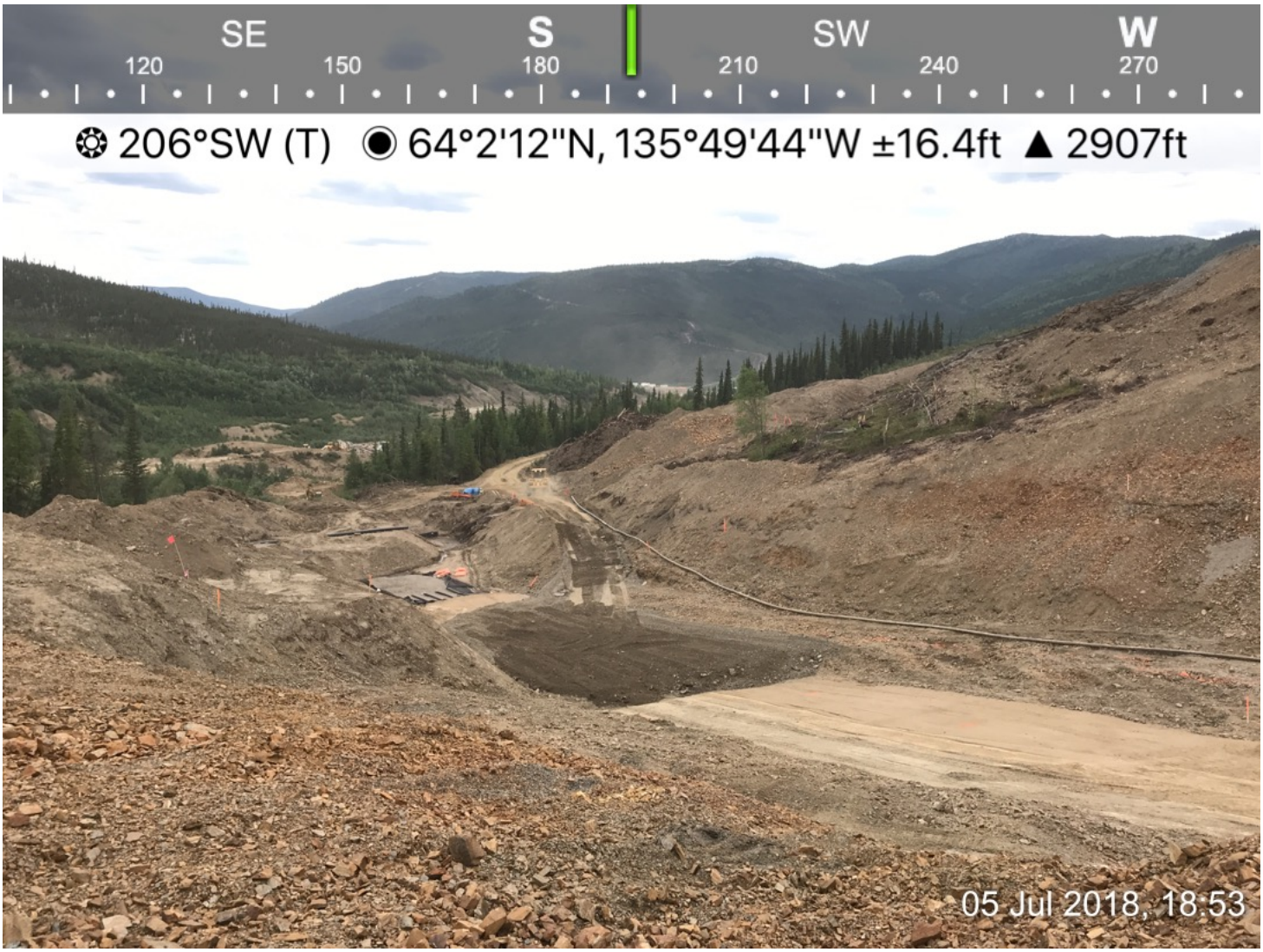


Photo 8: First loose lift was not completed, Pelly/JDS were informed of need for QC Plan for Embankment Construction, needing survey controls for each lift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Drain for seep identified on July 4 finished construction while first lift was being constructed. By the end of the shift, the right abutment side drainage pipe had hidden another potential path and this was identified and controlled to be fixed tomorrow by a small extension up the abutment (***Photos 1-6***)
  - A wet spot (circled yellow) that was initially observed on July 4 (**Photo 1**) was further observed during and after the first lift compaction. By the end of the shift, the wet spot re-appeared and was given 12 hrs to dissipate and will be further accessed tomorrow (**Photo 6**).
  - Pelly continued to place first lift during drain construction activities, compaction was also conducted. (***Photo 7-8***).
  - Water was displaced over the right abutment area, saturating the surface but this was controlled quickly due a breach of the pipe intake zone that bypasses construction surface (**Photo 9**).
  - Minor erosion/construction damage was observed to underdrain trench type 2 material layer, it was recommended to fix and cover the underdrain further to protect during embankment construction (***Photo 10***).

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommended Pelly to remove right abutment pipe that diverts runoff from the upstream side to the downstream sump due to potential leaks and obstructions during lift placement, drain constructions, seep identification and compaction of embankment.
  - BGC recommended Pelly to repair small zones erode of type 2 material on the exposed toe area of underdrain trench and further cover underdrain trench to protect area from construction activities of embankment construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Open: Sent July 6. Pending response from BGC

Safety Issues: None

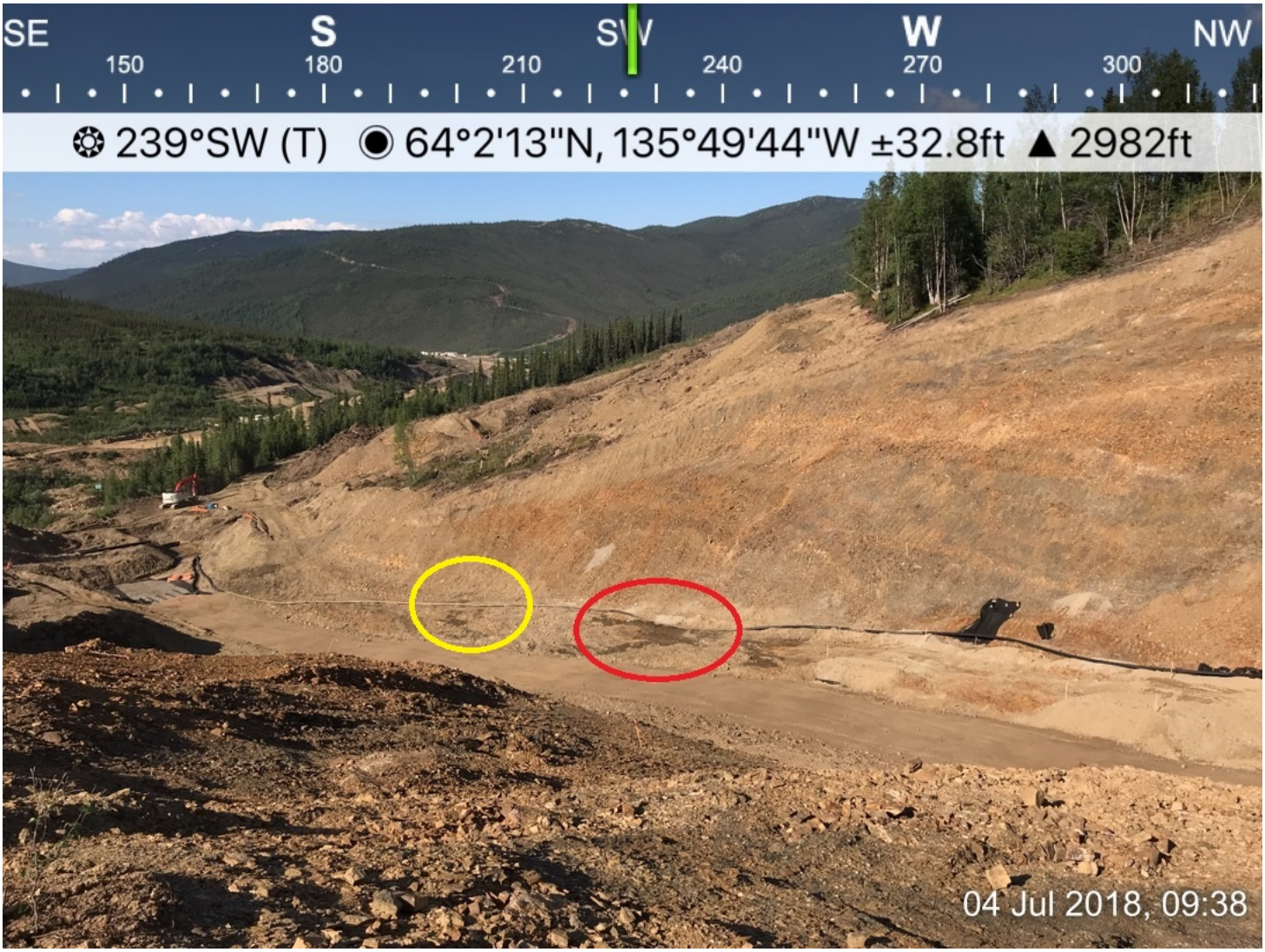


Photo 1: Seep in red was identified July 4th, with drain construction starting July 5th. Wet spot in yellow was observed.



Photo 2: Drain (seep circled in red) was cleaned further before construction.



Photo 3: Drain (seep circled in red) had geotextile installed and excavator began placing Select Drain Fill.



Photo 4: Drain (seep circled in red) had geotextile cover the drain and began placing Material 2. Compaction of lift 1 continued uninterrupted by drain construction.



Photo 5: Drain (seep circled in red) was covered with material 2, saturation by the abutment and drain pipe on right abutment was observed, a small ditch was hand dug and the drain will be slightly extended further upstream to capture it.



Photo 6: Seep in red will be covered with a slight increase of the drain upstream. Seep in yellow was initially observed on July 4 as a wet spot, it is now considered a potential seep and will be given 12 hrs to disperse in case of leak from pipe.



Photo 7: Placement of first lift continued approved foundation during drain construction upstream of toe.



Photo 8: Compaction of first lift also continued.



Photo 9: During early hours of the morning, the pipe intake area (water management Phase 1) of the pipe that brings runoff bypassing the construction zone breached, causing runoff to run down and saturated zones but was controlled quickly.



Photo 10: BGC recommended Pelly to further cover the downstream side of the underdrain trench to protect it from construction and debris as lifts continue to be placed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The drain (red circle) (***Photos 1 and 2***) was extended. The seep (yellow circle) was confirmed after 12 hours and manual digging to expose it, (***Photos 1 and 2***). Construction of drain for new identified seep commenced and will be finalized tomorrow, drain (red circle) was completed today but material type 2 needs compaction to be completed tomorrow. (***Photos 3-7***)
  - During constructions operations, the runoff bypass pipe located on the right abutment was moved up the slope to allow access for excavator, during operations the pipe became disconnected but not runoff damage was done to the rockfill lift, Pelly commenced a plan to remove this pipe as recommended (**Photos 7-8**).
  - Pelly continued to place first lift during drain construction activities, compaction was also conducted. (***Photos 10-11***.
  - Pelly began preparations to disconnect and remove the bypass pipe by constructing a series of diversion embankments with sumps that will be lined with geomembrane and drained through pumping on the left abutment drainage channel away from the current construction zone (**Photos 12-13**).
  - BGC was informed that Cobalt will be taking over the removal of organic and unsuitable material on the HLP area as of today.
  - BGC (Dan Granda, Ethan Faber), Pelly (Jason Abel) and JDS (Mike Blusson) walked the right abutment and noted seeps being exposed by the clearing of the temporary construction roads.

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommended Pelly to remove right abutment pipe that diverts runoff from the upstream side to the downstream sump due to potential leaks and obstructions during lift placement, drain constructions, seep identification and compaction of embankment.
  - BGC recommended Pelly to repair small zones erode of type 2 material on the exposed toe area of underdrain trench and further cover underdrain trench to protect area from construction activities of embankment construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - None

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Open: Sent July 6. Pending response from BGC

Safety Issues: None



Photo 1: Seep in red will be covered with a slight increase of the drain upstream. Seep in yellow was initially observed on July 4 as a wet spot, it is now considered a potential seep and will be given 12 hrs to disperse in case of leak from pipe.



Photo 2: After 12 hours seep in red remained the same (will be extended). Seep in yellow initially observed on July 4 as a wet spot, it is now considered a seep after 12 hours, JDS was notified and Mike Blusson (JDS) approved drain, work began right away.



Photo 3: New finger drain was marked for clearing.



Photo 4: New drain was exposed by hand to help with field design and construction, flow and water ponding was observed and confirmed



Photo 5: New drain commenced excavation.

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Photo 6: New drain was excavated by hand carefully to avoid damage to underdrain geotextile.



Photo 7: Once surveyed, the new drain was covered with geotextile to be completed tomorrow. The upstream drain was extended but needs compaction of type 2 material. By the end of the shift, lift placement and compaction was done on left abutment as well.



Photo 8: Pelly tried moving the pipe that bypasses runoff from upstream to downstream sump but it disconnected, this was repaired and no water damage was observed on current compacted rockfill lift.



Photo 9: Pelly moved the pipe up the right abutment, BGC suggested removing it as it will be on the way of future construction, Pelly began plans to remove it.



Photo 10: First lift continued to be placed and spread by bulldozer during finger drain construction.



Photo 11:.The first lift was extended to approved type 3 bedrock on the left abutment but it stopped at the toe of the temporary road that will require to be removed. This lift was compacted.



Photo 12: Pelly constructed the first of two diversion embankments that will divert the runoff and sediments through a pump system.

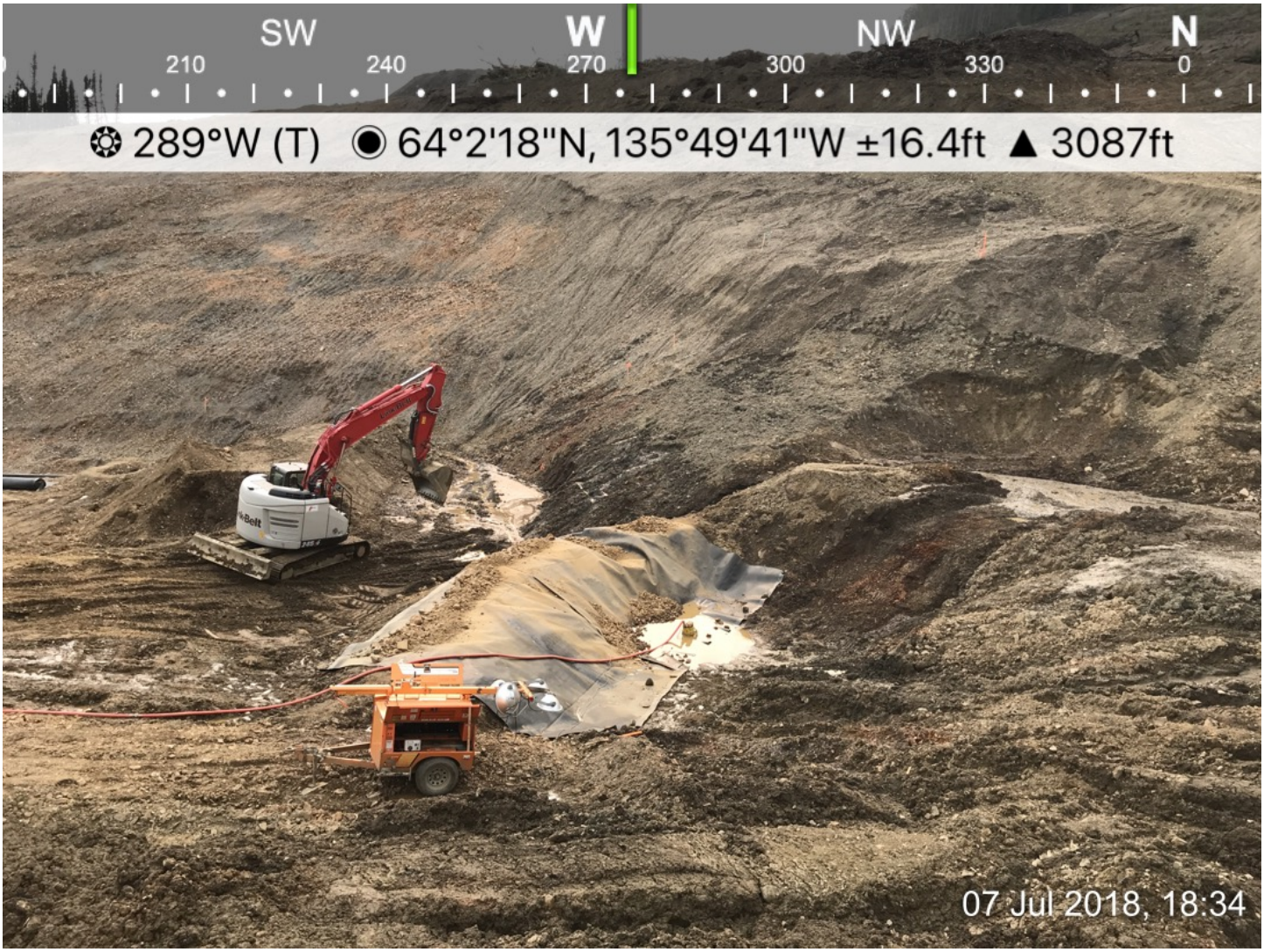


Photo 13: Pelly constructed the first of two diversion embankments that will divert the runoff and sediments through a pump system.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The drain (red circle) (***Photos 1 and 2***) was extended. The seep (yellow circle) was confirmed after 12 hours and manual digging to expose it, (***Photos 1 and 2***). Drains were completed. (***Photos 3, 6, 9***)
  - QC tests was done on the lift 1 loose lift to help control moisture content, Tetratech reported 7.1%, BGC asked Pelly to lower the moisture content to 6% as a max, 3 % as a min. This result was accepted and spread out (**Photo 4**).
  - BGC observed a potential artesian seep on the right abutment, it was noted and will be observed for a few days. (***Photo 5)***.
  - Pelly continued the lift placement, removal of waste materials and compacting while finishing the drains (**Photos 6,9**).
  - Pelly's sediment settling pond and retention pond was completed and started operations, allow for the removal of the runoff pipe tomorrow, the pipe was cut today (**Photo 7**).
  - Cobalt continues to remove organic layer of HLP (**Photo 8**).
  - Pelly stockpiled material 2 material by the toe to spread and tamper compact if needed to extend toe for lift 1 construction, Pelly was advised to be careful on putting weight on toe underdrains to due proximity. To be completed tomorrow (**Photo 10**).

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommended Pelly to remove right abutment pipe that diverts runoff from the upstream side to the downstream sump due to potential leaks and obstructions during lift placement, drain constructions, seep identification and compaction of embankment.
  - BGC recommended Pelly to repair small zones erode of type 2 material on the exposed toe area of underdrain trench and further cover underdrain trench to protect area from construction activities of embankment construction.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - QC on loose lift 1, moisture content 7.1%.

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Open: Sent July 6. Pending response from BGC

Safety Issues: None



Photo 1: Seep in red will be covered with a slight increase of the drain upstream. Seep in yellow was initially observed on July 4 as a wet spot, it is now considered a potential seep and will be given 12 hrs to disperse in case of leak from pipe.



Photo 2: After 12 hours seep in red remained the same (will be extended). Seep in yellow initially observed on July 4 as a wet spot, it is now considered a seep after 12 hours, JDS was notified and Mike Blusson (JDS) approved drain, work began right away.



Photo 3: New drain was covered with approved Select Drain Fill.



Photo 4: QC by Tetratech was done on a loose lift spread to measure moisture conditioning for record keeping, the results was 7.1% moisture content.

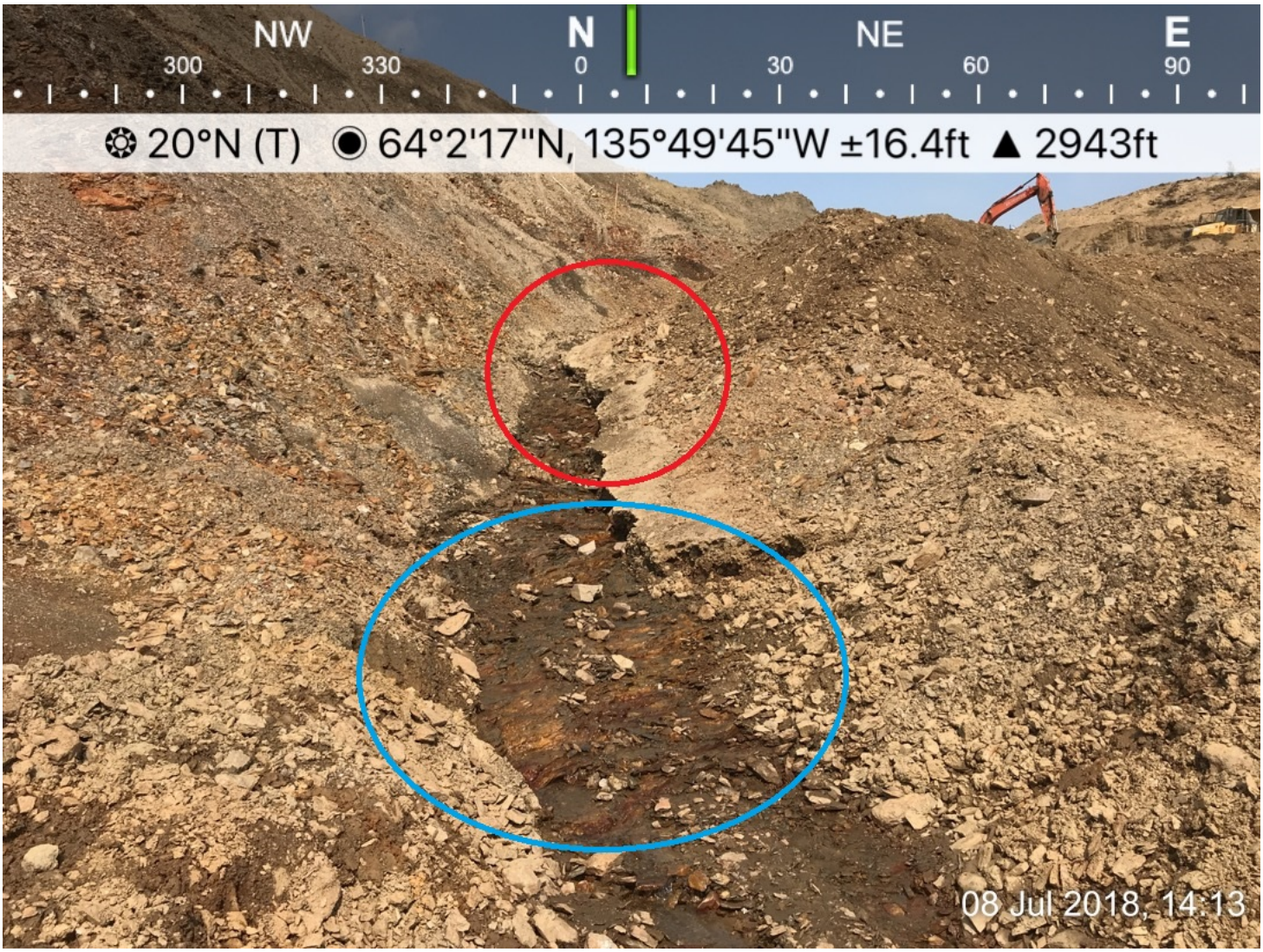


Photo 5: BGC identified a potential seep on the upper sections of the right abutment, the red circle was dry with no flow due to Pelly closing runoff access and the blue circle is an observed artesian seep coming out from at a 5-15 L/min rate, it will continue to be monitored for a few days.

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Photo 6: Pelly continued removing temporary road constructions to finalize lift 1 area and hauled all waste material out of embankment for lift 1 to be cleared and approved on the right abutment.



Photo 7: Pelly's sedimentation pond and water diversion embankment was completed and lined, water from the HLP is being pumped out through this system bypassing the right abutment pipe (to be removed).



Photo 8: Cobalt continues to remove organic layer material on the HLP area right abutment.



Photo 9: Drains were completed and lift 1 continued to be spread on approved foundation surface.



Photo 10: Pelly stockpiled Material 2 to cover the underdrain pipes as they prepare for small tamper compaction if needed, to be done tomorrow.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Underdrain toe area was noted to be compacted with the 9000 kg compactor vibrating, JDS and Pelly were notified of potential damage to drain pipes. BGC Engineer of Record Troy Meyer will assess situation of pipes on his time to site tomorrow. Pelly was asked to document this for their records as well. (***Photos 1 and 4***)
  - Pelly continued cleaning all waste material and placing lift to complete lift 1, loose lift 1 was finalized to loose lift thickness at 6:51 PM (**Photos 2,3,5,8 and 9**).
  - Pelly's sedimentation ponds were working and Pelly removed the right abutment runoff pipe, freeing the surface for foundation inspections and preparations for future lifts. (***Photo 6)***.
  - BGC conducted a QA test by collecting an insitu sample of compacted material 7 (results pending) (**Photo 7**).

- Observations and Recommendations (OPEN):
  - Pelly should plan for construction considering the Material 3 stockpile may be at least partially saturated and unusable in its current state. Moisture conditioning may be necessary, either adding or removing water from the material. A blend test was performed on wet and dry materials. However, Pelly has not yet decided if blending with be the preferred method.
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommended Pelly to remove right abutment pipe that diverts runoff from the upstream side to the downstream sump due to potential leaks and obstructions during lift placement, drain constructions, seep identification and compaction of embankment.
  - BGC recommended Pelly to repair small zones erode of type 2 material on the exposed toe area of underdrain trench and further cover underdrain trench to protect area from construction activities of embankment construction.
  - BGC notified Engineer of Record Troy Meyer of incident with the pipes and 9 ton compactor, waiting assessment of potential damage.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  -

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Open: Sent July 6. Pending response from BGC

Safety Issues: None



Photo 1: BGC observed that the 9 000 kg compactor was used to compact material 2 on the underdrain downstream end using vibration. BGC noted and notified both Pelly and JDS representatives of potential damage to pipes, Pelly (Dan Russell) was asked to document this for construction records as this order came from JDS and not Pelly.



Photo 2: Drains were finalized yesterday and all waste material was planned to be removed.



Photo 3: Pelly continued placing lift 1 material by hauling in material 7 rockfill and hauling out waste material.



Photo 4: JDS representative Roman Bilobrowka was notified of the potential damage to pipes by both BGC (Ethan Faber and Daniel Granda), this was dismissed and under JDS representative's direction material 2 placement continued. BGC notified BGC Engineer of Record, Troy Meyer, of incident via email.



Photo 5: As Pelly cleared waste and BGC approved foundations, Pelly continued spreading Material 7 rockfill.



Photo 6: Pelly's runoff diversion system was inspected and noted as working during day shift.



Photo 7: BGC made a small excavation with Pelly to observe compacted walls and collect samples for moisture testing, excavated area was sealed and recompacted.

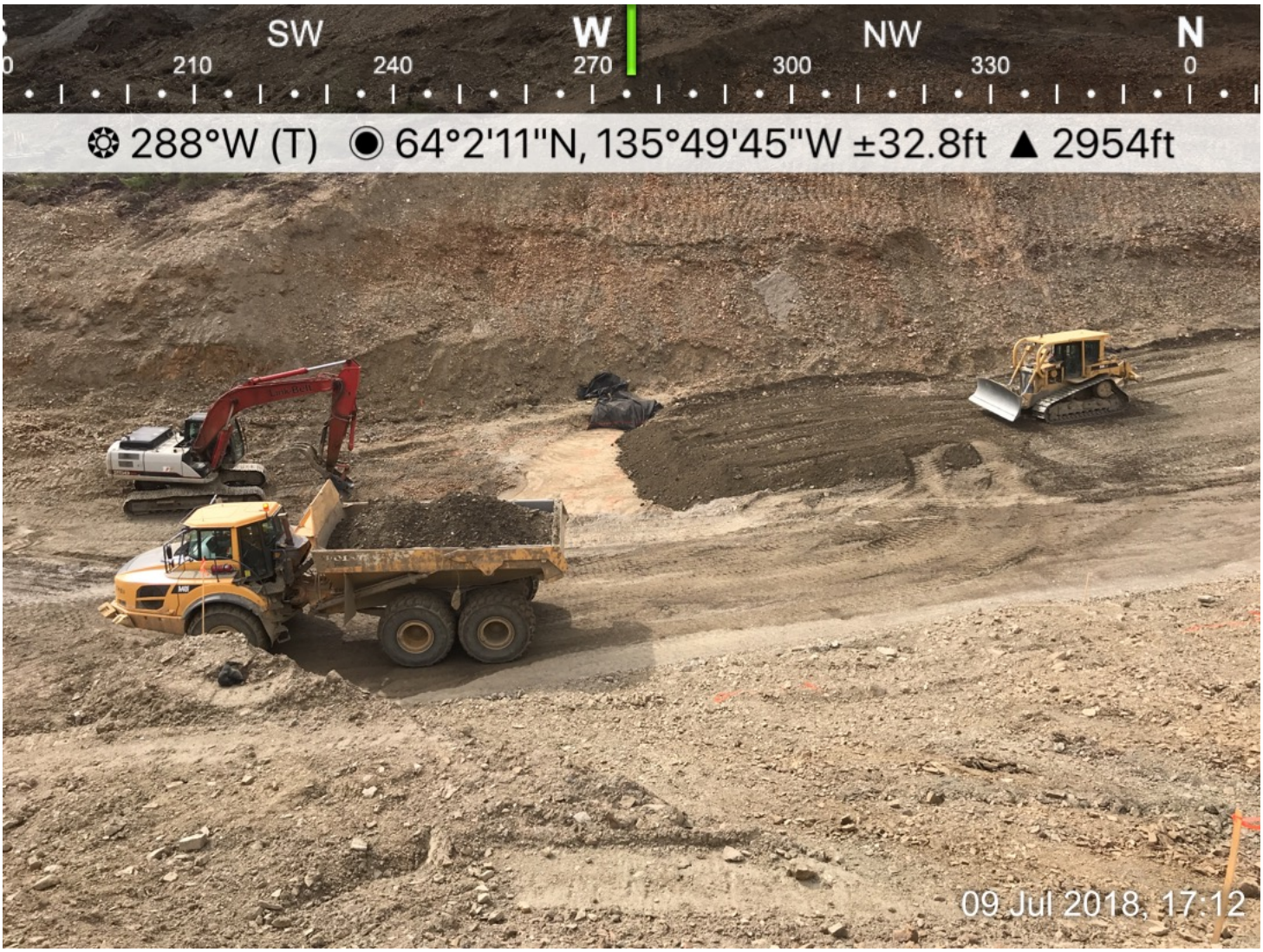


Photo 8: Pelly continued the cycle of hauling material 7, spreading, compacting and hauling waste and BGC continued to approve foundation for completion of lift 1.



Photo 9: Lift 1 was officially spread out at 6:51 PM, compaction to be resumed tomorrow morning to final inspection by BGC.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer (BGC) arrived to site in the afternoon.
  - Pelly started the shift by finishing compacting the first loose lift placed on the embankment. (***Photos 1 and 2***)
  - BGC went to the material 7 Rockfill source to observe the current stockpile. BGC representative (Daniel Granda) gave Pelly representative "Greg" directions on handling phyllitic material and quartzite material in upcoming haulages (**Photo 3**).
  - Pelly started clearing temporary road fill upstream of left abutment. (***Photo 4)***.
  - Pelly finished the shift by finishing lift 3 and QC conducting a density test to check densities (**Photo 5**).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC notified Engineer of Record Troy Meyer of incident with the pipes and 9 ton compactor, waiting assessment of potential damage.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  -

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Open: Sent July 6. Pending response from BGC

Safety Issues: None



Photo 1: Loose lift 1 was placed and required to be compacted to be accepted.



Photo 2: Compaction throughout lift 1 continued.



Photo 3: BGC went to AR area where the Material 7 Rockfill stockpile was being used by Pelly, BGC gave Pelly direction on mixtures (Dark Brown/Grey zones called Phyllite) were required to be mixed with 2 parts Quartzite (brown to light brown) when encountered by excavator.



Photo 4: Pelly began clearing temporary road fill from left abutment by approximately Stat 0+130.



Photo 5: Pelly finalized lift 3 by end of shift, QC water replacement density test was done (pending results).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Ethan Faber	**Weather:**	Sunny/Overcast 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer (BGC) visited construction site and AR plant (Material 7 – Rockfill Source Area).
  - Pelly continued work on lift placements and clearing upstream areas for construction. (***Photos 1 and 2***)
  - BGC and Pelly took weight measurement of material excavated for water replacement density test, the test passed. (**Photo 3**).
  - Pelly exposed both the closure pipe and pipe closest to left abutment of the underdrain trench (***Photo 4)***. No major damage was observed, a small gouge was noted on the left abutment pipe exposed, any deeper and it would have likely required repairs. Evidence of pipe being dragged by rocky material was also observed, more care should be noted in future pipe transport for the underdrain construction upstream.
  - Pelly continued placing lifts and compacting, lift #5 was placed by the late afternoon, pending compaction (**Photo 5**).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Pending Compaction	To be finished tomorrow

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  -

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.
EPCM_RFI-022	LDS Liner Requirements	Closed: Sent July 6. Response sent by BGC July 11.

Safety Issues: None



Photo 1: Pelly continued clearing temporary road fill to type 3 bedrock on the left abutment.



Photo 2: Delineation of lift 5 of Material 7 – Rockfill was placed by survey.



Photo 3: Water Replacement Test material from first density test was weighted by crane, to approximately 2000 kg, accuracy of weight measurement method is being accessed.



Photo 4: Pelly exposed the closure pipe by the right abutment of the underdrain trench and pipe by the left abutment of the underdrain trench for BGC to inspect.



Photo 5: Pelly finalized placing lift 5 by end of shift (loose, not compacted.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Ethan Faber	**Weather:**	Rain/Overcast 5°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements. (***Photos 1,2,3,5 and 6***)
  - Pelly started clearing new identified finger drain foundation. (**Photo 4**).
  - BGC observed need to clean and re-route water and saturated silty/organic mixtures from crest of right abutment that may come down to work area (***Photo 6)***.
  - BGC identified a possible test fill pad area (circled yellow) for material 2 stockpile (circled in orange) (***Photo 7***)
  - BGC found a potential phyllite zone for sampling and testing shear strength on the right abutment (sampling pending) (***Photo 8***).
  - Pelly continued constructing the new drain and finished covering it and taking as built survey points (**Photos 9, 10 and 12**).
  - Pelly continued construction, leaving loose lift 7 to be completed tomorrow morning (**Photos 11 and 13**).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC Troy Meyer updated CC204-RFI-022 considering zones and construction considerations after meeting with Victoria Gold and JDS. Submitted to JDS and Pelly as it refers to BGC RFI 009.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Incomplete	Will be finished tomorrow

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  -

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pelly finished grading loose lift 5.



Photo 2: Compaction of lift 5 started at 8:14 AM.



Photo 3: Survey as-built of compacted lift 5 was taken and next loose lift 6 height was marked.

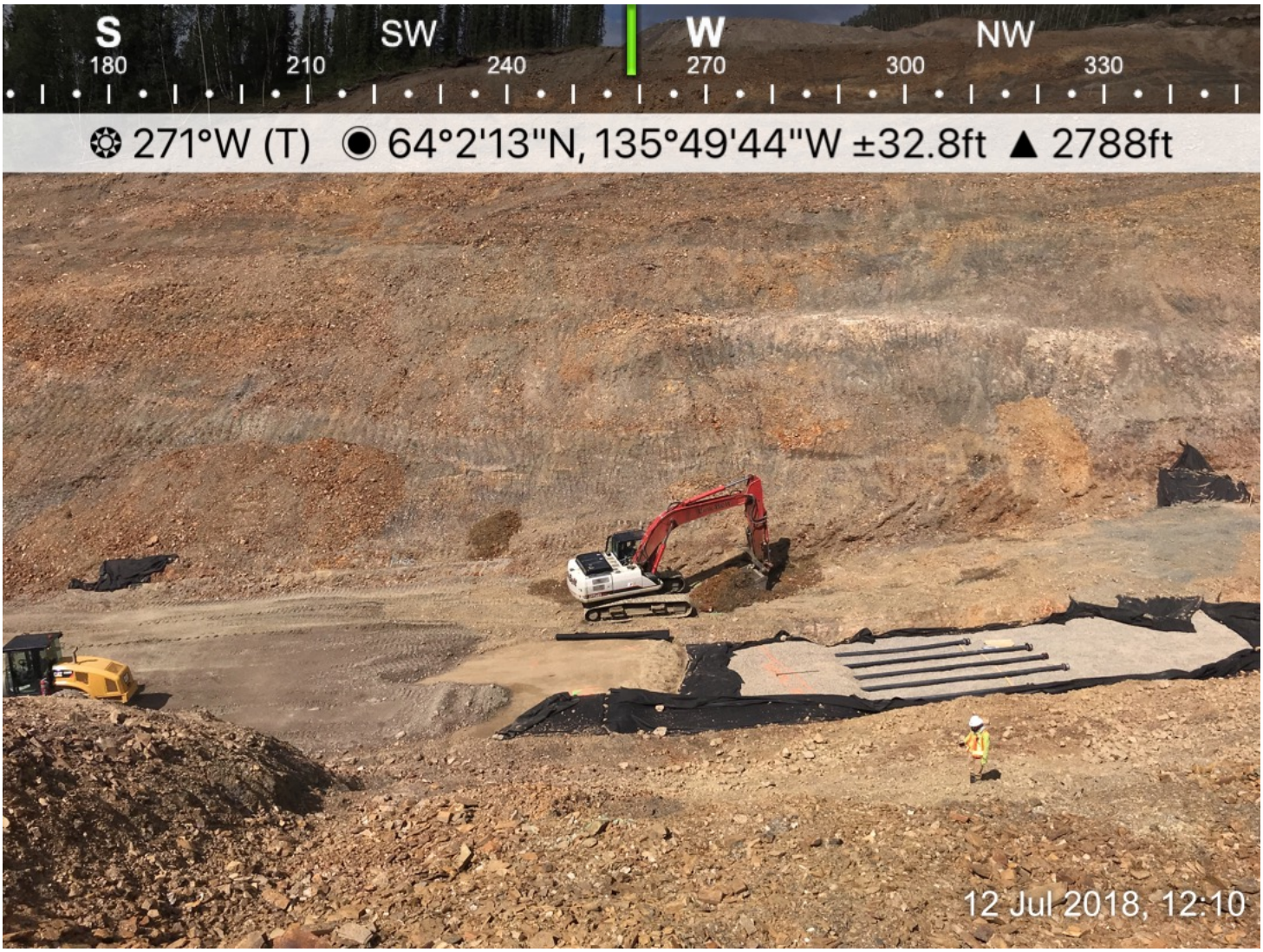


Photo 4: BGC identified 3 seeps upstream of current construction, Pelly excavator started cleaning first drain area.



Photo 5: Pelly continued embankment construction by placing loose lift 6.



Photo 6: BGC identified areas on the crest of the right abutment that may require water management considerations as construction and lifts get higher.



Photo 7: BGC identified a possible test fill pad area (circled yellow) for material 2 (circled orange).



Photo 8: BGC found a potential phyllite zone for sampling and testing shear strength on the right abutment (sampling pending).

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Photo 9: New drain was excavated and geotextile carefully exposed.



Photo 10: Geotextile was placed on new drain.



Photo 11: Lift 6 was compacted, survey picked up as built and marked loose lift 7.



Photo 12: New drain was finished.



Photo 13: Loose lift 7 continues.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Ethan Faber	**Weather:**	Rain/Overcast 5°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer left site.
  - BGC notified by Pelly that night shifts are starting today, BGC Ethan Faber left site to rest in the afternoon for night shift, BGC Dan Granda stayed in embankment to supervise.
  - BGC new schedule: BGC Dan Granda 6 am to 6 pm (6 am to noon Embankment QA; noon to 6 pm Resident Engineer duties); BGC Ethan Faber (Noon to Midnight Embankment QA).
  - Pelly continued work on lift placements. (***Photos 1,4 and 5***)
  - Pelly constructed new finger drain. (**Photos 2,3 and 6**).
  - QC was done on lift 7, QC tests included 4 nuclear density tests and water replacement test (results pending) (***Photos 7,8 and 9***)
  - Pelly continued cleaning foundation area for underdrain extension upstream, unsuitable materials were excavated out and hauled out of site. (***Photo 10***).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	Approved July 14th, 12:30 AM
9	875.07	No	Loose lift placed for rest of night shift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:

- o

- BGC Recommendations:
  - o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Pelly continuing lift 7, no moisture conditioning needed due to moisture retained from brief rain.



Photo 2: BGC inspects new finger drain surface as Pelly prepares to extend underdrain upstream.



Photo 3: Pelly begins construction of finger drain with geotextile and select drain fill.



Photo 4: Pelly continues loose lift 7 placement.



Photo 5: Pelly started compacting lift 7. Excess material was scrapped off because of being over lift height per survey measurements.

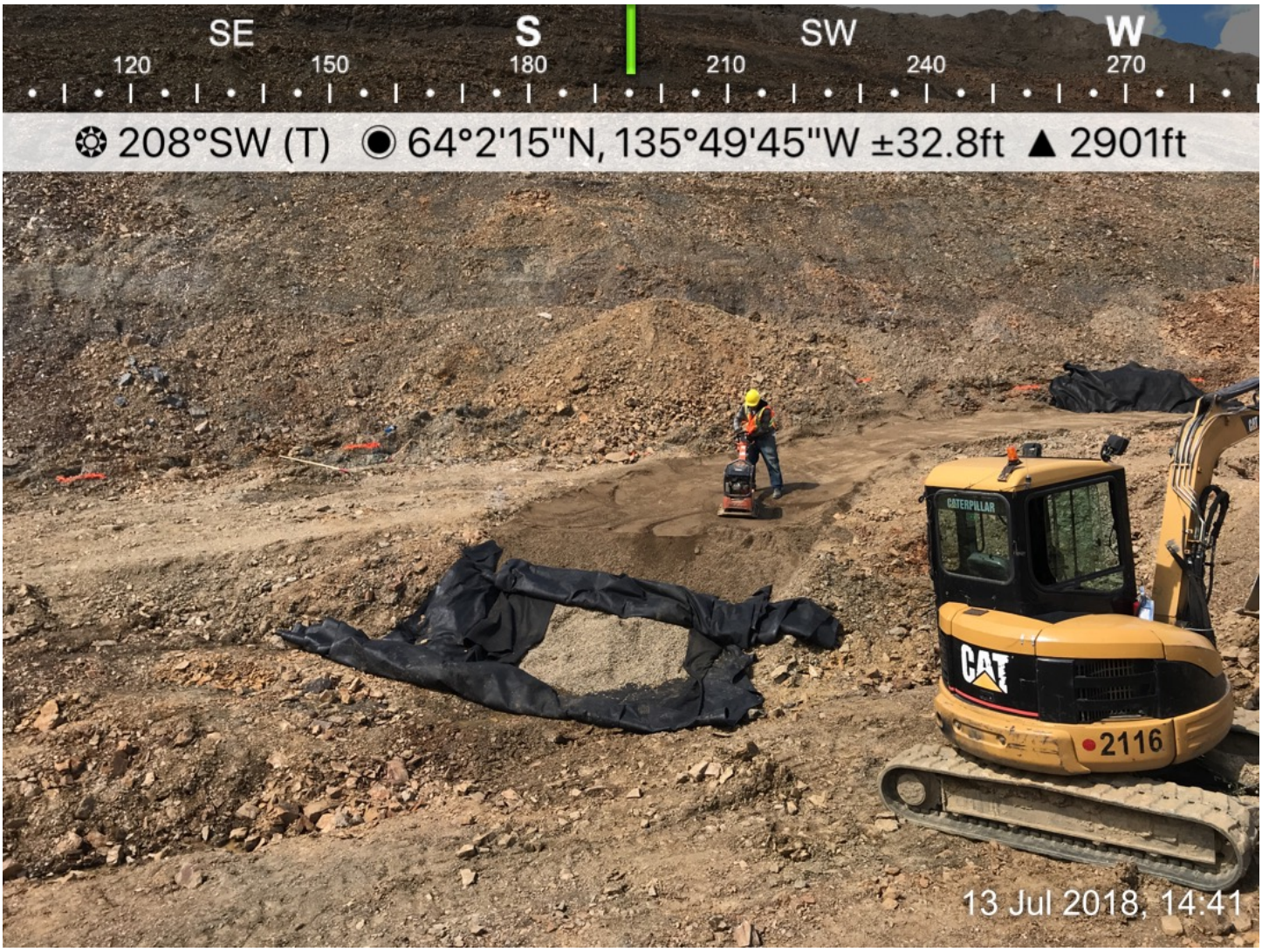


Photo 6: New drain completed and ready to be connected to underdrain (pending construction).



Photo 7: QC conducting nuclear density tests on lift 7 compacted.



Photo 8: Water replacement test #2 was done on lift 8, results pending weight measurements of super sacs.



Photo 9: After water replacement test was concluded, Pelly replaced the material and recompacted area to continue with lift 8 placement.

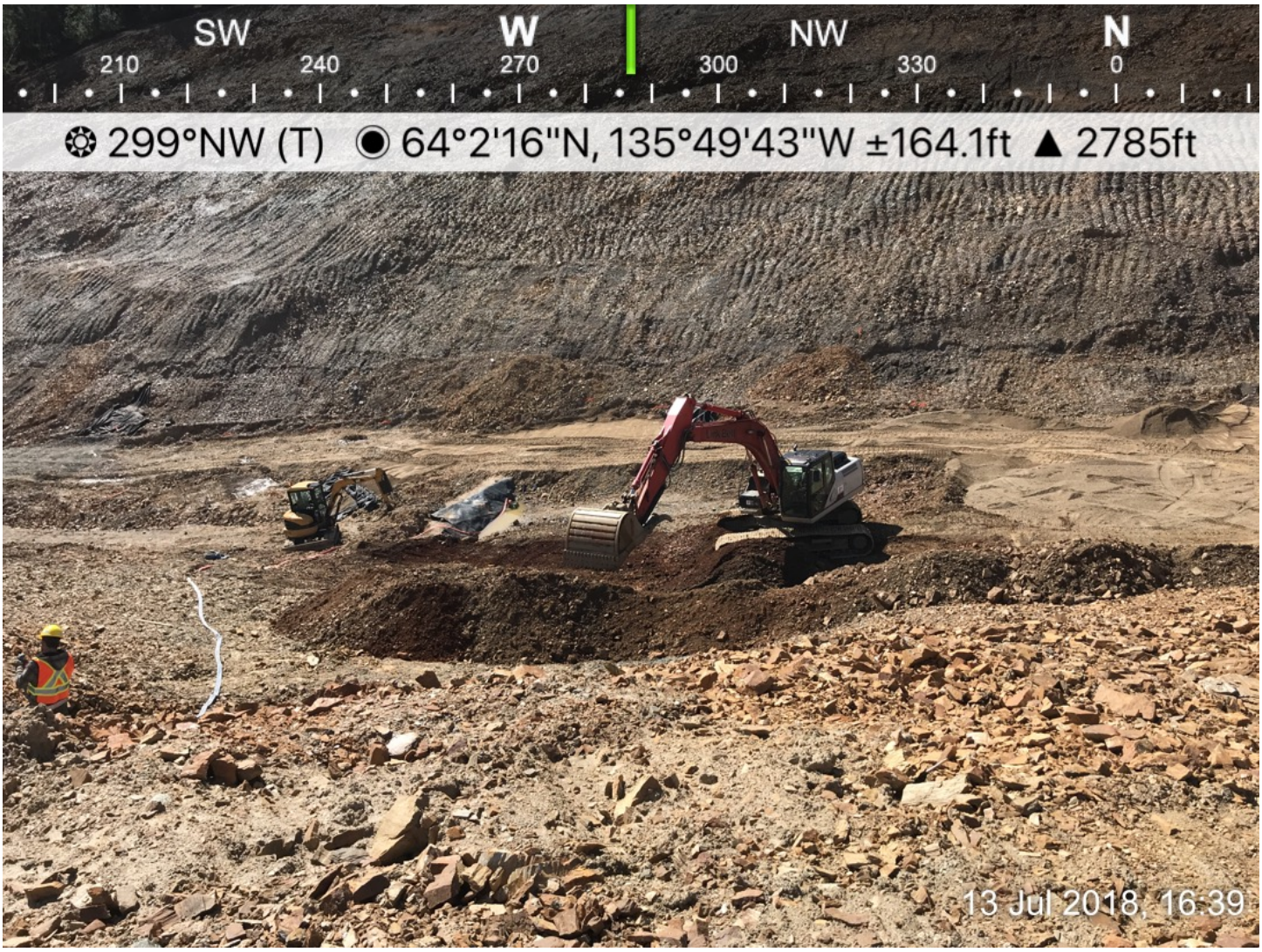


Photo 10: A sulfide rich zone was found during cleaning of upstream section of underdrain and abutment foundation, the material was poor in quality with oxidized traces (reddish),this was disposed of and not allowed to be used in the embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Rain/Overcast 5°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC new schedule: BGC Dan Granda 6 am to 6 pm (6 am to noon Embankment QA; noon to 6 pm Resident Engineer duties); BGC Ethan Faber (Noon to Midnight Embankment QA).
  - Pelly continued work on lift placements. (***Photos 1, 2, 4 and 5***)
  - QC was done on lift 10, water replacement test (results pending) (***Photo 3)***

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	Night shift (Approved July 15th, 12 AM)

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  -

- BGC Recommendations:
  - None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Lift 9 was spread by morning shift.



Photo 2: After lift 9 was approved, Pelly started on lift 10.



Photo 3: Water replacement test in compacted lift 10.



Photo 4: Pelly started placing loose lift 11.



Photo 5: Pelly started placing loose lift 11.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Rain/Overcast 5°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC new schedule: BGC Dan Granda 6 am to 6 pm (6 am to noon Embankment QA; noon to 6 pm Resident Engineer duties); BGC Ethan Faber (Noon to Midnight Embankment QA).
  - Pelly continued work on lift placements. (***Photos 1, 2, 3, 4 and 6***)
  - QC was done on lift 13, water replacement test (results pending) (***Photo 5)***

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	Accepted at night shift
14	878.5	N/A	To be completed tomorrow

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Lift 12 was spread during the night shift and compaction started.



Photo 2: Lift 12 was worked on during the day shift and completed



Photo 3: Slight overbuild and berm downstream are retaining boulders



Photo 4: Pelly started placing lift 13, in an effort to optimize time, compaction was done in a test area and the water replacement test was conducted during haul truck lunch time to optimize time.



Photo 5: Water replacement test for lift 13.



Photo 6: Lift 13 continued, all materials from foundation preparation approved by Engineer were mixed with ARD plant material 7 rockfill as seen in this photo.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber	**Weather:**	Heavy/Light Rain 5ºC to 10ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC new schedule: BGC Dan Granda 6 am to 6 pm (6 am to noon Embankment QA; noon to 6 pm Resident Engineer duties); BGC Ethan Faber (Noon to Midnight Embankment QA).
  - Pelly continued work on lift placements. (***Photos 1, 3, and 5***)
  - Pelly continued with underdrain foundation preparation upstream of embankment (***Photo 2)***
  - Pelly finished upper most right abutment finger drain ***(Photo 4)***

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	N/A	To be finished in night shift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Lift 14 was continued from night shift.



Photo 2: Pelly continued preparing underdrain foundation and vampire drains upstream.



Photo 3: Lift 14 was surveyed and accepted after compaction.



Photo 4: Pelly finished the upper most finger drain.



Photo 5: Pelly continued to place lift 15, to be finished at night shift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny/Heavy Rain 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements. (***Photos 1 to 4, and 6***)
  - Pelly continued with underdrain foundation preparation upstream of embankment (***Photos 5 and 7)***

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	879.9	N/A	To be finished in night shift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Night shift placing loose Lift 16 before cross shift with dayshift.

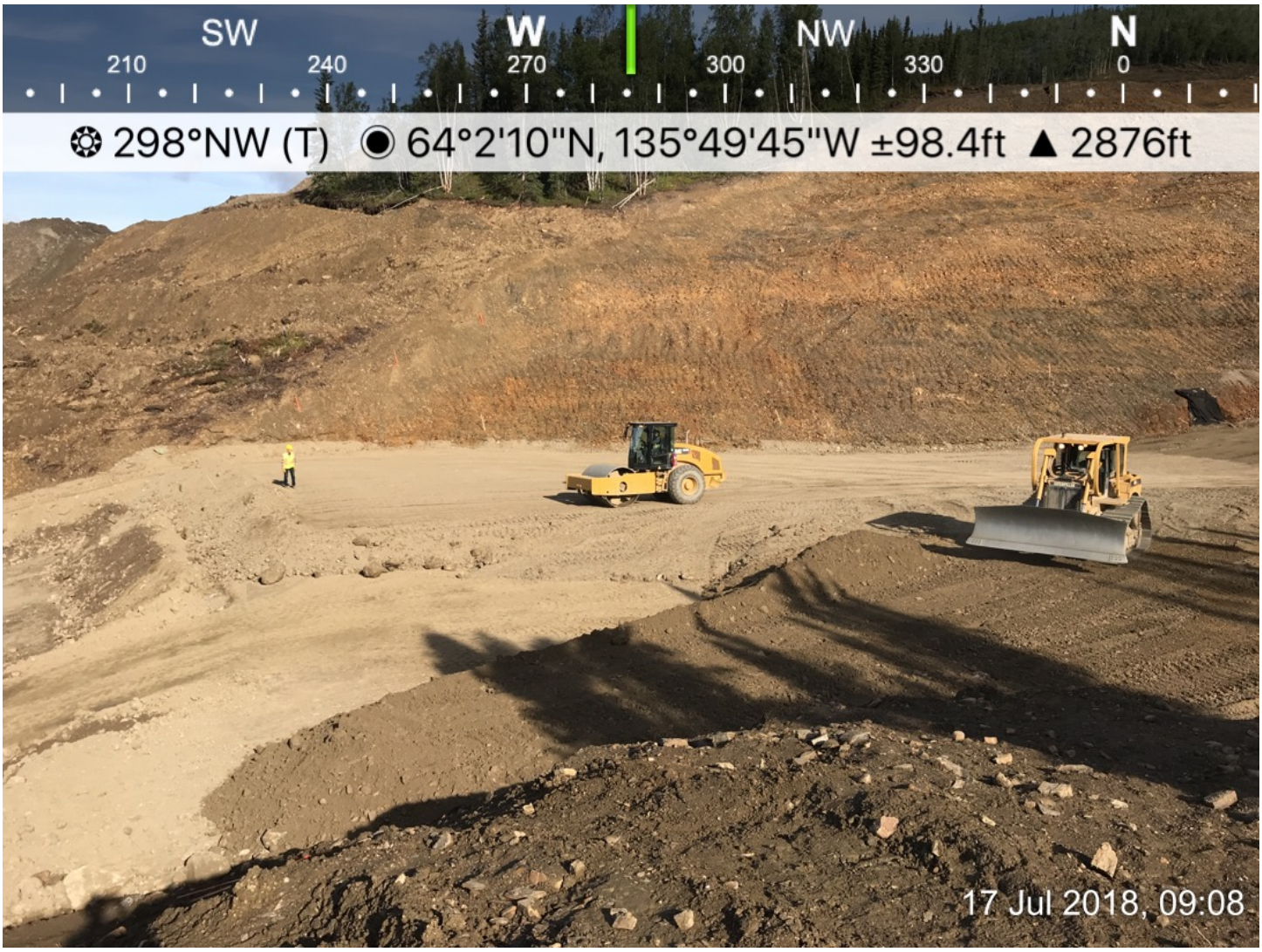


Photo 2: Day shift continued and started compaction on right abutment, lift 16.



Photo 3: Lift 16 was surveyed and accepted after compaction.



Photo 4: Lift 16 was moisture conditioned before placement of lift 17 started.



Photo 5: Pelly continued preparing foundation of underdrain for BGC inspection and acceptance, Cobalt continued clearing organics and overburden on upper right abutment areas.



Photo 6: Pelly continued to place lift 17, to be finished at night shift.



Photo 7: Underdrain foundation upstream was approved and Pelly began placing geotextile, during acceptance heavy rain started (reason why geotextile in picture is wet).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny/Overcast 10°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift finished lift 19 and moisture conditioned for night shift to continue (***Photos 1, 5, and 10***)
  - BGC and Vitoria Gold geologist went to ARD plant stock piles areas to look at current stockpiles. BGC informed Pelly and JDS of concerns of running out of material 7 rockfill in 3-5 days. (***Photos 2 and 3***)
  - Pelly continued to work on the underdrain construction upstream, select drain fill was placed per design and approved by BGC (***Photos 4 and 8***). Pelly continued to bring HDPE pipes for fusing tomorrow.
  - Pelly continued work on new access road from ARD plant to cut hauling times (***Photo 6***).
  - QC testing was done on lift 18 (compacted) with nuclear density test (***Photo 7).***
  - Embankment toe inspected, vampire drains transporting finger drain captured flow at an estimated rate of 20 to 30 L/min (storm event occurred yesterday) (***Photo 9)***

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A

14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	879.9	Yes	N/A
18	880.15	Yes	N/A
19	881.20	N/A	Started by nightshift, to be finished by dayshift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	**Description**
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None

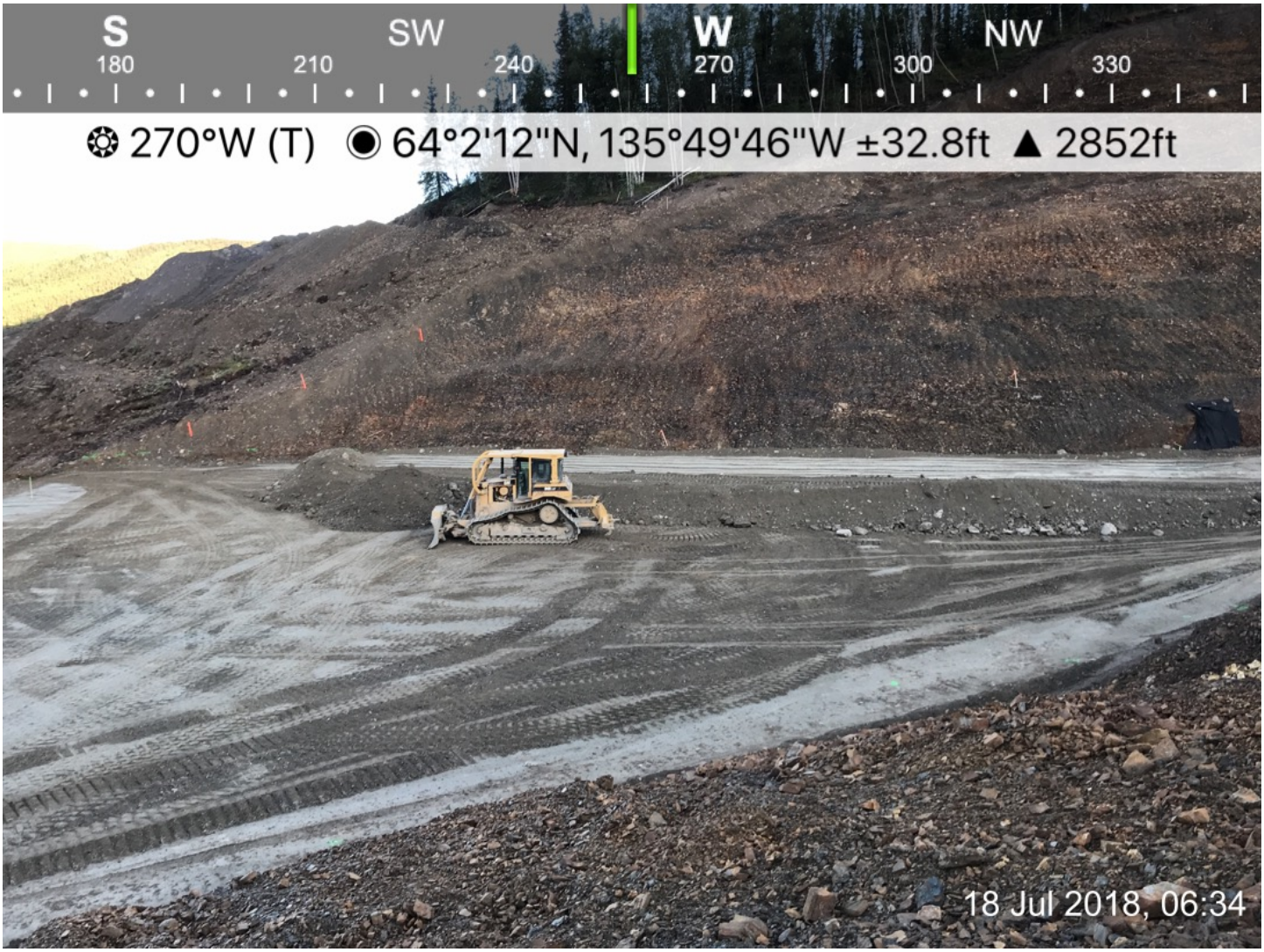


Photo 1: Night shift placing loose Lift 19 before cross shift with dayshift.



Photo 2: BGC representative Dan Granda went to ARD plant stockpile areas with Vitoria Gold Geologist Steve Wozniak to observe stockpile qualities and volumes.

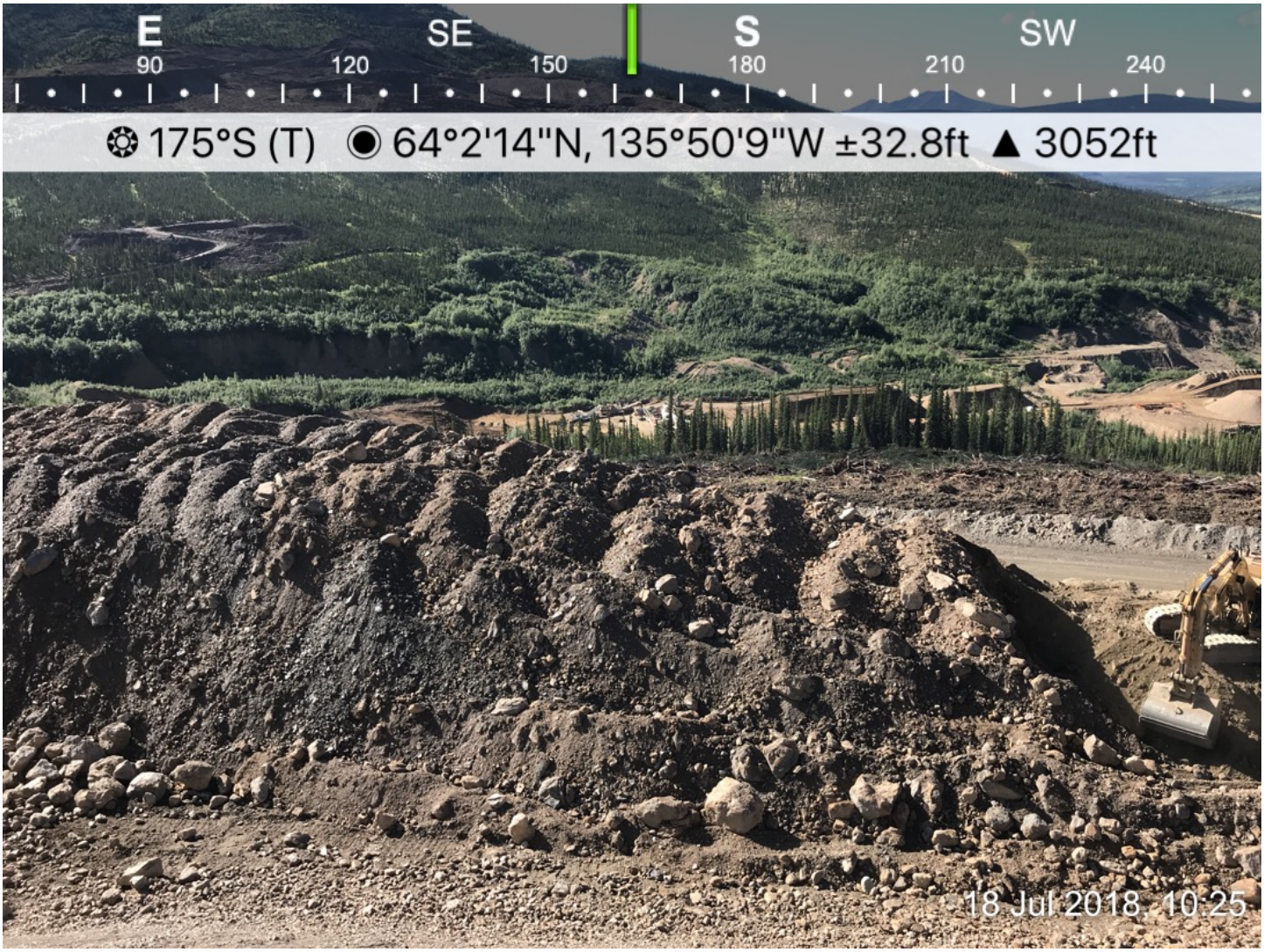


Photo 3: BGC representative Dan Granda went to ARD plant stockpile areas with Vitoria Gold Geologist Steve Wozniak to observe stockpile qualities and volumes. This is the material 7 rockfill remaining stockpile, estimated to last 3-5 days.



Photo 4: Pelly began placing bedding layer of select drain fill for underdrain extension upstream.



Photo 5: Pelly continued lift 19 in the dayshift.

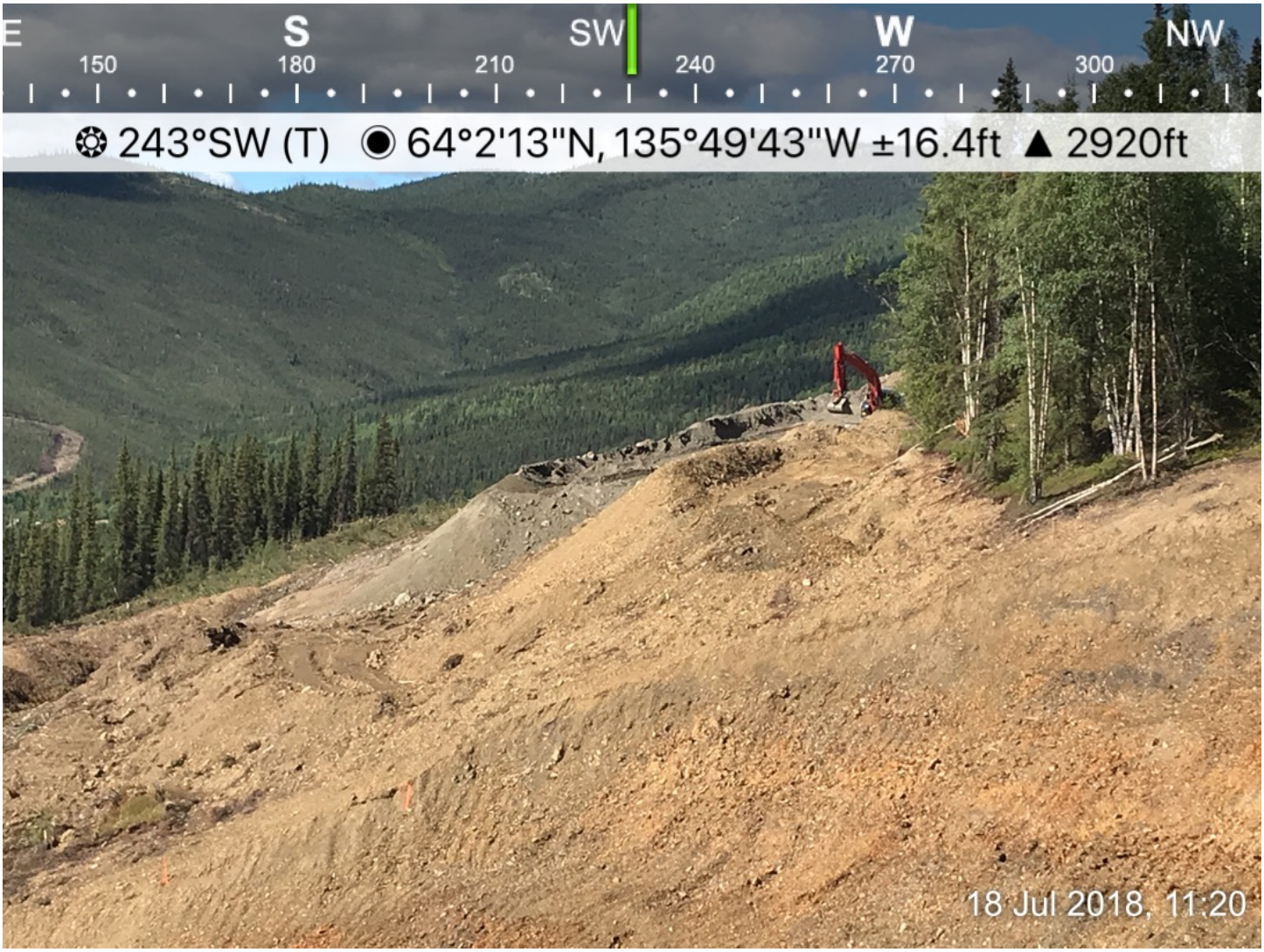


Photo 6: Pelly started and continued work on new access road from ADR plant to embankment to optimize haulage of material 7.



Photo 7: QC Tetratech did nuclear density tests on lift 18 (compacted) lift, results ranged from 2241 kg/m^3 to 2277 kg/m^3 dry density, moisture content range 4.5% to 6.1%.



Photo 8: BGC approved select drain fill bedding placement and Pelly continued by bringing in HDPE pipes for fusing.



Photo 9: Vampire drain on toe of embankment was observed to be transporting 20 to 30 L/min of seepage, likely from finger drains installed on the right abutment, water was observed clear. Select drain fill by toe was observed to be moist to wet indicating flow.



Photo 10: Water truck was brought in after lift 19 was finished to moisture condition for night shift lift placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny/Overcast 10°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift finished lift 20 and started lift 21 for night shift to continue (***Photos 1, 2, 5, 6, and 7***)
  - Pelly showed BGC a sample of the fusing of the pipes and then continued to proceed to fuse the HDPE underdrains. (***Photos 3 and 4***)
  - Pelly informed BGC that a new compactor was on site, CS78B (***Photo 8***).
  - Upon approval of underdrain pipes, Pelly continued with placing a minimum of 20 cm lift on top of the pipes, the ends of the pipes were capped or wrapped with geotextile (***Photos 9 and 10***).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A

16	879.9	Yes	N/A
17	879.9	Yes	N/A
18	880.15	Yes	N/A
19	881.20	Yes	N/A
20	881.95	Yes	Compactor broke down during nightshift, once repaired lift was compacted and accepted after survey controls
21	882.60	N/A	To be finished at night shift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	**Description**
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Night shift placing loose Lift 20 before cross shift with dayshift.



Photo 2: Caterpillar mechanic was called to fix compactor early morning.



Photo 3: Pelly made a sample of the fusing of the pipe transition through thickness.

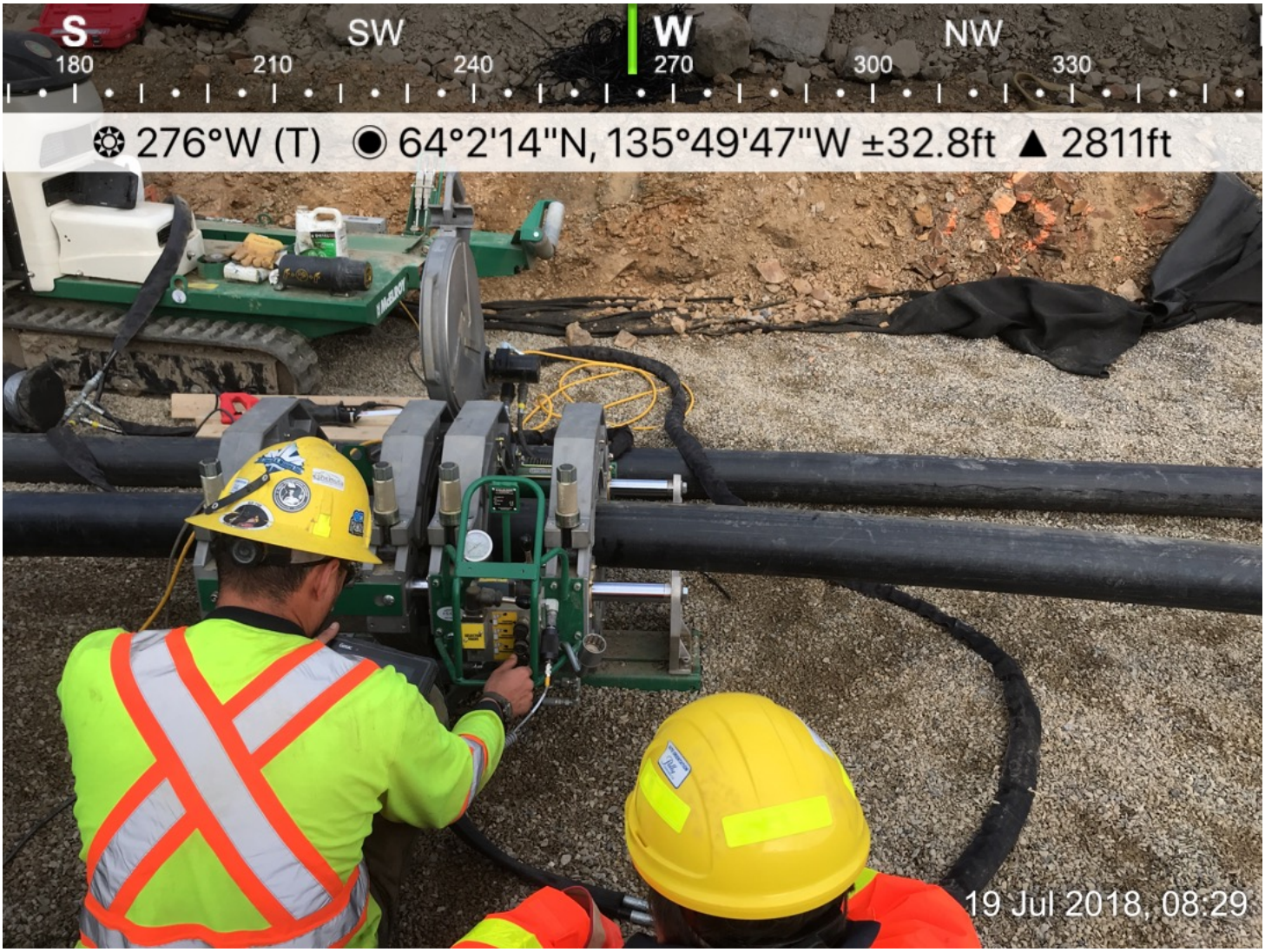


Photo 4: BGC was present during the fusing operations of the underdrain pipes.



Photo 5: Compactor was fixed and lift 20 was compacted for approval.



Photo 6: BGC accepted lift 20 with survey confirmation, survey placed marker for lift 21 and water truck moisture conditioned compacted lift for new lift placement.



Photo 7: Pelly continue placing loose lift 21.



Photo 8: BGC was informed of new compactor on site, CS78B, approximately 12 tons at drum per specifications, to be used on embankment.



Photo 9: BGC accepted the underdrain pipes and Pelly proceeded placing select drain fill layer cover.



Photo 10: BGC observed the placement of select drain fill cover on underdrain pipes.



Photo 11: View from top of right abutment on site.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Rain/Overcast 10°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, nightshift finished compacting lift 21 and dayshift started lift 22 for night shift to continue (***Photos 1, 4, and 9***)
  - Lift 21 was tested with a nuclear density method on two points, middle of lift and toe. Dry density at middle of lift was measured to be 2243 kg/m^3 and moisture content at 4.8%, dry density at the toe was measured to be 2221 kg/m^3 and moisture content at 5.0%. (***Photos 2 and 3***)
  - Pelly continued work on the underdrain. After BGC accepting the select drain fill cover and having survey pick up the as built information, Pelly placed geotextile and designed overlap. BGC inspected and accepted geotextile placement. Pelly proceeded to place Material 2 from crusher area with moisture conditioning, compacting and having BGC accept the compacted lift after doing nuclear density test to confirm density (***Photos 5, 6 and 10***).
  - Pelly informed BGC that they were instructed to take material from stockpile on ARD plant area, BGC and Victoria Gold representative Briar Gonie inspected area exposed by excavator and classified as 75% phyllite and rejected any load from this area due to material not conforming to rockfill material 7 definition, further analysis recommended. Pelly's excavator and haul trucks returned to approved rockfill #2 stockpile of material 7. EOR Troy Meyer notified. (***Photo 7***).
  - BGC and Vitoria Gold Geology observed current stockpile used for material 7, estimating 3-4 days left until depleted (***Photo 8***). BGC advised of this depletion previously on daily from July 18, 2018 with observations from Vitoria Gold Geologist Steve Wozniak.

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A

10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	879.9	Yes	N/A
18	880.15	Yes	N/A
19	881.20	Yes	N/A
20	881.95	Yes	N/A
21	882.60	Yes	N/A
22	883.30	N/A	To be finished in nightshift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	**Description**
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Night shift finished compacting of lift 21, dayshift started loose lift 22.



Photo 2: QC test, nuclear density, was done on 2 points. This picture shows it being done in the middle of the lift.



Photo 3: QC density test was also done by the toe of embankment.



Photo 4: Pelly continued placing loose lift 22. Due to recent rain, no moisture conditioning was needed before placement.

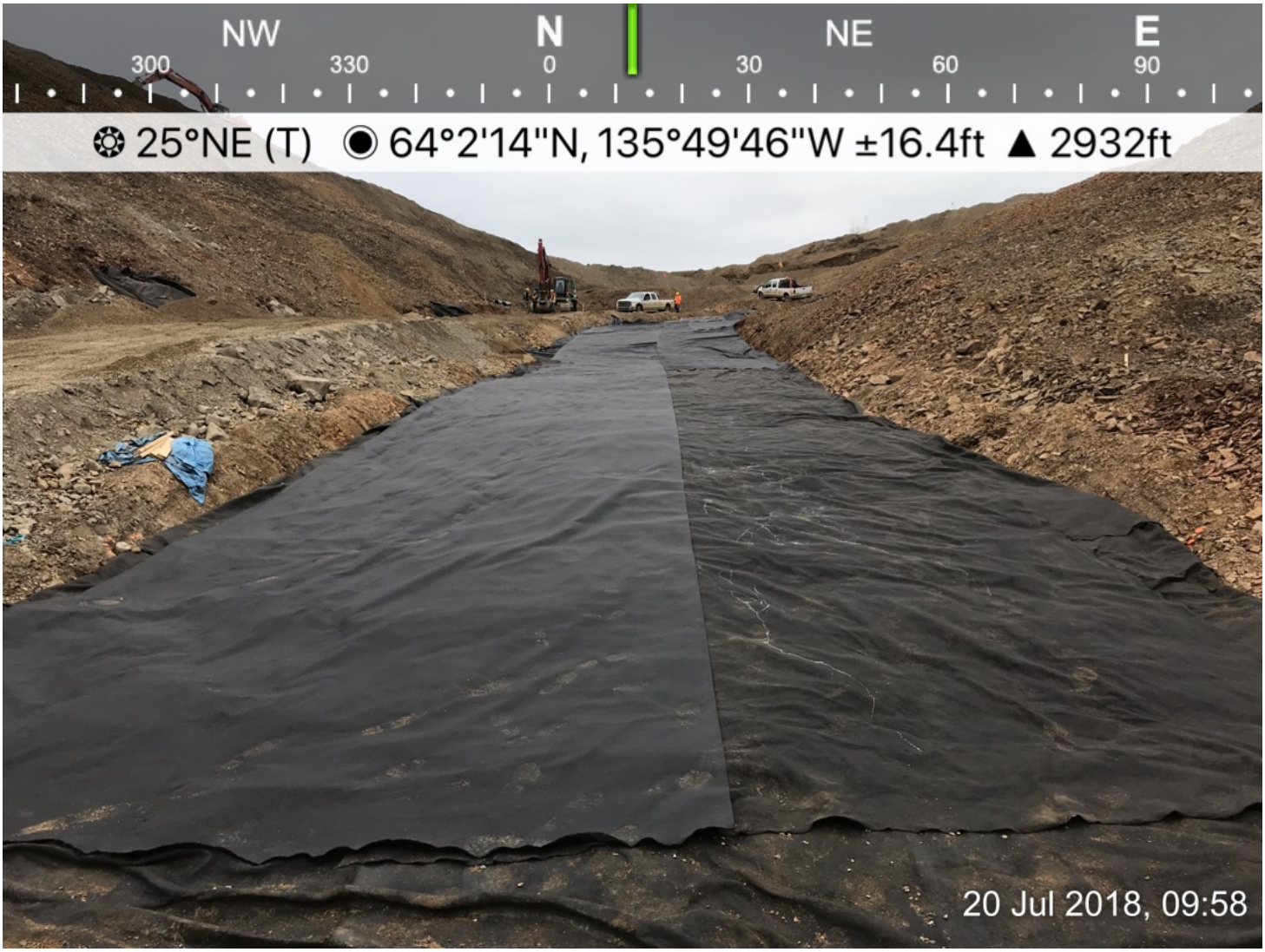


Photo 5: Pelly placed geotextile over the select drain fill cover on top of the underdrain pipes, BGC accepted the placement.



Photo 6: Pelly continued to finish underdrain trench by placing material 2 from crusher area, BGC advised to moisture condition before placement and Pelly placed a water truck to do so.



Photo 7: Pelly informed BGC that they were instructed to get material from an ARD stockpile, BGC representative Dan Granda and Victoria Gold Geologist Briar Gonie inspected the excavation and identified it as 75% phyllite and any load from this area was rejected for placement. Pelly moved back to the rockfill #2 stockpile that is near depletion. BGC representative informed EOR and Pelly of this.



Photo 8: Current rockfill #2 stockpile status (estimated 3-4 days left).



Photo 9: Pelly continued to place loose lift 22, placement and compaction to be finished by night shift.



Photo 10: Pelly completed first lift, compaction was tested with nuclear density and accepted by BGC, pelly placed a second lift for additional protection of pipes.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny 12°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, nightshift finished placing lift 23 and dayshift started compacting lift 23 (***Photo 1)***
  - Lift 23 was tested with a nuclear density method on two points, middle of lift and toe. Dry density at middle of lift was measured to be 2267 kg/m^3 and moisture content at 4.4%, dry density at the toe was measured to be 2216 kg/m^3 and moisture content at 4.1%. (***Photo 2***)
  - After accepting lift 23, BGC observed areas that required cleaning of phyllite layers on the right abutment. Pelly used bulldozer and excavator to remove loose material and phyllite until compatible bedrock was reached, BGC inspected and accepted surface for next lift (***Photos 3 and 4***).
  - Pelly cleaned up the upper right abutment finger drain, water flow was observed. (***Photos 5 and 6***). Drain was compacted and an additional small seep was observed and incorporated into the finger drain (***Photo 12***).
  - Pelly continued with the next placement of loose lift after foundation surface of the right abutment was confirmed and accepted (***Photo 7***).
  - BGC and Victoria Gold Geology used the excavation from yesterday on the ARD stockpile of phyllite to make an assessment. (***Photo 8***). BGC representative Dan Granda and Victoria Gold Geologist Briar Gonie inspected phyllite rich zones and fragments (***Photos 9 and 10***). Pelly representatives and JDS representatives showed up (not planned meeting with BGC and Victoria Gold), and the opportunity was used to show JDS that massive amounts of phyllite and a potential source of quartzite that would need a bit of blending for it to be a potential source of rockfill material 7 (***Photo 11***).
  - BGC and Victoria Gold Geology started a testfill to provide information on a new potential source for rockfill material 7, as the remaining stockpile is running out. (***Photos 13 to 20***).
  - BGC recommends taking material from the orange area material runs out before tests are completed (***Photo 21***), oversight from a geologist or geotechnical engineer will be required to make sure the right outcrop and material is excavated until all unsuitable phyllite is cleaned or clearly marked to be avoided.

- BGC "Quartzite Blend Test Fill ARD":
  - Testfill was 9.25 m by 6.25 m, the loose lift was 0.9 m (confirmed with survey controls).
  - Steel plates were placed in 3 spots, each spot elevation was recorded with survey before compaction.
  - The compactor used was a CAT CS78B (12 to 13.5 tons at the drum), vibrating.
  - Each pass includes vibration going forward and backwards, a total of 4 passes was done. After each pass, vertical deflection from compression was recorded by survey (summarized on table below).

Plate ID	Pre-compaction elevation (m)	After Pass 1 elevation (m)	After Pass 2 elevation (m)	After Pass 3 elevation (m)	After Pass 4 elevation (m)	Total compaction
1	948.43	948.39	948.38	948.38	948.37	0.06 m
2	948.46	948.42	948.42	948.42	948.41	0.05 m
3	948.53	948.50	948.49	948.49	948.48	0.05 m

  - It was observed that this material has hard quartzite, showing angularity, resistance to splitting and is interbedded with phyllite that provides cohesion and moisture retention.
  - The expected compaction is 0.05 m, for every 0.9 m lift, the compacted lift would have an estimated thickness of 0.85 m.
  - The water replacement test showed a water volume of 184.4 US Gallons or 0.698 m^3.
  - BGC, Pelly and Tetra Tech were not able to weight the soil due to JDS not having the weight scale requested by Tetra Tech James Buyck last week. Super sacs remain in the field until weight, the weight will help determine in-situ density of this testfill material as different method to the nuclear density test.
  - Nuclear density tests showed a dry density range of 2212 to 2263 kg/m^3 and moisture content % of 4.9 to 4.2.

- BGC recommends taking material from the orange area material runs out before tests are completed (Photo 21), oversight from a geologist or geotechnical engineer.

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	879.9	Yes	N/A
18	880.15	Yes	N/A
19	881.20	Yes	N/A
20	881.95	Yes	N/A
21	882.60	Yes	N/A

22	883.30	Yes	N/A
23	884.00	Yes	N/A
24	Will confirm	N/A	N/A

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	**Description**
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Day shift finished compacting of lift 23, dayshift started loose lift 24.



Photo 2: QC nuclear density test on toe, dry density 2216 kg/m^3, moisture content is 4.1%. Lift Accepted.

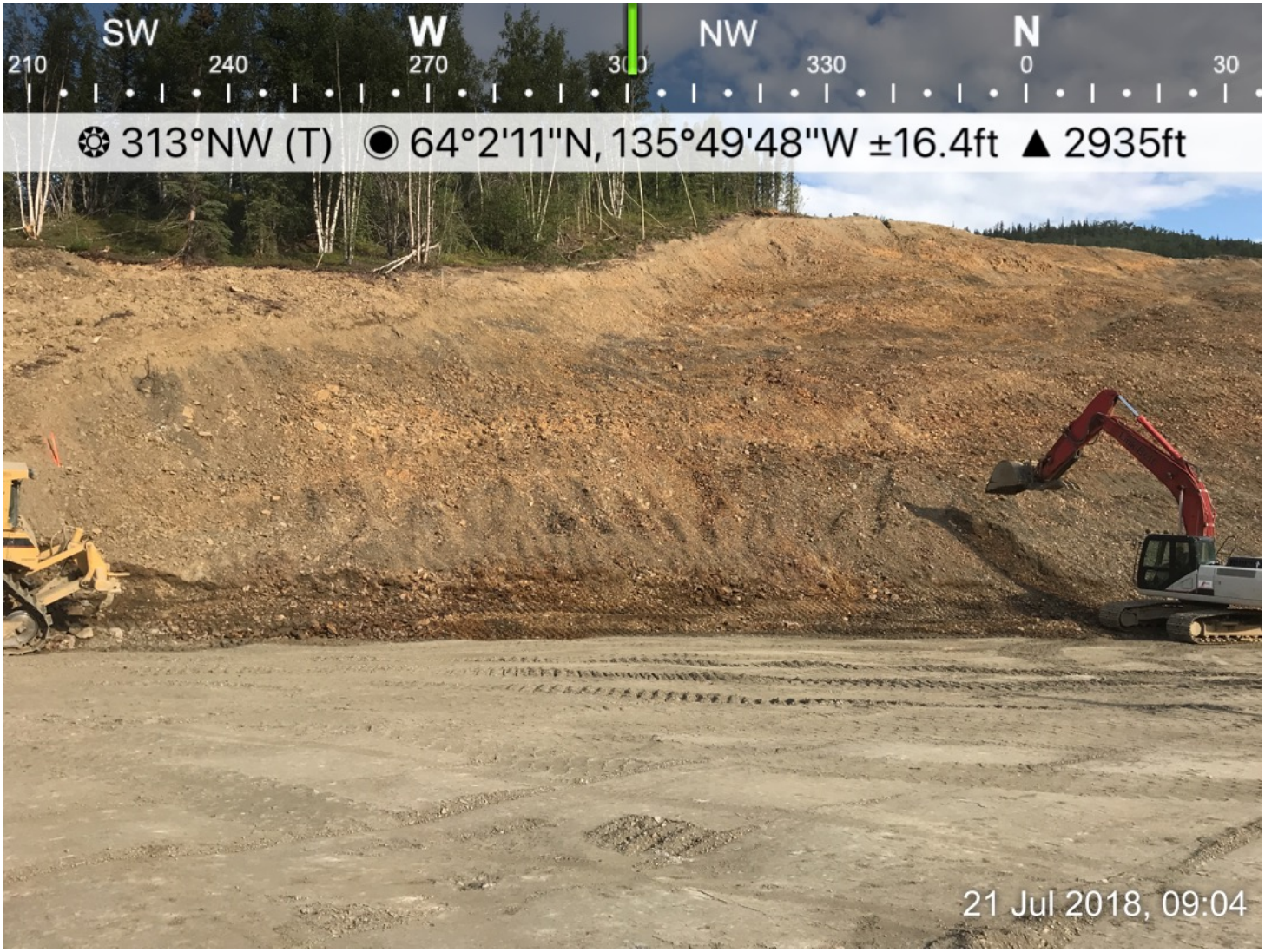


Photo 3: BGC instructed Pelly on cleaning right abutment as a layer of phyllite was observed, both dozer and excavator were able to clean surface.



Photo 4: Cleaning was inspected and accepted for next loose lift placement.



Photo 5: Pelly cleaned the upper right abutment finger drain, water was clearly observed to flow at a 5L to 10L/min rate.



Photo 6: Pelly cleaned the upper right abutment finger drain, water was clearly observed to flow at a 5L to 10L/min rate.



Photo 7: Pelly continued with loose lift placement.



Photo 8: Victoria Gold Geologist Briar Gonie inspecting phyllite stockpile that was excavated by Pelly yesterday, areas showed ranges from 100% phyllite to 75% phyllite and other particles (quartzite fragments).



Photo 9: Multiple areas were assessed for phyllite.



Photo 10: Victoria Gold Geologist Briar Gonie showing how phyllite fragments (easily friable) can be mistaken for quartzite by doing the scratch test, these particles were found throughout the stockpile, the color could be confused with quartzite. The main difference is quartzite is more resistant to normal stress than a friable phyllite fragment which will generate more fines during compaction.



Photo 11: During the BGC/Victoria Gold assessment of stockpile that was excavated yesterday, JDS representatives arrived with Pelly. BGC and Victoria Gold used the opportunity to show them the amount of phyllite in the area and the little volume of competent quartzite available.



Photo 12: During material 2 compaction of upper right abutment finger drain, a seep was observed directly from the right abutment, this was addressed by letting the water coming into the drain.



Photo 13: Pelly excavator exposed more phyllite rich zones for BGC and Victoria Gold Geologist to observe material composition.



Photo 14: Pelly mobilized to area where outcrop of quartzite was identified by BGC and Victoria Gold geology. The interbedded phyllite and quartzite was excavated and placed on haul trucks for the test fill “BGC Quartzite Blend”.



Photo 15: Testfill was placed at a 0.9 m loose left, steel plates were placed, surveyed.



Photo 16: Pelly's CS78B (approximately 13.5 ton compactor) was used with vibration on.



Photo 17: Each pass was surveyed for deflection and compaction.



Photo 18: Nuclear densometer was used to measure density.



Photo 19: The wall surface of the quartzite blend shoes angular fragments and vertical stability.



Photo 20: A water replacement test was conducted, the samples collected are waiting for JDS to acquire weight measurement device ordered by Tetra Tech to accurately measure weight to estimate in-situ density.

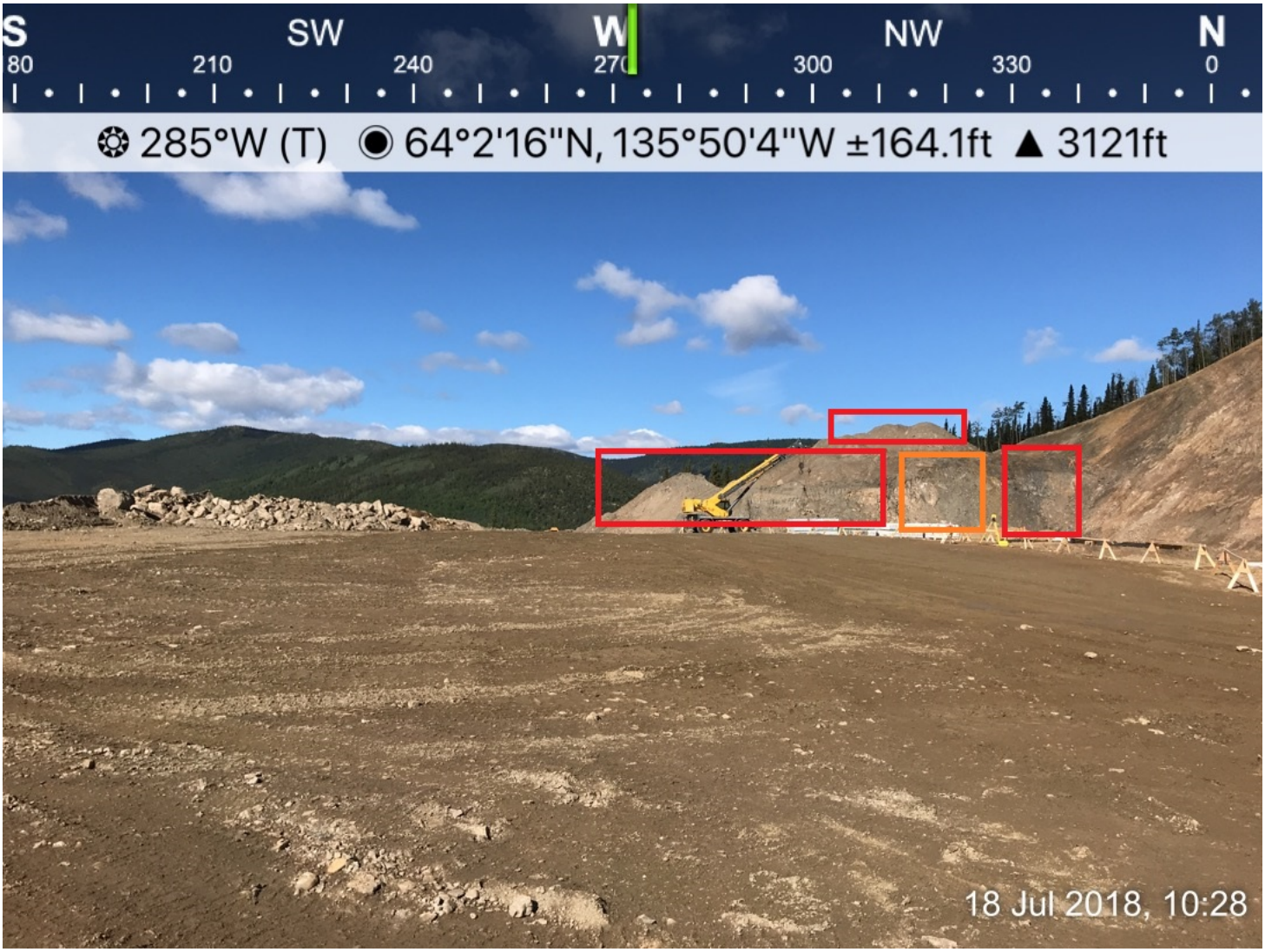


Photo 21: Quartzite blend was taken from orange square, avoiding red squares that were mapped as 75%+ phyllite content.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny 15ºC to 25ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift continued lift 24, compacted and carried on to lift 25 (***Photos 1, 2 and 12)***
  - Pelly has started taking out over saturated stockpile from left abutment area near the artesian source (***Photo 3***)
  - Yesterdays test fill is pending JDS's weight scale arrival for confirmation of insitu densities, the area marked on orange seems to the best rockfill option at the ARD plant (***Photo 4***), the area on red is 75% to 100% phyllite which is not desirable for lift placement on the embankment due to low shear strengths (***Photo 4***) and should be avoided.
  - BGC and Victoria Gold Exploration Geology team was present the ARD and saw how phyllite can be at slightly higher moisture contents (***Photo 5).*** The residue of phyllite from the approved rockfill has become muck or thick sticky mud with very little moisture addition, this is why this material alone is not recommended for embankment construction.
  - JDS requested 3 testfills with what they called a dozer blend, the testfill was named JDS Phyllite Dozer Blend. 3 lift thicknesses were requested (0.3, 0.5 and 0.9 m), BGC and Victoria Gold Geology was present during the placement. (***Photo 6***). Due to high fine content and not passing the minimum requirement for rockfill (>30% particles of quartzite being at least 19 mm), BGC recommended conducting a shear strength test, with standard proctor and gradation through QC Tetra Tech.
  - Pelly and BGC conducted the 3 testfills as requested by JDS following the same procedures as yesterday. No water replacement test was done because this test is mainly for rockfills or testfills/lifts with high rock content, a nuclear density test was done on each lift, results on table below (***Photos 8 to 11***).
  - Victoria Gold Exploration Geology Team offered to help find quartzite and map area for consideration of suitable materials for material 7, the team found an outcrop (also presented in orange (photo 4) and followed it (Photo 7). At the end of the exercise, Victoria Gold Geologist Steve Wozniak presented BGC with a sketch of where the quartzite outcrop follows through the ARD (***Photo 12***).

- JDS Phyllite Dozer Blend ARD:
  - Per JDS request, 3 testfills were placed from a dozer pushing phyllite from the top of the stockpile to the bottom, this material recommended to be avoided BGC due to its very high phyllite content.
  - The testfill thicknesses were requested to be 0.3 m, 0.5 m and 0.9 m (confirmed with survey controls).
  - Steel plates were placed in 3 spots, each spot elevation was recorded with survey before compaction.
  - The compactor used was a CAT CS78B (12 to 13.5 tons at the drum), vibrating.
  - Each pass includes vibration going forward and backwards, a total of 4 passes was done. After each pass, vertical deflection from compression was recorded by survey (summarized on tables below).

JDS Phyllite Dozer Blend ARD lift thickness 0.3 m

Plate ID	Pre-compaction elevation (m)	After Pass 1 elevation (m)	After Pass 2 elevation (m)	After Pass 3 elevation (m)	After Pass 4 elevation (m)	Total compaction
1	948.31	948.30	948.30	948.29	948.29	0.02 m
2	948.30	948.28	948.28	948.28	948.28	0.02 m
3	948.33	948.31	948.29	948.30	948.30	0.03 m

  - Nuclear density tests showed a dry density range of 2148 to 2127 kg/m^3 and moisture content % of 4.3 to 4.4.
  - The expected compaction is 0.02 m, for every 0.3 m lift, the compacted lift would have an estimated thickness of 0.28 m.
  - This material showed deflection during compaction, optimum moisture content is recommended (Standard Proctor Test).
  - This material has been observed in literature and in the field to have low shear strength, a shear test is recommended.

JDS Phyllite Dozer Blend ARD lift thickness 0.5 m

Plate ID	Pre-compaction elevation (m)	After Pass 1 elevation (m)	After Pass 2 elevation (m)	After Pass 3 elevation (m)	After Pass 4 elevation (m)	Total compaction
1	948.37	948.33	948.32	948.31	948.31	0.06 m
2	948.28	948.27	948.26	948.25	948.25	0.03 m
3	948.31	948.29	948.27	948.25	948.26	0.05 m

- Nuclear density tests showed a dry density range of 2225 to 2288 kg/m^3 and moisture content % of 3.9 to 3.8.
- The expected compaction is varied due to material waving as compactor passed through lift, compaction may vary between 0.03 to 0.06 m.
- This material showed deflection during compaction, optimum moisture content is recommended (Standard Proctor Test).
- This material has been observed in literature and in the field to have low shear strength, a shear test is recommended.

JDS Phyllite Dozer Blend ARD lift thickness 0.9 m

Plate ID	Pre-compaction elevation (m)	After Pass 1 elevation (m)	After Pass 2 elevation (m)	After Pass 3 elevation (m)	After Pass 4 elevation (m)	Total compaction
1	948.49	948.47	948.47	948.47	948.47	0.02 m
2	948.50	948.49	948.49	948.49	948.48	0.02 m
3	948.50	948.47	948.46	948.46	948.45	0.05 m

- Nuclear density tests showed a dry density range of 2213 to 2202 kg/m^3 and moisture content % of 3.9 to 3.8.
- The expected compaction is varied due to material waving as compactor passed through lift, compaction may vary between 0.02 to 0.05 m.
- This material showed deflection during compaction, optimum moisture content is recommended (Standard Proctor Test).
- This material has been observed in literature and in the field to have low shear strength, a shear test is recommended.

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommends avoiding using a phyllite only lift on embankment, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. The BGC testfill from yesterday “BGC Quartzite Blend Test Fill ARD” has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route).

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	880.15	Yes	N/A
18	881.20	Yes	N/A
19	881.95	Yes	N/A
20	882.60	Yes	N/A
21	883.30	Yes	N/A
22	884.00	Yes	N/A
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	N/A	To be finished by nightshift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Day shift continued pushing material for lift 24.



Photo 2: Compaction of lift also followed.



Photo 3: Pelly continues to clean oversaturated materials from left abutment zone of HLF.

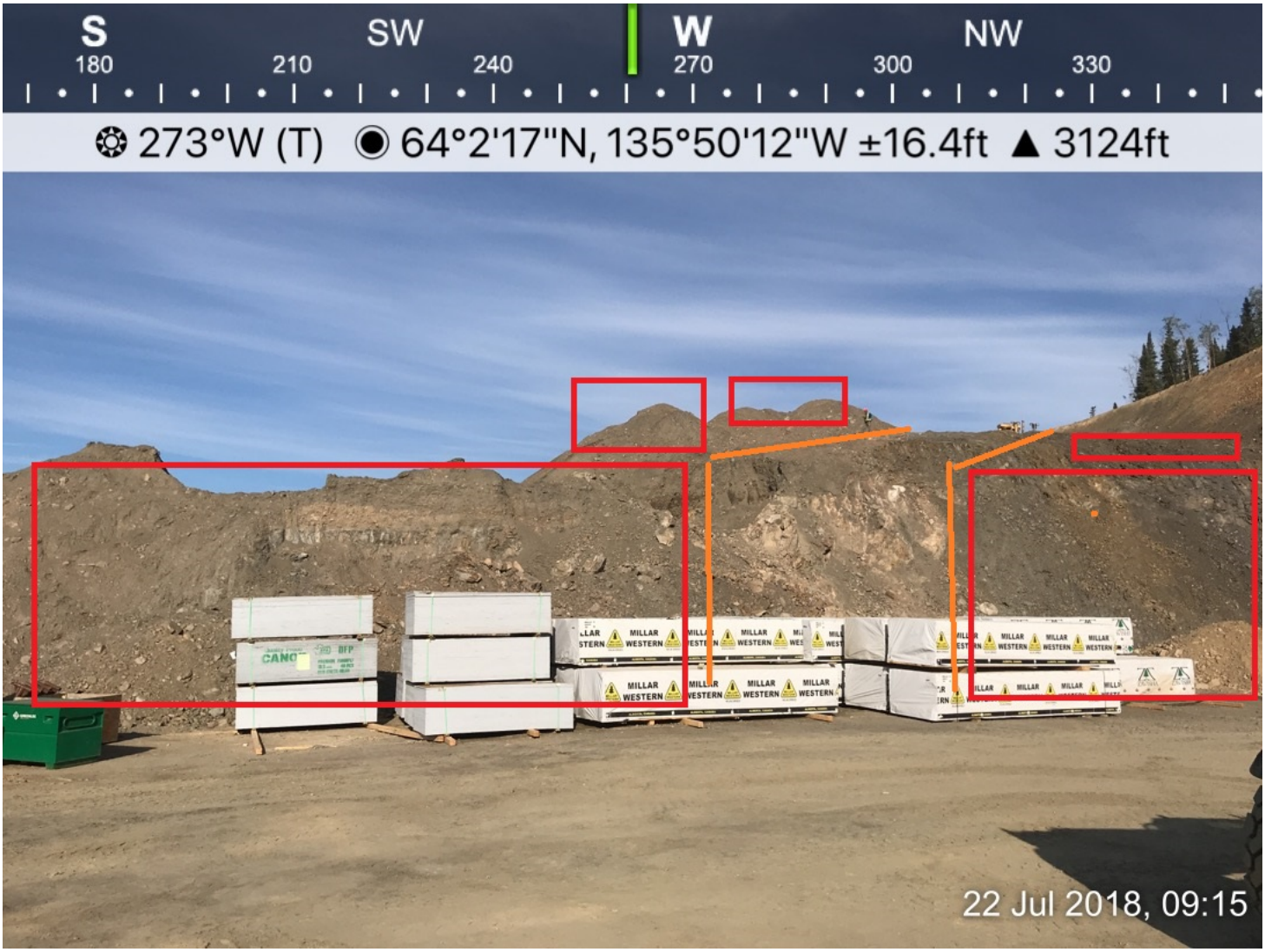


Photo 4: Yesterday's "Quartzite Blend Test Fill ARD" showed similar structure as the current rockfill material 7 being placed. The material excavated for the testfill would follow the orange band, red is very high phyllite concentrations with very little rockfill type materials. JDS asked to test the phyllite piles, bulldozed down the stockpile and this was called "JDS Phyllite Dozer Blend".



Photo 5: BGC and Victoria Gold Exploration Geology team observed how phyllite deposits would behave with slight over saturation, as this picture shows.

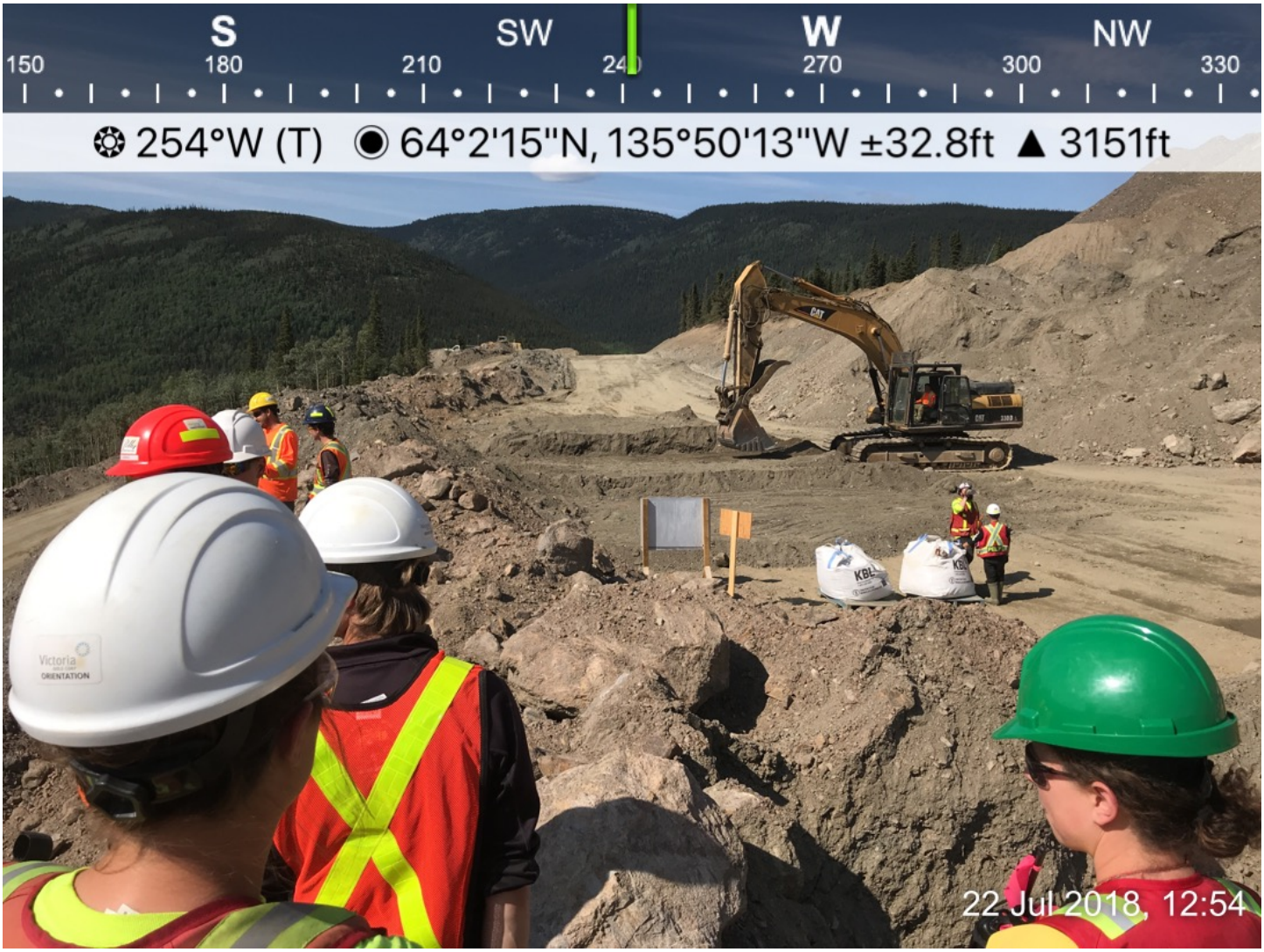


Photo 6: As requested per JDS, Pelly and BGC were present for the “JDS Phyllite Dozer Blend” Testfill, 3 lifts were requested to be tested (0.3 m, 0.5 m and 0.9 m), same survey controls and methods were used as yesterday.



Photo 7: Victoria Gold Exploration Geology team supported quartzite mapping to help Pelly and JDS find adequate rockfill material, the results of their mapping is presented on Photo 13.



Photo 8: JDS Phyllite Dozer Blend tesfills were graded with excavator and verified by survey.



Photo 9: Compacting was done with a CAT CS68B, vibrating. Each pass was measured for settlement and compaction.



Photo 10: After 4 passes, a nuclear density test was done, no water replacement was done because this material is quite fine and a nuclear density test is adequate.



Photo 11: An exploratory hole was dug with an excavator to see the layering after compaction, after compaction the layers seem weak and little fines and cohesion.



Photo 12: In the Embankment, Pelly continued to place loose lift material for lift 25.

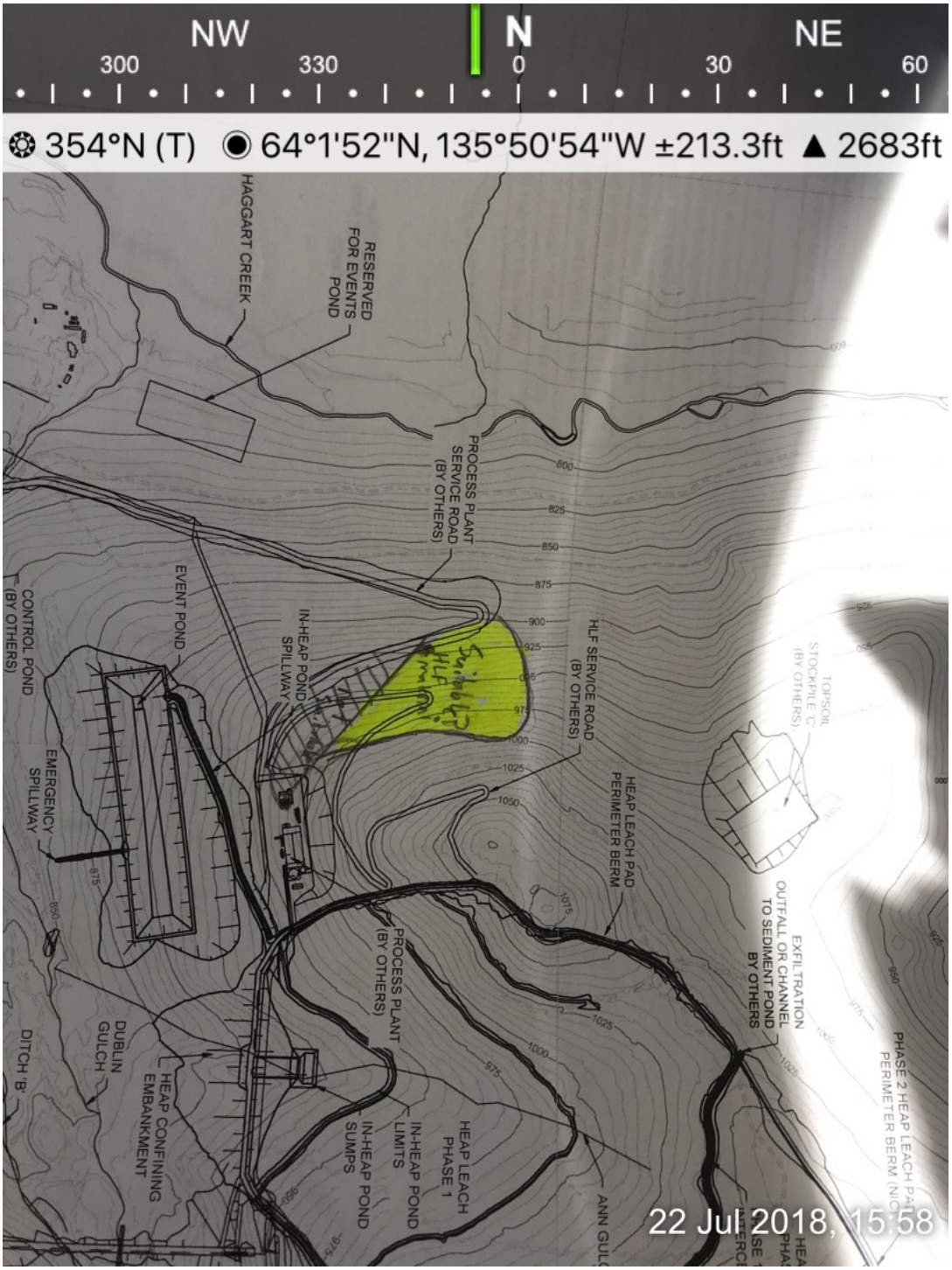


Photo 13: After the mapping exercise, Victoria Gold Geologist Steve Wozniak marked on a map where he thought the quartzite band could be followed for rockfill production.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 23, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Harra Vardeleon	**Weather:**	Sunny 15ºC to 30ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift continued lift 26, and compacted lift by end of shift (***Photos 1, 10, 12, and 14)***
  - Rockfill Stockpile #2 almost depleted (***Photo 2)*** shows stockpile at start of shift and ***(Photo 11)*** shows it at end of dayshift.
  - Wet phyllite layers observed on bottom of stockpile areas (***Photos 3 and 6).***
  - Phyllite zones presented in red and good mixture zone from first test fill "Quartzite Blend Test Fill ARD" in orange, presented for consideration of rockfill (testfill showed good mix of quartzite and phyllite). (***Photo 4***).
  - Super sacs from Quartzite blend test fill ARD, water replacement test remain outside until JDS gets weight scale to measure weight to estimate density of rockfill (***Photo 5***).
  - Old material 3 stockpile continues to be removed, ice lenses melting was observed, over saturation and seeping from stockpile was also observed (***Photo 7***).
  - JDS has Pelly dozer push material on top of the ARD stockpile, BGC/Pelly/JDS/Victoria Gold Geology was present to observe the small stockpile. BGC asked JDS and Pelly to excavate to show the contents of stockpile. BGC asked JDS/Pelly to conduct gradation tests and proctor to see if this stockpile would meet the minimum requirement for rockfill (more than 30% particles equal or greater than 19 mm of Quartzite). Due to very dry conditions of stockpile area, BGC recommended a standard proctor to proper condition small stockpile. Approval pending tests and other considerations as needed to accept small batch for embankment lift placement (***Photos 8 and 9***).

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommends avoiding using a phyllite only lift on embankment, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. The BGC testfill from yesterday "BGC Quartzite Blend Test Fill ARD" has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route).

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
1	*0.9 m from toe to Sta 0+120	Toe to Sta 0+120	Requires attention upstream
2	870.7	Yes	N/A
3	871.05	Yes	N/A
4	871.6	Yes	N/A
5	872.35	Yes	N/A
6	872.9	Yes	N/A
7	873.7	Yes	N/A
8	874.3	Yes	N/A
9	875.07	Yes	N/A
10	875.6	Yes	N/A
11	876.25	Yes	N/A
12	877.00	Yes	N/A
13	877.75	Yes	N/A
14	878.5	Yes	N/A
15	879.1	Yes	N/A
16	879.9	Yes	N/A
17	880.15	Yes	N/A
18	881.20	Yes	N/A
19	881.95	Yes	N/A
20	882.60	Yes	N/A
21	883.30	Yes	N/A
22	884.00	Yes	N/A
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	N/A	To be placed by nightshift

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results
• QA/QC: o • BGC Recommendations: o None

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Nightshift started lift 26 loose, day shift continued loose lift.



Photo 2: Rockfill Stockpile #2 running low (material 7), this remains the only official stockpile approved for placement, no other stockpiles have been located or stockpiled by JDS/Pelly for approval.

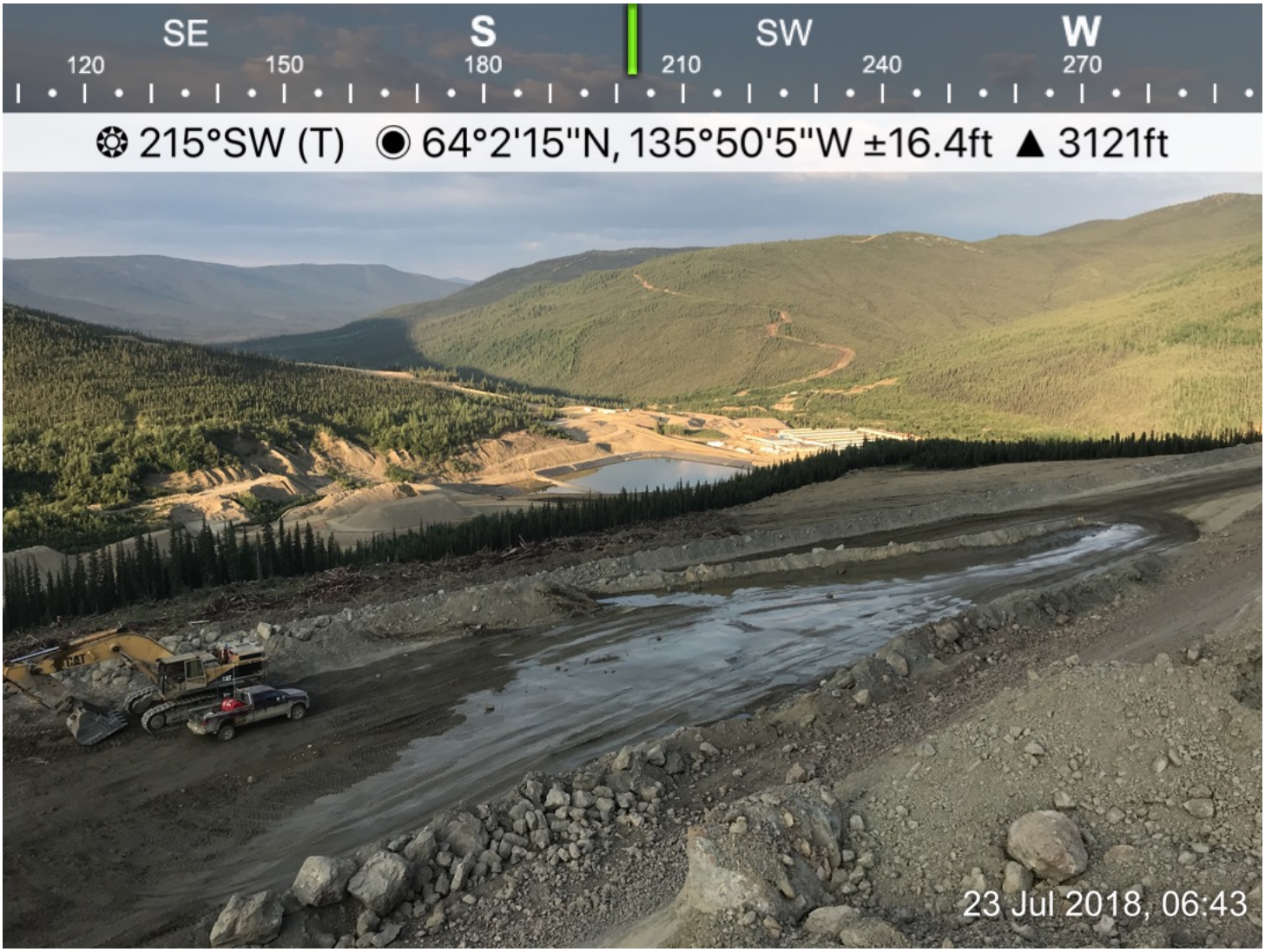


Photo 3: Phyllite layer that segregated to bottom of stockpile #2 continues to be saturated, showing low shear strength and moisture conditioning limits.

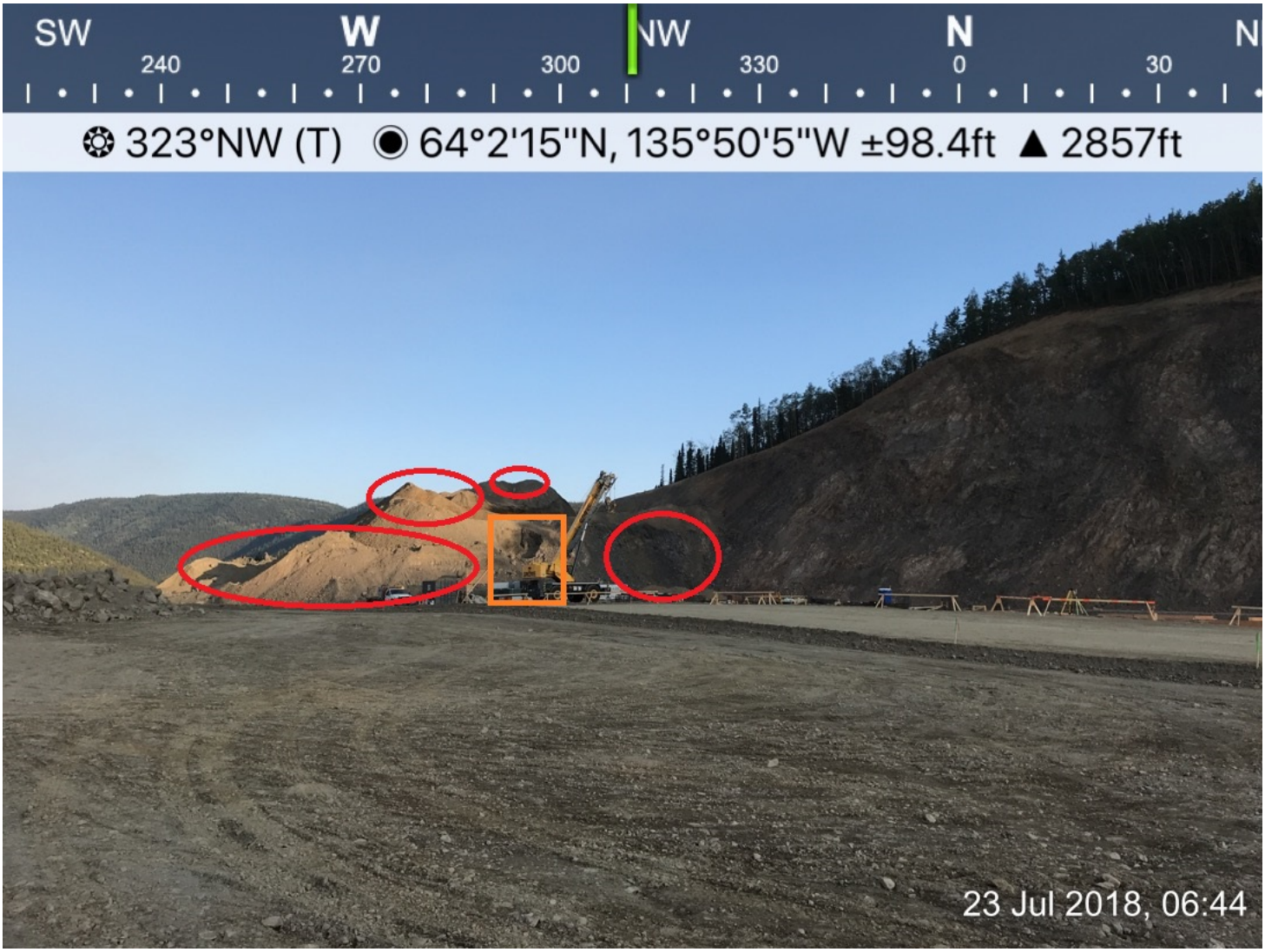


Photo 4: Phyllite concentration zones to be avoided are in red and quartzite outcrop in orange (good for rockfill material), been presented for a few days with geologic mapping.



Photo 5: Super sacs from testfill test (water replacement from Quartzite blend testfill) remains on site until weight scale from JDS arrives to finalize test.



Photo 6: Ground view of remaining rockfill stockpile #2 with phyllite on the ground (wet).



Photo 7: Old material 3 stockpile being removed as deemed unsuitable due to over saturation, frozen layers observed.



Photo 8: JDS asked Pelly to excavate another mixture blend up on top of the ARD stockpile.



Photo 9: JDS asked Pelly to excavate another mixture blend up on top of the ARD stockpile.



Photo 10: Due to very high temperatures, BGC asked Pelly to bring down the water truck before further compaction due to observed low moisture content.

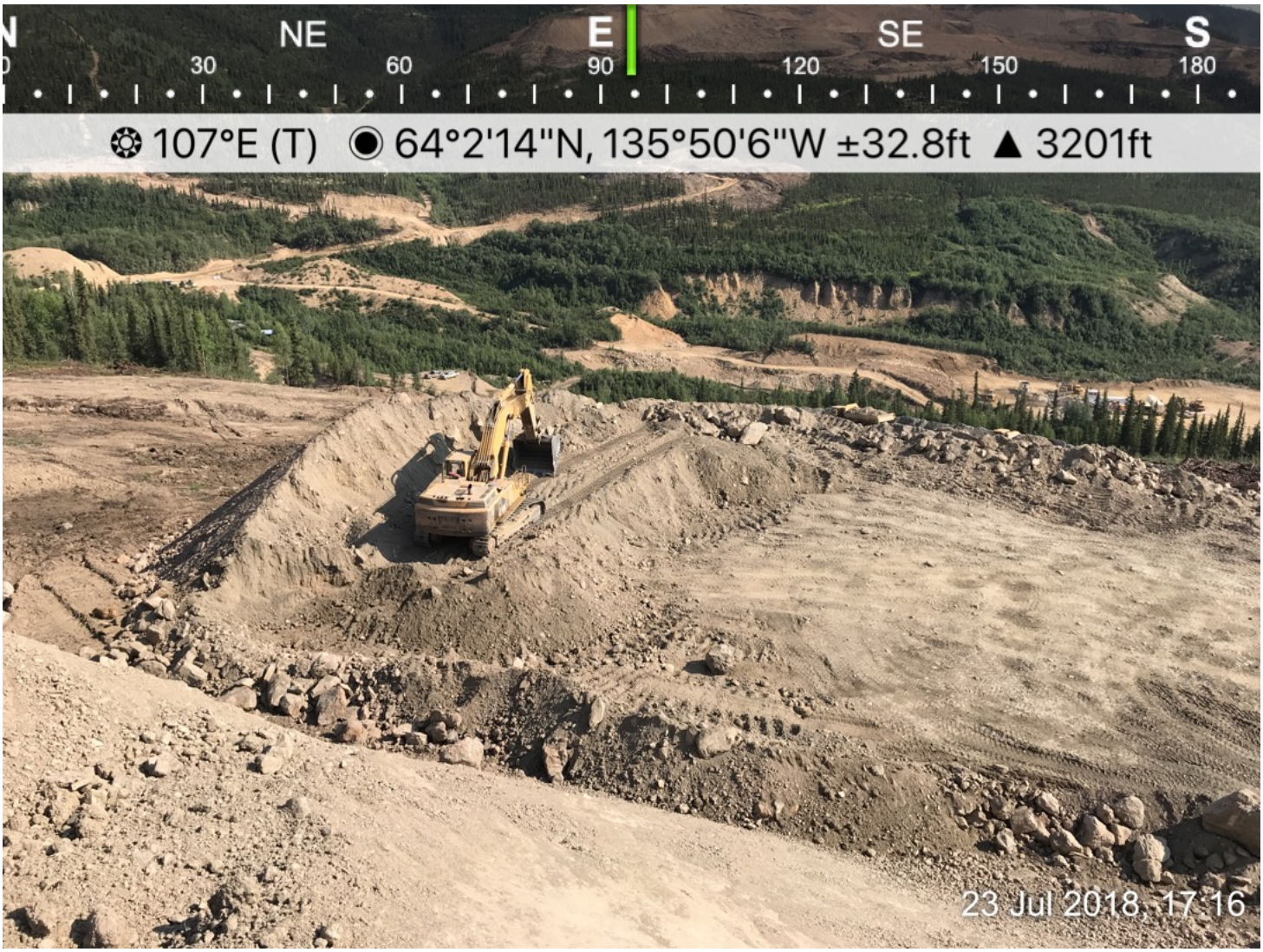


Photo 11: The remaining volume of Rockfill Stockpile 2 (material 7) approved by BGC for use, JDS continues to look for material. JDS was advised that test fills, and tests such as proctors, gradation and shear strength tests may be required for acceptance of embankment lift material.



Photo 12: Cobalt cleaning around crest area of HLF, pelly cleaning upstream of embankment foundation zone.



Photo 13: Dayshift Pelly team preparing right abutment foundation with dozer blade for nightshift material placement.



Photo 14: Lift 26 to be accepted after final compaction (right side observed to need another pass due to water truck).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon	**Weather:**	Sunny 15°C to 30°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift continued lift 29, and compacted lift by end of shift (***Photos 1).***
  - BGC approved the use of a pile of material blended from quartzite rich and phyllite rich material (***Photo 2***). Pelly did not know the ratio of the blend. Visually the blend appeared to be about 60% quartzite rockfill and 40 phyllite. BGC and Tetra Tech estimated approximately 15% to 25% rock >8". A sample scalped at material greater than >3" showed approximately 30% material between 80mm and 19mm. The following observations should be taken into account when using this stockpile:
    - The pile was not labeled and is situated in the middle of unapproved material piles. The pile should be properly labeled and delineated to ensure the wrong material is not delivered. If the wrong material is placed in the embankment it will have to be removed.
    - QC should confirm and document that the correct material was brought to the site and placed.
    - The material is approved as Material 7 -Rockfill. As such it should be placed using the same method spec approved for Material 7.
    - Tetra Tech reported 3 to 3.5% moisture. The material will need to be moisture conditioned at the pile while being loaded for placement.
    - The material in this pile was slightly higher in phyllite (visually estimated at 35% phyllite). As discussed at the site today and recommended in Field Memorandum CTFM-02, phyllite/quartzite material blends for use as Material 7 – Rockfill should be composed of 3 parts or more of quartzite Rockfill and 1 part phyllite. Future blends should adhere to these criteria.
  - QC of the method spec for rockfill placement is reported by Tetra Tech for the embankment night shift construction. The reporting is mostly complete and acceptable. BGC will provide comments and suggestions to the report. No QC tracking or reporting of the method spec is being performed for day shift. QC tracking and reporting is required for all construction at the HLF and will be included in the construction completion record. As fill placement is underway this should be implemented immediately. The QC Plan requested by BGC in BGC-RFI-008 should also be completed immediately for BGC's review.

- Observations and Recommendations (OPEN):
  - BGC communicated concerns regarding survey controls and QC plan for embankment construction to Pelly/JDS through BGC RFI 008.
  - BGC communicated concerns regarding construction sequencing of zones in the embankment to Pelly/JDS through BGC RFI 009, referring to CC204-RFI-022 response from BGC where considering of zones and construction considerations were presented.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 "BGC Quartzite Blend Test Fill ARD" has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
19	881.95	Yes	N/A
20	882.60	Yes	N/A
21	883.30	Yes	N/A
22	884.00	Yes	N/A
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Pending	Pending

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift.
  - No QC tracking or reporting is being performed for the day shift.

- BGC Recommendations:
  - QC tracking and reporting of the method spec developed for the placement of Material 7 – Rockfill use in the embankment should be completed for the day and night shift. This reporting will be included in the construction completion record.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None

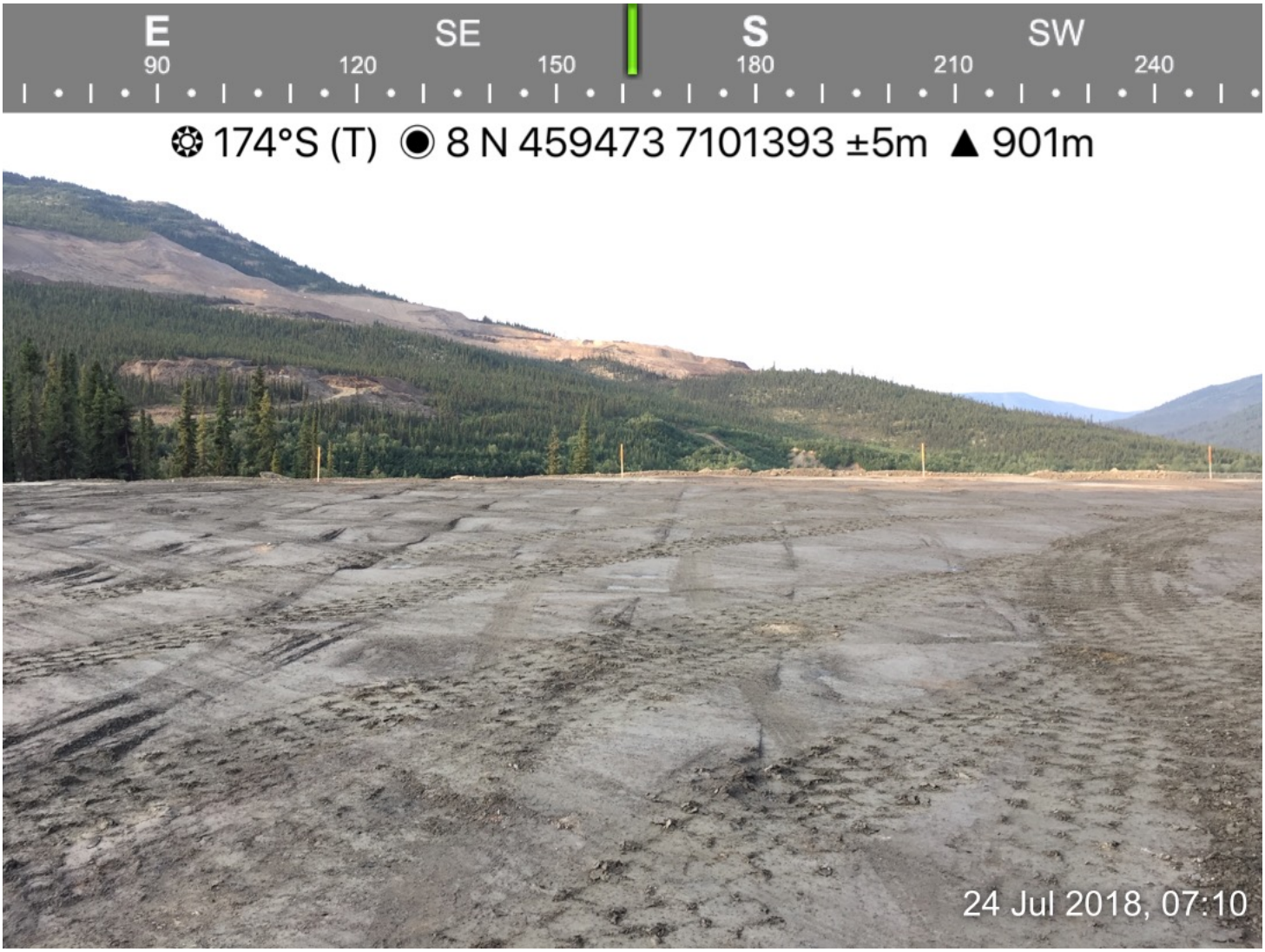


Photo 1: Embankment construction.



Photo 2: Quartzite Rockfill/ phyllite blend.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon	**Weather:**	Sunny 13ºC to 30ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements, dayshift continued lift 31, and compacted lift by end of shift (***Photos 1).***
  - Piping was fused in the pipe trench. (***Photo 2***)
  - Pelly cleared an area as a potential borrow source at the ADR. Surficially, the eastern portion of the area appeared to be a blend of phyllite and quartzite but predominately quartzite. The western portion appears to be predominately phyllite. The surface of both areas was composed of weathered rock. The surface of both areas produced material that is acceptable as Material 3. (***Photo 3 and 4***).
  - Pelly continued work on construction of the drain from the artesian source to the pipe trench. (***Photo 5***)
  - Pelly setup the procedure to moisture condition the blended material Rockfill stockpile at the ADR. (***Photo 6***)
  - BGC sent observations and recommendations to improve QC tracking and reporting for embankment construction.
  - BGC provided interpretation for depths where it is likely that rock suitable for use as Material 3 and Material 7 will be encountered. This interpretation was based on review of nearby boring logs and geophysics. The purpose of the interpretation is to allow Pelly/JDS to update the material take of quantities. The updated quantities will be used to plan the construction and zoning between Material 7 and Material 3 in the embankment.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 “BGC Quartzite Blend Test Fill ARD” has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - No QC tracking or reporting of the method spec is being performed for day shift. QC tracking and reporting is required for all construction at the HLF and will be included in the construction completion record. As fill placement is underway this should be implemented immediately. The QC Plan requested by BGC in BGC-RFI-008 should also be completed immediately for BGC’s review.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
19	881.95	Yes	N/A
20	882.60	Yes	N/A
21	883.30	Yes	N/A
22	884.00	Yes	N/A
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Yes	N/A
30	889.60	Yes	N/A
31	890.30	Pending	Pending

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift.
  - No QC tracking or reporting is being performed for the day shift.

- BGC Recommendations:
  - QC tracking and reporting of the method spec developed for the placement of Material 7 – Rockfill use in the embankment should be completed for the day and night shift. This reporting will be included in the construction completion record.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Embankment construction.

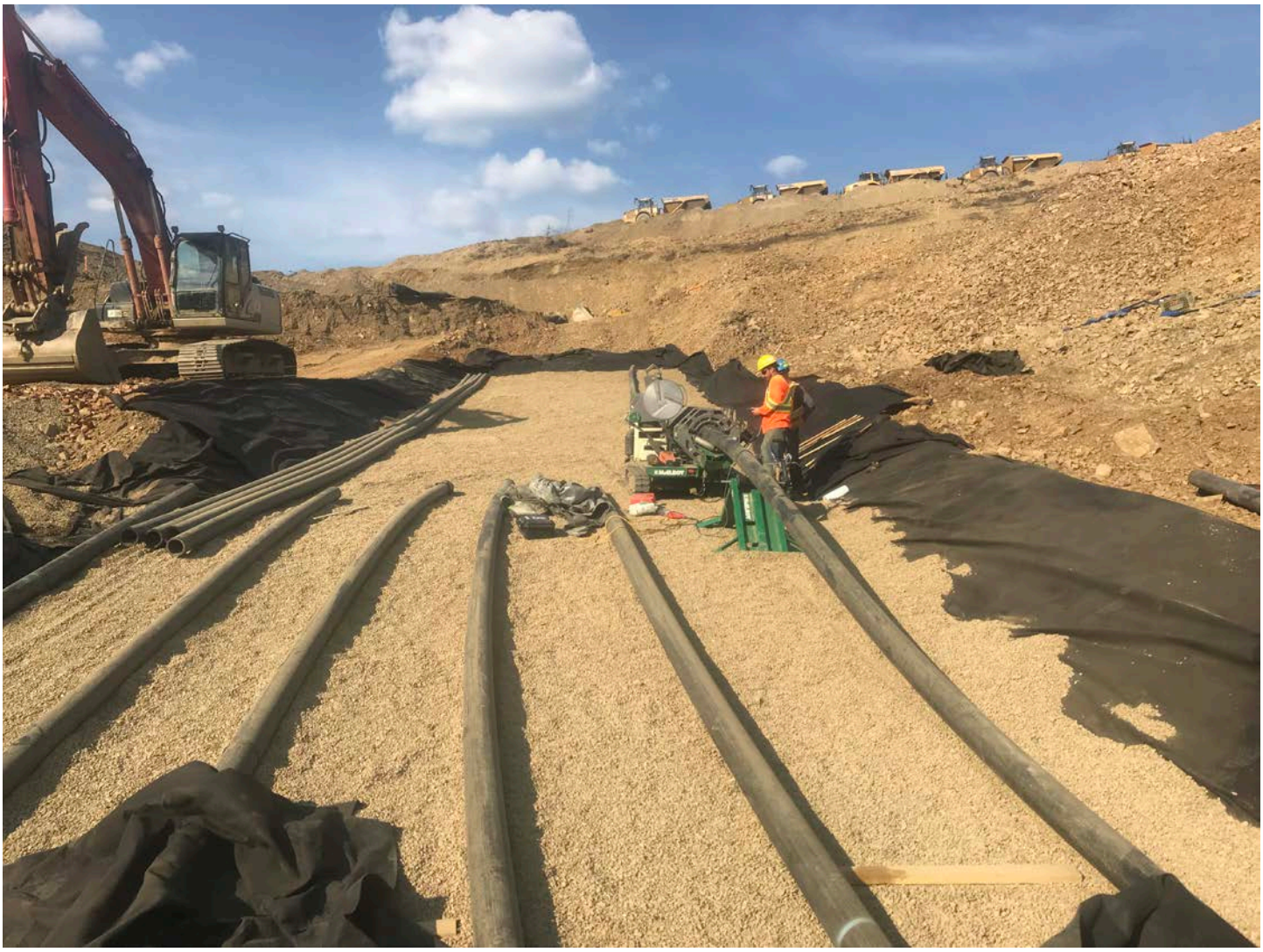


Photo 2: Pipe welding at the embankment.



Photo 3: Potential borrow area being investigated by Pelly.



Photo 4: Potential borrow area being investigated by Pelly: Zone with phyllite/quartzite mix.



Photo 5: Excavation of the drain to the artesian source.



Photo 6: Water conditioning at the ADR blended stockpile.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon	**Weather:**	Sunny 11ºC to 28ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work on lift placements for lift 31, which was started yesterday. Pelly had a shift change today and placement and compaction advanced slowly (***Photos 1).***
  - Piping was fused in the pipe trench. (***Photo 2***)
  - No work was performed at the new borrow source (ADR West) cleared by Pelly.
  - No work was performed at the drain for the artesian source.
  - Excavation of the test trench to investigate near surface rock weathering and to develop benching requirements began. (***Photo 3 and 4***).
  - Benching of weak material on the right abutment was performed under the direction of BGC. (***Photo 5***) Material excavated was spread for use on the lift. Benching of weaker material was discussed throughout 2017 and 2018 in person, in daily reports, and as written conditions for foundation approvals. It was also discussed in the memorandum FM-003 Observations and Recommendations Made for the Exposed Right Abutment Foundation delivered to JDS on June 17, 2018.
  - Moisture conditioning of the blended pile (Currently Unnamed – Rockfill Pile #?) continued. (***Photo 6***) It was reported to BGC that material from the foundation of this pile was excavated and delivered to embankment on the night shift. The material in the foundation is not approved for use. BGC reiterates that this pile, like all other piles, should be delineated, labeled, and managed in Pelly's Stockpile Management Plan. BGC will request that any future material observed or reported by QC to have been borrowed from beyond the extent of this approved pile be removed from the lift even if it has already been compacted or buried by another lift.
  - Pelly informed BGC that they would like to blend additional material to add to the Currently Unamend – Rockfill Pile #?. BGC requested that the Resident Engineer be present when this begins to ensure that the blend meets the requirements for the Rockfill used in the method spec.
  - No work was performed at the event pond.
  - Cobalt continued clearing material from the in-heap pond and heap leach area. (***Photos 7 and 8***)
  - Pelly continued excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal (***Photo 9***). The material appears saturated throughout the excavation. (***Photo 10***). As stated previously, if it is decided that this material is to be used for construction then it will need drying (by land farming or similar method) or mixing with a dryer material.
  - BGC sent an email to JDS and Pelly to clarify QC requirements for the project. BGC also met with JDS, Pelly, and Tetra Tech to discuss this. BGC continues to work with Pelly, JDS, and Tetra Tech to ensure that enough QC tracking information is being collected and reported for the construction completion report.
  - Tetra Tech allocated a person to tracking the method spec on the day shift. BGC is working with Tetra Tech to ensure that the proper tracking and reporting is being performed.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 "BGC Quartzite Blend Test Fill ARD" has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
19	881.95	Yes	N/A
20	882.60	Yes	N/A
21	883.30	Yes	N/A
22	884.00	Yes	N/A
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Yes	N/A
30	889.60	Yes	N/A
31	890.30	Pending	Pending

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift.
  - QC tracking is now being performed on the day shift. QC reporting on the day shift should be in place in the next 24 hours.
- BGC Recommendations:
  - QC tracking and reporting is being improved. QC tracking and reporting should clearly state if the construction is in or out of conformance with the method spec. QC Reporting should be delivered to the Engineer daily.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Pipe welding at the embankment.

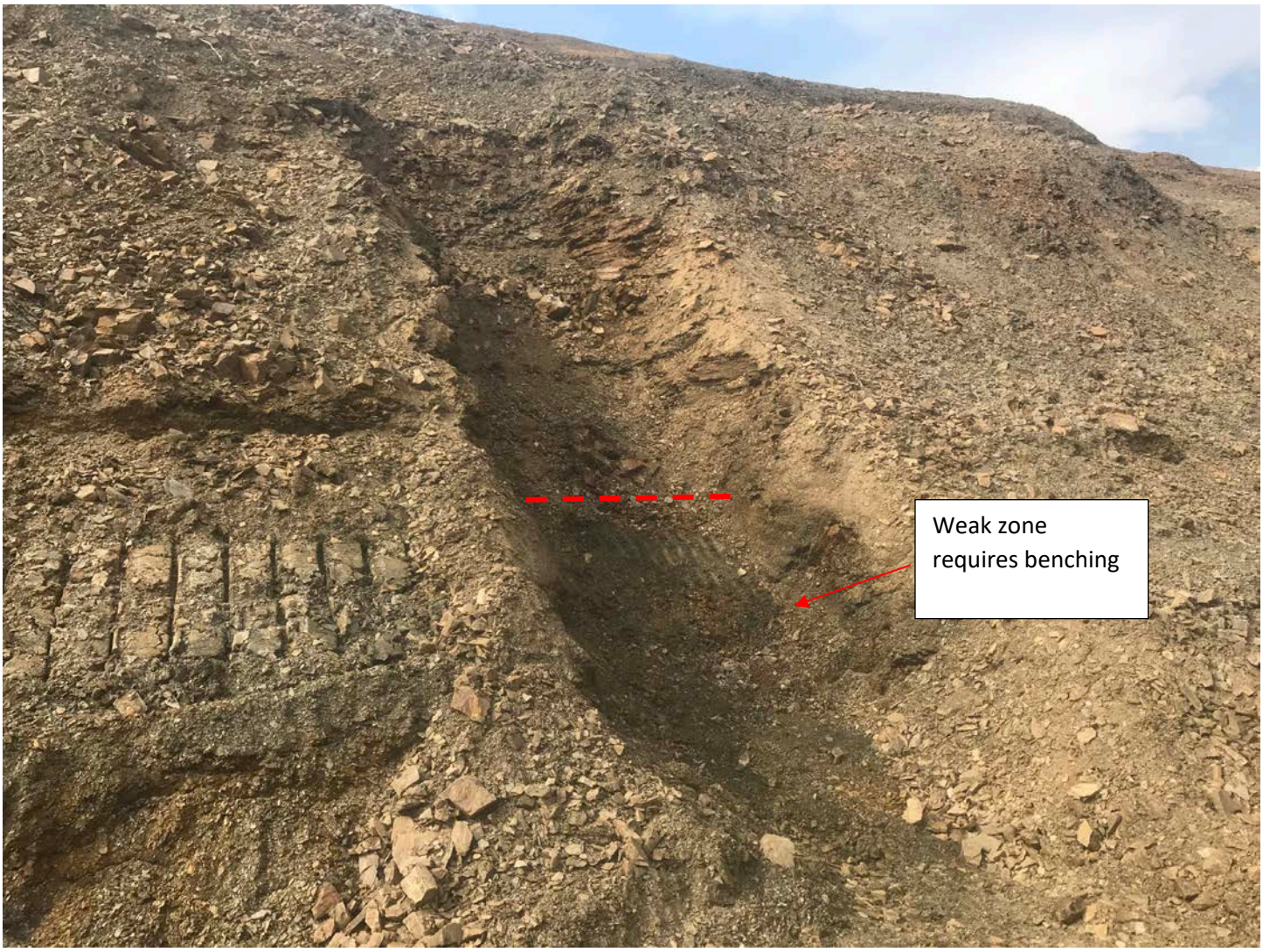


Photo 3: Trench excavated through the right abutment.



Photo 4: Weaker material observed in the trench.



Photo 5: Benching along the right abutment.



Photo 6: Moisture conditioning at Unnamed Pile – Rockfill #?.



Photo 7: Cobalt excavating unsuitable subgrade at the HLF.



Photo 8: Cobalt excavating unsuitable subgrade at the HLF.



Photo 9: Excavation of the Material 3 stockpile in the embankment footprint.



Photo 10: Saturated material in the Material 3 excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Cloudy 13°C to 25°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing lift 32. (***Photos 1).***
  - Piping was fused in the pipe trench.
  - The remaining Material from the Currently Unnamed – Rockfill Stockpile became significantly finer. The use of the material as Rockfill was stopped. The remainder of this pile is approved as structural fill. (***Photo 2***)
  - Pelly borrowed the remaining blast rock from ADR East (***Photo 3***). Once this was exhausted Pelly began ripping rock at the ADR East/West boundary to generate more rockfill (***Photo 4***).
  - Pelly plans to clear all finer grained stockpiles currently on top of the ADR West borrow to allow for ripping and generation of new Rockfill. The finer grained stockpiles will be added to the Material 3 – Structural Fill inventory. Pelly should track, delineate, and label these new stockpiles. Pelly should update the drawings and volumes in their materials Management Plan to account for this material and all used materials. BGC would like a copy of this updated plan.
  - No work was performed at the drain for the artesian source.
  - Pelly continued with stripping at the Event Pond.
  - Cobalt continued clearing material from the in-heap pond and heap leach area.
  - Pelly continued excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. The material appears saturated throughout the excavation. As stated previously, if it is decided that this material is to be used for construction then it will need drying (by land farming or similar method) or mixing with a dryer material.
  - Two test fills were performed on Material 3 – Structural Fill (***Photos 5 and 6***). The test fills were completed late in evening. BGC will analyses the data on July 28 and provide final recommendations. The first test fill was completed using a 50cm lift. Preliminary analysis of the results from this test fill were promising and indicate that it is likely a lift thickness between 30cm and 50cm will be approved. The second test fill was completed with a 75 cm lift. Preliminary analysis of the results from the second test fill were not favorable and show little compaction below 50cm.
  - BGC has not received a daily report from Tetra Tech for QC on the day shift. These reports are being completed but have not been sent to BGC yet. Tetra Tech reports that they will be sending backlogged day shift daily reports on July 28. The backlogged reports will date back to July 25.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 “BGC Quartzite Blend Test Fill ARD” has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
23	884.65	Yes	N/A
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Yes	N/A
30	889.60	Yes	N/A
31	890.30	Yes	N/A
32	891.00	Pending	Pending

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift. No day shift daily report was delivered to BGC today.
  - QC on the night shift reported issues with survey control. These issues are in the process of being resolved.
  - QC tracking is now being performed on the day shift. BGC has been told that the first QC daily report for the day shift will be received on July 28. It will include backlogged daily reports back to July 25.
- BGC Recommendations:
  - QC tracking and reporting is being improved. QC tracking and reporting should clearly state if the construction is in or out of conformance with the method spec. QC Reporting should be delivered to the Engineer daily.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.

BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Material in the Unammed Pile was discontinued as rockfill. Material in the core of the pile did not have much rock.



Photo 3: Excavation of a small rockfill pile at the ADR East/West boundary.



Photo 4: Ripping new rockfill at the ADR East/West Boundary



Photo 5: Material 3 Test Fill using 0.5m lift.



Photo 6: Density testing in Material 3 Test Fill using 0.75m lift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Cloudy 10°C to 23°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing lift 33. (***Photos 1).***
  - Pelly placed drain rock, geotextile, and material 2 cover in the pipe trench. (***Photo 2***)
  - Pelly continued development of ADR West as a borrow source. The surficial material being produced in the day shift was mostly suitable for Material 3 Structural Fill. (***Photo 3***). BGC QA will monitor the material generation to determine when the material becomes hard enough and produces large enough rocks in high quantities for use as rockfill.
  - Rocfill Stockpile #2 was depleted.
  - No work was performed at the drain for the artesian source.
  - No work was performed at the event pond.
  - Cobalt continued clearing material from the in-heap pond and heap leach area.
  - BGC, Pelly, and JDS agreed upon a zoning configuration that would allow immediate placement of Material 3 and that would allow for what Pelly believes will be efficient construction and placement. The configuration is a variation of an already approved zoning design. JDS will send an email to BGC with the design to allow us to send an approval in a response. The approval will go into the construction record.
  - Pelly began placement of the Material 3 Structural Fill lifts within the embankment per the agreed upon zoning. BGC approved 0.45m maximum loose lifts. BGC is developing a memo to document all requirements of the method spec and anticipates this to be completed July 29 or July 30. In the meantime construction and QC can continue with direct guidance in the field by BGC. Material 3 lifts 1, 2, and 3 were placed. (***Photo 4***)
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. The material appears saturated throughout the excavation. As stated previously, if it is decided that this material is to be used for construction then it will need drying (by land farming or similar method) or mixing with a dryer material.
  - BGC has not received a daily report from Tetra Tech for QC on the day shift. These reports are being completed but have not been sent to BGC yet. Tetra Tech reports that they will be sending backlogged day shift daily reports on July 29. The backlogged reports will date back to July 25.
  - At Pelly's request BGC approved a pilot study for using average survey elevations for a lift to determine the amount of fill needed to achieve 0.45m loose lifts. This study is being conducted because Pelly is concerned that outlier data in the survey could results in significantly smaller lifts than 0.45m. BGC will review the data collected during construction over the next two days. If Pelly's method appears to work well its use will continue. If there are significant issues with the method then Pelly will discontinue it and resume using the lowest point on the lift as a starting elevation for lift placement.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 "BGC Quartzite Blend Test Fill ARD" has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking

materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Yes	N/A
30	889.60	Yes	N/A
31	890.30	Yes	N/A
32	891.00	Yes	N/A
33	Not reported	Pending	Pending

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

Material 3 – Structural Fill ID	Loose lift elev. (m)	Approved	Comments
1	891.25	Pending	Pending
2	891.55	Pending	Pending
3	891.0	Pending	Pending

*The loose maximum thickness per lift is 0.45 m. Test fill memorandum pending.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift. No day shift daily report was delivered to BGC today.
  - Lift tracking has temporarily moved from using the lowest point on the lift to using the average lowest point on the lift. The method will be evaluated over the course of a couple days to determine if it should be continued or if original method is more accurate.
  - QC tracking is now being performed on the day shift. BGC has been told that the first QC daily report for the day shift will be received on July 29. It will include backlogged daily reports back to July 25.
- BGC Recommendations:
  - QC tracking and reporting is being improved. QC tracking and reporting should clearly state if the construction is in or out of conformance with the method spec. QC Reporting should be delivered to the Engineer daily.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Material 7 (rockfill) construction at the embankment.



Photo 2: Drain trench construction at the embankment.



Photo 3: Material being produced at the ADR West.



Photo 4: Material 3 Structural fill placement at the embankment.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Cloudy 10°C to 27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing Material 3 – 920 embankment lift 9. (***Photos 1).***
  - Pelly continued excavating the pipe trench.
  - Pelly loaded out some dryer material from the in-heap pond for use as material 3 in the 920 embankment. Most of the material delivered was suitable but its use was discontinued once overly saturated material began being delivered to the embankment. (***Photo 2***).
  - Pelly continued development of ADR West as a borrow source. The surficial material being produced in the day shift was a mix of Material 3 Structural Fill and Rockfill. (***Photo 3***). The material was segregated into separate piles.
  - No work was performed at the drain for the artesian source.
  - Some surface cleaning was performed at the event pond.
  - Cobalt continued clearing material from the in-heap pond and heap leach area. (***Photo 4***)
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal.
  - At Pelly's request BGC approved a pilot study for using average survey elevations for a lift to determine the amount of fill needed to achieve 0.45m loose lifts. This study is being conducted because Pelly is concerned that outlier data in the survey could results in significantly smaller lifts than 0.45m. Data from the 1st day indicate that due to unlevel grading high spots cancel out low spots in the average resulting in the potential to overbuild lift thicknesses. BGC recommends that if Pelly would like to continue using an average they should create an average of all low spots only. Another acceptable method would be to choose the lowest point surveyed after manually removing the outliers.
  - Since the zone has changed to the 920 embankment configuration the original right abutment trench will not be able to be advanced until the upstream raise is constructed. Since data from this trench is needed for benching and to determine rock strength BGC started a new trench roughly at the crest alignment. (***Photo 5***) Data from this trench indicates that thinner phyllitic layers loose the clayey, plastic structure after 1m of depth. (***Photo 6***) BGC will continue to monitor this trench as the embankment advances.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - The BGC testfill from July 22 "BGC Quartzite Blend Test Fill ARD" has showed promise, still pending final weight of super sacs for in situ density estimation (JDS reported to have this scale on route). Material is being stored outside. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.
  - BGC is developing a memo to document all requirements for Material 3 placement and compaction and anticipates this to be completed July 30. In the meantime construction and QC can continue with direct guidance in the field by BGC.

- Embankment Placement Tracking:

Material 7 – Rockfill Lifts ID	Loose lift elev. (m)	Approved	Comments
24	885.40	Yes	N/A
25	886.15	Yes	N/A
26	886.90	Yes	N/A
27	887.60	Yes	N/A
28	888.30	Yes	N/A
29	888.90	Yes	N/A
30	889.60	Yes	N/A
31	890.30	Yes	N/A
32	891.00	Yes	N/A
No new rockfill lifts placed since July 28.			

*The loose maximum thickness per lift is 0.9 m, per Test fill memorandum submitted to JDS/Pelly.

Material 3 – Structural Fill ID	Loose lift elev. (m)	Approved	Comments
1	891.25	Yes	N/A
2	891.55	Yes	N/A
3	892.0	Yes	N/A
4	892.4	Yes	N/A
5	892.8	Yes	N/A
6	893.0	Pending	Pending
7	893.3	Pending	Pending
8	893.65	Pending	Pending

*The loose maximum thickness per lift is 0.45 m. Test fill memorandum pending.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. . o BGC received backlogged day shift QC reports from July 24 to July 28.

- BGC Recommendations:
  - Lift tracking has temporarily moved from using the lowest point on the lift to using the average lowest point on the lift. Data from the 1st day indicate that due to unlevel grading high spots cancel out low spots in the average resulting in the potential to overbuild lift thicknesses. BGC recommends that if Pelly would like to continue using an average they should create an average of all low spots only. Another acceptable method would be to choose the lowest point surveyed after manually removing the outliers.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the embankment.

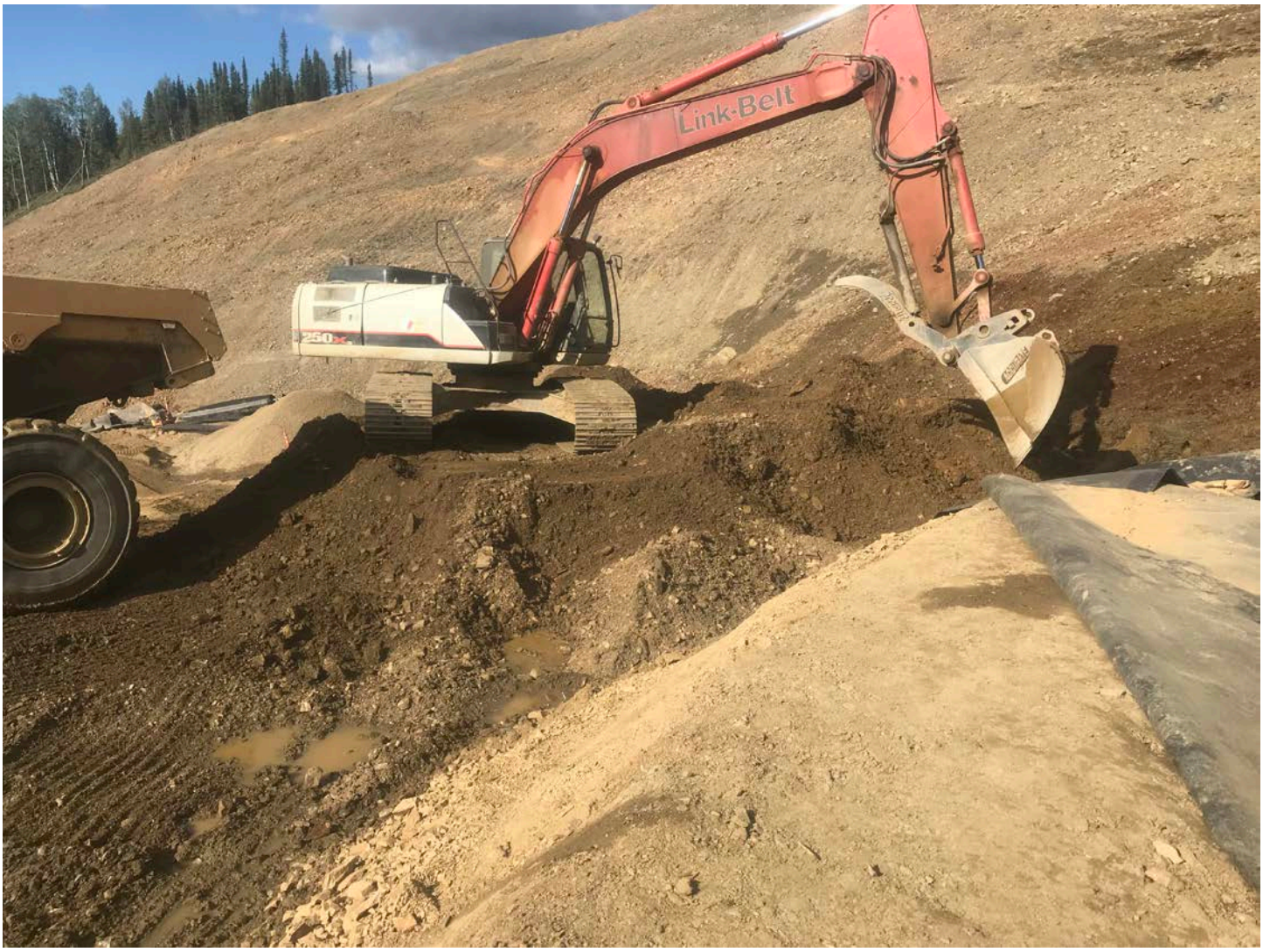


Photo 2: Pelly loading material near the in-heap pond for use in the embankment.



Photo 3: Rockier material being produced at the embankment.



Photo 4: Cobalt removing unsuitable material at the HLF.



Photo 5: Trench excavation at the embankment.

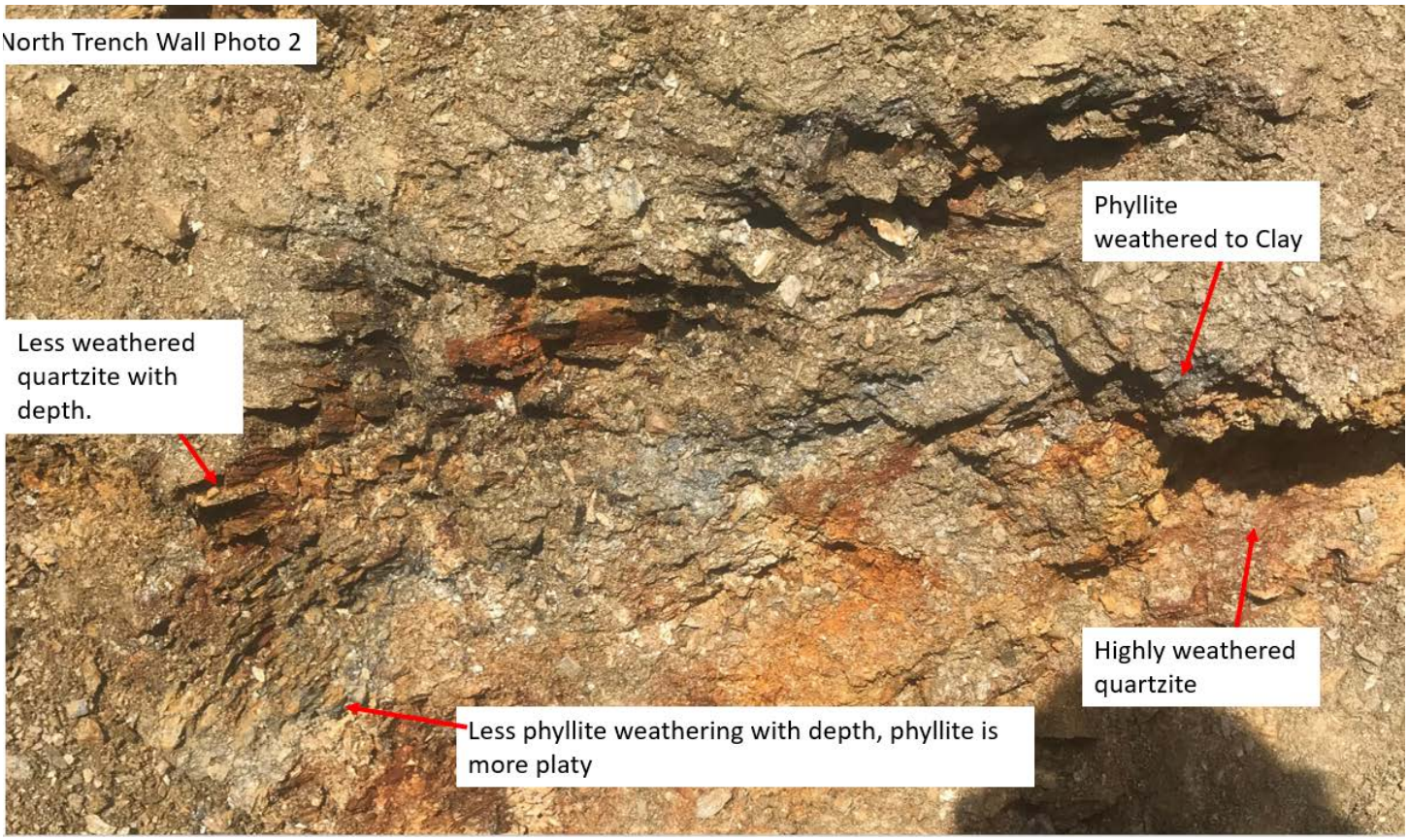


Photo 6: Trench excavation at the embankment.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Sunny 8°C to 29°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing Material 3 – 920 embankment lift 16. (***Photos 1).***
  - Pelly did not excavate the pipe trench.
  - Pelly did not work on material development at the ADR West borrow source today.
  - Pelly worked on stripping the Event Pond. (***Photo 2***). Material being generated was mostly topsoil and consisted of clay and sand layers with organics. Organics and unsuitable material was observed mostly in the 1st meter of the stripping area. Pelly should keep material generated from the 1st meter sperate from Material 3 and Material 7 stockpiles generated from the Event Pond.
  - No work was performed at the drain for the artesian source.
  - Cobalt continued clearing material from the in-heap pond and heap leach area. (***Photo 3***)
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal.
  - Pelly implemented a scaled back survey for embankment construction. The intent of the scaled back survey is to aid in faster, more efficient embankment construction while still providing the proper survey control. The revised survey performed well. BGC will monitor the results of this modified survey over the next couple days to ensure it provides enough control.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - BGC recommends avoiding using a phyllite only lift as a continuous embankment lift or in Material 7 - Rockfill zones, the material has been observed to have low shear resistance and proper compaction will require adequate moisture conditioning that will require a standard proctor results as guidance. BGC has recommended in CTFM-002 that a 3 part or more quartzite rockfill and 1 part phyllite blend be used if phyllite is to be used in the rockfill zones.
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.
  - BGC is developing a memo to document all requirements for Material 3 placement and compaction and anticipates this to be completed July 30. In the meantime construction and QC can continue with direct guidance in the field by BGC.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for July 29 were delivered to BGC. • BGC Recommendations: o None.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the embankment.



Photo 2: Pelly excavating at the Event Pond.



Photo 3: Cobalt excavating at the in-heap pad.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	July 31, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Sunny 11°C to 29°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing Material 3 – 920 embankment to elevation 899. (***Photos 1).***
  - Pelly did not excavate the pipe trench.
  - Pelly constructed a finger drain along the right abutment at BGCs direction. (***Photo 2 and 3***)
  - The test trench along the right abutment was extended. (***Photo 4***) Observations in the trench indicate that clayey layers observed in the right abutment appear to be caused by surficial weathering and improve to rock with depth. Clayey layers will continue to be excavated and benched to competent rock.
  - A highly weathered phyllite layer was removed from the right abutment through benching (***Photo 5***)
  - Pelly worked on material development at the ADR West borrow source today. (***Photo 6***)
  - Pelly did not work on stripping the Event Pond.
  - No work was performed at the drain for the artesian source.
  - Cobalt continued clearing material from the in-heap pond and heap leach area.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal.

- Observations and Recommendations (OPEN):
  - BGC has requested a QC plan for embankment construction from Pelly/JDS through BGC RFI 008 to ensure that QC is being performed and documented in a complete and accurate manner.
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.
  - BGC is developing a memo to document all requirements for Material 3 placement and compaction and anticipates this to be completed July 30. In the meantime construction and QC can continue with direct guidance in the field by BGC.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing up to July 30 were delivered to BGC.
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the embankment.



Photo 2: Seep along the right abutment.



Photo 3: Wrapped drain being covered with fill.



Photo 4: Extension of test trench on right abutment.



Photo 5: Benching to remove a weak, highly weathered portion of a phyllite layer in the right abutment.



Photo 6: Generation of rockfill and Structural Fill at the ADR West.



Photo 7: Generation of rockfill at the ADR West.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 01, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vick Gold)	**Weather:**	Some rain 14°C to 28°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing Material 3 – 920 embankment to elevation 900.8. (***Photos 1).***
  - Pelly completed a rough excavation of the pipe trench up to the elevation of the closure sump.
  - Pelly completed clearing the remainder of the right abutment to type 3 foundation.
  - Pelly continued to excavate the closure sump area. (***Photo 2***)
  - The test trench along the right abutment was extended. (***Photo 3***)
  - Pelly worked on material development at the ADR West borrow source today. (***Photo 4***)
  - Pelly did not work on stripping the Event Pond.
  - No work was performed at the drain for the artesian source.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. (***Photo 5***).
  - Pelly did not moisture condition the Material 3 during the day shift. A water truck arrived on site to moisture condition during the night shift, however, mechanical issues prevented them conditioning the material consistently. Pell has stated that they will be using a different pump on August 2 and will condition the entire day.
  - BGC approved the use of the haul truck ramps leading to 920 embankment as-is with the assumption that loose material along the sides of the ramps will be cleaned off and compacted. Wedges between the ramps and abutments will require excavation to create enough space for proper compaction of these areas.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.
  - BGC is developing a memo to document all requirements for Material 3 placement. In the meantime construction and QC can continue with direct guidance in the field by BGC.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 1 were delivered to BGC.
- BGC Recommendations:
  - None.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Open: Sent June 23. In process. Pending response from Pelly/JDS.
BGC-RFI-009	Embankment Zoning Plan	Open: Sent July 6. Pending response from Pelly/JDS.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the embankment.



Photo 2: closure sump excavation.



Photo 3: Test trench through the right abutment.



Photo 4: Extension of test trench on right abutment.



Photo 5: Excavation of waste pile from HL embankment east.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 02, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vic Gold)	**Weather:**	Some rain 13°C to 26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is currently constructing Material 3 – 920 embankment to elevation 902.7. (***Photos 1).***
  - Pelly continued shaping the pipe trench excavation and the closure sump (***Photo 2***).
  - Pelly worked on material development Event Pond today.
  - Pelly did not work on stripping at the ADR West today.
  - No work was performed at the drain for the artesian source.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. (***Photo 3***).
  - Pelly did begin use of a new water truck for moisture conditioning. Since the water truck pump was not functioning properly Pelly gravity fed a 2" pump from the water truck. (***Photo 4***) The amount of water produced is very minimal and does not appear to have much of an impact on moisture. A means to condition the pile with more water will need to be devised. Pelly has reported that on Saturday August 3 they can begin us of a 3" pump.
  - Moisture in the placed lifts remains low. The majority of tests reported in the last 24 hours have failed moisture requirements. Densities in the lifts are adequate, therefore, BGC is not recommending removal of lifts or changes to placement yet. However, Pelly should continue to work on adding more moisture at the borrow. This may require choosing a Material 3 stockpile that has naturally higher moisture content; excavating weathered bedrock at the bottom of stockpiles (which appear to have between 5% and 7% moisture); and not excavating and direct hauling harder bedrock deposits (which appear to have low moisture content).
  - Pelly delivered a QC Plan for embankment construction for BGC to review. This plan was requested by BGC in BGC-RFI-008. BGC will review the plan and provide comments to Pelly.
  - BGC uploaded the IFC CAD package to the ftp for JDS and Underhill.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly. Updating this plan will help in tracking materials, ensuring that the wrong materials are not brought to the site, averting work stops if QA/QC are confused about the source, ect.
  - BGC is developing a memo to document all requirements for Material 3 placement. The memo is currently under Sr. Review. In the meantime construction and QC can continue with direct guidance in the field by BGC.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.
  - BGC approved the use of the haul truck ramps leading to 920 embankment as-is with the assumption that loose material along the sides of the ramps will be cleaned off and compacted. Wedges between the ramps and abutments will require excavation to create enough space for proper compaction of these areas. Lifts will have to be keyed into the ramps.

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1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 1 were delivered to BGC. • BGC Recommendations: o Structural Fill moisture is reported as consistently low. Pelly plans on using a larger pump to moisture condition starting Saturday, August 4. Density targets are being met in compaction, therefore, no lifts were rejected and no change in the method of placement has been implemented yet.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Under review: Response delivered August 2.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the embankment.



Photo 2: A portion of the seepage interceptor trench excavated around the closure sump.



Photo 3: Pelly and cobalt continued to excavate the unsuitable stockpile on the eastern portion of the embankment footprint.



Photo 4: Moisture conditioning at the ADR borrow.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 03, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vic Gold)	**Weather:**	Some rain 13°C to 21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly completed placement of Material 3 – 920 embankment to elevation 902.82 m. (***Photos 1).*** Work on the 920 embankment has been suspended to complete the drains. Placement has resumed on the lower embankment. The lower embankment was raised to 892.18m. It is not required to excavate the ramps but it is required key into ramps in order to build horizontal lifts. Density testing in ramps showed close to 100% compaction. (***Photo 2***)
  - The test trench along the right abutment was extended.
  - Pelly continued shaping the pipe trench excavation and the closure sump.
  - Pelly extended the pipe trench drain construction (***Photo 3***).
  - Pelly worked on material development at the Event Pond today. Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. (***Photo 4***)
  - Pelly worked on stripping at the ADR West today.
  - No work was performed at the drain for the artesian source.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal.
  - There was no change to water trucks or pumps today. BGC worked with Pelly to reposition the water truck to best collect all the moisture being sprayed. Briar with Vic Gold Geology was stationed at the borrow to ensure moisture conditioning was done properly and to report issues that she observed. (***Photo 5***) Pelly has reported that on Saturday August 3 they will begin use of a water buggy and have a larger pump available.
  - Moisture in the placed lifts remains low, but slightly higher than the previous day. The average moisture reported on the day shift was 4.2% and 4.7% on the night shift, below the 5% recommended in the method spec. Moisture readings in the low 3% were reported. Dry density reported by Tetra Tech mostly appear sufficient. However, density results are trending downward and several tests reported between 95 and 96% compaction. Tests below 95% compaction will results in removal of those portions of the compacted lift. To avert this BGC will recommend that following moisture conditioning procedures be put in place until additional water can be sprayed on the piles:
    - Do not dig areas where the spray cannot reach, even if that slows excavation.
    - Do not load any trucks while the water truck is repositioning.
    - Do not load any trucks while the water trucks is away for refill.
  - BGC reviewed the QC Plan delivered by Pelly. It is adequate for closing off BGC-RFI-008. No staffing or scheduling information was included in the plan. However, as embankment construction is now well underway BGC communicates daily with Tetra Tech QC and Pelly's field staff to understand staffing and lab capacity limitations. BGC does continue to recommend that Pelly's planning ensures no gaps in QC coverage.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - BGC is developing a memo to document all requirements for Material 3 placement. The memo is currently under Sr. Review. In the meantime construction and QC can continue with direct guidance in the field by BGC.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.

o Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly.
•

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 3 were delivered to BGC. • BGC Recommendations: o Structural Fill moisture is reported as consistently low. Pelly plans on using a larger pump to moisture condition starting Saturday, August 4. Density targets are being met in compaction, therefore, no lifts were rejected and no change in the method of placement has been implemented yet.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Under review: Response delivered August 2.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the 920 embankment.



Photo 2: Lift placement in the lower embankment.



Photo 3: Drain construction.



Photo 4: Event pond excavation.



Photo 5: Moisture conditioning at the stockpile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 04, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vic Gold)	**Weather:**	Rain 14°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Work on the 920 embankment has been suspended to complete the drains. The lower embankment was raised to 894.38m. (***Photo 1***)
  - Pelly backfilled the pipe trench to station 0+310m. (***Photo 2***).
  - Pelly worked on material development at the Event Pond today.(***Photo 3***)
  - Pelly worked on stripping at the ADR West today.
  - No work was performed at the drain for the artesian source.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal.
  - Rains and better execution during pile watering has improved moisture content. Pelly is still working on having additional watering trucks/pumps. Moisture still remains low but has improved.
  - Material brought from the ADR late in the day and throughout the night has a higher volume of 3" to 8" material. Also, material excavated from the closure sump area has a moisture of >6%. Both these conditions have aided densification of the placed lifts throughout yesterday. Most testing showed very good densification (>98% of the proctor density).
  - The following conditions remain in place until moistures improve. BGC will monitor the material being excavated throughout the day to determine if these restrictions can be laxed:
    - Do not dig areas where the spray cannot reach.
    - Do not load any trucks while the water truck is repositioning.
    - Do not load any trucks while the water trucks is away for refill.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - BGC is developing a memo to document all requirements for Material 3 placement. The memo is currently under Sr. Review. In the meantime construction and QC can continue with direct guidance in the field by BGC.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003.
  - Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 4 were delivered to BGC. • BGC Recommendations: o Structural Fill moisture is reported as consistently low. Pelly plans on using a larger pump to moisture condition. Density targets are being met in compaction, therefore, no lifts were rejected and no change in the method of placement has been implemented yet.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.
BGC-RFI-008	QC Management Plan	Closed.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower embankment.



Photo 2: Drain construction.



Photo 3: Event pond excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 05, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vic Gold)	**Weather:**	Rain 13ºC to 21ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Work on the 920 embankment has been suspended to complete the drains. The lower embankment was raised to 896.17m. (***Photo 1***)
  - Pelly excavated the drain to the artesian source. (***Photo 2***)
  - Pelly worked on material development at the Event Pond today.(***Photo 3***)
  - BGC and Pelly met at the event pond to discuss segregation of unsuitable material. Some organic rich material was being mixed with suitable material.
  - Material being generated at the Event Pond is finer than Material produced at the ADR. BGC met with Pelly at the Event Pond to discuss the construction of a two test fills (one 30cm thick and one 50cm thick) to evaluate how thick embankment lifts should be with this material. Tetra Tech collected samples from the material for proctor and gradation analysis. The material is very well graded with less than 5% material over 20mm. Optimum moisture was reported at 8.2% and maximum dry density achievable was reported at 2,175 kg/m3. Laboratory results are included as ***Attachment 1 and 2*** for reference.
  - Pelly worked on stripping at the ADR West today.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. BGC inspected the core material to determine if it was usable for construction and it is also saturated. (***Photo 4***)
  - Pelly is still working on having additional watering trucks/pumps. Moisture still remains low but has improved. Improvement in moisture is likely due to more humid weather and stricter moisture conditioning procedures.
  - BGC delivered the Material 3 Test fill memo documenting the method specification developed for use of the Material 3 from the ADR in 0.45m lifts.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003.
  - Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment.
  - The following conditions should remain in place until moistures improve consistently. BGC will monitor the material being excavated throughout the day to determine if these restrictions can be laxed:
    - Do not dig areas where the spray cannot reach.
    - Do not load any haul trucks while the water truck is repositioning.
    - Do not load any haul trucks while the water trucks is away for refill.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 5 were delivered to BGC. o Tetra Tech completed analysis of the Material 3-4 sample collected from stripping at the Event Pond. • BGC Recommendations: o Structural Fill moisture is reported as consistently low. Pelly plans on using a larger pump to moisture condition. Density targets are being met in compaction, therefore, no lifts were rejected and no change in the method of placement has been implemented yet.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower embankment.



Photo 2: Construction of drain to artesian source.



Photo 3: Event pond cut and material generation.



Photo 4: Unsuitable material excavation on the east side of the embankment.

Attachments: Tetra Tech laboratory reports for Material 3-4 sample.

SIEVE ANALYSIS REPORT

ASTM C136 & C117

Project:	Eagle Gold Project	Sample Number:	SA 3-4 (BGC)
Project No.:	704-ENG.WARC03235-05	Date Sampled:	August 5 2018
Client:	JDS/BGC	Sampled By:	ME Tested By: JP
Attention:	Mr. Clint Abel/Roy Morlan	Specification:	Structural Fill Type 3
Description:	SAND, gravelly, silty	Fracture (2 faces):	N/A
Location:	Event Pond Structural Source	Moisture Content:	7.0%

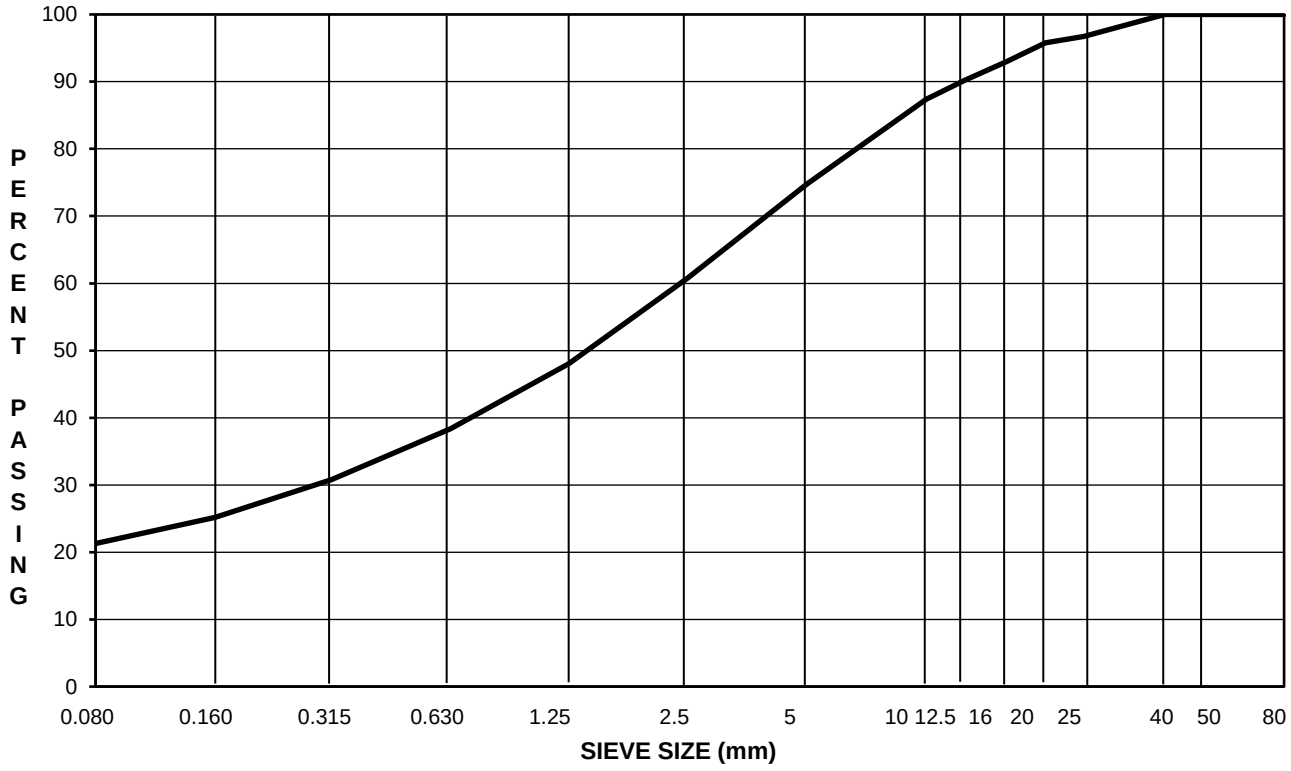
Aggregate Gradation (% Passing)

Size (*um*)	80k	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit															
Lower Limit															
Result %	**100**	**100**	**100**	**97**	**96**	**93**	**90**	**87**	**75**	**61**	**48**	**38**	**31**	**25.2**	**21.3**

Remarks: Standard proctor at 2180 @ 8.2 MC

no rock correction (less than 5% over 20mm)

Reviewed By: _____ C.E.T.



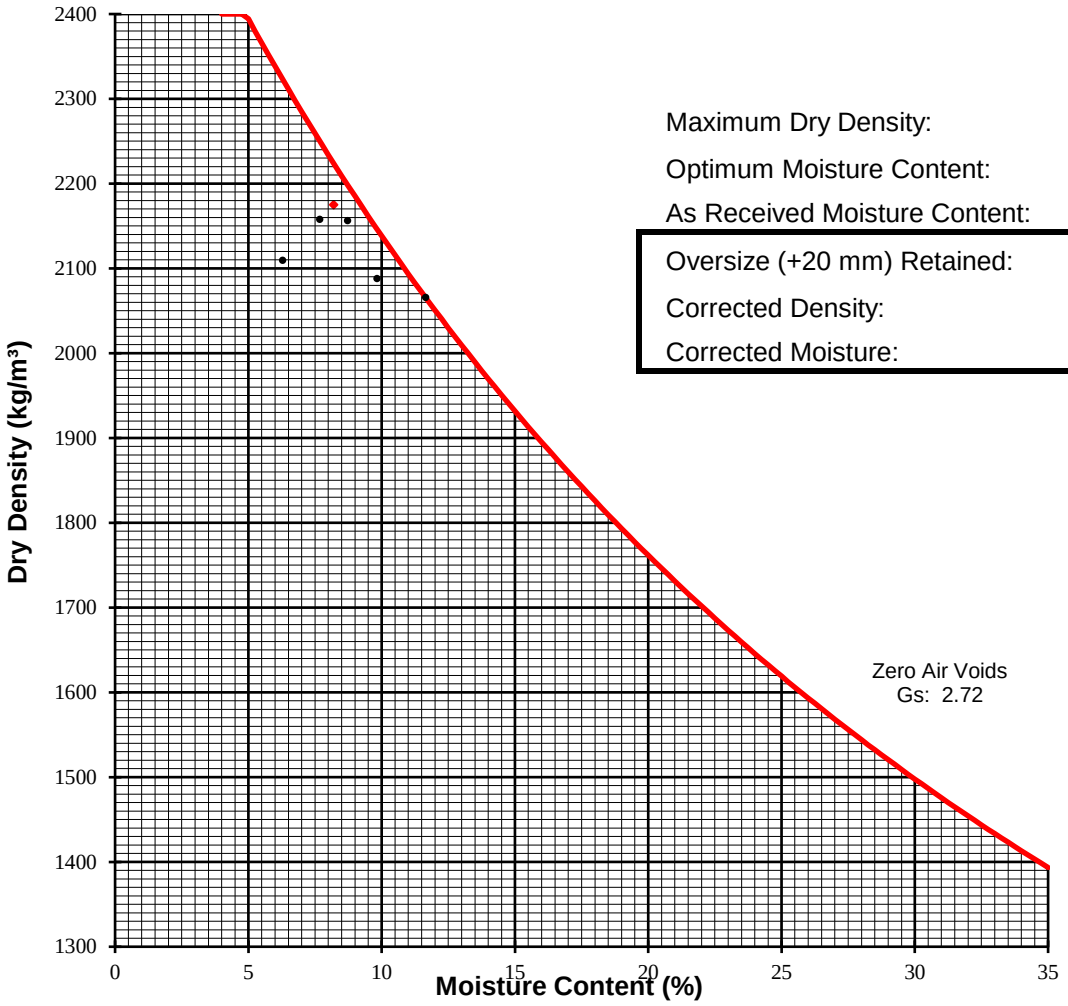
Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	2018 Dublin Gulch Project	Sample No.:	BGC Type 3 (#3-4)
Client:	JDS/BGC	Sampled By:	ME
Attention:	Roy/Troy	Sample Date:	August 5 2018
Project No.:	WARC-03532-05	Test Date:	August 5 2018
Description:	SAND, gravelly, silty	Preparation:	Moist
Source:	Event Pond Structural Source	Compaction:	Manual



Maximum Dry Density:	**2175**	kg/m³
Optimum Moisture Content:	**8.2**	%
As Received Moisture Content:	**7.0**	%
Oversize (+20 mm) Retained:		%
Corrected Density:	**2175**	kg/m³
Corrected Moisture:	**8.2**	%

Remarks: Coluvial Till, may contain oversize 50-300mm.

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.

TETRA TECH

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 06, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/ Briar Gonie (Vic Gold)	**Weather:**	Rain 12°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Placement in the lower lift reached 897.56m. Work resumed on the upper embankment and material was placed to 902.80m (***Photo 1***)
  - Pelly partially constructed the drain to the artesian source. (***Photo 2 and 3***)
  - Pelly worked on material development at the Event Pond today.(***Photo 4***)
  - Pelly worked on stripping at the ADR West today.
  - Pelly continued to excavate the Material 3 stockpile on the eastern portion of the embankment footprint for disposal. BGC inspected the core material to determine if it was usable for construction and it is also saturated.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - JDS will arrange a call between Layfield, BGC, JDS, and TetraTech QA to discuss the plan to install liner along the 920 embankment face and how to protect and tie the liner to the 940 raise.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003.
  - Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment.
  - Moisture still remains low but has improved. The following conditions should remain in place until additional or higher capacity water delivery can be delivered to the piles. BGC will monitor the material being excavated throughout the day to determine if these restrictions can be laxed:
    - Do not dig areas where the spray cannot reach.
    - Do not load any haul trucks while the water truck is repositioning.
    - Do not load any haul trucks while the water trucks is away for refill.
  - Material being generated at the Event Pond is finer than Material produced at the ADR. Test fills will be conducted to determine how it can be used.

-

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 6 were delivered to BGC. o Tetra Tech completed analysis of fines in the ODF material delivered to the artesian source drain. • BGC Recommendations: o Structural Fill moisture is reported as consistently low. Pelly plans on using a larger pump to moisture condition. Density targets are being met in compaction, therefore, no lifts were rejected and no change in the method of placement has been implemented yet.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower embankment.



Photo 2: Pipe fusing at artesian source drain.



Photo 3: Wrapping perforated pipe in the artesian source drain.



Photo 4: Event pond cut.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 07, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon	**Weather:**	Rain 12°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Work resumed on the upper embankment and material was placed to 904.5m (***Photo 1***)
  - Due to consistent heavy rains moisture conditioning has been suspended. Moisture will be monitored by BGC and Tetra Tech.
  - Approximately 30% of the top lift placed on the August 6 night shift was overly saturated. This likely occurred from heavy rains during generation of the material at the ADR, hauling, and placement. The affected portion of the lift was excavated, mixed, re-spread, and compacted (***Photo 2***). In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing material lifts to sit for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed.
  - Drain rock placement and cover for the drain to the artesian source was completed. (***Photo 3***)
  - BGC inspected and approved the use of concrete aggregate as drain rock in the artesian source drain. (***Photo 4***)
  - Equipment exposed a portion of the underdrain filter cloth. This area was hand excavated and laid back over the drain material properly. (***Photo 5***)
  - Pelly worked on material development at the Event Pond today.(***Photo 6***)
  - Pelly worked on stripping at the ADR West today.
  - The Material 3 stockpile on the eastern portion of the embankment footprint was excavated for disposal.
  - A call was held between Layfield, BGC, Pelly, and JDS to discuss liner installation. Items discussed include:
    - Installation logistics such as access, acceptable weather during installation, and installation sequence.
    - Layfield will provide BGC a QC plan for liner installation prior to mobilization. BGC will follow up with Layfield.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight.
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July.
    - Copies of foundation and construction approvals for July.
    - Volumes of each material type placed for June and July.
    - An updated stockpile management plan.
  - Pelly should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003.
  - Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment.
  - Material being generated at the Event Pond is finer than Material produced at the ADR. Test fills will be conducted to determine how it can be used.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 7 were delivered to BGC. o Tetra Tech completed analysis of fines in the ODF material delivered to the artesian source drain. • BGC Recommendations: o Due to heavy rains moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Removal of partially saturated lift.



Photo 3: Artesian source drain covered with Material 2.



Photo 4: Concrete aggregate used as drain rock in the artesian source drain.



Photo 5: Event Pond development.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 08, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews	**Weather:**	Rain 11°C to 17°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Work resumed on the upper embankment and material was placed to 904.5m. A section of the previous days lift was removed due to oversaturation. Placement was also delayed due to poor haul road conditions. (***Photo 1***)
  - Due to consistent heavy rains moisture conditioning has been suspended. Moisture will be monitored by BGC and Tetra Tech.
  - The plug and cover was completed over the artesian source drain. (***Photo 2***)
  - Excavation of the closure sump pipe trench was completed to the design and lined with geotextile. Some collapse of the pipe trench occurred during installation which will result in some minor repairs. The repairs will be completed tomorrow. (***Photo 3***)
  - Pelly worked on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - The Material 3 stockpile on the eastern portion of the embankment footprint was excavated for disposal.
  - Pelly provided volumes of material placed in the embankment up to July 7. Pelly also provided current approval documentation. BGC will review both for completeness tomorrow.

- Observations and Recommendations (OPEN):
  - Material from a test fill conducted on July 22 is being stored outside waiting for a scale to be delivered to weigh it for density testing. BGC recommends that the samples be weighed as soon as possible and be protected from rain to ensure that rain/ air drying has a minimal effect on weight. (Pending)
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July. (Pending)
    - Copies of foundation and construction approvals for July. (Delivered 08/08/18)
    - Volumes of each material type placed for June and July. (Total to date volume provided 08/08/18)
    - An updated stockpile management plan. (Pending)
  - Pelly/JDS should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003. (Pending)
  - Topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are beginning to be generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. (ongoing)
  - Material being generated at the Event Pond is finer than Material produced at the ADR. Test fills will be conducted to determine how it can be used. (Pending, delayed due to weather)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing material lifts to sit for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - Layfield will provide BGC a QC plan for liner installation prior to mobilization. BGC will follow up with Layfield. (Pending)

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 8 were delivered to BGC. • BGC Recommendations: o Due to heavy rains moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Installation of drain plug.



Photo 3: Construction at the closure pipe trench.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 09, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews	**Weather:**	Rain 9ºC to 12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 904.8m in the upper embankment. Shift change slowed work down significantly on both the day and night shift. Issues with the previous nights lifts caused delays on the day shift. Large sections had to be excavated to 1m to remove a previous lift which appears to have been placed saturated. Since removal of portions of saturated lifts has occurred each of the past 3 days BGC recommends walking the dozer across completed lifts at the beginning of each shift. This will help identify problem areas before they are buried. This procedure should only take 15 minutes. (***Photo 1***)
  - Night shift placement sequencing should be improved. There was low production on the night shift and Tetra Tech reported that a large wait time between spreading and compacting was the cause. It was also reported that lifts were left unpacked for hours, which would cause oversaturation if conditions were rainy. 80% of the material placed on the last lift was left uncompacted during shift change. BGC will discuss this with Pelly. The procedure to spread and compact should be improved before heavy rains resume to prevent over saturation of lifts. Oversaturated lifts will have to be removed and placed again.
  - Material being generated from the ADR cut is getting rockier. We will likely have to transition to a less rocky material in the coming days. (***Photo 2***)
  - Pelly worked on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - The Material 3 stockpile on the eastern portion of the embankment footprint was excavated for disposal.
  - Pelly provided volumes for Material 3 and Material 7 placed in the embankment up to July. Volumes of Material 2 and all types of drainrock are also required monthly as those materials have QC testing and tracking. In general all materials used in the permanent construction should be reported monthly in order for BGC to verify and document that QC requirements are being met.
  - The scale for weighing large volumes of soil has arrived. It is anticipated that the material will be weighed tomorrow.

- Observations and Recommendations (OPEN):
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July. (Pending)
    - Copies of foundation and construction approvals for July. (Completed 08/08/18)
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18)
    - An updated stockpile management plan. (Partially completed 08/09/18)
  - Pelly/JDS should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003. (Partially completed 08/09/18)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankm1ent. (ongoing)
  - Material being generated at the Event Pond is finer than Material produced at the ADR. Test fills will be conducted to determine how it can be used. (Pending, delayed due to weather)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing material lifts to sit for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. It is important to haul (ongoing)
  - Layfield will provide BGC a QC plan for liner installation prior to mobilization. BGC will follow up with Layfield. (Pending).

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 9 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Rockier material being produced at the ADR.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews	**Weather:**	Mostly Sunny 7°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 905.94m in the upper embankment. (***Photo 1***).
  - Placement remains slow even though weather was fair over the past 24 hours. BGC observed that this is likely due to new operators and field managers being brought up to speed with construction improvements developed by the last rotation crew. Slowdowns today appear to be related to material spreading. Material was spread in a radial patter (vs in straight lines running upstream to downstream). The radial patter made compaction and dumping around the dozer difficult. This also resulted in loose lifts being exposed longer which may result in oversaturation during heavy rains. Past placement using straight lift spreading, upstream to downstream appeared to allow better flow of haul trucks and compaction.
  - The pipe trench under drain and closure pipe trench were advanced. The closure pipe was buried up to the closure with Material 5 and trench wrapped. The pipe trench was backfilled with Material 3. Geotextile will be wrapped around the pipe trench tomorrow. (***Photo 2***)
  - The investigation trench was extended on the right abutment. (***Photo 3***)
  - The artesian source drain was covered with additional sand, which was compacted with a plate tamper in preparation for lift placement. (***Photo 4***)
  - Pelly did not work on material development at the Event Pond today. (***Photo 5***)
  - Pelly did not work on stripping at the ADR West today.
  - The Material 3 stockpile on the eastern portion of the embankment footprint was excavated for disposal. Material being excavated from the area is saturated and, in some parts, still frozen.
  - Issues with the 9,000 kg compactor prevented completion of the test fills today. A test fill using Event Pond material should be performed using the 13,000 kg compactor if the 9,000 kg is not available. This should ideally happen before weather deteriorates.

- Observations and Recommendations (OPEN):
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July. (Pending)
    - Copies of foundation and construction approvals for July. (Completed 08/08/18)
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18)
  - Pelly/JDS should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003. (Partially completed 08/09/18, edits to drawing to show unsuitable stockpiles at the Event Pond pending)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankm1ent. (ongoing)
  - Material being generated at the Event Pond is finer than Material produced at the ADR. Test fills will be conducted to determine how it can be used. (Pending, delayed due to weather and equipment issues)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing material lifts to sit for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. It is important to haul (ongoing)
  - Layfield will provide BGC a QC plan for liner installation prior to mobilization. BGC will follow up with Layfield. (Pending).

- Material being generated from the ADR cut is getting rockier. We will likely have to transition to a less rocky material in the coming days. (Ongoing)

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 10 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment. Placement method allowed larger areas of loose lifts to be exposed for longer periods of time.



Photo 2: Closure pipe trench wrapped in geotextile.



Photo 3: Investigation trench excavation on the right abutment.



Photo 4: Additional sand placed over the artesian source drain to allow embankment fill.



Photo 5: Event pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews	**Weather:**	Mostly Sunny 7°C to 20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 906.7m in the upper embankment. (***Photo 1***).
  - The pipe trench under drain and interceptor trench were advanced. (***Photo 2***)
  - The artesian source drain was covered with structural fill and compacted with no vibration.
  - A seep was reported by Pelly late today on the east of the artesian drain at a higher elevation. BGC will inspect this seep tomorrow.
  - Pelly did not work on material development at the Event Pond today.
  - Pelly did not work on stripping at the ADR West today.
  - Pelly moved from borrowing the ADR West to Material 3 Stockpile 01.
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material (***Photo 3***). Unsuitable is being stockpiled to the right and left of where they are digging now. These waste piles should be hauled and dumped somewhere away from where borrowing is occurring. The new place should be put on the materials management plan so there is no chance it ends up back at the embankment. A couple loads of bad material were delivered to the embankment during the night shift (***Photo 04***).
  - The Material 3 stockpile on the eastern portion of the embankment footprint was excavated for disposal. Material being excavated from the area is saturated and, in some parts, still frozen.
  - A test fill was completed today on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (***Photo 5***)
  - While excavating material for the test fill it is apparent that high organic topsoil has been mixed with suitable structural fill leaving some of this material unsuitable. During borrowing of this material BGC should be present in order to determine what areas are suitable and which are not. This may require approval and rejection of loads on a truck by truck basis. Future material generated should have topsoil (material high in organcs such as logs, branches, moss, and root clumps) pushed into the waste piles at the toe. BGC also recommends that the waste piles at the toe be included on the Material Management Plan and be labeled in the field to prevent accidental borrow.

- Observations and Recommendations (OPEN):
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July. (Pending)
    - Copies of foundation and construction approvals for July. (Completed 08/08/18)
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18)
  - Pelly/JDS should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003. (Partially completed 08/09/18, edits to drawing to show unsuitable stockpiles at the Event Pond pending)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)

- Layfield will provide BGC a QC plan for liner installation prior to mobilization. BGC will follow up with Layfield. (Pending).

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 11 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Completed interceptor ditch trench.



Photo 3: Suitable and unsuitable material at the Material 3 Stockpile 01 face being borrowed.



Photo 4: Unsuitable material delivered to the embankment.



Photo 5: Test fill compaction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews	**Weather:**	Some rain 11°C to 18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 907.67m in the upper embankment. (***Photo 1***).
  - The seep reported yesterday on the eastern embankment was not visible today because piles of material were placed in the area. As the foundation is cleared on the east side of the embankment BGC will observe for seeps.
  - Pelly did not work on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01.
  - The Material 3 stockpile on the eastern portion of the embankment is almost gone. Preparation of embankment foundation is underway.
  - An area of the eastern portion of the embankment was approved to Type 3 foundation. (***Photo 2***)

- Observations and Recommendations (OPEN):
  - BGC requested the following information from Pelly via email in order to document that QC/QA testing and observations are being performed properly:
    - Volumes of each material type borrowed for June and July. (Pending)
    - Copies of foundation and construction approvals for July. (Completed 08/08/18)
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18)
  - Pelly/JDS should update the drawings and volumes in their materials Management Plan. BGC would like a copy of this updated plan. BGC recommends this plan be updated bi-weekly as discussed in BGC-RFI-003. (Partially completed 08/09/18, edits to drawing to show unsuitable stockpiles at the Event Pond pending)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending)

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 12 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Large area on the eastern portion of the embankment within the 920 starter dam footprint that was approved to Type 3 foundation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Harra Vardeleon/Elliot Matthews/Troy Meyer	**Weather:**	Rain 11°C to 21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 908.97m in the upper embankment. (***Photo 1***).
  - The seep reported yesterday was visible again. It may caused by surface flow through fractured bedrock. BGC discussed with Pelly the construction of a drain on the eastern portion of the embankment to deal with similar seeps.
  - Pelly excavated most of the foundation on the eastern portion of the embankment to Type 3 bedrock (***Photo 2***). Three test pits were dug in the central portion of the valley. Up to 3.5m of excavation is still required at the toe. (***Photo 3***).
  - Pelly did not work on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01.
  - The Material 3 stockpile on the eastern portion of the embankment is gone.
  - JDS provided BGC monthly borrow totals to BGC for QA tracking.
  - Areas within the in-heap pond/impoundment still require earthwork. BGC reviewed current topography vs instances of ground ice observed in the test pits below elevation 960m. Portions on the western slope still require an estimated 1.6m of excavation (***Figure 1***). Ground ice was not found on areas on the west side but excavation through bedrock is still required to shape the impoundment (***Figure 2***). Ground ice and wet flowing soils were observed in test pits at the center valley. Much of this area has already been excavated. However, inspection by BGC will be required to determine if suitable subgrade has been reached (***Figure 1***).
  - An portion of the Material 3 Stockpile 01 toe sits on the 940 slope of HLF. This area will need to be excavated to suitable subgrade as part of this seasons construction. (***Figure 2***)

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action)

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 13 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.

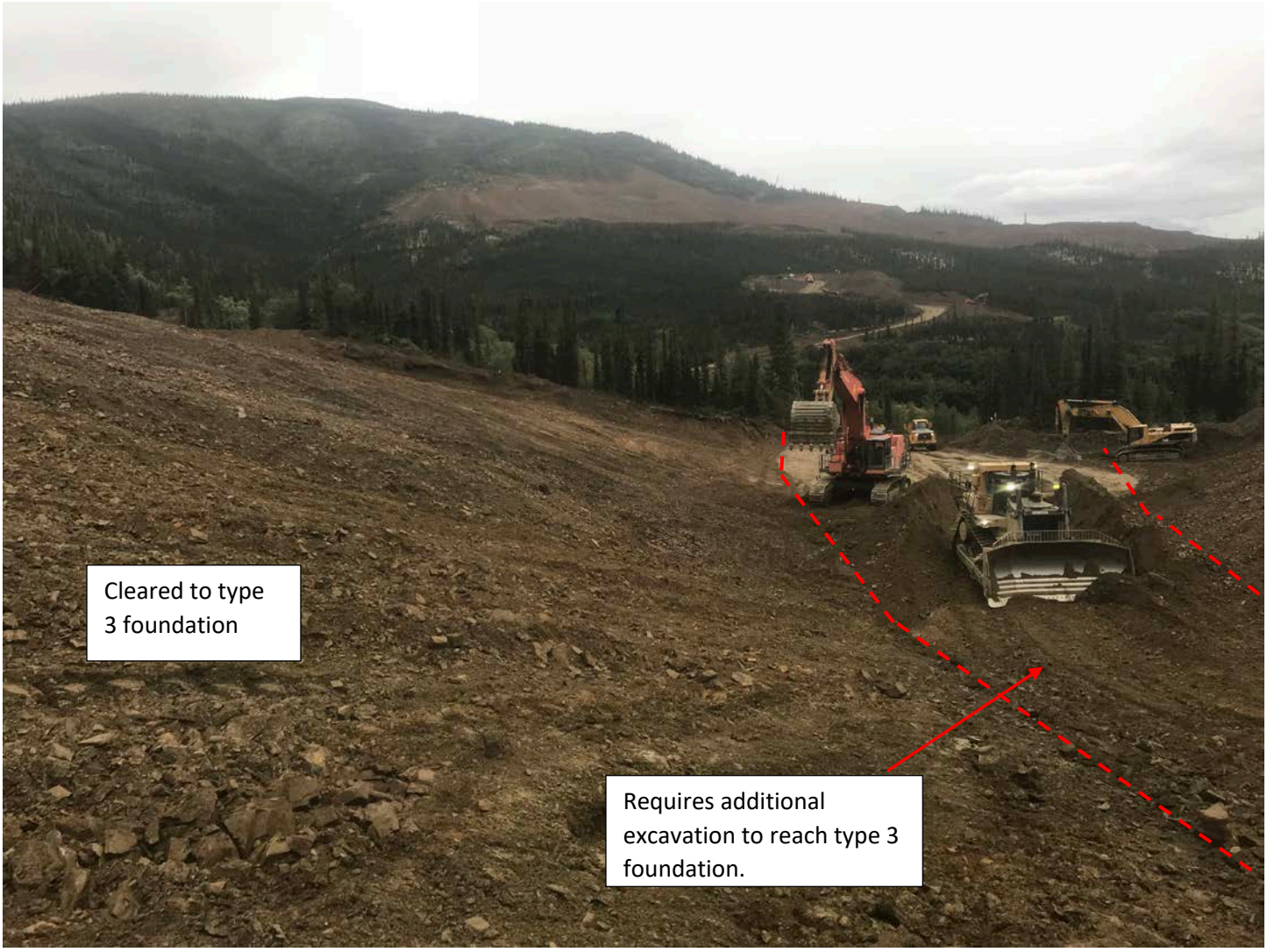


Photo 2: Large area on the eastern portion of the embankment within the 920 starter dam footprint that was approved to Type 3 foundation.



Photo 3: Test pit dug 10 upstream of the embankment toe. Bedrock was reached at 3.5m bgs.

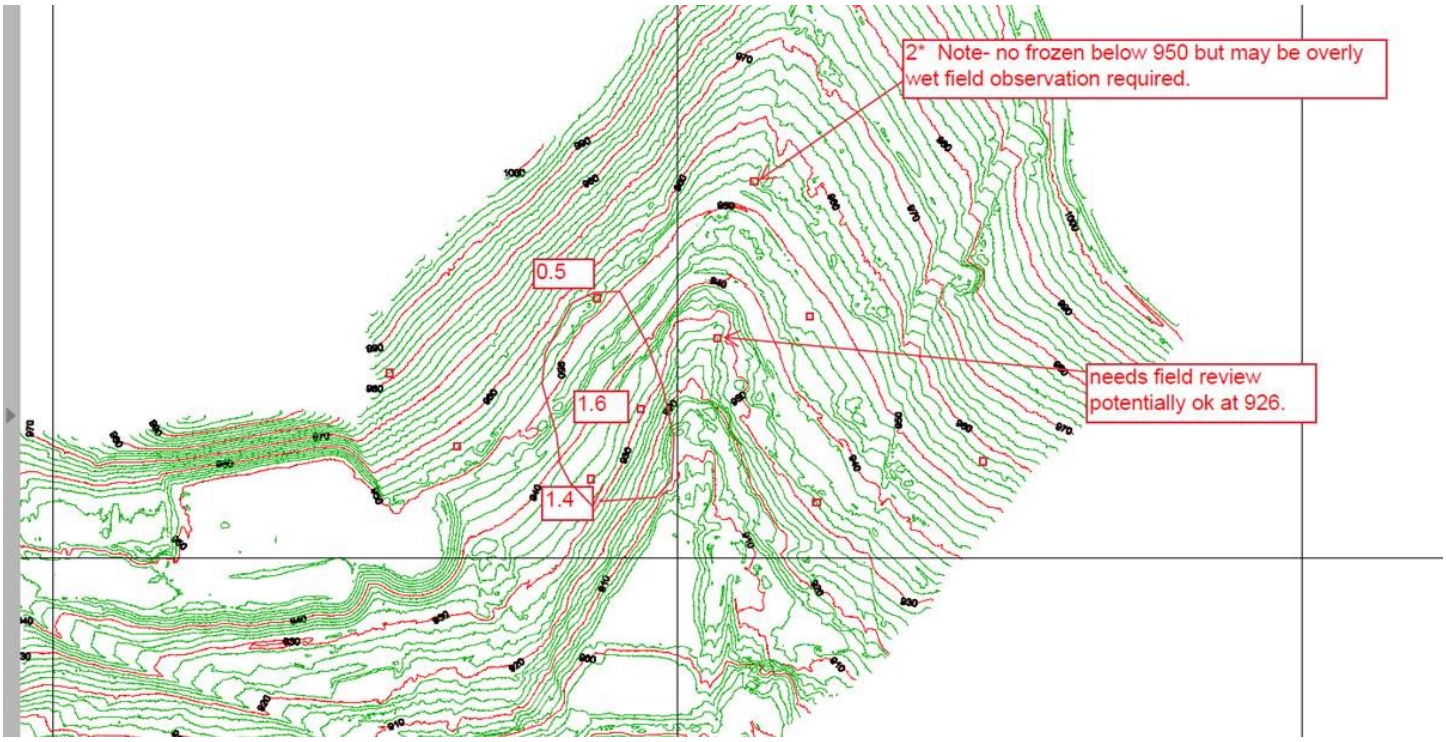


Figure 1: Depth of excavation needed below existing ground to completely remove frozen- ice rich material.

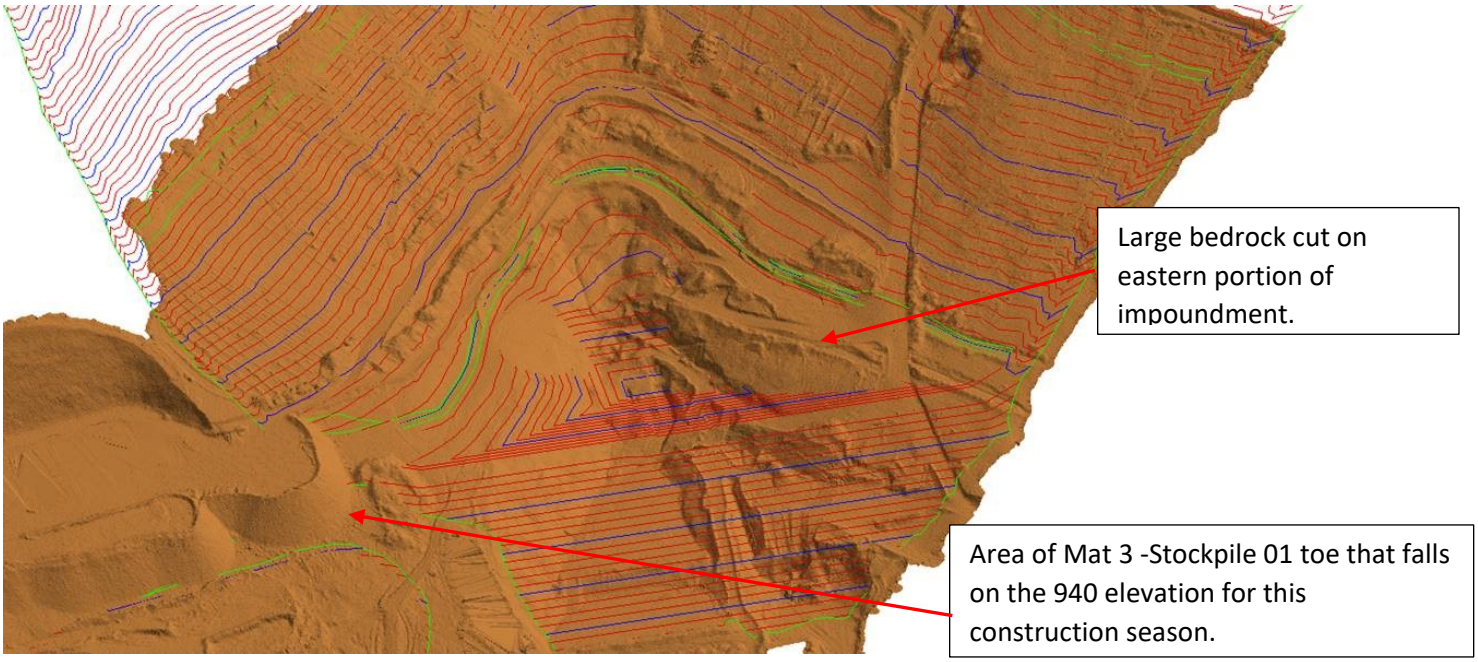


Figure 2: Cut to achieve design grade.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer /Elliot Matthews	**Weather:**	Intermittent Rain 8°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 909.15m in the upper embankment. (***Photo 1***).
  - Pelly began the construction of a drain on the eastern portion of the embankment to pick up the observed seeps in the upper valley bottom. The seep began to flow heavier upon excavation of the trench indicating ground water flow just below the surface through fractured bedrock (***Photo 2***).
  - Pelly continued excavation of the foundation in the lower portion of the eastern portion of the embankment to Type 3 bedrock (***Photo 3***). The colluvium was observed to be very stiff with no ice.
  - An exploration trench was excavated in the right abutment slope and logged by BGC (***Photo 4***).
  - Pelly worked on shaping the PLS sump area (***Photo 5***).
  - Pelly did not work on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01.
  - Areas within the in-heap pond/impoundment still require earthwork. BGC reviewed current topography vs instances of ground ice observed in the test pits below elevation 960m. Portions on the western slope still require an estimated 1.6m of excavation (***Figure 1***). Ground ice was not found on areas on the west side but excavation through bedrock is still required to shape the impoundment (***Figure 2***). Ground ice and wet flowing soils were observed in test pits at the center valley. Much of this area has already been excavated. However, inspection by BGC will be required to determine if suitable subgrade has been reached (***Figure 1***).
  - A portion of the Material 3 Stockpile 01 toe sits on the 940 slope of HLF. This area will need to be excavated to suitable subgrade as part of this seasons construction (***Figure 2***).

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action)

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC recieved as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 14 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Underdrain construction at eastern embankment foundation area.



Photo 3: Excavation of colluvium at eastern embankment toe area.



Photo 4: Excavation of right abutment slope exploration trench at west embankment area.



Photo 5: Excavation to shape the PLS sump area.

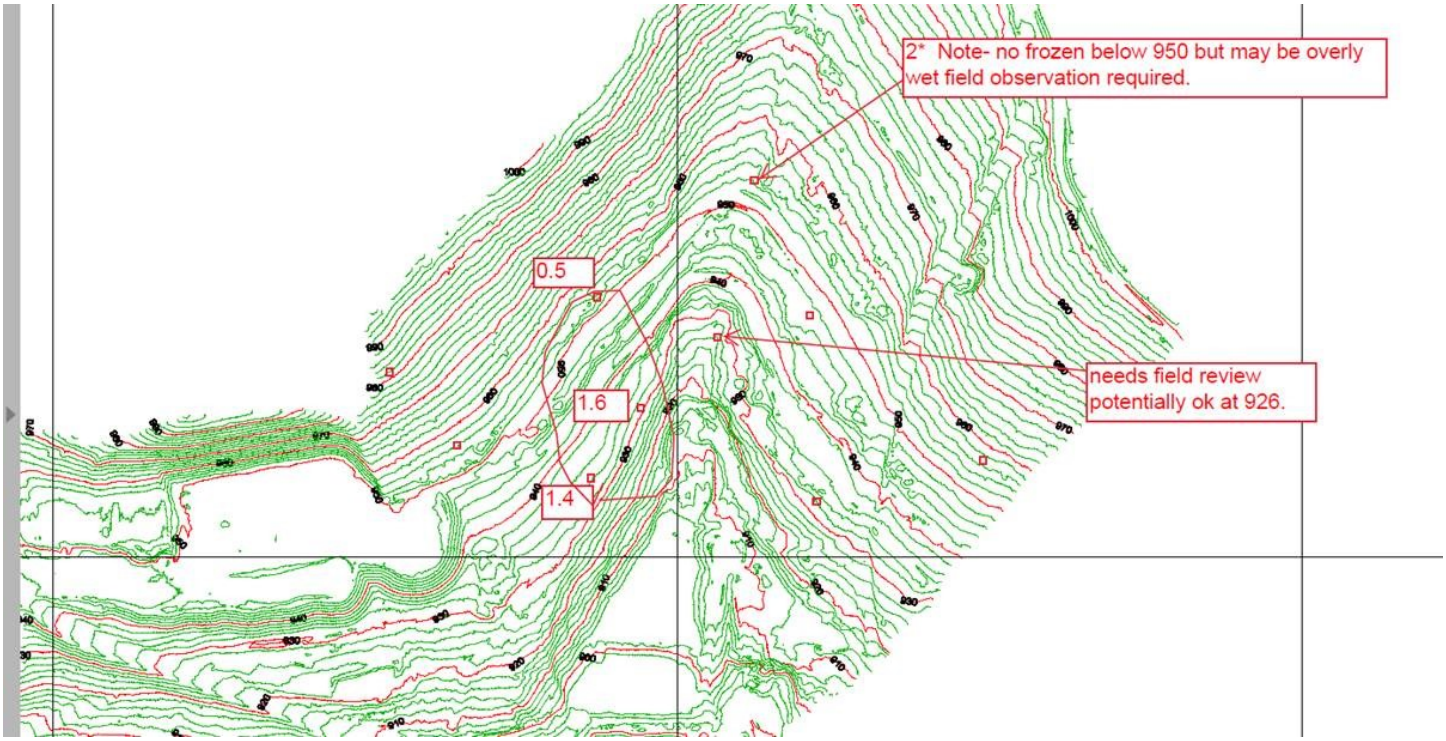


Figure 1: Depth of excavation needed below existing ground to completely remove frozen- ice rich material.

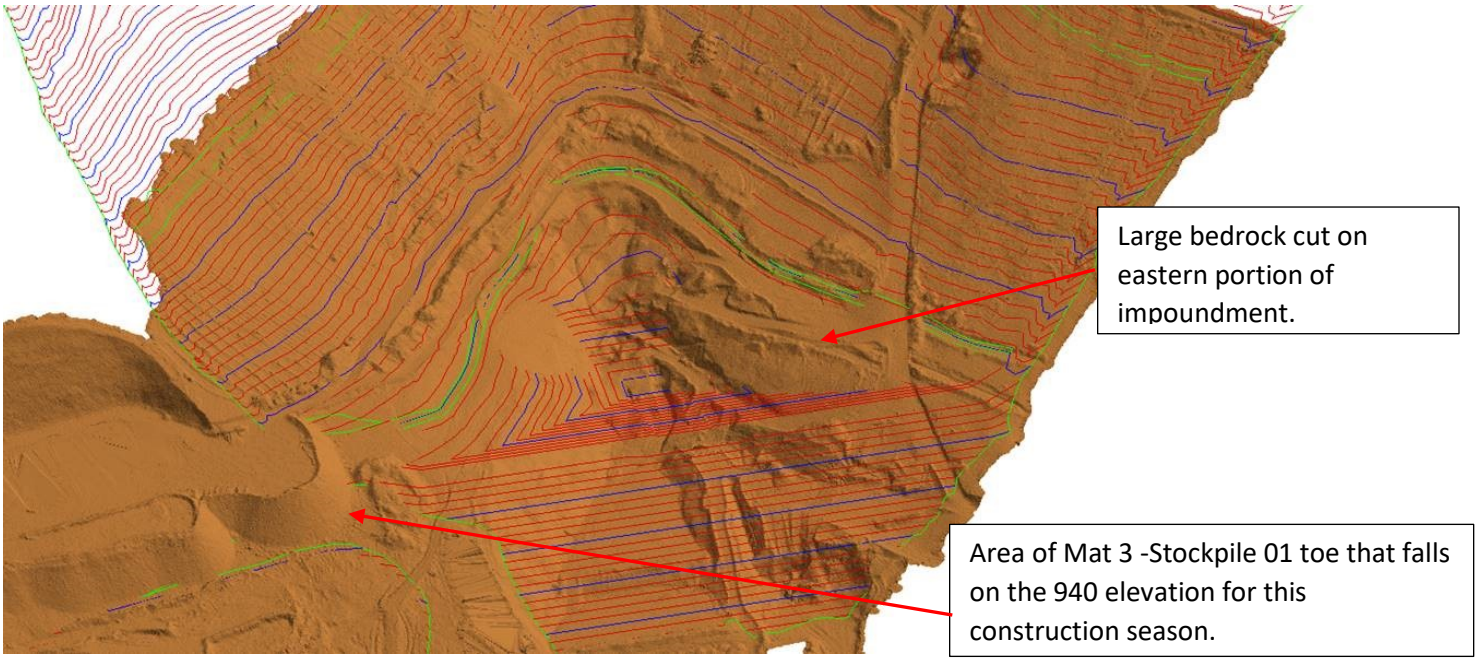


Figure 2: Cut to achieve design grade.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Intermittent Rain 8°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 9010.3m in the upper embankment. (***Photo 1***).
  - Pelly continued the construction of a drain on the eastern portion of the embankment to pick up the observed seeps in the upper valley bottom (***Photos 2 and 3***). A small amount of flow was observed in the trench during construction.
  - Pelly continued excavation of the foundation in the lower portion of the eastern portion of the embankment to Type 3 bedrock (***Photo 4***). The colluvium was observed to be very stiff with no ice.
  - Pelly worked on shaping the PLS sump area.
  - Pelly did not work on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action)

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 14 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Underdrain construction at eastern embankment foundation area.



Photo 3: Underdrain construction at eastern embankment foundation area.



Photo 4: Excavation of colluvium at eastern embankment toe area and extension of the underdrain.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Intermittent Rain 8°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower lift today. Material was placed to 911.3m in the upper embankment. (***Photo 1***).
  - Pelly continued the construction of a drain on the eastern portion of the embankment to pick up the observed seeps in the upper valley bottom (***Photos 2 and 3***). A small amount of flow was observed in the trench during construction.
  - Pelly continued excavation of the foundation in the lower portion of the eastern portion of the embankment to Type 3 bedrock (***Photo 4***). The colluvium was observed to be very stiff with no ice.
  - Pelly worked on shaping the PLS sump area.
  - Pelly did not work on material development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01 and ADR cut (**Photo 5**).
  - A rock rolled down the upstream face of the embankment and struck the exposed closure pipe creating a blunt scrape and gouge about 2 mm deep by 2 cm long (**Photo 6**). Pipe with gouges or cuts in excess of 10 percent of the product wall should not be used. Scrapes or gouges cannot be repaired by filling-in with extrusion or hot air welding. The wall thickness of the 150mm SDR-11 pipe is 15.3 mm. The damaged section should be removed and replaced if the gouge depth is more than 1.5 mm.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action).

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

1) QA/QC Results:

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 14 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

2) Communications (no follow up required):

Personnel	Description
None	

3) Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper (920) embankment.



Photo 2: Underdrain construction at eastern embankment foundation area.



Photo 3: Underdrain construction at eastern embankment foundation area.



Photo 4: Placement of structural fill at eastern embankment area.



Photo 5: Structural fill borrow development at ADR cut.



Photo 6: Damaged closure pipe.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Cloudy 4°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower west embankment area today. Material was placed to approx. 913m in the upper embankment. (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the eastern portion of the embankment (***Photo 2***). Material was placed to approx. 890m.
  - Pelly worked on shaping the PLS sump area.
  - Pelly continued development at the Event Pond today.
  - Pelly worked on stripping at the ADR West today.
  - Borrow continued at ADR Material 3 Stockpile 01 and ADR cut. A few truck loads of Material 3 from Stockpile 01 was contaminated with organics and was rejected (**Photo 3**). Moisture content of the placed fill was measured by Tetra Tech to be below 4% in the afternoon. Moisture conditioning at the borrow source was initiated (**Photo 4**).
  - Pelly constructed a temporary drain pipe connected to the west underdrain pipe to allow drainage of sumps for water control (**Photo 5**).

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action).

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

•
QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 17 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the upper west (920) embankment.



Photo 2: Material 3 (Structural Fill) construction at the east embankment.



Photo 3: Rejected structural fill contaminated with organics.



Photo 4: Structural fill borrow development and moisture conditioning at ADR cut.



Photo 5: Temporary piping arrangement to drain sumps through the western underdrain pipe.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Partly Cloudy 8°C to 17°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no placement on the lower or upper west embankment areas today.
  - Pelly placed structural fill (Material 3) in the eastern portion of the embankment (***Photos 1 and 2***). Material was placed to approx. 890m.
  - Borrow of structural fill (Material 3) continued at the ADR cut (**Photo 3**).
  - Pelly worked on shaping the PLS sump area.
  - Pelly installed a finger drain to a seep located north of the PLS sump **(Photos 4 and 5)**.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action).
  - Ewing construction began construction of the HLF liner test pad at the direction of BGC **(Photo 6)**. Upon completion of the test, BGC will evaluate and issue a memorandum with the findings.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 18 were delivered to BGC.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 3: Structural fill borrow development and moisture conditioning at ADR cut.



Photo 4: Installation of finger drain to collect seep north of the PLS sump area.



Photo 5: Installation of finger drain to collect seep north of the PLS sump area.



Photo 6: HLF liner test pad construction.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Sunny 3°C to 21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on the lower or upper west embankment areas today.
  - Pelly placed structural fill (Material 3) in the eastern portion of the embankment (***Photos 1 and 2***). Material was placed to approx. 894m.
  - Borrow of structural fill (Material 3) continued at the ADR cut (**Photo 3**).
  - A drainage hose above the east embankment work area released several hours of flow onto the left abutment (**Photo 4**). A temporary sump and berm was constructed to contain the flow (**Photo 5**).
  - Pelly extended the underdrains north of the PLS sump **(Photo 6)**.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill was completed on material stockpiled at the Event Pond using the 11,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. A preliminary review of the results indicate that finer grained structural fill excavated from upper portions of the Event Pond will need to be placed in 0.3 maximum loose lifts and compacted using at least 5 passes with a 11,000 kg vibratory compactor. (Pending BGC action).
  - The temporary termination of the underdrain and closure pipes below the toe of the embankment was inspected by BGC. The outer two underdrain pipes are flowing and the underdrain gravel is also carrying some flow. The ends of the pipes are currently wrapped with geotextile **(Photo 6)**. The geotextile should be removed and the pipes allow to flow freely to promote self-cleaning. A plan should be developed to protect the pipes through the winter and allow flow to continue.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 19 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 3: Structural fill borrow development at ADR cut.



Photo 4: Wet area from water accidentally released from drainage hose above east embankment left abutment.



Photo 5: Installation of finger drain to collect seep north of the PLS sump area.

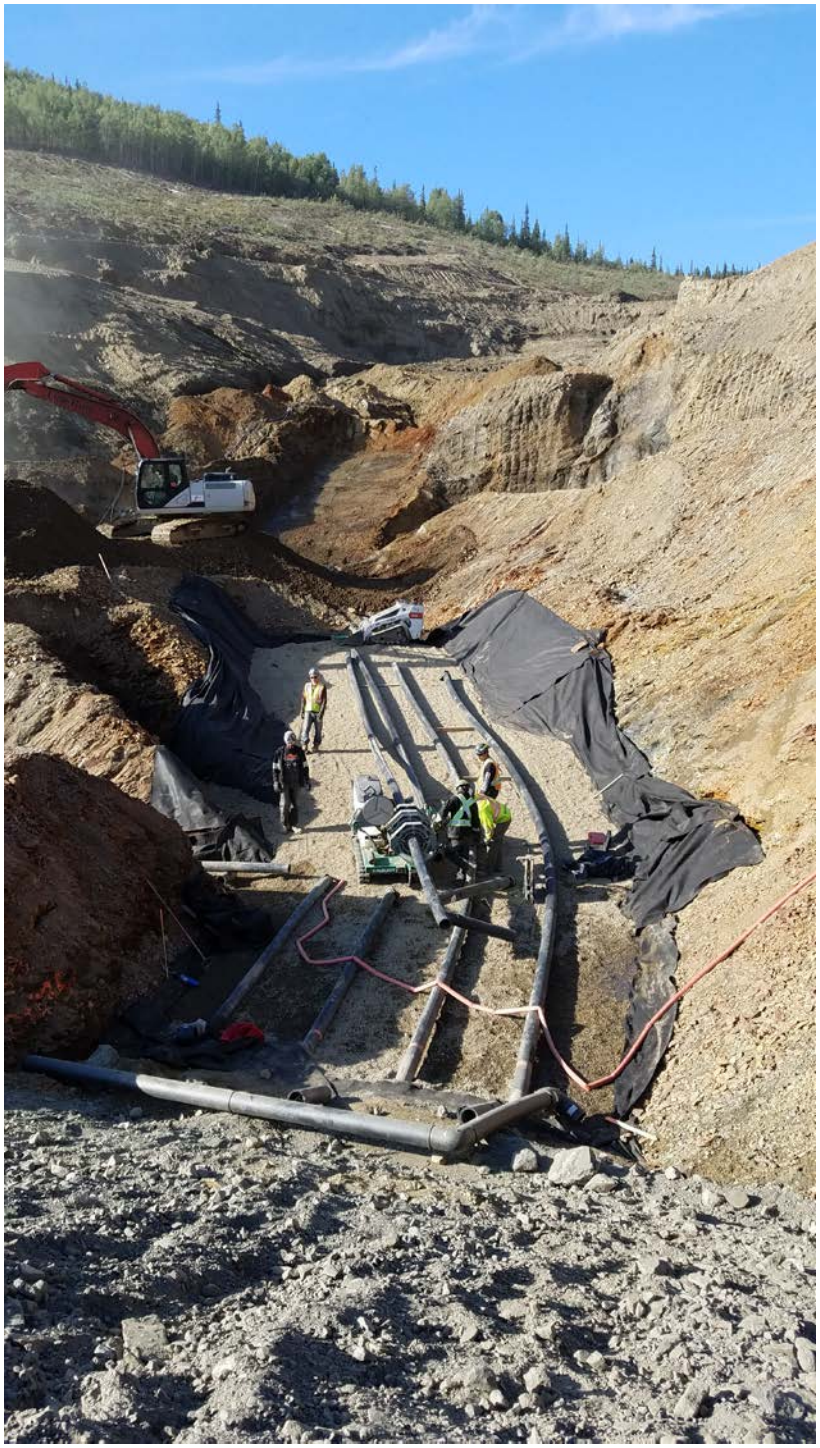


Photo 6: Extension of underdrain trench upgradient of PLS sump area.



Photo 7: Underdrain and closure pipes at toe of embankment.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Sunny 9°C to 23°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment areas today.
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 1 and 2***). Material was placed to approx. 898m.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area and hauling of structural fill from the Event Pond excavation was initiated.
  - Pelly extended the underdrains north of the PLS sump **(Photos 3 and 4)**.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - Two test fills were completed on August 20. A test fill on the embankment was completed for compaction of structural fill using loaded haul trucks (**Photo 5**). An additional test fill on material excavated at the Event Pond using the 9,000 kg Volvo compactor (**Photo 6**). BGC is reviewing the data and will issue a memorandum with the findings. (Pending BGC action).
  - The temporary termination of the underdrain and closure pipes below the toe of the embankment was inspected by BGC. The outer two underdrain pipes are flowing and the underdrain gravel is also carrying some flow. The ends of the pipes are currently wrapped with geotextile. The geotextile should be removed and the pipes allow to flow freely to promote self-cleaning. A plan should be developed to protect the pipes through the winter and allow flow to continue.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 20 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
EPCM-RFI-020	JDS requests clarification on ballast placement and spacing.	Open. Sent June 21. Pending response from BGC.

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 3: Extension of underdrain trench upgradient of PLS sump area.



Photo 4: Haul truck compaction test fill.



Photo 5: Event Pond test fill.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Elliot Matthews	**Weather:**	Sunny 5°C to 19°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 1 and 2***). Material was placed to approx. 900m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 3)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area and hauling of structural fill from the Event Pond excavation was continued **(Photos 4 and 5)**.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - A test fill on material excavated at the Event Pond using the 9,000 kg Volvo compactor. BGC is reviewing the data and will issue a memorandum with the findings. (Pending BGC action).
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 3: Extension of underdrain trench upgradient of PLS sump area.



Photo 4: Development and moisture conditioning of Material 3 at ADR West borrow.



Photo 5: Event Pond excavation of Material 3 borrow material.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer / Dan Granda/ Elliot Matthews	**Weather:**	Rain 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer left site today.
  - There was no fill placement on upper west embankment area today.
  - Due to rainstorm, surface soils were transported to the downstream sump, Pelly was notified right away and cleaned the sump (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 902m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Hauling of structural fill from the Event Pond excavation was continued, Pelly instructed to avoid ice rich areas **(Photo 5)**.

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - Per 1 pm weekly meeting with JDS/Pelly/Layfield/Cobalt/BGC/Victoria Gold, Layfield deployment has been postponed to Sept 10th, BGC informed Tetra Tech of updated schedule for liner installation.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:

- Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
- Field embankment nuclear density testing for August 21 were delivered to BGC.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Surface debris flowing to downstream sump due to heavy rain, flow was stopped right away and sump cleaned up.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Event Pond excavation of Material 3 borrow material, BGC noticed ice and permafrost zone, Pelly was informed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 23, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Rain/Overcast 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Frozen areas in event pond work zone were identified and discussed with Pelly (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 904m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area. Area was moisture conditioned as source was dry despite rainfall events.
  - Hauling of structural fill from the Event Pond excavation was continued, Pelly instructed to avoid ice rich areas.
  - Drains in HLF upstream were prepared (**Photo 5**).
  - Phyllite sample was taken from HLF upstream zone for testing (**Photo 6**).

- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: BGC and Pelly visited event pond area where permafrost and ice lenses have been identified, Pelly to remove localized zone, thermometer will be used to help access future ice lenses as seasonal temperatures decrease.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.

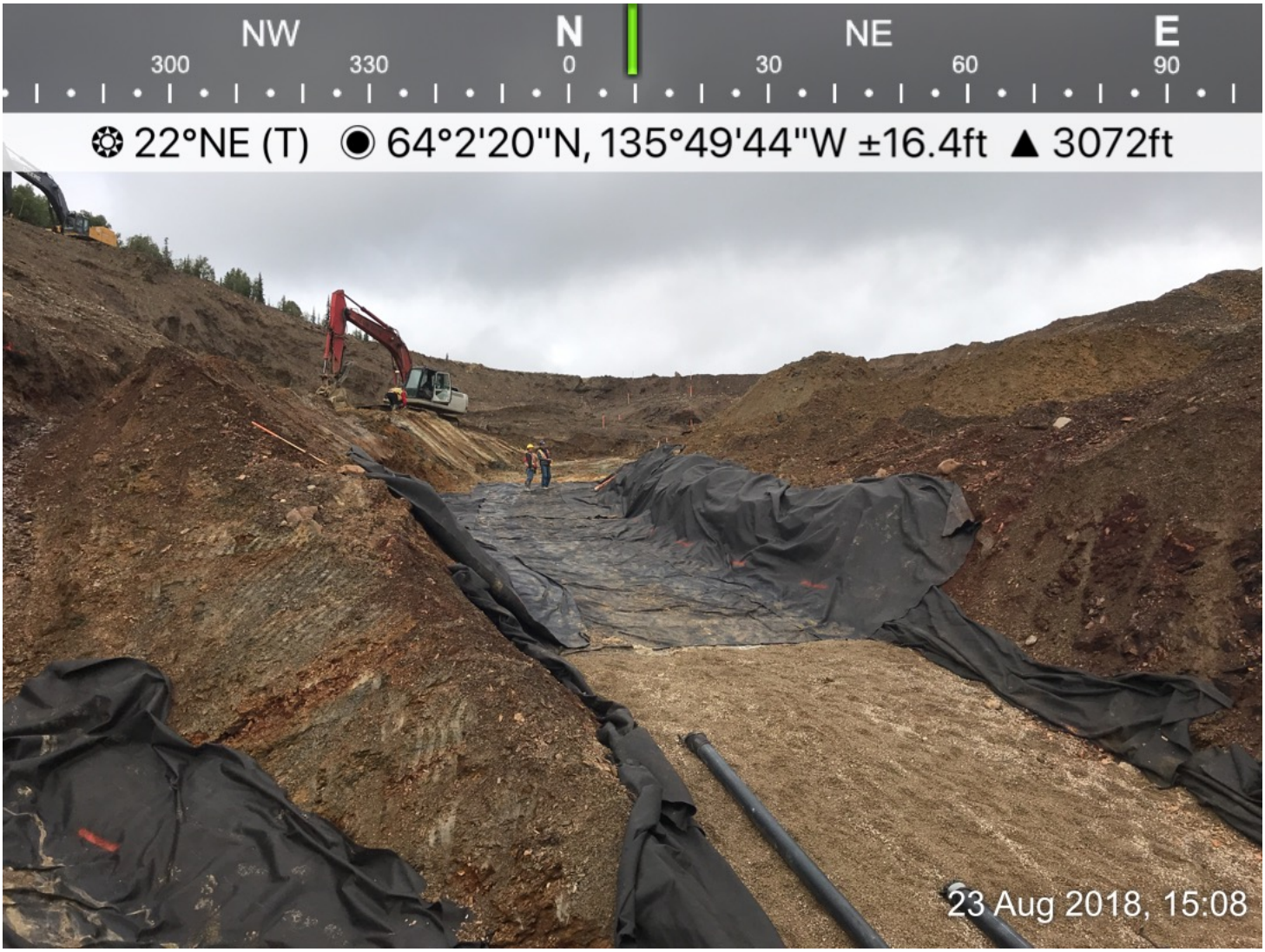


Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Drains in HLP were prepared.



Photo 6: Phyllite sample taken for testing (taken from HLF upstream west side abutment).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Rain/Overcast 5°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Event pond continued to be worked on (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 905m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area. Area was moisture conditioned as source was dry despite rainfall events.
  - Hauling of structural fill from the Event Pond excavation was continued, Pelly instructed to avoid ice rich areas.
  - Drains in HLF upstream were prepared (**Photo 5**).
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:

- Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Event pond work.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Drains in HLP were prepared.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Rain/Overcast 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Event pond continued to be worked on, BGC identified ice chucks and provided input to avoid it (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 907m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Hauling of structural fill from the Event Pond excavation was continued, Pelly instructed to avoid ice rich areas.
  - Drains in HLF upstream were prepared (**Photo 5**).
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Event pond work.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.

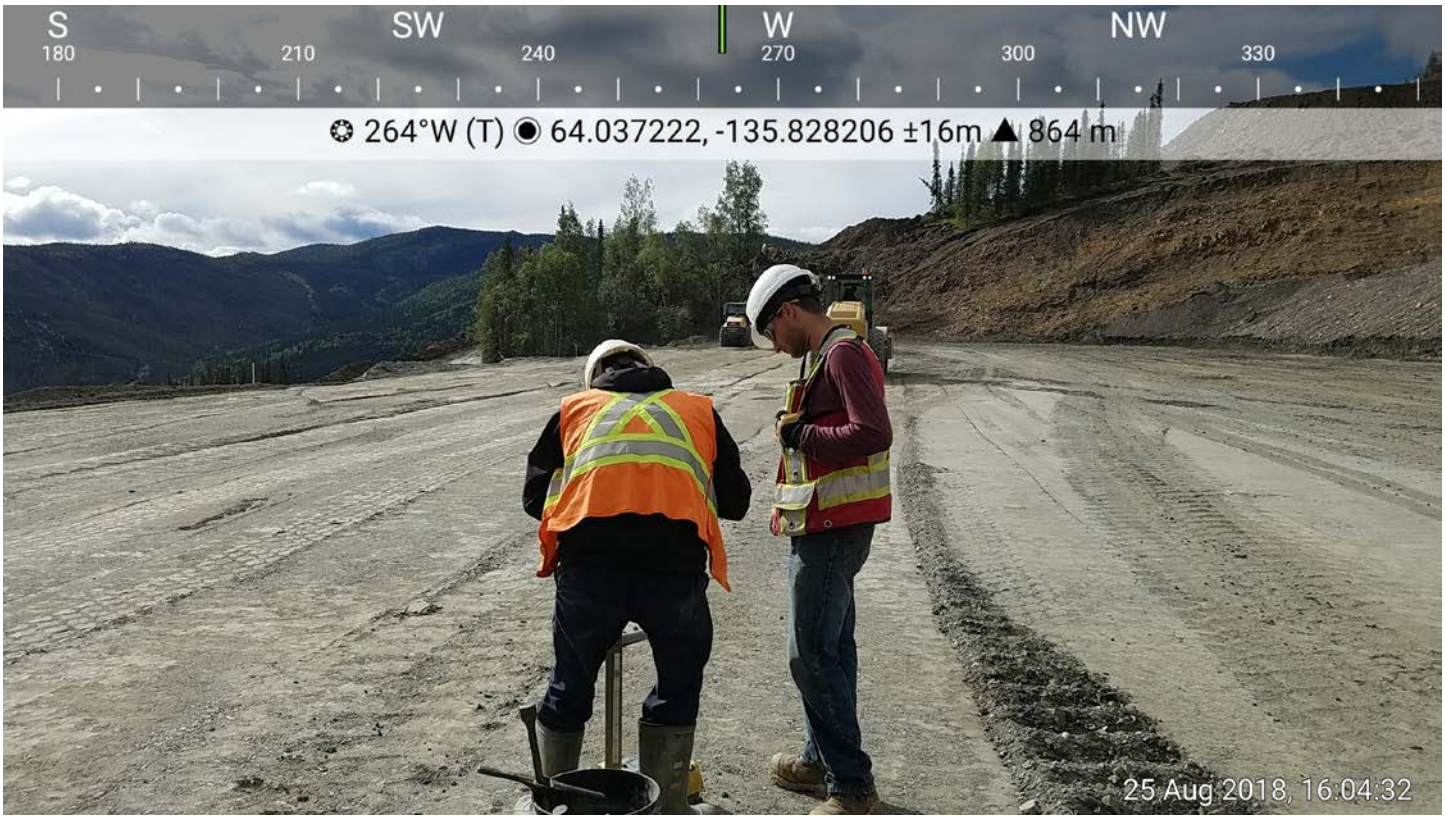


Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Drains in HLP were covered.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Sunny 10°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Event pond continued to be worked on (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 908m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Drains in HLF upstream were prepared (**Photo 5**).
  - BGC observed that Pelly's construction efforts on the upstream side of the HLF underdrains is getting close to Cobalt's activities in clearing unsuitables, JDS was notified of observation. (**Photo 6**).
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:

- Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Event pond work.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.

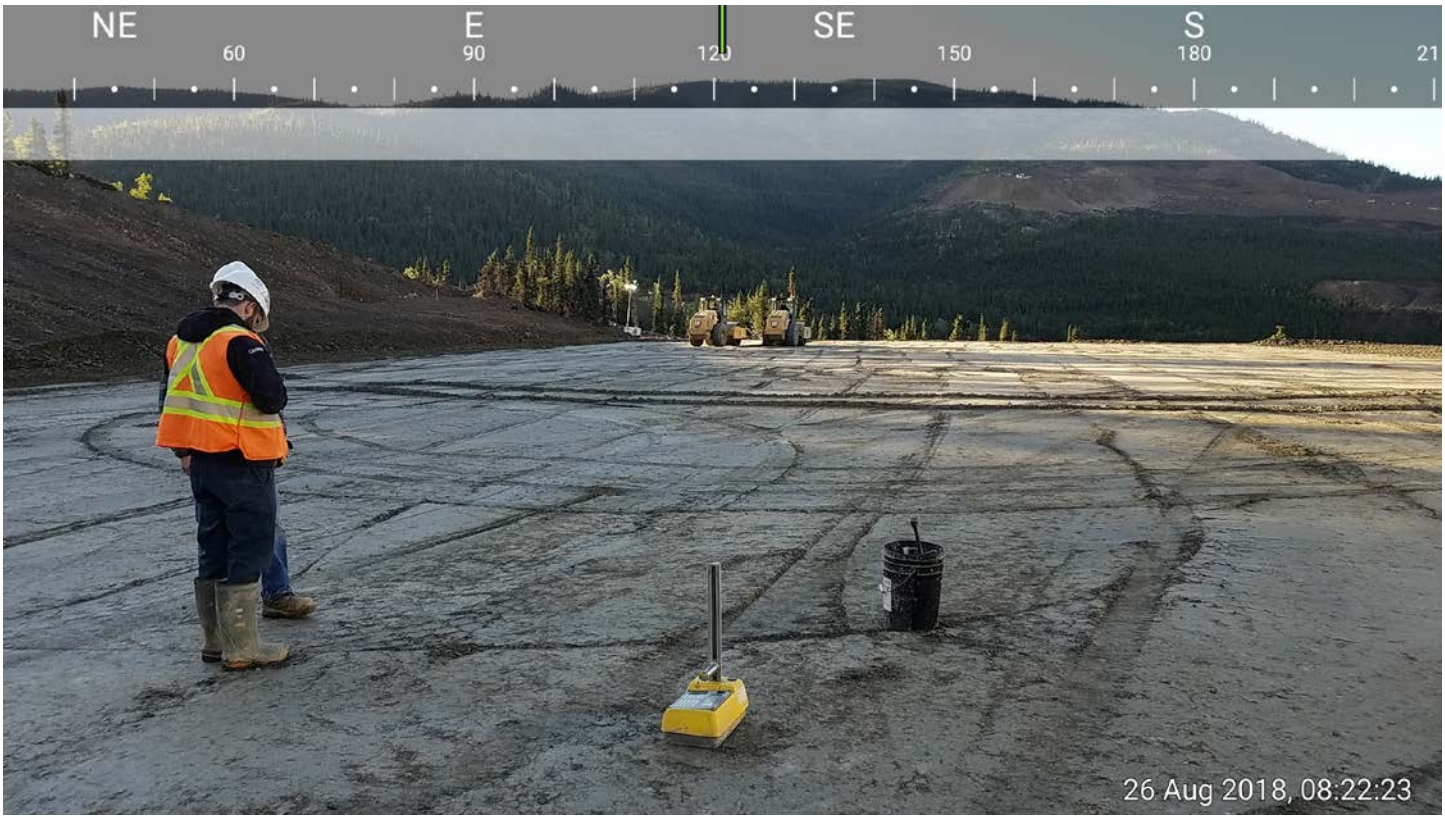


Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Drains in HLP were extended and covered.



Photo 6: Observed proximity between Pelly and Cobalt's activities in the HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Overcast/Sunny 6°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Event pond continued to be worked on.
  - Downstream sump was inspected, observed to be working without issues (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 910m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Drains in HLF upstream were prepared (**Photo 5**). Excessive seepage from material removed upstream caused mud and water to overwhelm drain, Pelly installed pump and a small sump to contain mud.
  - Upstream most sections of the underdrain were contaminated with mud, related to Cobalt's material removal upstream of work area, Pelly and JDS were communicated that this material needed to be replaced before approval of underdrain. (**Photo 6**).
  - Geotextile damage observed by the mud contaminated area of underdrain, this will need to be repaired before approval of underdrain (**Photo 7**).
  - Removal of access road to heap leach area (Cobalt's work area) has started as embankment continues to be built (**Photo 8**).
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results
• QA/QC: o Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift. o Field embankment nuclear density testing for August 21 were delivered to BGC. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Downstream sump.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.

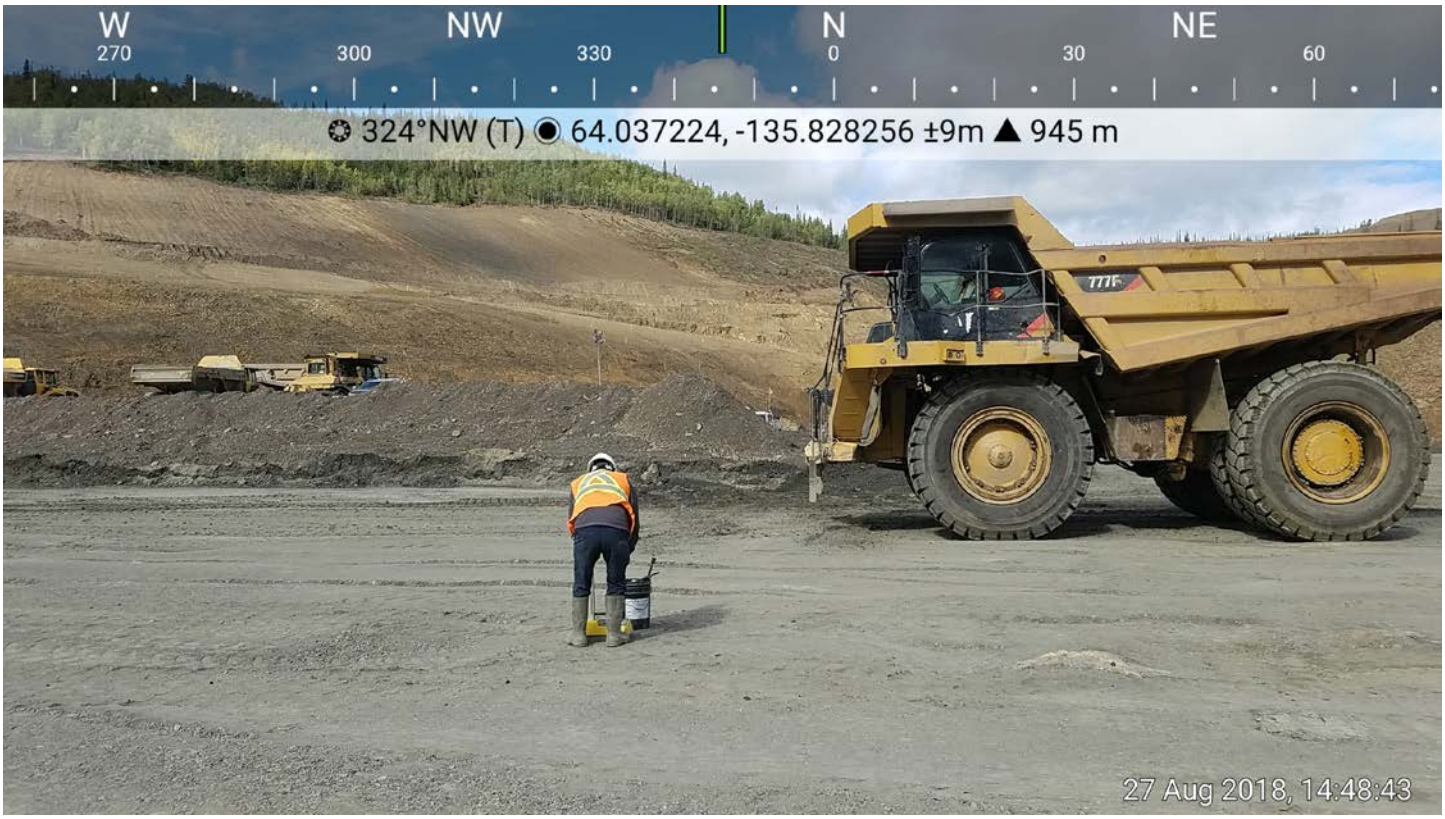


Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.

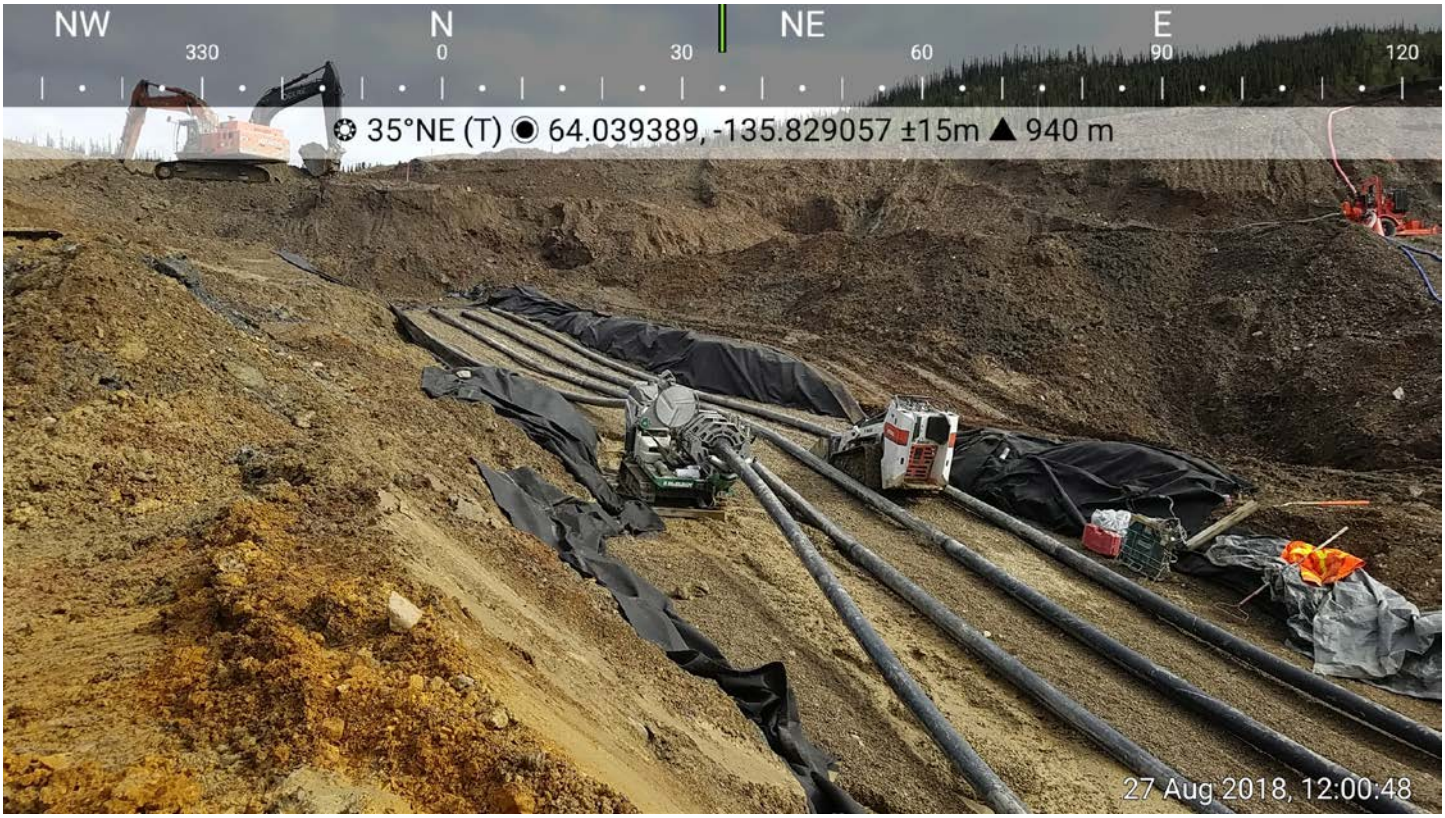


Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Drains in HLP were extended and covered. Recent removal of abutment unsuitable soils allowed water mixed with mud to overwhelm drain.



Photo 6: Recent removal of abutment unsuitable soils allowed water mixed with mud to contaminate underdrain select drain fill before covering, select drain fill to be replaced.



Photo 7: Geotextile damage observed by the mud contaminated area of underdrain, this will need to be repaired before approval of underdrain.



Photo 8: Removal of access road to heap leach area (Cobalt's work area) has started as embankment continues to be built.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Overcast/Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - There was no fill placement on upper west embankment area today.
  - Event pond continued to be worked on (***Photo 1***).
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photos 2 and 3***). Material was placed to approx. 911m.
  - Pelly extended the underdrains north of the PLS sump **(Photo 4)**. Contaminated select drain fill was replaced.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Lateral was excavated and installed (**Photo 5**).
  - Pelly is continuing to build a new access road for haul trucks as embankment gets higher (**Photo 6).**
  - Removal of access road to heap leach area (Cobalt's work area) continues as embankment continues to be built (**Photo 7**).
  - Cobalt requested BGC for geotechnical data conveyor area, BGC provided copies of boreholes.
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Event pond work continues.



Photo 2: Material 3 (Structural Fill) construction at the lower east embankment.

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Photo 3: Material 3 (Structural Fill) density/moisture testing at the lower east embankment.



Photo 4: Extension of underdrain trench upgradient of PLS sump area.



Photo 5: Pelly installing lateral on upstream east side.



Photo 6: Pelly excavating new haul road for CAT 777s.



Photo 7: Removal of cobalt access road continues as embankment continues to be build.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews	**Weather:**	Sunny 10°C to 15°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Event pond continued to be worked on.
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photo 1***). Material was placed to approx. 912m.
  - Pelly continues work upstream on underdrains **(Photo 2)**.
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Pelly continues to haul material from ARD source areas (**Photo 3**).
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Pelly cleaning and preparing underdrain extension upstream.



Photo 3: Pelly continues to move material from ADR source area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Matthews / Ethan Faber	**Weather:**	Overcast/Rain 0°C to 5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Elliot Matthews leaves site, Ethan Faber comes to site (BGC QA Engineer cross-shift)
  - Pelly started using new haul road access.
  - Event pond continued to be worked on.
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photo 1***). Material was placed to approx. 914m.
  - East abutment foundation was prepared (***Photo 2***).
  - Study trench was excavated, confirming bedrock (type 3) transitioning into type 2 (***Photo 3***).
  - Pelly continues work upstream on underdrains **(Photo 4)**.
  - Finger drain on west upper abutment was extended and is now capturing new seeps from clean out (**Photo 5**).
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Pelly continues to haul material from ARD source areas.
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC preparing memo to help with winter preparations for embankment.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:

o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: BGC provided Pelly on foundation preparation observation, Pelly cleaned foundation on East abutment for approval, this was approved during shift.

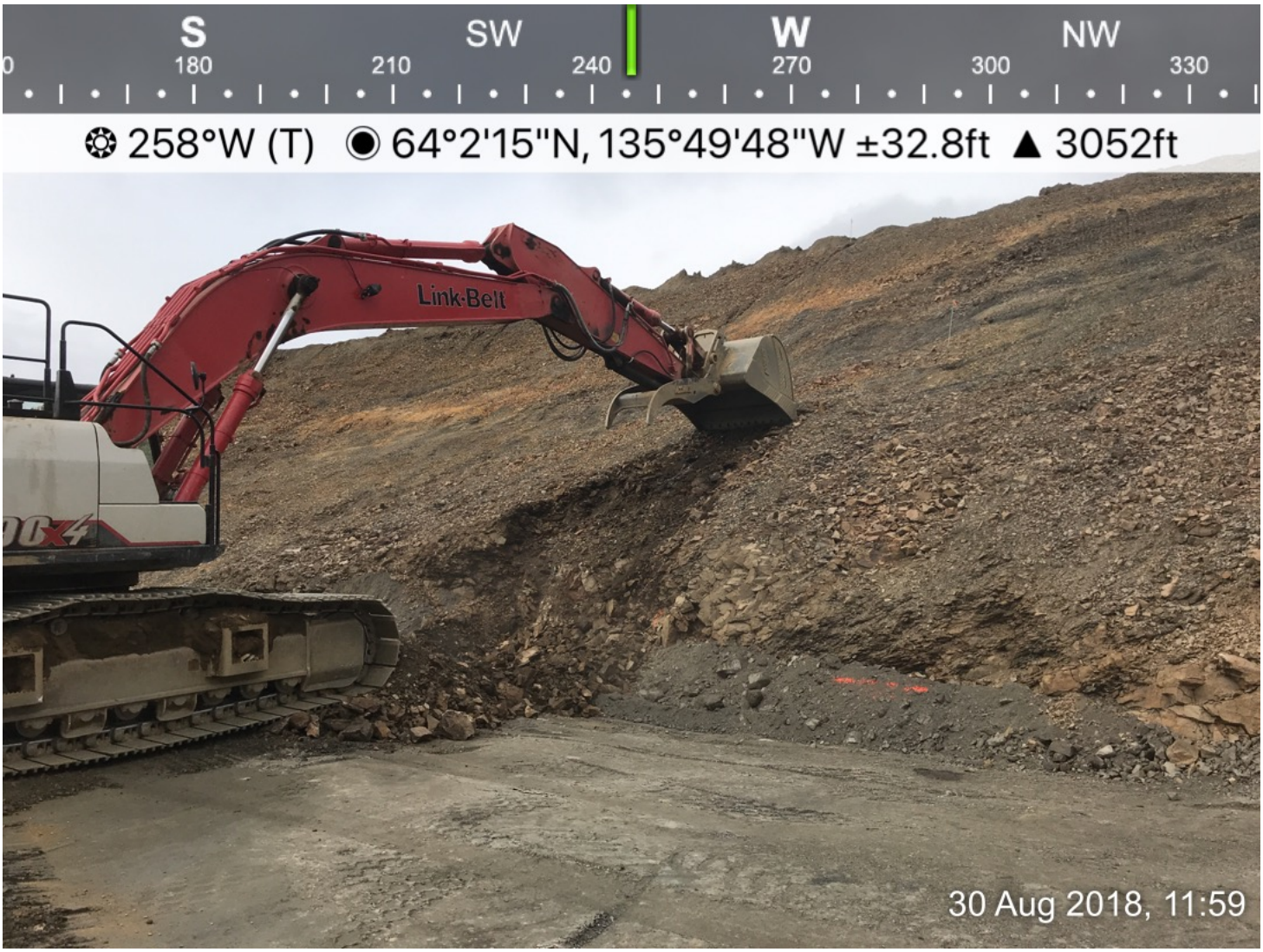


Photo 3: Pelly continued exposing the study trench on the West Abutment, the material was observed to be type 3 to type 2 bedrock.



Photo 4: Pelly continued clearing areas of the underdrain.

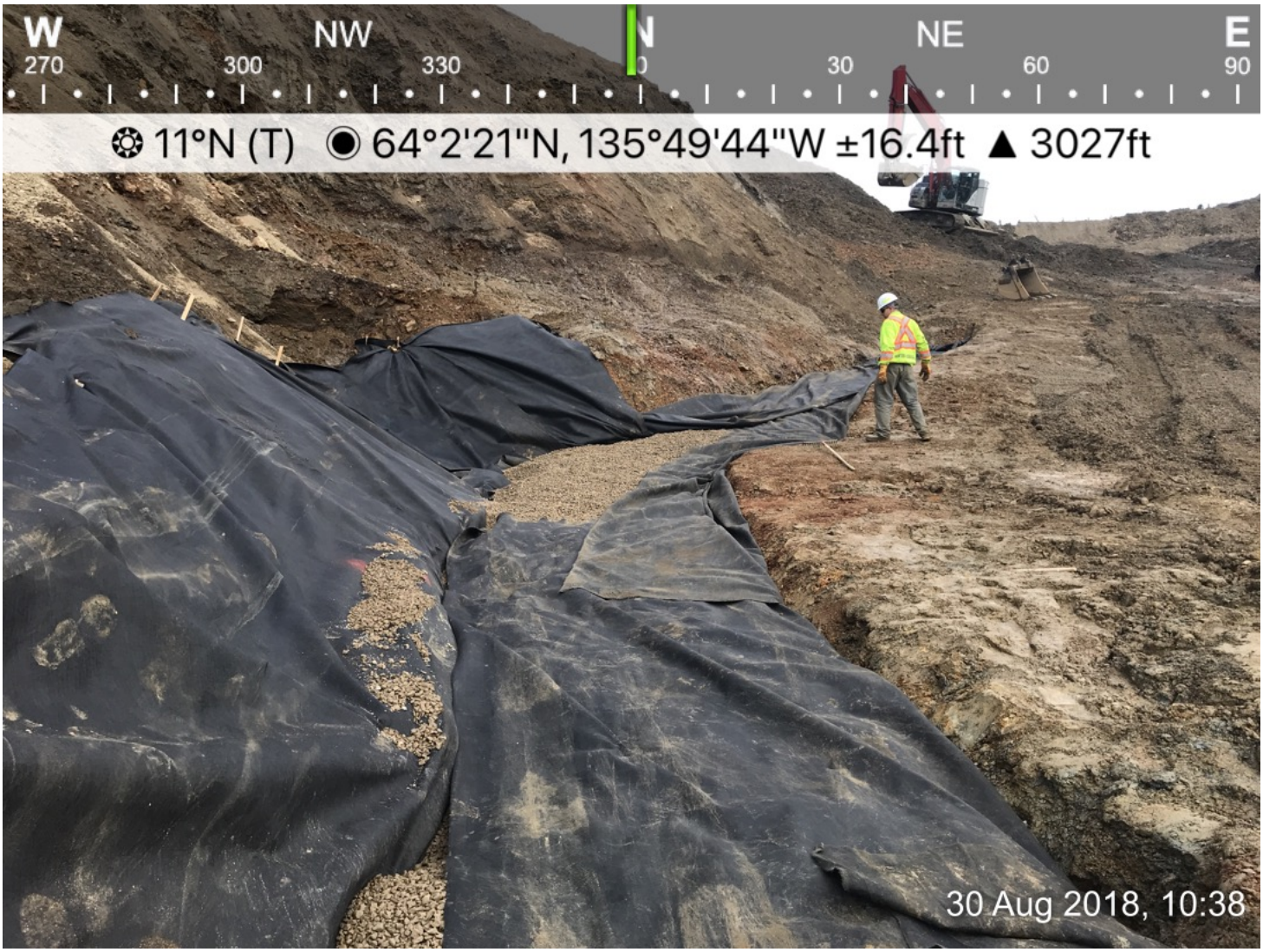


Photo 5: Finger drain trench on upper west abutment was continued upstream, catching seeps from west abutment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	August 31, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Ethan Faber / Troy Meyer	**Weather:**	Overcast/Rain 5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer arrived to site today.
  - Event pond continued to be worked on.
  - Pelly placed structural fill (Material 3) in the lower embankment (***Photo 1***). Material was placed to approx. 916m.
  - East abutment foundation was prepared (***Photo 2***).
  - Work continued on the first lateral (East Abutment) (***Photo 3***).
  - Pelly continues work upstream on underdrains **(Photo 4)**.
  - Second Lateral was fused by Pelly, BGC/Pelly/JDS met on East Upper Abutment to discuss progress and placement of second lateral (**Photo 5**).
  - Borrow of structural fill (Material 3) continued at the ADR west borrow area.
  - Pelly continues to haul material from ARD source areas.
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June and July. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - At the Event Pond topsoil pushed is unsuitable due to high organics. However, areas of usable Material 3 are being generated. Pelly should segregate usable material from unsuitable material. Pelly should update the stockpile management plan and communicate to their operators to ensure suitable material is not wasted and that unsuitable material is not brought to the embankment. Additionally, suitable material has been mixed with unsuitable material in the current stockpile at the Event Pond. Material will have to be segregated during loading to sort out unsuitable material. (ongoing)
  - In times of heavy rains overly wet material is not uncommon. To help prevent this it is important to compact spread lifts as quickly as possible. BGC recommends not allowing large surface areas of uncompacted material to be exposed to rain for long durations (over 30 min) during very heavy downpours. Performing one pass quickly with the compactor will also help seal the surface until proper compaction can be performed. (ongoing)
  - The Material 3 Stockpile 01 has areas that are unsuitable. These areas need to be segregated from the usable material. (Ongoing)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC.
  - BGC prepared memo to help with winter preparations for embankment, in final review before submittal.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road. BGC received as-built survey from JDS to evaluate adjustment of the west HLF perimeter road alignment.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. This will need to be confirmed based on actual observed field conditions and further stability analyses.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for August 21 were delivered to BGC.
- BGC Recommendations:

o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Material 3 (Structural Fill) construction at the lower east embankment.



Photo 2: Pelly clearing out material for east abutment approval for embankment construction.



Photo 3: First lateral drain is expanded (east abutment).



Photo 4: Pelly continued construction of underdrain upstream of HLF.



Photo 5: Pelly assembling second lateral upstream HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda/ Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast -2ºC to 13ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Roy Morlan arrived on site today. Dan Granda left site today.
  - Excavation at the Event Pond continued (***Photo 1***).
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 2***). Material was placed to approximately 917.27m. Material sourced from the ADR cut was generally dry (approximately 2% moisture). Material sourced from the Event Pond was about 5% moisture (closer to optimal). Density tests measured were between 95 and 100% compaction vs the proctor. Material was tested after compaction using the vibratory rollers. Dryer material tested closer to 100% compaction after haul truck traffic over the roller compacted lifts. BGC will be checking densities along the edges of the embankment lifts which typically do not get the benefit of haul truck compaction.
  - Tetra Tech's night shift reported that a portion of one of the under drain laterals was damaged during removal of material from the eastern portion of the impoundment. BGC and Pelly will inspect in the morning.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. **(Photo 3)**.
  - Pelly continued work extending the underdrains upstream.
  - Material 3 used in the embankment construction today was sourced from the ADR Borrow and the Event Pond cut (***Photo 4***). Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. BGC would also like an update of the volumes of material produced and placed as of August 31. This will help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season.
- Observations and Recommendations (OPEN):
  - BGC requested bi-weekly, or at least monthly updates to volumes produced and placed. BGC also requested bi-weekly or monthly updates to the Stockpile Management Plan. Some information was provided. The following information is still pending.
    - Volumes of each material type placed for June, July, August. (Partially completed 08/08/18, pending Material 2 and Material 5 volumes)
    - An updated stockpile management plan. (Partially completed 08/09/18, missing labels and current waste piles are not on the plan. BGC asked that this plan be updated bi-weekly as discussed in BGC-RFI-003.)
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC. (Ongoing)
  - BGC prepared memo to help with winter preparations for embankment, in final review before submittal.
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing for September 1 were delivered to BGC.
- BGC Recommendations:

- Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation at the Event Pond.



Photo 2: Embankment construction.



Photo 3: Work in the impoundment area within the 940 elevation.

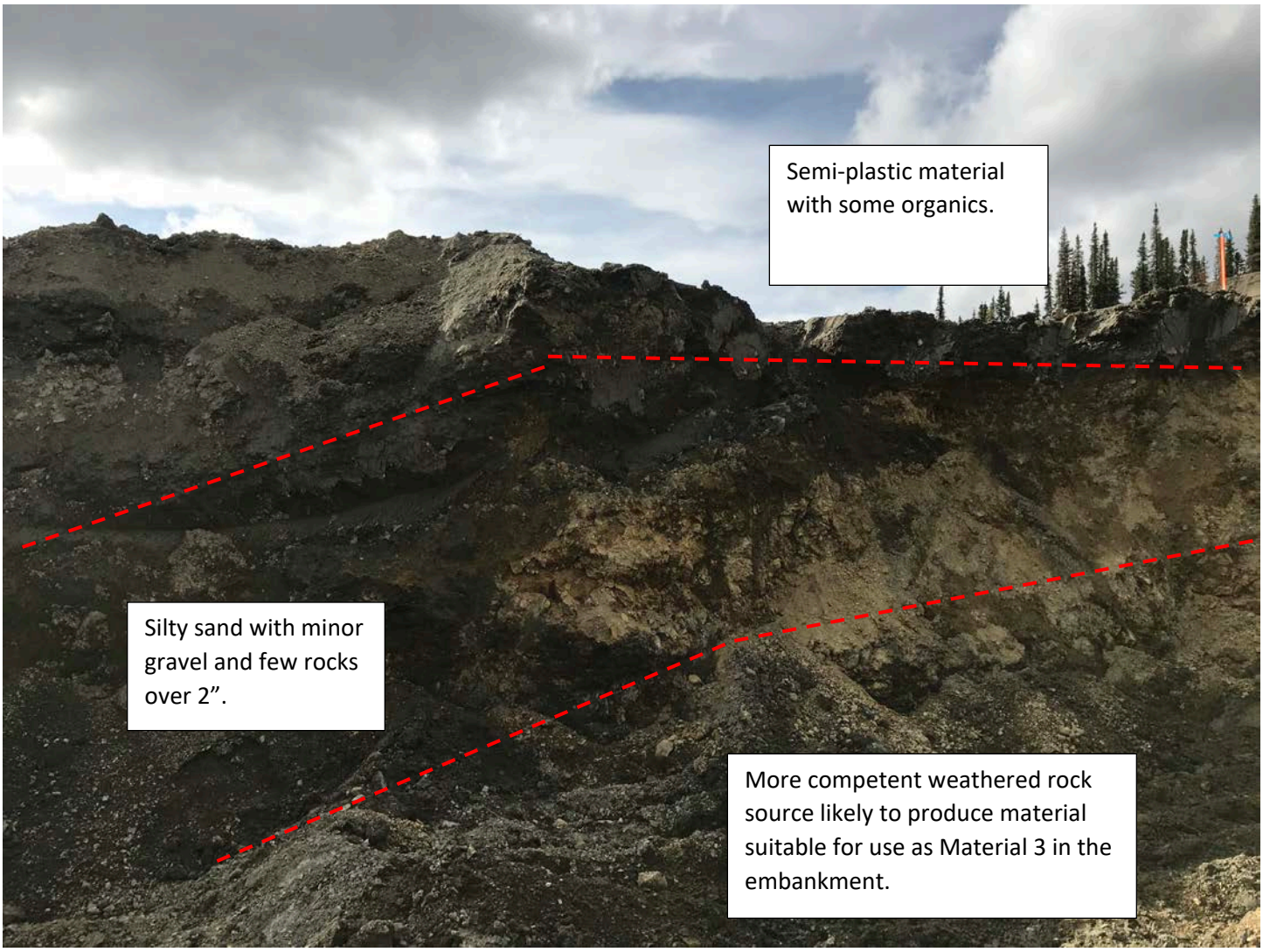


Photo 4: Example of variation of material in the Event Pond cut.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast 1°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Excavation at the Event Pond continued (***Photo 1***).
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 2***). Material was placed to 918.0m.
  - The lateral drain damaged yesterday was repaired (***Photo 3***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. **(Photo 4)**.
  - Pelly continued work extending the underdrains upstream (***Photo 5***).
  - JDS provided volumes for the existing stockpiles produced by Neway. Approximately 57,000 m3 of ODF is stockpiled currently. Approximately 50,000 m3 will be needed this season to complete the impoundment/sump area.
- Observations and Recommendations (OPEN):
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC. (Ongoing)
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast. (ongoing)
  - Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. (ongoing)
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Reporting for construction at the embankment for the night shift and day shift.
  - Field embankment nuclear density testing up to September 1 were delivered to BGC.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

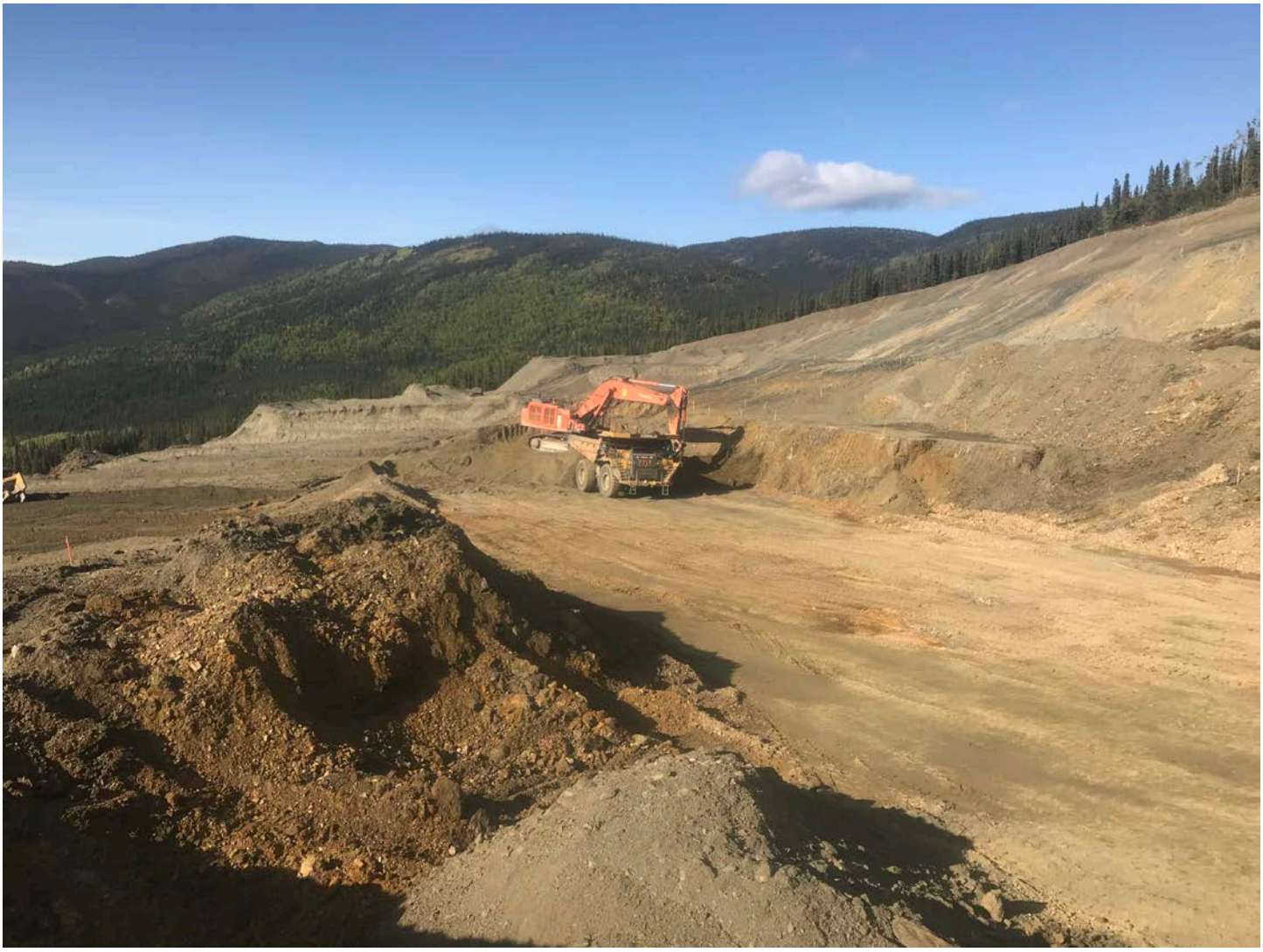


Photo 1: Excavation at the Event Pond.

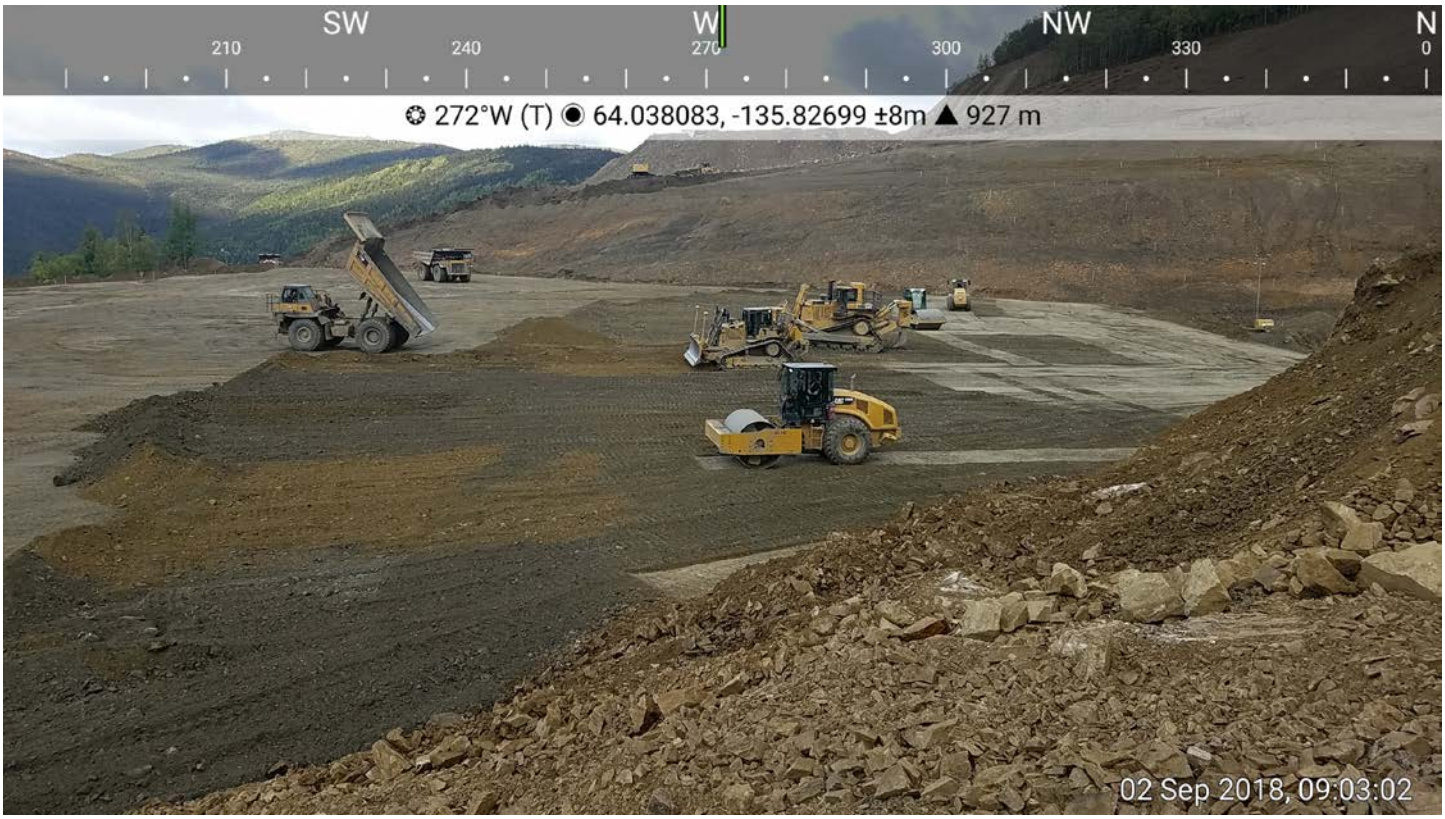


Photo 2: Embankment construction.

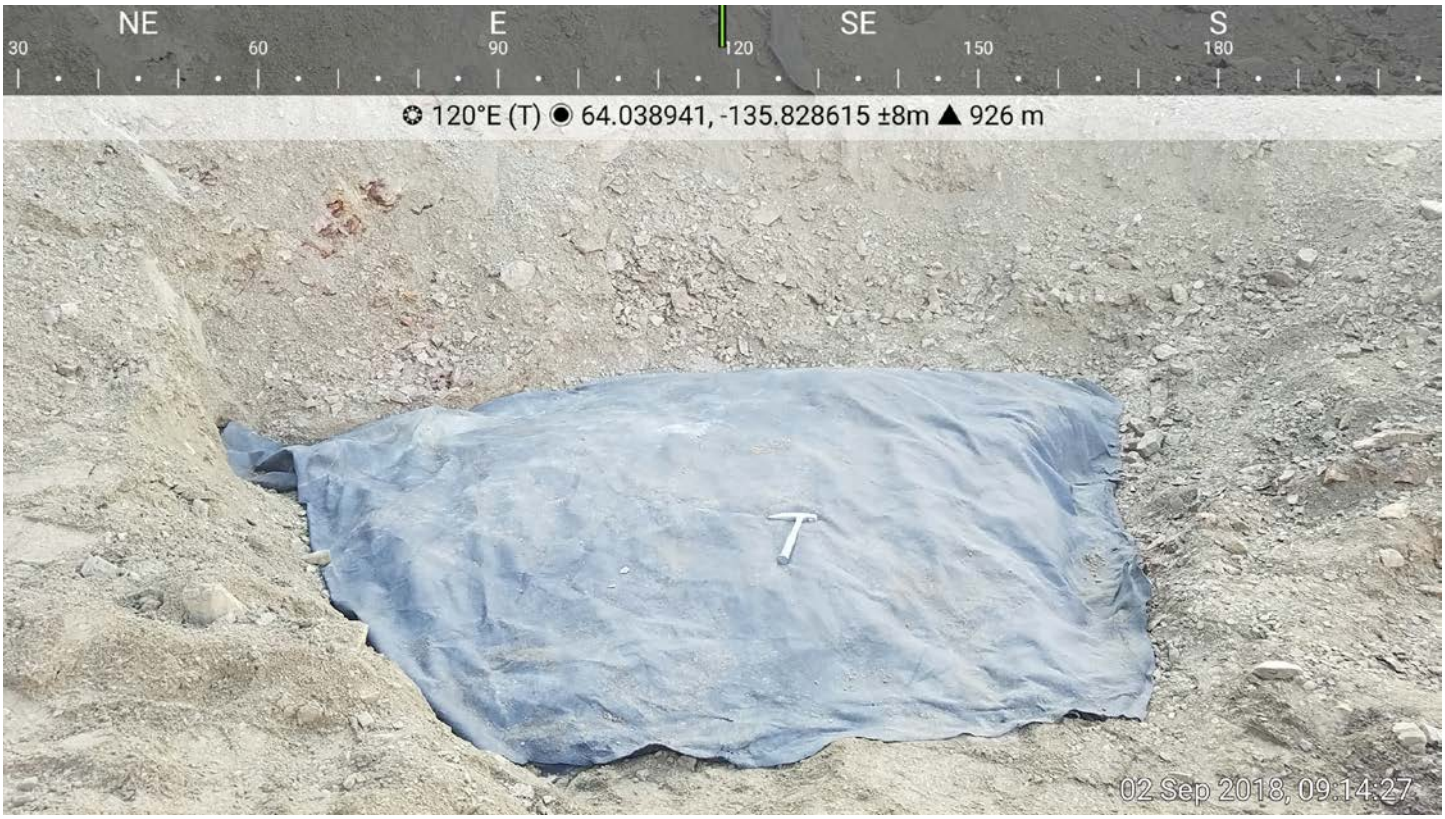


Photo 3: Repaired lateral drain.

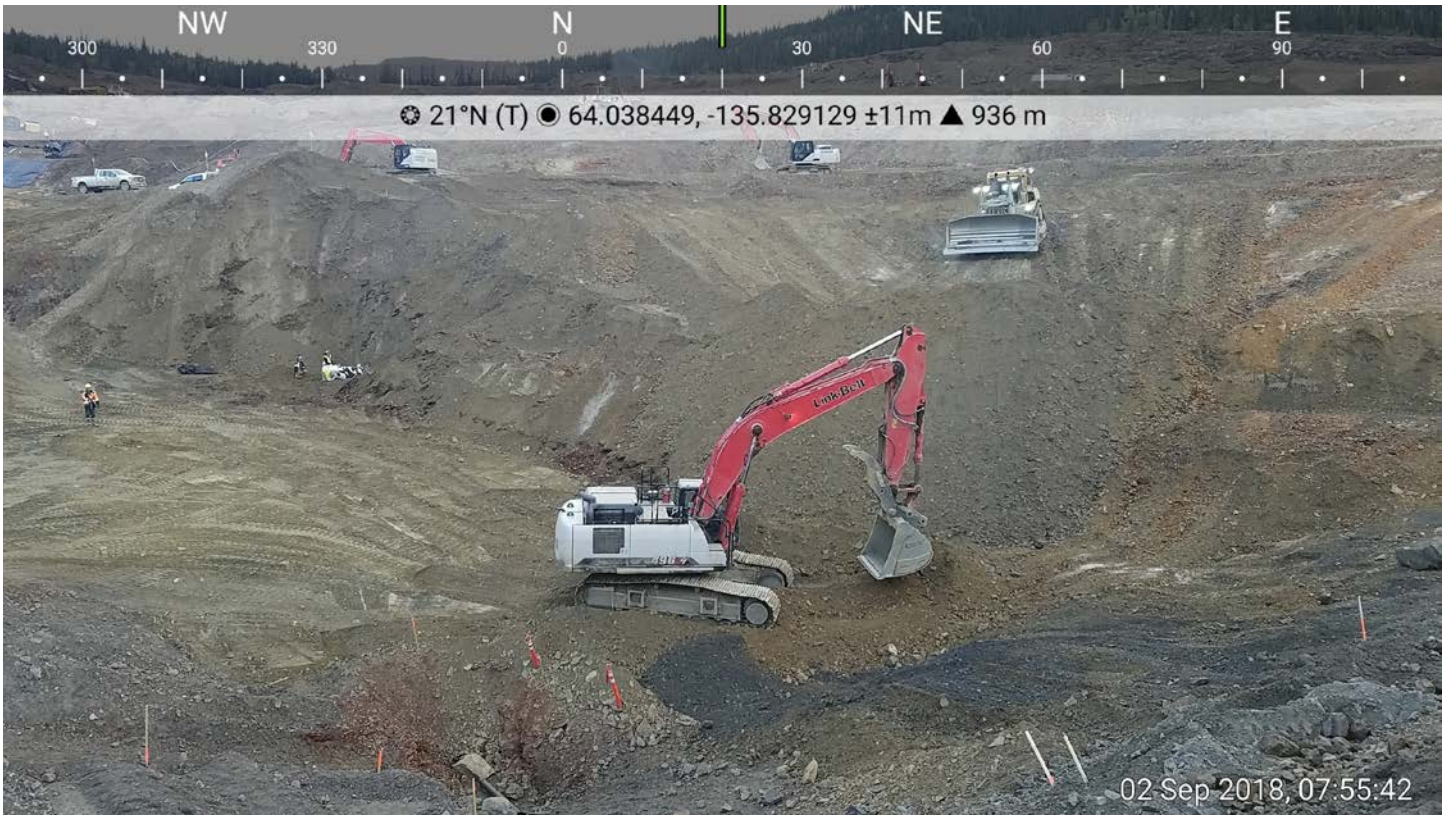


Photo 4: Shaping of the impoundment area.



Photo 5: Underdrain extension.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast -4°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Excavation at the Event Pond continued (***Photo 1***).
  - Areas within the Event Pond excavation were frozen (***Photo 2***). A rough delineation of the area was made by BGC and Pelly. Pelly resumed borrow outside the area of frozen material. BGC and Pelly dug 3 test pits to delineate the frozen material in the area. It appears that the frozen material is present on the norther portion of the borrow starting at 0.5m bgs to 1m bgs. The frozen zone gets thicker to the south starting at 0.5m bgs to at least 2m bgs. (***Figure 1***). Pelly is currently borrowing around the frozen zone. BGC recommends that the frozen zone be removed prior to continuing borrow in this area to ensure that frozen material is not accidently hauled to the embankment.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 3***). Material was placed to 918.85m.
  - Ice rich – frozen material from the Event Pond borrow was placed at the embankment on the night shift (September 3). The zones where this material was placed did not meet density and were oversaturated. Attempts were made to compact these zones but were unsuccessful. These zones where removed and wasted (***Photos 4***). The excavated area was replaced with suitable material.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. **(Photo 5)**.
  - A test pit was dug on the eastern portion of the impoundment to investigate potentially frozen material within a wet area (***Photo 6***). No frozen material was observed in the test pit. The material is likely saturated due to upstream seeps.
  - A second test pit was dug along the eastern portion of the impoundment area to determine the depth and location of a lateral drain. (***Photo 7***)
  - Pelly continued work extending the underdrains upstream.
  - Pelly provided BGC with foundation approval forms for Sections 15 through 25.
- Observations and Recommendations (OPEN):
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC. (Ongoing)
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast. (ongoing)
  - Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. (ongoing)
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 1. Daily reports for September 2 and 3 are still pending.
  - Field density and moisture testing were provided to BGC up to September 1. Reports for September 2 and 3 are still pending.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

-

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Excavation at the Event Pond.



Photo 2: Frozen, ice rich material encountered in the Event Pond borrow.

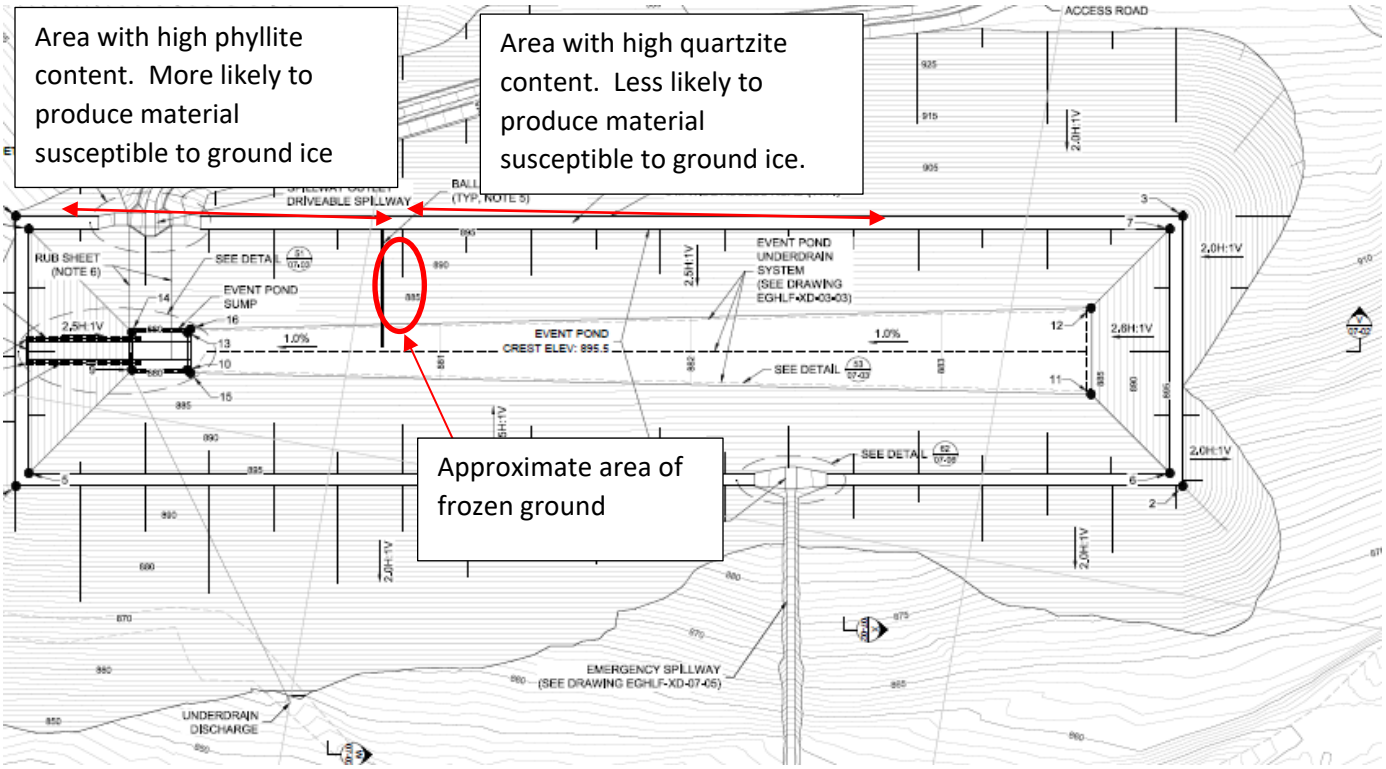


Figure 1: Event Pond frozen ground.



Photo 3: Embankment construction.



Photo 4: Material excavated from embankment lift because it would not meet density and moisture requirements.



Photo 5 : Shaping in the impoundment area.



Photo 6 : Test pit dug in the eastern area of the impoundment. Material was moist but did not contain ground ice.

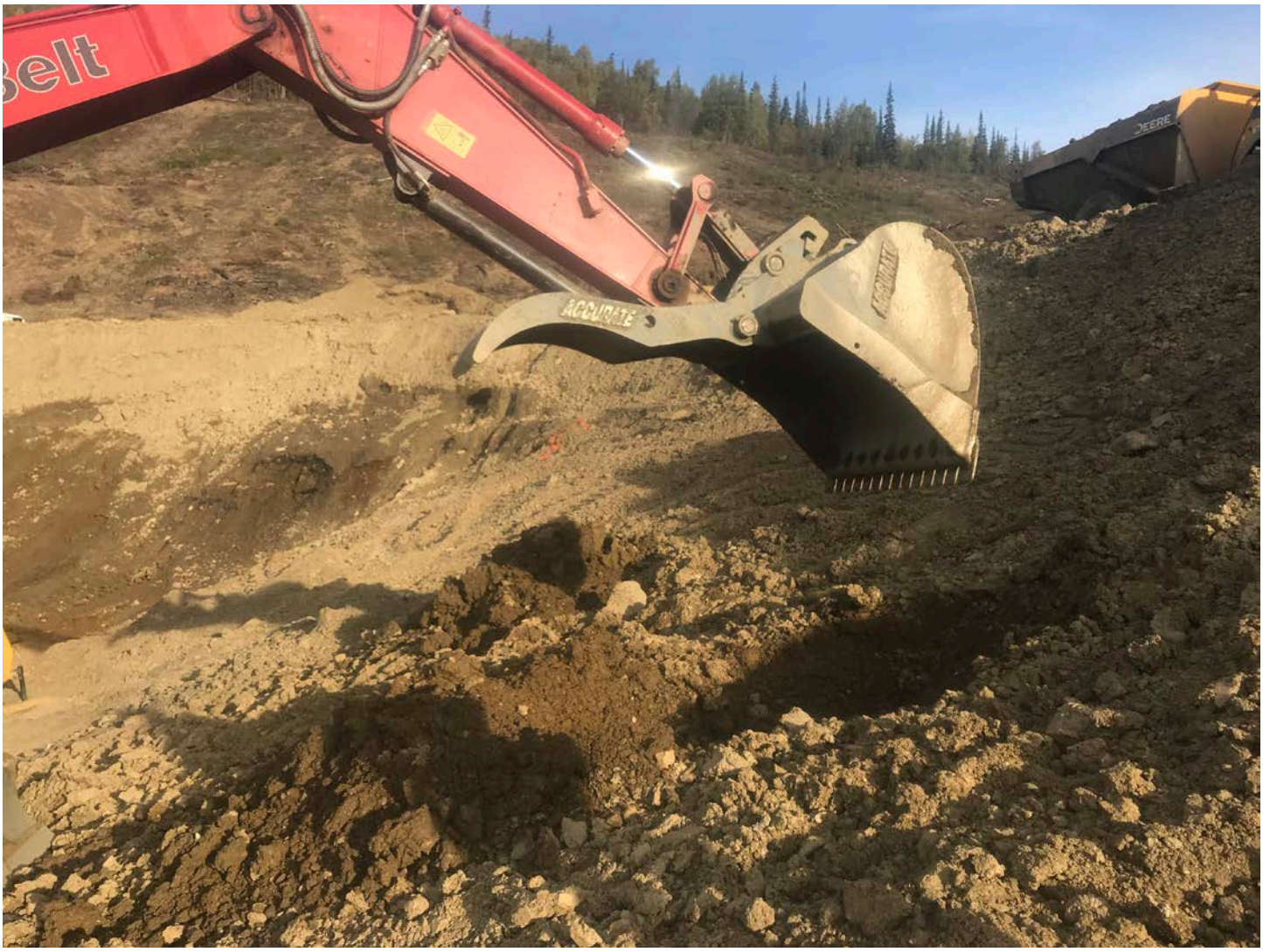


Photo 7 : Second test pit dug in the impoundment area to determine the configuration of the lateral drain. Heavy seep were observed within the 1 st meter of this test pit.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast 5°C to 14°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Test pits were dug at the event pond. The test pits were excavated east of where ice was encountered in the excavation (***Figure 1***). The maximum depth excavated was 5.5m bgs. Although cold material was encountered no ice was observed. The material observed in all of the test pits was usable as Material 3 in the embankment (***Photo 1***) with the exception of an approximately 1.5m layer of topsoil observed in Test Pit 3 (***Photo 2***). BGC will provide test pit logs for Pelly and JDS.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - Topsoil removal continued at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 3***). Material was placed to 919.93m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation.
  - BGC and Pelly discussed an additional drain to capture a seep identified within the impoundment areas (***Photo 4***).
  - Cobalt and JDS excavated test pits at the top of the Lime Silo cut. BGC will log the test pits tomorrow.
  - Pelly briefly borrowed material from a waste pile located next to ADR borrow and delivered it to the embankment (***Photo 5***). Pelly should label this pile in the field and include it in their stockpile management plan to prevent this from happening again. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil within the footprint of the Event Pond.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - Pelly continued work extending the underdrains upstream.
- Observations and Recommendations (OPEN):
  - Material excavated from the PLS sump area can be blended with imported material from the ADR at a max ratio of one 777 to two 40T rock truck loads. Depending on the composition of the materials, the ratio may be adjusted by BGC. (Ongoing)
  - BGC recommends Pelly to inspect downstream sump more frequently due to rain events on this week's forecast. (ongoing)
  - Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. (ongoing)
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 4.
  - Field density and moisture testing were provided to BGC up to September 4.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

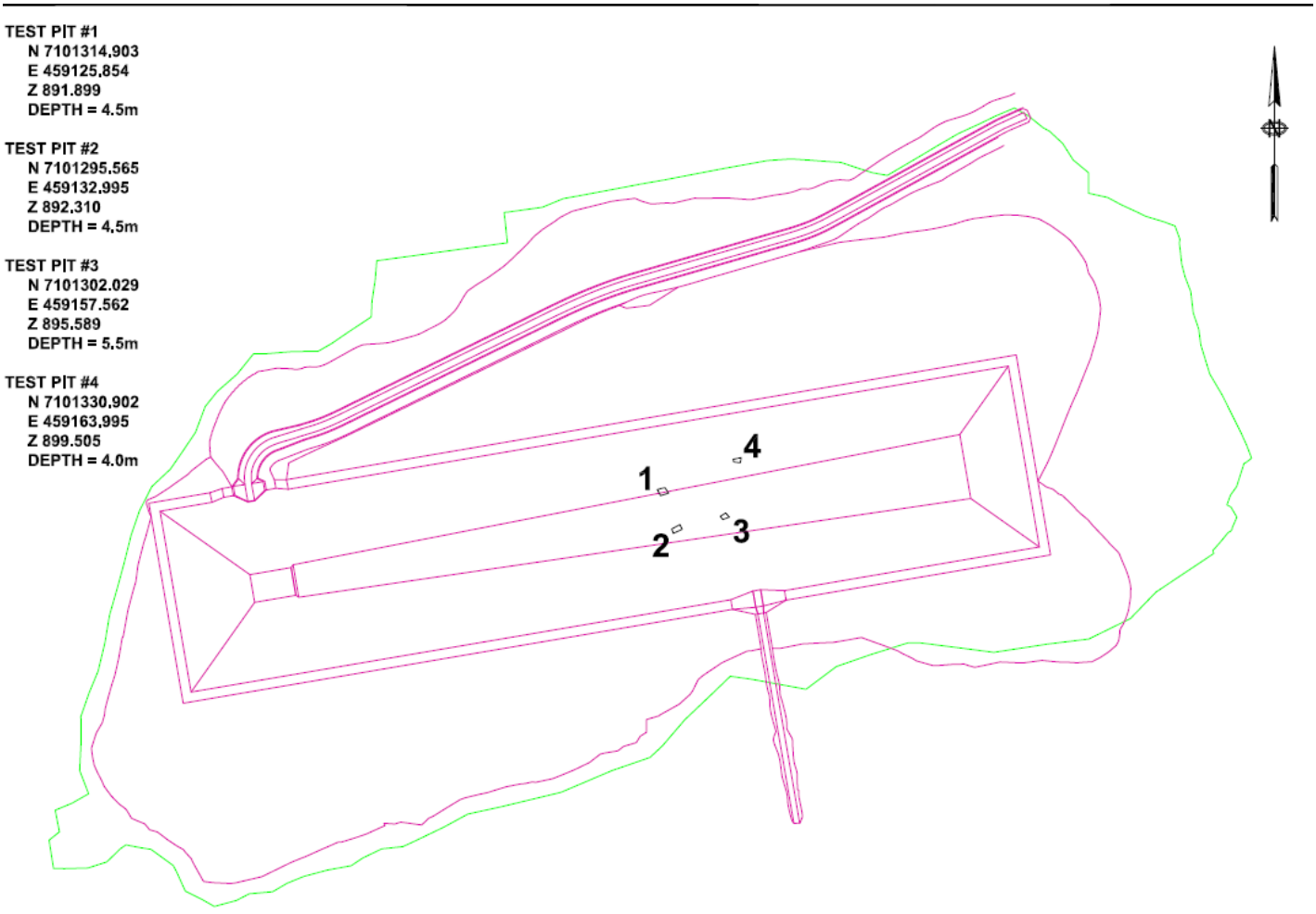


Figure 1: Test pit locations.



Photo 1: Typical spoils from Event Pond test pits.

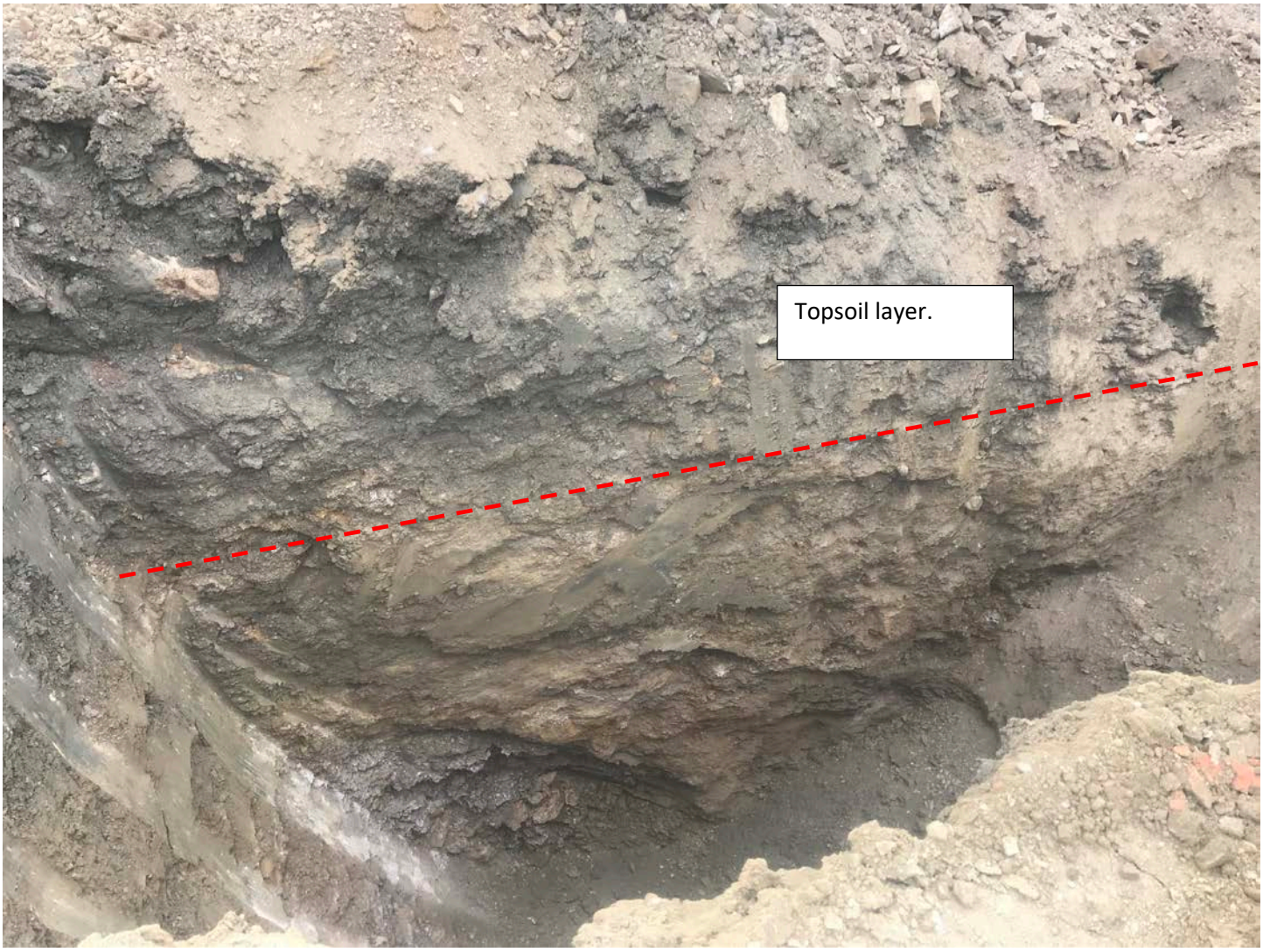


Photo 2: Topsoil layer in TP-3.



Photo 3: Embankment construction.



Photo 4: Drain configuration to capture seep.



Photo 5 : Unlabeled waste pile at the entrance to the ADR borrow.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast 4ºC to 12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 921.1m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - A finger drain was constructed leading north from lateral drain L1. (***Photo 3***)
  - BGC logged the test pits excavated near the top of the silo cut (***Photo 4***). BGC will provide logs to JDS after they have been completed and reviewed.
  - BGC visited two locations that can potentially be used to produce ODF. The first area (near the electrical substation, ***Photo 5***) was a mix of strong, quartz rich metasediments and weaker metamorphic rock. This will likely be a good source for ODF material but may produce more reject and potentially slightly weaker drain rock. The material observed in the second area (near the ROM Road, ***Photo 6***) was much more competent and was composed of hard, quartz rich, partially silicified metasediments. This area would likely produce stronger drain material with less reject. An email summarizing this visit and BGC's observations was sent to JDS. BGC asked that JDS produce a small pile of ODF from each of these locations to determine gradation and durability through laboratory testing.
  - At JDS's request BGC visited the foundation for the Transfer Tower. BGC was asked to provide an opinion on whether there was bedrock throughout the bottom of the excavation. There was bedrock throughout the bottom of the excavation (***Photo 7***). BGC provided two emails stating this, at JDS's request. Although BGC is happy to provide assistance with non-scope items (IE, non-HLF items), we strongly recommend that matters related to foundation subgrade for critical structures include input and approval by the projects Designer to ensure that it meets the design intent.
- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil within the footprint of the Event Pond.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 5.
  - Field density and moisture testing were provided to BGC up to September 5.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Subgrade preparation for liner placement.



Photo 3: Finger drain construction.



Photo 4: Test pit TP-1 located at the top of the silo cut.



Photo 5: Potential ODF borrow location, Area 1.



Photo 6: Potential ODF material location, Area 2 (near ROM Road).



Photo 7: Transfer Tower foundation excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Overcast 0°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 921.9m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***). Wet material was placed in some isolated spots late evening or early morning yesterday, which had to be removed. Dry material was used throughout the day and no further issues were encountered.
  - The test trench through the right abutment was continued to the top of the abutment. (***Photo 3***).
  - BGC provided JDS a realignment of the western HL perimeter road moving it 30m away from the ADR cut.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. Some material is being hauled to the embankment for construction, some (finer material) is being stockpiled for construction of the Event Pond berms, and some material is being wasted. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil within the footprint of the Event Pond.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - BGC asked that JDS produce a small pile of ODF from the Electrical Substation and the ROM Road areas so they can be analyzed for gradation and durability.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF. A trench should be dug in this area to verify material properties and to note any features that could potentially cause stability issues.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 6.
  - Field density and moisture testing were provided to BGC up to September 6.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Subgrade preparation for liner placement.



Photo 3: Test trench through the right abutment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Clear 5ºC to 15ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 922.9m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2 and 3***).
  - An area of frozen ground was discovered near the 940 west lateral drain. Excavation of this area began. (***Photo 4***).
  - The area excavated over the right abutment continues to thaw. However, the base of the excavation appears to be in bedrock. (***Photo 5***)
  - QC on night shift reported that Pelly resumed borrow at the Event Pond.
  - BGC and Pelly caught up on official foundation approvals for the embankment. Foundation approvals 16 through 25 were signed for the record.
  - Frozen ground was identified in several test pits excavated late July on the west side of the lined impoundment area. BGC recommended that an area be excavated deeper than design grade in this area to remove ice (***Figure 1***). Since then this area has been partially exposed during shaping and road construction. This has resulted in at least partial melt of the ground ice (***Photo 6***). BGC has asked that the locations of the test pits where ground ice was found be marked by survey and in the field for reference. Ground ice in soils will have to be removed prior to placement of liner. If Pelly would like to re-evaluate the presence/thickness of ground ice to better estimate the level of effort remaining BGC recommends test pits within this area. BGC would like to be present during the excavation of these test pits to confirm and log the presence of ground ice, as is required in the Foundation Improvement Plan.
  - Pelly provided an updated stockpile management plan figure showing the location and volumes of Material 3 and some of the waste piles.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - BGC asked that JDS produce a small pile of ODF from the Electrical Substation and the ROM Road areas so they can be analyzed for gradation and durability.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 7.

- Field density and moisture testing were provided to BGC up to September 7.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping and compacting the eastern portion of the impoundment area.



Photo 3: Shaping in the central portion of the impoundment/sump area.



Photo 4: Frozen ground being excavated on the western portion of the impoundment area near the lateral/ drain trench junction.



Photo 5: Frozen/ unsuitable material cut with the western portion of the embankment footprint.

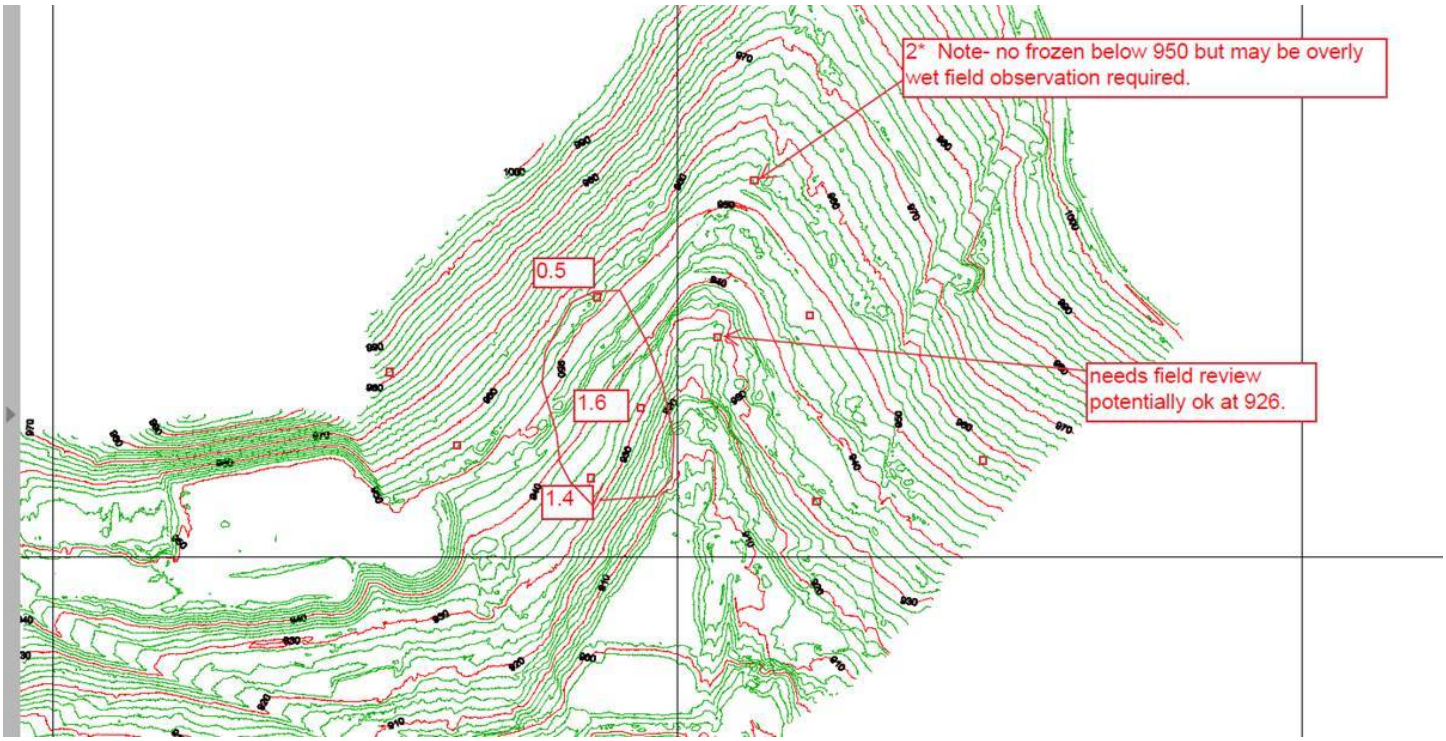


Photo 3: Area recommended for excavation deeper than design grade. Numbers are meters below design grade to remove ice observed in the test pits. This recommendation was made soon after completion of the test pits in late July. Since then work has exposed frozen ground in the area and caused melt. This area should be inspected again if Pelly would like an idea of how much effort will be needed to remove ice.

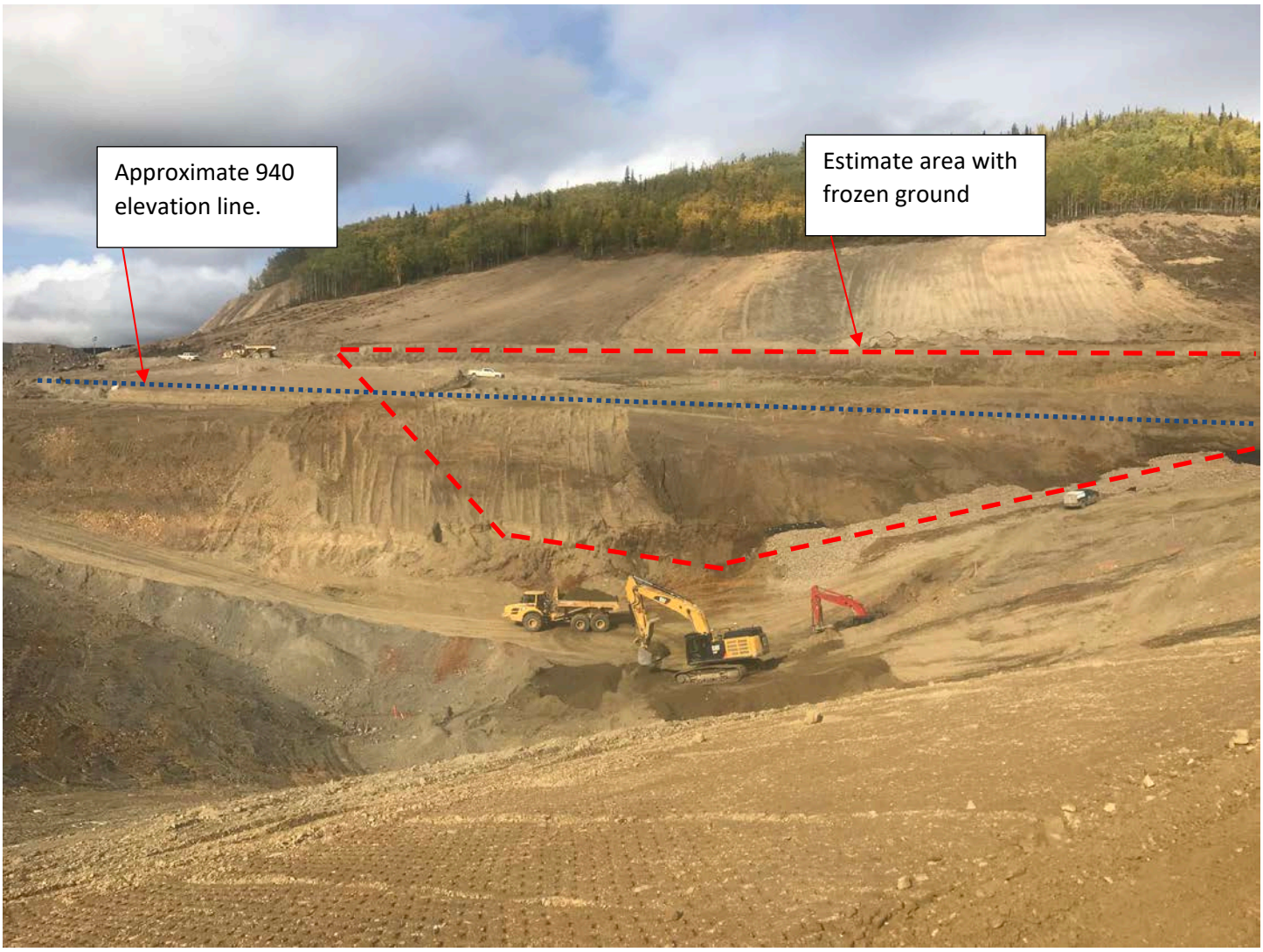


Photo 6: Estimate extent of frozen soils based on test pits excavated in late July. Ice has been melting since test pits were completed. However, ground ice in soil has still been found recently.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Clear 4ºC to 16ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 923.7m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2 and 3***).
  - The area of frozen ground found yesterday was excavated. Additional frozen ground to the west and south likely exists. (***Photo 4***). Test pits will be dug tomorrow to investigate.
  - Some material being excavated from the Event Pond was gap graded. This was happening because the material was being directly dug by an excavator vs having a dozer rip and push the material first. None of the material was rejected and no constructed lifts were removed. Pelly moved a dozer to Event Pond to rip the material prior to loading which corrected the problem. (***Photo 5***)
  - Survey marked the test pits where frozen ground was observed on the west side of the embankment. BGC and Pelly will excavate more test pits in the area to verify either that the ground ice has melted and the ground can be built on or that the ground ice still is present and has to be removed.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - BGC asked that JDS produce a small pile of ODF from the Electrical Substation and the ROM Road areas so they can be analyzed for gradation and durability.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 8.
  - Field density and moisture testing were provided to BGC up to September 8.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping and compacting the impoundment area.



Photo 3: Drain construction in the impoundment area.



Photo 4: Area of frozen ground excavated.



Photo 5: Rocky, gap graded material that was being produced from the Event Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber / Troy Meyer	**Weather:**	Clear 4ºC to 16ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 924.8m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - An area of frozen ground was being excavated by Cobalt directly over the right abutment. (***Photo 3***).
  - The wedge of colluvium and rock between the embankment and event pond cut is frozen and ice rich. (***Figure 1***). Since this area is close to the event pond cut it would could cause instability while melting. BGC recommends that frozen soils be removed from this area if they don't melt before constructing the Event Pond Cut.
  - The area where ice rich soils were found in test pits excavated in July was shaped and excavated to bedrock. None of the soils excavated from this area were frozen and likely melted over the summer. Bedrock reached was frozen and contained ice. BGC and Pelly are devising methods to control water from this exposed, melting ice during construction. (***Photo 4***).
  - The soils around the joint between the lateral drain L3 and the pipe trench was frozen and ice rich. They were removed and Pelly began backfilling this area to reconstruct the drain trench in fill. (***Photo 5***)
  - Material 2 (Reject Sand) was used to level the area on the east side of the impoundment to prepare for liner installation. (***Photo 6***)
  - BGC provided an alternative design to the liner to concrete connection.
  - BGC is developing a change the crest alignment at the left abutment to ensure this area is built on competent bedrock. Underhill's most recent topographic survey will be needed to finalize this design change. JDS will provide this survey tomorrow.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - BGC asked that JDS produce a small pile of ODF from the Electrical Substation and the ROM Road areas so they can be analyzed for gradation and durability.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC Daily Reports up to September 9.
  - Field density and moisture testing were provided to BGC up to September 9.
- BGC Recommendations:

- Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping and compacting the impoundment area.



Photo 3: Excavation of frozen ground over the right abutment.

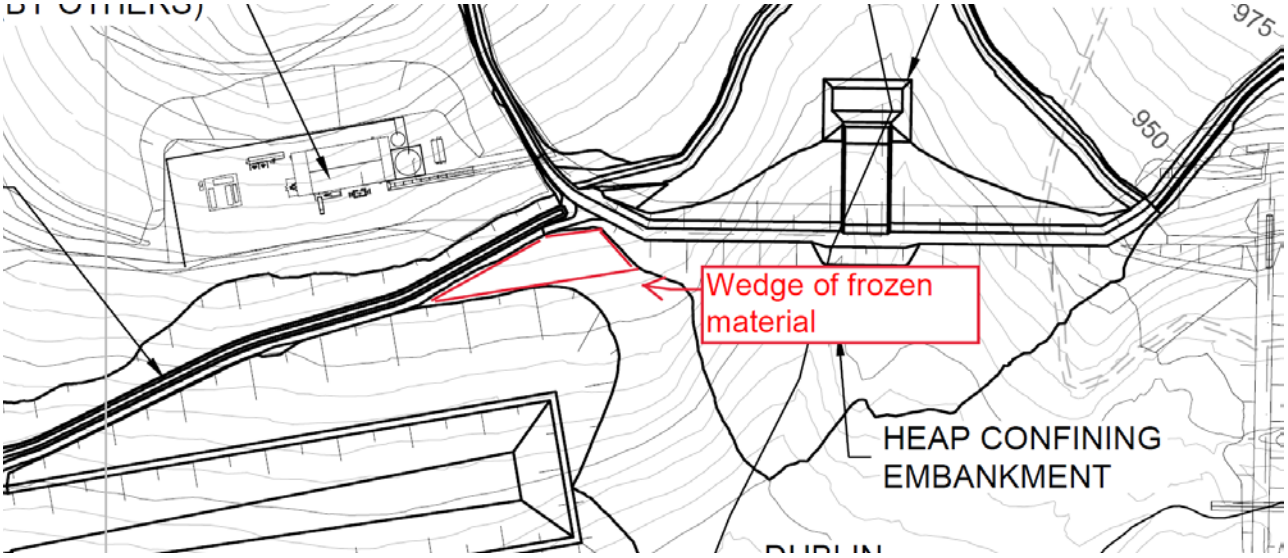


Figure 1: Area of frozen ground excavated.

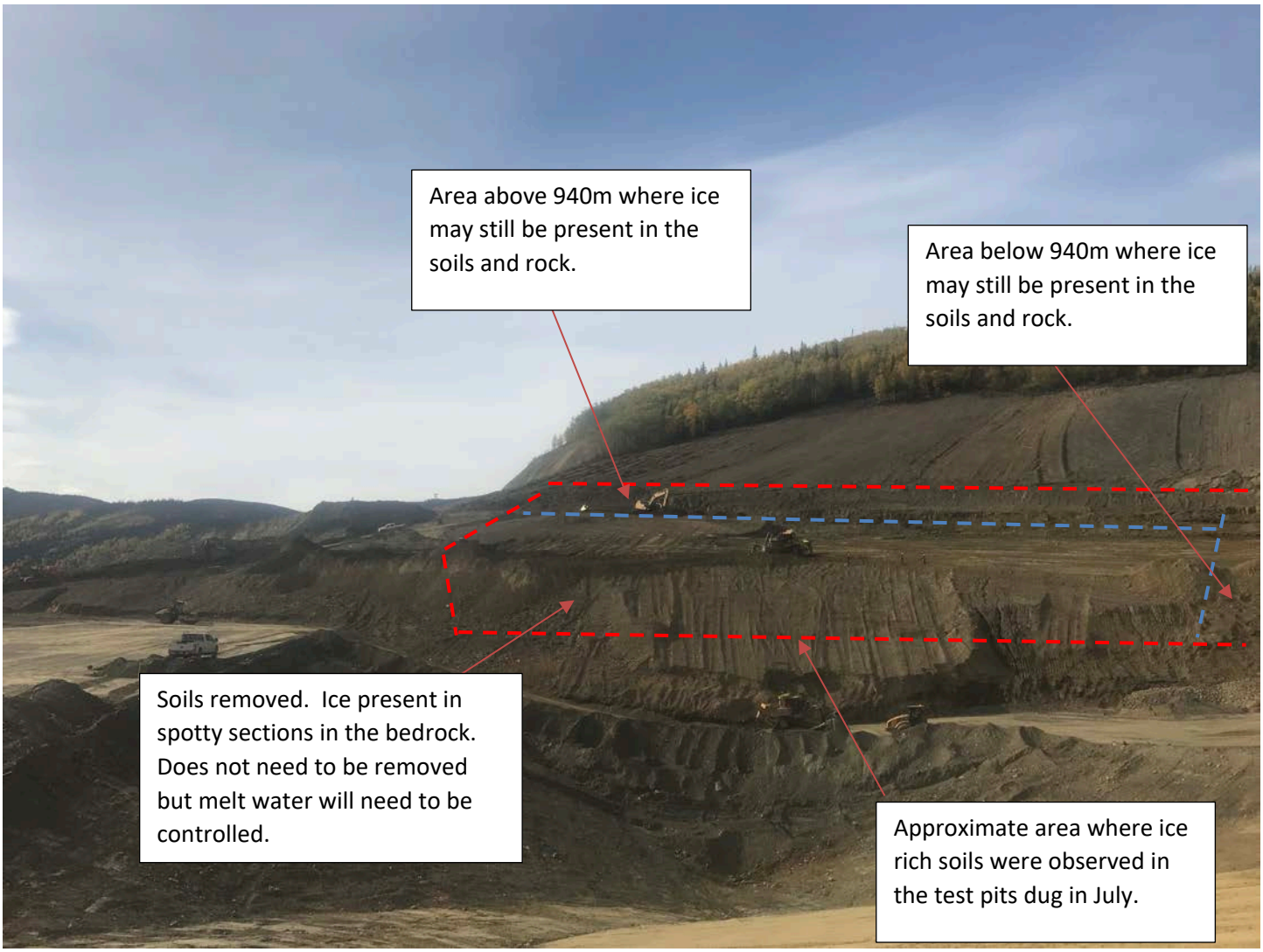


Photo 4: Formerly ice rich area excavated to bedrock as part of the impoundment shaping below 940m.



Photo 5: Cleaning the area where lateral L3 will be reconstructed.

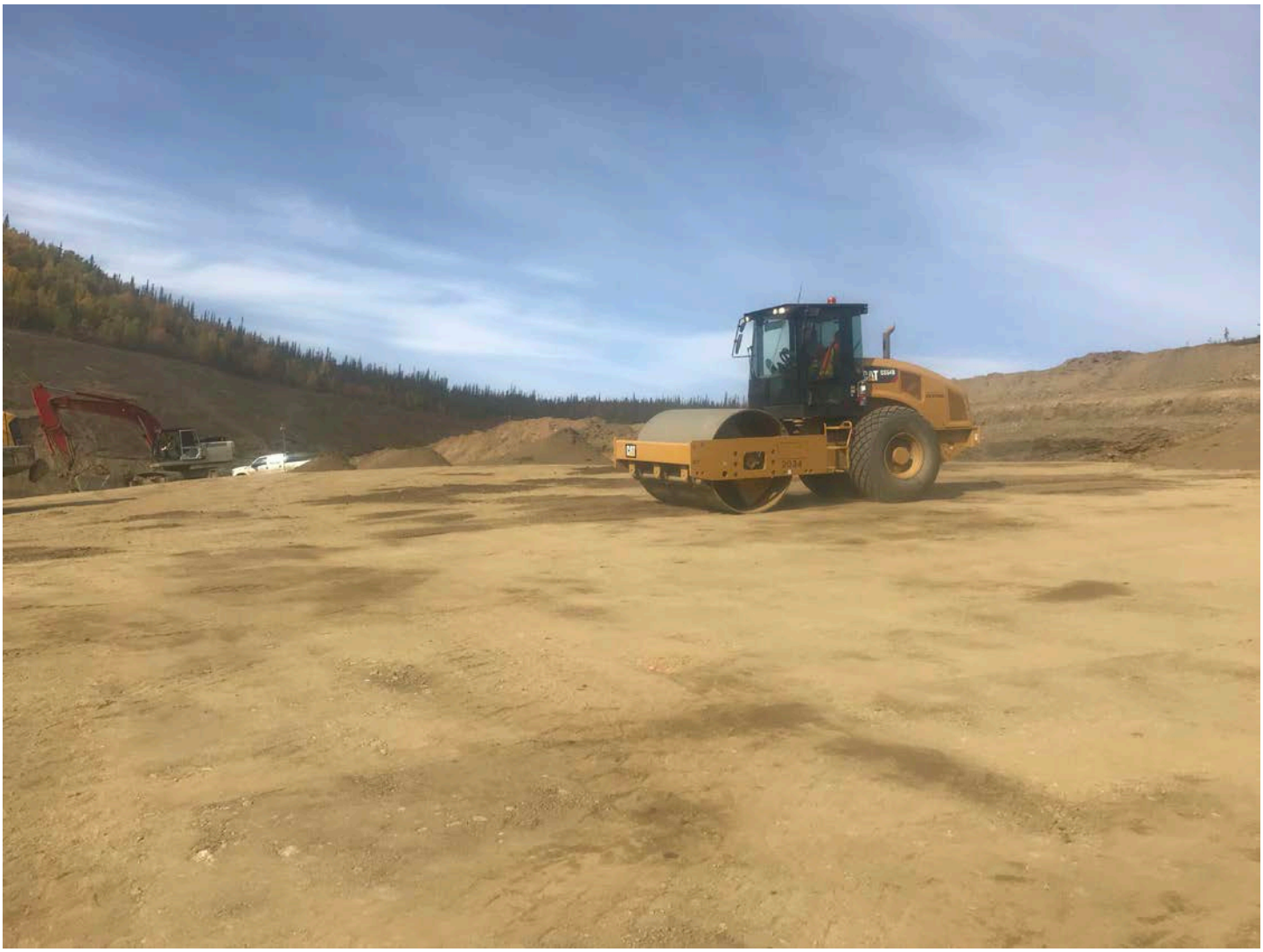


Photo 6: Re-compaction after leveling with reject sand in preparation for liner placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber	**Weather:**	Sunny 3°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Work continued at the Event Pond.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 926.8m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Liner was installed on a portion of the East In-Heap Pond area. (***Photo 3***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment.
  - Work continued on the area around the West 940 Lateral Drain.
  - BGC reviewed topo data provided by Pelly for the east side of the of the in-heap pond. This area was approved for liner installation.
  - JDS provided BGC recently collected topographic data for the embankment area to evaluate against the left abutment bend.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.
  - A wedge of colluvium and rock between the embankment and event pond cut is frozen and ice rich. This area is close to the event pond cut and may cause instability while melting. BGC recommends that frozen soils be removed from this area.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 11.
  - Field density and moisture testing were provided to BGC for September 11.
  - Tetra Tech provided QC Daily Reports for liner installation on September 11.
  - Tetra Tech delivered the Gradation results for the ODF produced from the Substation and ROM Road sources.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping and compacting the impoundment area.



Photo 3: Liner installation at the East In-Heap Pond/ Heap Pad area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Ethan Faber/ Elliot Mathews	**Weather:**	Cloudy -3ºC to 9ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Elliot Mathews with BGC arrived on site. Ethan Faber will leave tomorrow.
  - Work continued at the Event Pond. Pelly stopped excavating on the night shift due to the presence of ice rich materials.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 927.6m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Liner was installed on a portion of the East In-Heap Pond area. (***Photo 3***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment.
  - Work continued on the area around the West 940 Lateral Drain. A pocket of frozen colluvium was discovered north of the completed drain. When following it the frozen material sloped under an approved area of the drain. The drain and frozen material was dug up. (***Photo 4 and 5***) Ice rich, thaw unstable, or frost susceptible soils, even if found under approved completed construction, will have to be removed per the Foundation Improvement Plan. (**Figure 1**). As this area is excavated if frost slopes under the completed drain trench, the drain trench will have to be removed and rebuilt. The construction is currently moving towards the west side of the impoundment and heap leach pad where ice rich, thaw unstable soils are known to be present. If the risk of removing completed construction is not acceptable to JDS and Pelly then BGC recommends completing test pits or drilling in all approved areas before construction begins there. Test pit/drilling spacing will be provided or approved by BGC and will be dependent on the area shape and size.
  - BGC approved Section 29 of the embankment foundation.
  - BGC approved a grade break of 2.5:1 to 1.5:1 at on the downstream embankment face starting at 930.5m to allow for a wider crest in the area where the impoundment piping will be installed.
  - BGC, Pelly, and JDS discussed methods to control melt water daylighting on the west side of the impoundment. The area will first be shaped then wet areas will be addressed using placing blast rock against wet slopes or new drains. Areas shaped in soils will be test pitted to verify that no frozen, ice rick, thaw unstable soils are present.

- Observations and Recommendations (Open/Ongoing):
  - Material being generated from the Event Pond was variable. JDS and Pelly should update the material management plan to track the volumes and locations of these materials to ensure that they are not used incorrectly. This will also help with planning on what material can be placed before the end of the season and how to protect stockpiled material from becoming over saturated over the winter season. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when phyllitic material (identified as a gray, clayey material) is encountered BGC should be notified to inspect the borrow cut. Ice or flowing water has been routinely found either in these phyllitic layers or direction above them if the phyllitic layer is degraded to clay and acts as an aquitard. Since ice rich material creates zones of oversaturation and low density when used for lift construction, identifying this material at the source before placement will help ensure that placed lifts will not have to be removed.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 12.

- Field density and moisture testing were provided to BGC for September 12.
- Tetra Tech provided QC Daily Reports for liner installation on September 12.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping and compacting the impoundment area.



Photo 3: Liner installation at the East In-Heap Pond/ Heap Pad area.



Photo 4: Area were frozen soils were discovered.



Photo 5: Area were frozen soils were discovered.

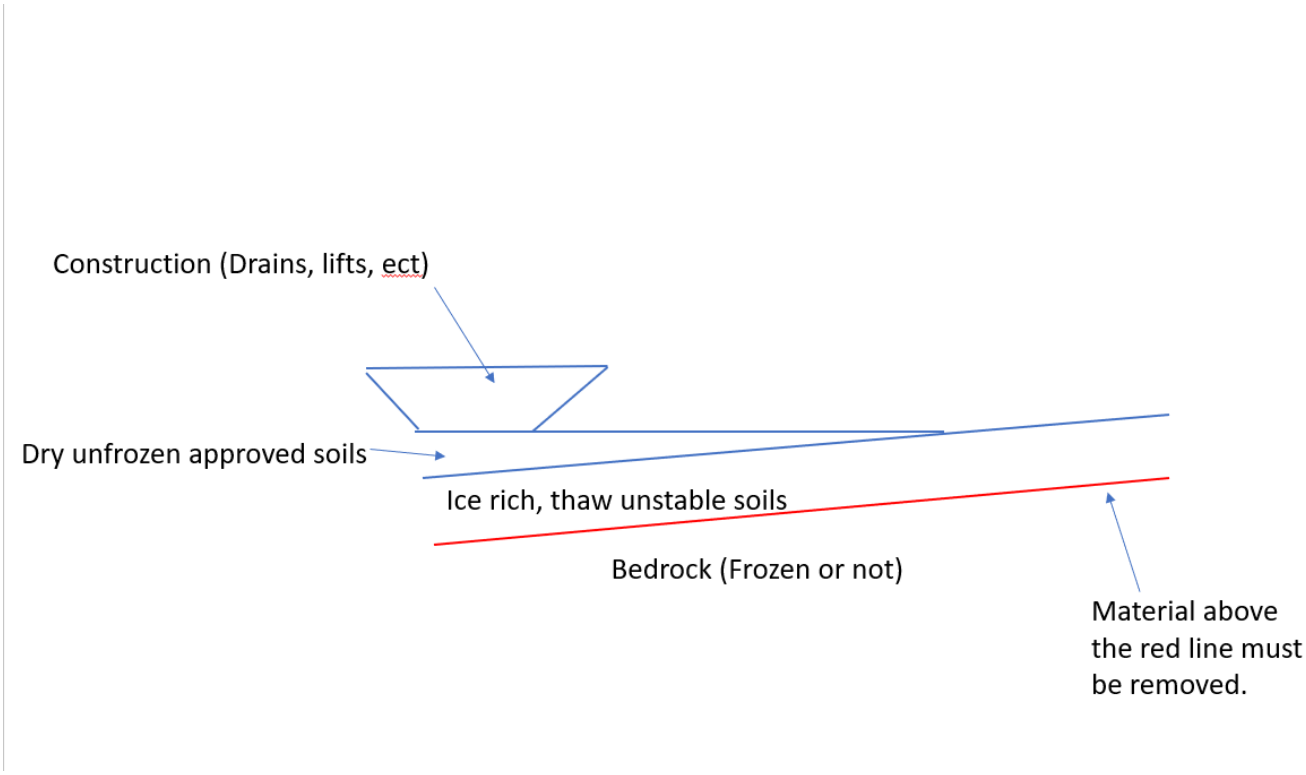


Figure 1: Responding to thaw unstable soils under construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Cloudy 5°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Ethan Faber left site
  - Work continued at the Event Pond. BGC and Pelly delineated icy materials and developed a plan to borrow the area.
  - I pile of ice-rich material was created during the clean up the of the Event Pond borrow. This pile is located approximately 15m west of the area being borrowed. Pelly stated that they plan to let this material sit to allow it to melt. BGC should inspect this pile again before use. The pile should be labeled and included in the stockpile management plan so it is not accidentally borrowed. (***Figure 1***)
  - Material excavated from the east side of the in-heap pond area was used as structural fill in the embankment.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 1***). Material was placed to 928.5m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - The area where thaw unstable frozen soils were found was backfilled. BGC delineated where rock was observed. Frozen soils were left in place above the rock to the north and west of the backfilled area (***Photo 3***). Pelly stated that once they continue clearing this area they will excavate out their construction to remove these frozen areas. This thaw unstable soils will have to be removed even if ice melts.
  - Liner was installed on a portion of the East In-Heap Pond area. (***Photo 4***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 5***)

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
  - It is likely that ice rich ground will be encountered in the Event Pond area where there are pockets or zones of phyllitic material. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.
  - BGC approved a grade break of 2.5:1 to 1.5:1 at on the downstream embankment face starting at 930.5m to allow for a wider crest in the area where the impoundment piping will be installed.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 13.
  - Field density and moisture testing were provided to BGC for September 13.
  - Tetra Tech provided QC Daily Reports for liner installation on September 13.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None

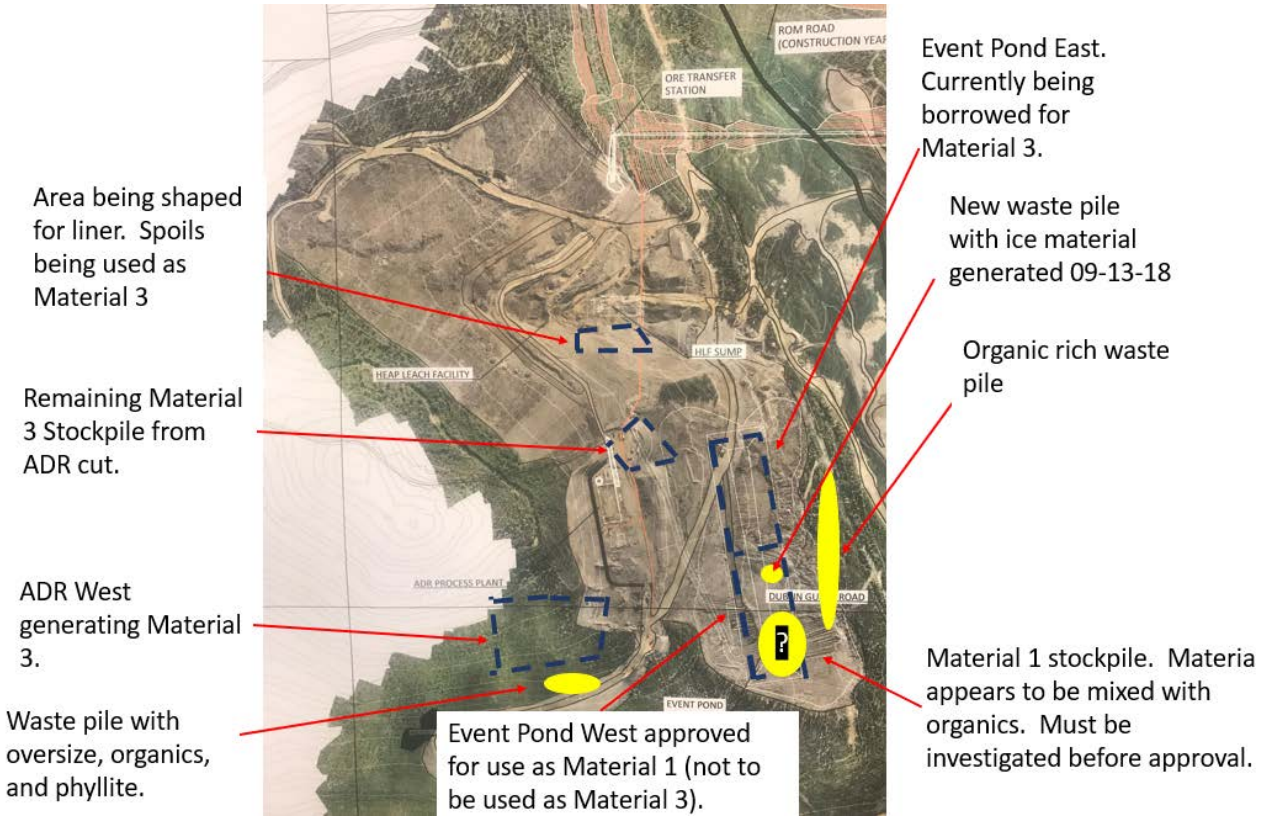


Figure 1: Location of borrows and waste piles. Waste piles are close to borrows and should be labeled in the Materials Management Plan and the field to reduce the risk of accidental borrow.



Photo 1: Embankment construction.



Photo 2: Shaping area on west side of the impoundment.



Photo 3: Area of frozen ground approved and what will need rework when construction resumes in this area.



Photo 4: Liner installation.



Photo 5: Cobalt excavating frozen ground.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Cloudy -3°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Work continued at the Event Pond. (***Photo 1***)
  - The pile of icy material at the event pond was added to and has grown in size. It is located against the area where good material is being borrowed. The pile was accidently borrowed during both the day and night shift today. QA and QC caught this early each time and was able to stop it. The pile should be labeled and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. (***Figure 1***)
  - Material excavated from the west side of the in-heap pond was tested and failed density and moisture in spots. This material is significantly finer. BGC has recommended it stopped being used in the embankment unless placed in 30 cm loose lifts. The material looks like it would be well suited for Material 1 or Material 2 under the liner. However, it should be placed in maximum 30cm loose lifts in these areas as well. QA and QC will continue to monitor this material when it is used to ensure it is meeting specification requirements. Further modifications to the placement and compaction methods may be needed. (***Photo 2 and Figure 2***)
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 3***). Material was placed to 929.5m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 4***).
  - The lateral drain excavated when frozen material was found was re-built (West 940 Lateral Drain). Pipe for the lateral was connected to the underdrain trench using electro-fusion. (***Photo 5***).
  - Liner was installed on a portion of the East In-Heap Pond area. (***Photo 6***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 7***)
  - The re-alignment of the left abutment road was verified vs the most recent topographic data provided by JDS. A final figure and CAD file for the re-alignment was sent to JDS. BGC has requested an RFI from JDS/Pelly to allow for formal tracking of this change.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) near the ADR cut.
    - Waste topsoil at the toe of the Event Pond.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond.
    - Ice rich material near the Event Pond borrow.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.
  - BGC approved a grade break of 2.5:1 to 1.5:1 at on the downstream embankment face starting at 930.5m to allow for a wider crest in the area where the impoundment piping will be installed.

QA/QC Results

- QA/QC:

- Tetra Tech provided HLF earthworks QC Daily Reports for September 14.
- Field density and moisture testing were provided to BGC for September 14.
- Tetra Tech provided QC Daily Reports for liner installation on September 14.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Event Pond excavation.

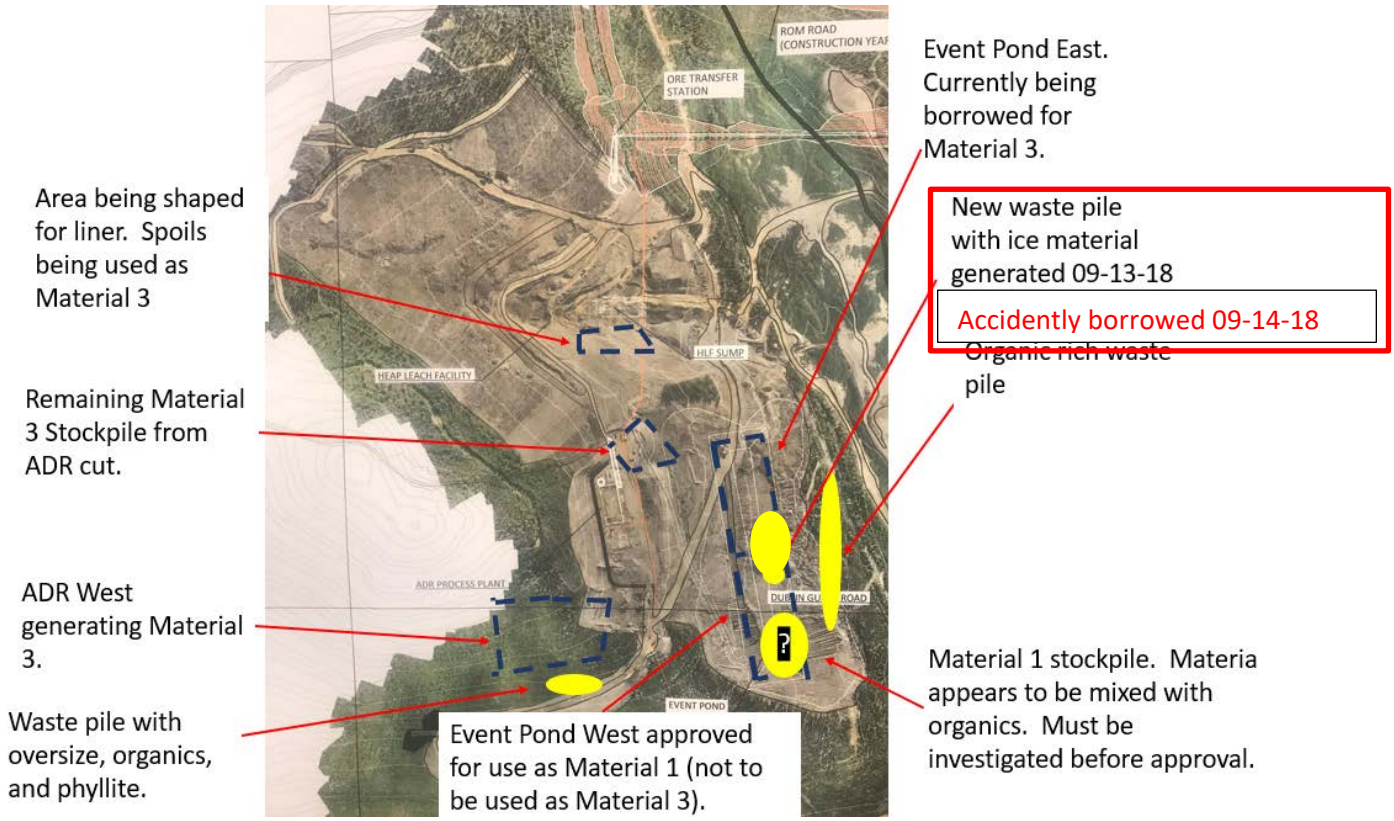


Figure 1: Location of borrows and waste piles. Waste piles are close to borrows and should be labeled in the Materials Management Plan and the field to reduce the risk of accidental borrow.



Photo 2: Typical material being produced from the west side of the HLF grading.

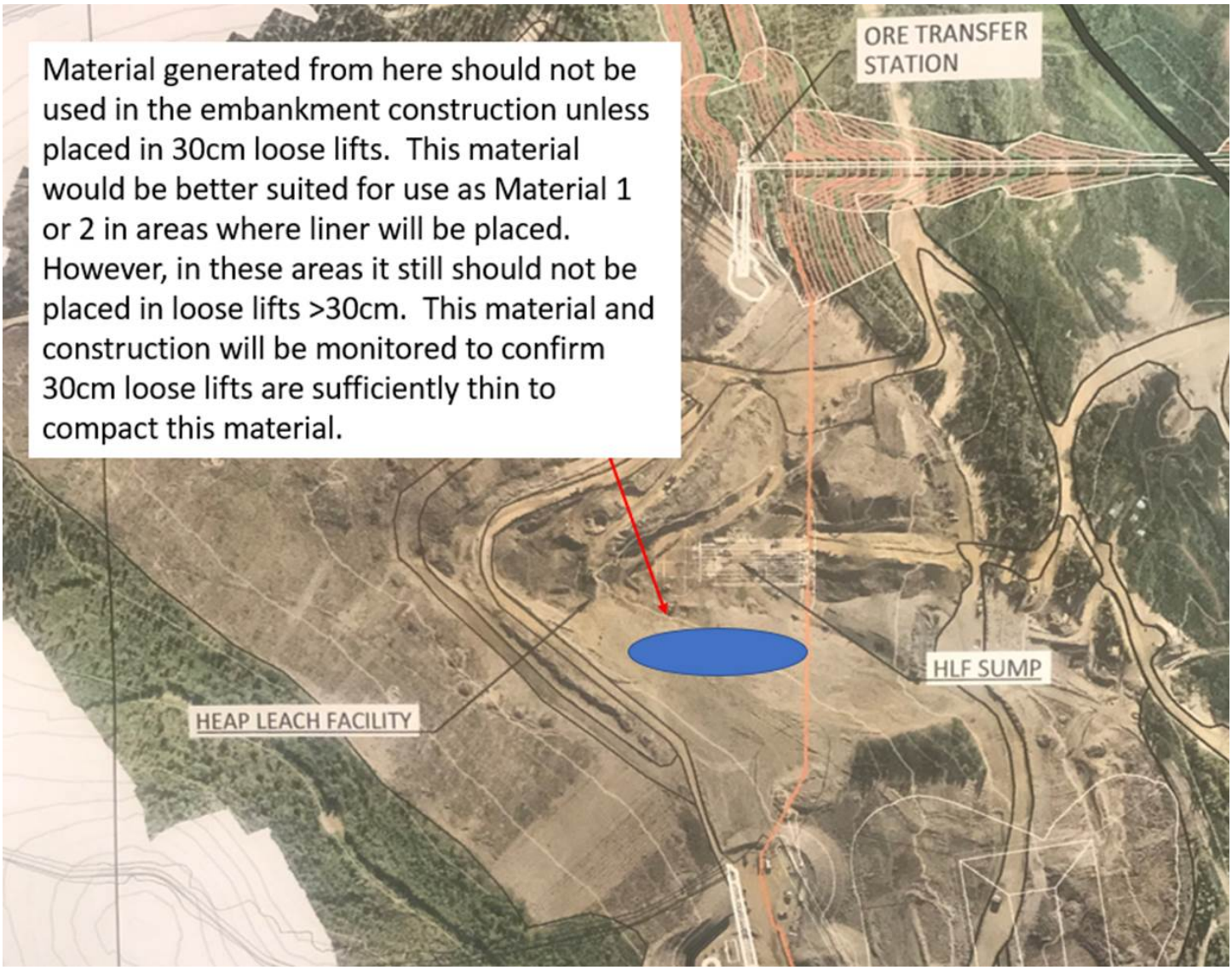


Figure 2: Area where finer material is being produced.



Photo 3: Embankment construction.



Photo 4: Shaping the western portion of the in-heap pond.



Photo 5: Fused pipe in the West 940 Lateral.



Photo 6: Liner installation.



Photo 7: Cobalt excavating frozen material.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -6ºC to 12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No work was performed at the Event Pond.
  - The embankment construction continued using a mix of material from the ADR West and the Material 3 stockpile on the ADR East. A couple of times the stockpile at the ADR East was dug too deep and organic rich material was brought to the site. BGC had this material removed from the lifts. (***Photo 1***). On the night shift a mix of material from the ADR West and material from clearing the West HLF area were used. The material from the West HLF was significantly finer so it was placed in 30cm loose lifts and required 3 passes with a 12 ton compactor and 4 passes with a 9 ton compactor.
  - Pelly placed structural fill (Material 3) at the embankment (***Photo 2***). Material was placed to 930.5m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 3***).
  - A portion of the West 940 Lateral Drain was completed. (***Photo 4***)
  - Liner installation continued. The geonet portion of liner was installed in part of the eastern in-heap pond area. (***Photo 5***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 6***)
  - Nighttime temperatures will be below freezing for the next 5 to 7 days. QA and QC will monitor Material 3 temperatures at night and early morning and determine if lift scarification will be necessary.

- Observations and Recommendations (Open/Ongoing):
  - The pile of icy material at the event pond was accidently borrowed several times. BGC placed a sign on the material to help the operators identify it. The pile should be labeled properly by Pelly or JDS and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete. (***Photo 4***)

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.
  - BGC approved a grade break of 2.5:1 to 1.5:1 at on the downstream embankment face starting at 930.5m to allow for a wider crest in the area where the impoundment piping will be installed.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.

BGC ENGINEERING INC.
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QA/QC Results
• QA/QC: o Tetra Tech provided HLF earthworks QC Daily Reports for September 15. o Field density and moisture testing were provided to BGC for September 15. o Tetra Tech provided QC Daily Reports for liner installation on September 15. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Organic rich material brought to the embankment construction.



Photo 2: Embankment construction.



Photo 3: Shaping the West HLF area.

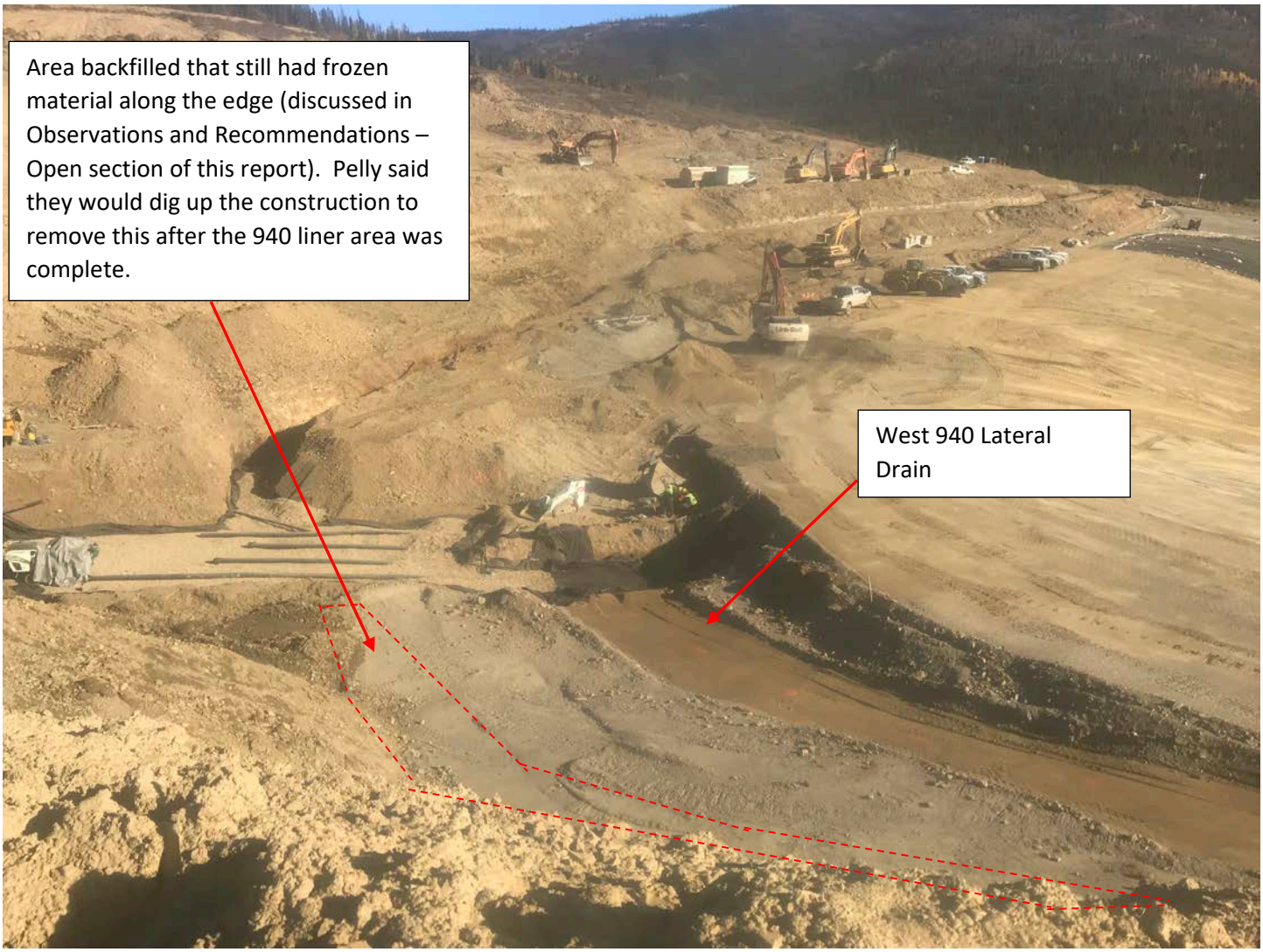


Photo 4: West 940 Lateral portion completed and covered with Material 2.



Photo 5: Geonet portion of liner being installed.



Photo 6: Excavation of frozen material at the embankment right abutment/ spill way tie in area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -1°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The Event Pond was used for borrow today.
  - The embankment construction continued using a mix of material from the ADR West and the Event Pond. (***Photo 1***). Material was placed to 930.5m. An approximately 10m x 4m area was removed from the compacted lift placed on the day shift because it was constructed with unsuitable material brought from the Event Pond. The issue was identified and corrected quickly and no further issues were reported on the night shift.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***). Pelly chose to connect the infiltration trench dug on this area to the under drains. This was approved and overseen by BGC. (***Photo 3***)
  - Another portion of the West 940 Lateral Drain was completed. (***Photo 4***)
  - Liner installation continued. The geonet portion of liner was installed in part of the eastern in-heap pond area. (***Photo 5***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 6***). JDS discussed the possibility of revising the spillway in the area where this material is being excavated due to the need for substantial fill in this area. BGC requested the most recent topographic data to evaluate this.

- Observations and Recommendations (Open/Ongoing):
  - The pile of icy material at the event pond was accidently borrowed several times. BGC placed a sign on the material to help the operators identify it. The pile should be labeled properly by Pelly or JDS and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Nighttime temperatures will be below freezing until September 22. QA and QC will monitor Material 3 temperatures at night and early morning and determine if lift scarification will be necessary.

- Engineering:
  - BGC has analyzed the stability of the as-built ADR cut west of the HLF. The results indicate a required minimum setback of 30m from the crest of the cut to the centerline of the perimeter road.
  - An initial preliminary setback of 30m has been suggested for the planned lime silo cut on the east side of the HLF.
  - BGC approved a grade break of 2.5:1 to 1.5:1 at on the downstream embankment face starting at 930.5m to allow for a wider crest in the area where the impoundment piping will be installed.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 16.
  - Field density and moisture testing were provided to BGC for September 16.
  - Tetra Tech provided QC Daily Reports for liner installation on September 16.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
None		

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping impoundment west side.



Photo 3: Connecting exfiltration trench to underdrains on west impoundment area.



Photo 4: West 940 Lateral portion approved for drain filling.



Photo 5: Liner placement.



Photo 6: Excavation of frozen material at the embankment right abutment/ spill way tie in area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -6ºC to 14ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The Event Pond was used for borrow today.
  - The embankment construction continued using a mix of material from the ADR West and the Event Pond. (***Photo 1***). Material was placed to 932.85m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed. In some areas Material 3 has been used for filling, which is acceptable but will need additional work to prepare it for liner placement. Areas that are too rocky or have protrusions or voids greater than 0.5" should be covered with Material 2 to create a smooth, dry surface for the liner installation.
  - Liner installation continued. The geonet portion of liner was installed in part of the eastern in-heap pond area. (***Photo 3***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 4***). JDS discussed the possibility of revising the spillway in the area where this material is being excavated due to the need for substantial fill in this area. BGC requested the most recent topographic data to evaluate this.
  - The embankment right abutment cannot be completed because of work being done to remove ice rich material from the footprint. In the meantime the embankment raise continues. When the right abutment and spillway are completed they will have to be tied in (benched) to the raise construction. This will require a significant amount of excavation into the completed embankment.
  - BGC provided the CAD file for embankment grade change at the pipe installation corridor.
  - BGC drafter the following RFI's: BGC-RFI-010, BGC-RFI-011, BGC-RFI-012.

- Observations and Recommendations (Open/Ongoing):
  - The pile of icy material at the event pond was accidently borrowed several times. BGC placed a sign on the material to help the operators identify it. The pile should be labeled properly by Pelly or JDS and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Nighttime temperatures will be below freezing until September 22. QA and QC will monitor Material 3 temperatures at night and early morning and determine if lift scarification will be necessary.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.

- Engineering:

- BGC will look at options for completion of the right abutment and spillway invert once JDS has provided an updated topographic map showing the current known bedrock surface.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 17.
  - Field density and moisture testing were provided to BGC for September 17.
  - Tetra Tech provided QC Daily Reports for liner installation on September 17.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping impoundment west side.



Photo 3: Liner installation.



Photo 4: Excavation of frozen material at the embankment right abutment/ spill way tie in area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -6ºC to 13ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The Event Pond was used for borrow today.
  - The embankment construction continued using a mix of material from the ADR West and the Event Pond. (***Photo 1***). Material was placed to 934.5m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Liner installation continued. The top layer of geomembrane liner was installed in part of the eastern in-heap pond area. (***Photo 3***).
  - An area of frozen ground is being excavated by Cobalt directly over the right abutment. (***Photo 4***). Underhill surveyed this area to allow BGC to evaluate the spillway invert location. The results will be sent to BGC once processed.
  - BGC answered CC206-RFI-010-HLF.
  - BGC received and answered CC206-RFI-012-HLF.

- Observations and Recommendations (Open/Ongoing):
  - The pile of icy material at the event pond was accidently borrowed several times. BGC placed a sign on the material to help the operators identify it. The pile should be labeled properly by Pelly or JDS and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Nighttime temperatures will be below freezing until September 22. QA and QC will monitor Material 3 temperatures at night and early morning and determine if lift scarification will be necessary.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed. In some areas Material 3 has been used for filling, which is acceptable but will need additional work to prepare it for liner placement. Areas that are too rocky or have protrusions or voids greater than 0.5" should be covered with Material 2 to create a smooth, dry surface for the liner installation.
  - The embankment right abutment cannot be completed because of work being done to remove ice rich material from the footprint. In the meantime the embankment raise continues. When the right abutment and spillway are completed they will have to be tied in (benched) to the raise construction. This will require a significant amount of excavation into the completed embankment.

- Engineering:

- BGC will look at options for completion of the right abutment and spillway invert once JDS has provided an updated topographic map showing the current known bedrock surface.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 18.
  - Field density and moisture testing were provided to BGC for September 18.
  - Tetra Tech provided QC Daily Reports for liner installation on September 18.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
CC206-RFI-010-HLF	Question on the perforations for the pump casing.	Closed. Responded to on September 17, 2018
CC206-RFI-012-HLF	PLS piping questions.	Closed. Responded to on September 17, 2018.

Safety Issues: None



Photo 1: Embankment construction.



Photo 2: Shaping impoundment west side.



Photo 3: Liner installation.



Photo 4: Excavation of frozen material at the embankment right abutment/ spill way tie in area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -7ºC to 12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The Event Pond was used for borrow today.
  - Test pits were dug through the frozen material stockpiles at the Event Pond. The piles are still frozen and cannot be used for HLF construction. (***Photo 1***)
  - The embankment construction continued using a mix of material from the ADR West and the Event Pond. (***Photo 2***). Material was placed to 936.8m. During placement areas were being delivered with rocky, gap graded material. This was rectified quickly once the issue was brought up to Pelly.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 3***).
  - Liner installation continued. (***Photo 4***).
  - An area of frozen ground is being excavated by Pelly directly over the right abutment. (***Photo 5***).

- Observations and Recommendations (Open/Ongoing):
  - The pile of icy material at the event pond was accidently borrowed several times. BGC placed a sign on the material to help the operators identify it. The pile should be labeled properly by Pelly or JDS and included in the stockpile management plan so it is not accidentally borrowed. As part of the management plan Pelly should consider moving the pile further away from the good borrow source if accidental borrow continues to be an issue. Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - It is likely that ice rich ground will be encountered in the Event Pond area. During borrow when icy material is encountered BGC should be notified to inspect the borrow cut. Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Nighttime temperatures will be below freezing until September 22. QA and QC will monitor Material 3 temperatures at night and early morning and determine if lift scarification will be necessary.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed. In some areas Material 3 has been used for filling, which is acceptable but will need additional work to prepare it for liner placement. Areas that are too rocky or have protrusions or voids greater than 0.5” should be covered with Material 2 to create a smooth, dry surface for the liner installation.
  - The embankment right abutment cannot be completed because of work being done to remove ice rich material from the footprint. In the meantime the embankment raise continues. When the right abutment and spillway are completed they will have to be tied in (benched) to the raise construction. This will require a significant amount of excavation into the completed embankment.

- Engineering:
  - BGC will look at options for completion of the right abutment and spillway invert once JDS has provided an updated topographic map showing the current known bedrock surface.

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 19.
  - Field density and moisture testing were provided to BGC for September 19.
  - Tetra Tech provided QC Daily Reports for liner installation on September 19.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
CC206-RFI-010-HLF	Question on the perforations for the pump casing.	Closed. Responded to on September 17, 2018
CC206-RFI-012-HLF	PLS piping questions.	Closed. Responded to on September 17, 2018.

Safety Issues: None



Photo 1: Investigating frozen stockpile at the Event Pond.



Photo 2: Lift placement at the embankment.



Photo 3: Shaping west side of in-heap pond.



Photo 4: Liner installation on the east side of the in-heap pond.



Photo 5: Approved section on the right abutment/ spill way tie in area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -5ºC to 11ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The embankment construction continued using a mix of material from the ADR West and embankment road material. (***Photo 1***). Material was placed to 938.7m.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Liner installation continued. (***Photo 3***).
  - An area of frozen ground is being excavated by Pelly directly over the right abutment. (***Photo 4***).
  - A topographic file showing the elevation of expectable subgrade on the west side of the embankment was provided by JDS. BGC discussed options and potential cuts remaining.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.
  - When the right abutment and spillway are completed they will have to be tied in (benched) to the raise construction. This will require a significant amount of excavation into the completed embankment.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 20.
  - Field density and moisture testing were provided to BGC for September 20.
  - Tetra Tech provided QC Daily Reports for liner installation on September 20.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Shaping west side of in-heap pond.



Photo 3: Liner installation on the east side of the in-heap pond.



Photo 4: Excavation of frozen material on the west side of the HLF embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Sunny -7°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The main portion of the embankment construction was completed using a mix of material from the ADR West and embankment road material. (***Photo 1***). Material was placed to 939.5m, which is the final crest elevation. The western area of the embankment will be completed next.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - A new surface for liner approval was provided to BGC by Pelly. (***Figure 1***) This drawing was shared with Tetra Tech. BGC, Tetra Tech, Layfield, and JDS visited the area to be approved. Minor work is needed to complete the area but surface and shape are acceptable.
  - Liner installation continued. (***Photo 3***).
  - An area of frozen ground is being excavated by Pelly directly over the right abutment. (***Photo 4***).
  - Pelly had 2 questions related to changes in the design and/or specifications for the HLF. For expediency these questions were answered. However, Pelly should provide RFI's to allow Victoria Gold to track these changes. The items were related to:
    - Slope of East Perimeter Road.
    - Piping details.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 21.
  - Field density and moisture testing were provided to BGC for September 21.
  - Tetra Tech provided QC Daily Reports for liner installation on September 21.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Shaping west side of in-heap pond.

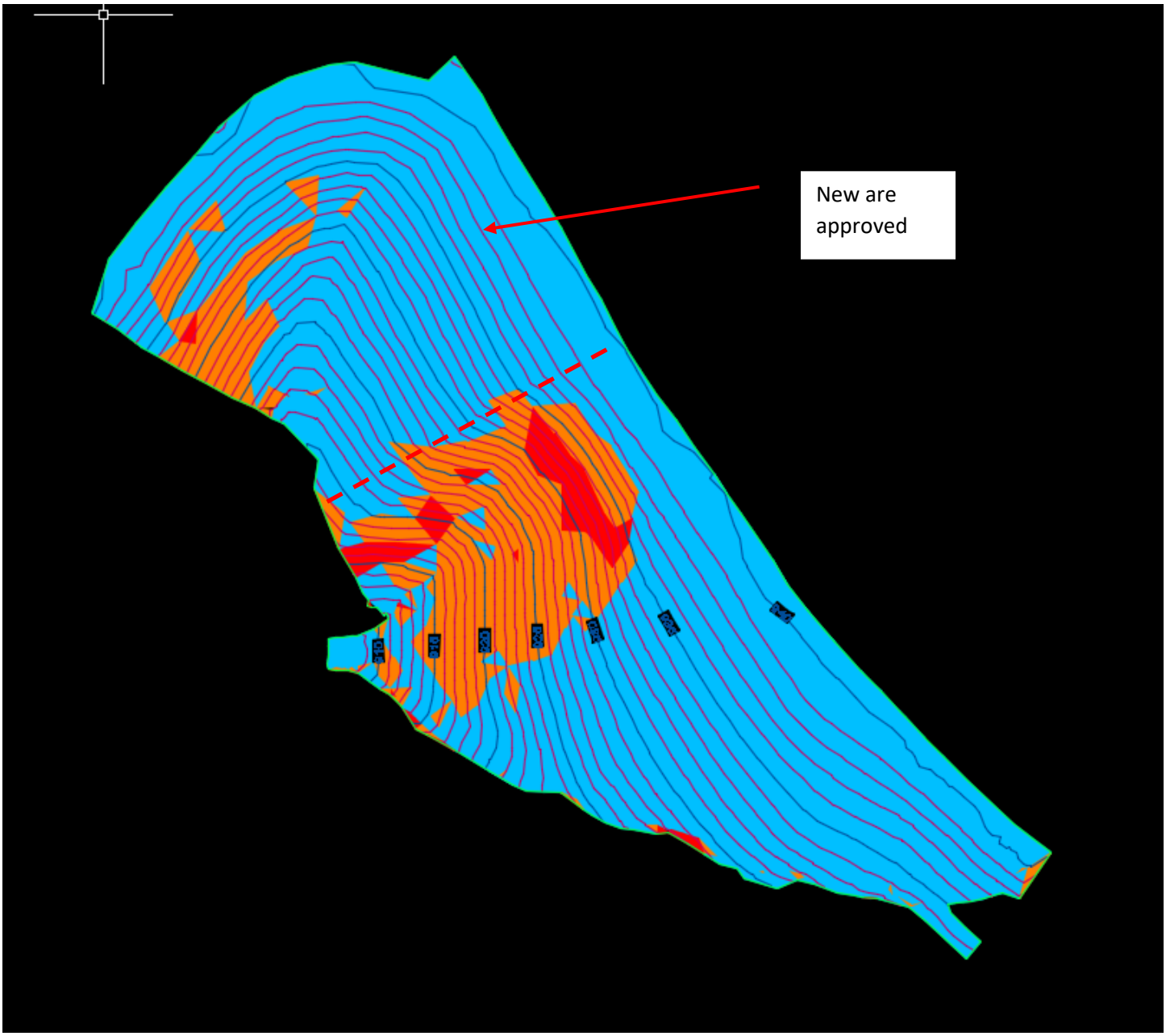


Figure 1: Surface Sent to BGC for approval. Red areas are slopes steeper than 2.5:1.



Photo 3: Liner installation on the east side of the in-heap pond.



Photo 4: Excavation of frozen material and foundation preparation on the west side of the HLF embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Light Rain -5°C to 9°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed to 928.71m on the western area of the embankment. (***Photo 1***)
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Pelly provided a new surface for the western in-heap pond area for approval. The surface was provided as a excel file.
  - Liner installation continued. (***Photo 3***).
  - An area of frozen ground is being excavated by Pelly directly over the right abutment.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 22.
  - Field density and moisture testing were provided to BGC for September 22.
  - Tetra Tech provided QC Daily Reports for liner installation on September 22.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Shaping west side of in-heap pond.



Photo 3: Liner installation in the in-heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 23, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Light Rain 0°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***). Pelly focused on regrading the cut slope in this area for safety and this limited the amount of material placed.
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***) The area where Pelly is shaping now will likely have frozen, ice rich, thaw unstable soils and will have to be excavated. This was communicated to Pelly. (***Photo 3***)
  - Liner installation continued. (***Photo 4***).
  - An area of frozen ground is being excavated by Pelly directly over the right abutment. (***Photo 5***). A wedge of frozen but not ice rich material is located between two area of ice rich ground in the excavation cut slope. This material from the surface looks acceptable as subgrade, however, it should be verified with test pits if Pelly/JDS want to construct on it. The material is finer than Material 3 used for the embankment. It would be suitable for use as Material 1.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 23.
  - Field density and moisture testing were provided to BGC for September 23.
  - Tetra Tech provided QC Daily Reports for liner installation on September 23.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Shaping the in-heap pond area.

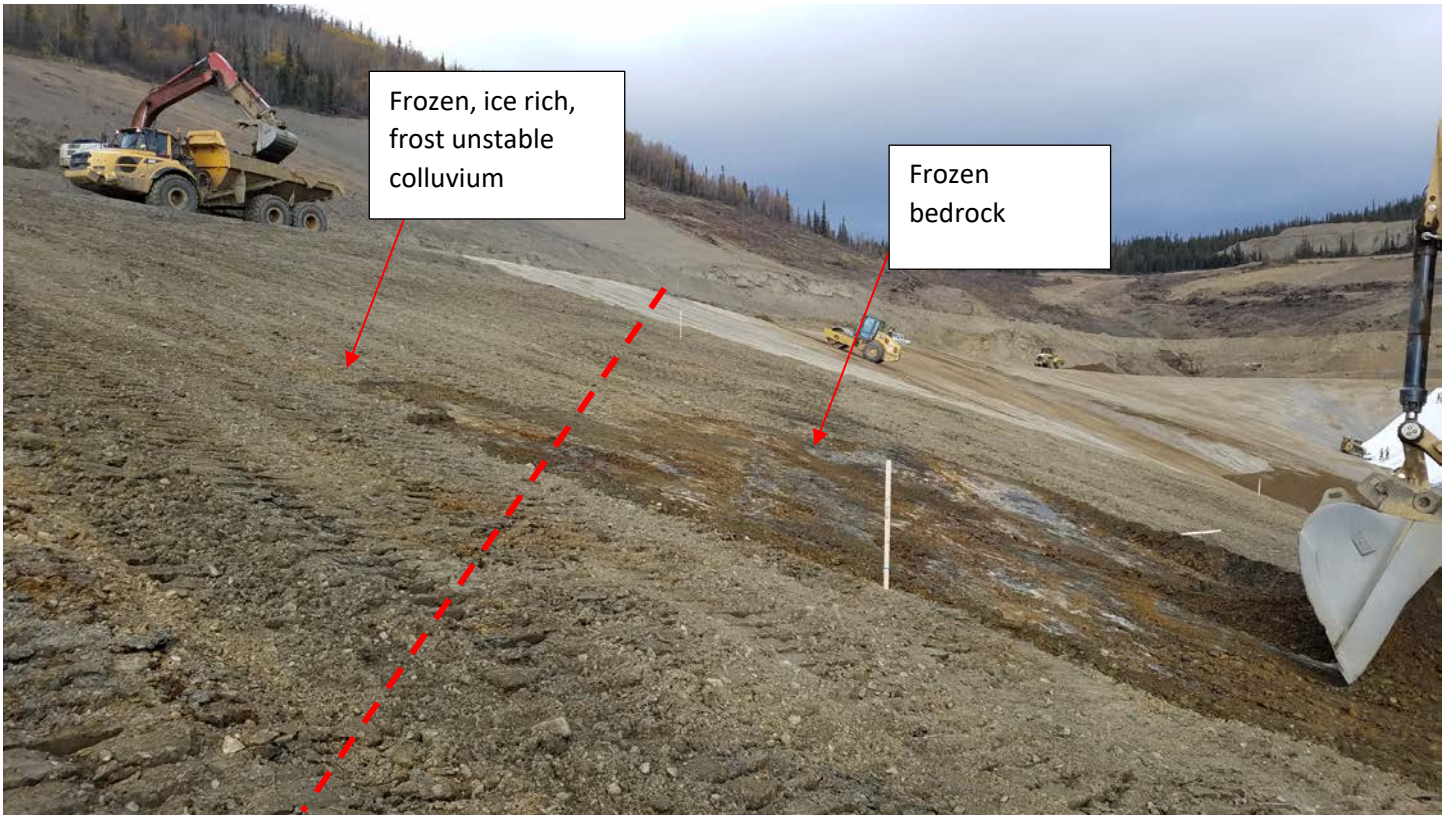


Photo 3: Area where frozen ground will need to be removed.



Photo 4: Liner installation in the in-heap pond area.

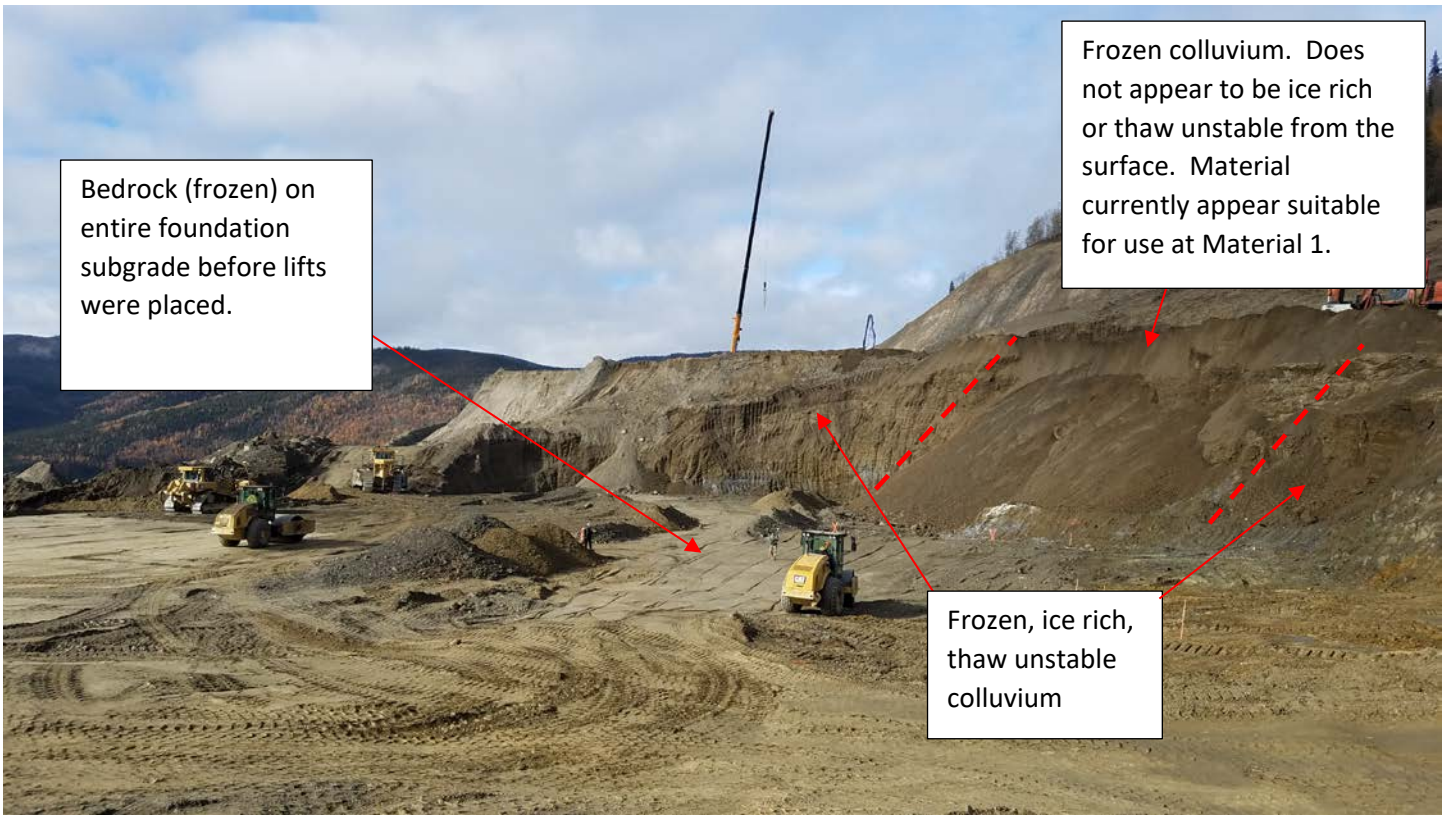


Photo 5: Frozen area being excavated.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Elliot Mathews	**Weather:**	Light Rain -4°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***) The area where Pelly is shaping now will likely have frozen, ice rich, thaw unstable soils and will have to be excavated. This was communicated to Pelly.
  - Liner installation continued. (***Photo 3***).
  - Pelly provided slope grade in in-heap pond and sump area for BGC to review and approve. BGC is verifying the shape vs the design.
  - BGC received CC204-RFI-043 from Pelly.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 24.
  - Field density and moisture testing were provided to BGC for September 24.
  - Tetra Tech provided QC Daily Reports for liner installation on September 24.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
CC204-RFI-043	Pelly is requesting revisions to the CAD file BGC provided as reference.	Open. Received September 24, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Removal of icy frozen material for liner placement.



Photo 3: Liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny/overcast -5°C to 15°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer arrived to site. Dan Granda (in) and Roy Morlan (out) cross-shifted.
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***) The area where Pelly is shaping now will likely have frozen, ice rich, thaw unstable soils and will have to be excavated. This was communicated to Pelly.
  - Liner installation continued. (***Photo 3***).
  - Pelly provided slope grade in in-heap pond and sump area for BGC to review and approve. BGC is verifying the shape vs the design.
  - BGC received CC204-RFI-043 from Pelly.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 25.
  - Field density and moisture testing were provided to BGC for September 25.
  - Tetra Tech provided QC Daily Reports for liner installation on September 25.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
CC204-RFI-043	Pelly is requesting revisions to the CAD file BGC provided as reference.	Open. Received September 24, 2018.
CC204-RFI-042	Pelly requesting info on HLF PLS Header and Recovery Piping	Closed. Received September 25, 2018. Response sent September 25, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	Further clarification on what is requested needed (Meeting to discuss preferred)

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Removal of icy frozen material for liner placement.



Photo 3: Liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny/overcast -5°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***) The area where Pelly is shaping now will likely have frozen, ice rich, thaw unstable soils and will have to be excavated. This was communicated to Pelly.
  - BGC/Pelly/JDS met (12:15 PM) at the embankment to discuss frozen, ice rich, thaw unstable soils being excavated, progress on west embankment area continues.
  - Liner installation continued. (***Photo 3***).
  - Pelly provided slope grade in in-heap pond and sump area for BGC to review and approve. BGC verified the shape vs the design, comments provided to Pelly, construction is on track.
  - BGC inspected downstream sump and underdrains for winterization progress (***Photo 4***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 26.
  - Field density and moisture testing were provided to BGC for September 26.
  - Tetra Tech provided QC Daily Reports for liner installation on September 26.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-013	PLS and LDRS Pipe Installation Approach	Sent September 26, 2018
BGC-RFI-014	Event Pond Underdrain Clarification	Sent September 26, 2018
BGC-RFI-015	HLF Closure Sump Piping Plan Clarification	Sent September 26, 2018
CC204-RFI-043	Pelly is requesting revisions to the CAD file BGC provided as reference.	Per 1PM Wednesday Sept 26 meeting, Pelly will be withdrawing this RFI request.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Removal of icy frozen material for liner placement.



Photo 3: Liner installation.



Photo 4: Downstream Underdrain of Embankment inspected.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -7°C to 5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***) The area where Pelly is shaping now will likely have frozen, ice rich, thaw unstable soils and will have to be excavated. This was communicated to Pelly.
  - Liner installation continued. (***Photo 3***).
  - Pelly provided slope grade in in-heap pond and sump area for BGC to review and approve. BGC verified the shape vs the design, comments provided to Pelly, construction is on track.
  - BGC inspected HLF and informed Pelly of underdrains upstream needed geotextile covers and to be aware of possible muddy runoff in case of a rain event or storm clogging pipes and select drain fill (***Photo 4***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 27.
  - Field density and moisture testing were provided to BGC for September 27.
  - Tetra Tech provided QC Daily Reports for liner installation on September 27.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-013	PLS and LDRS Pipe Installation Approach	Sent September 26, 2018
BGC-RFI-014	Event Pond Underdrain Clarification	Sent September 26, 2018
BGC-RFI-015	HLF Closure Sump Piping Plan Clarification	Sent September 26, 2018
BGC-RFI-016	Geomembrane and ODF Placement in Freezing Conditions	Sent September 27, 2018
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.

Safety Issues: None

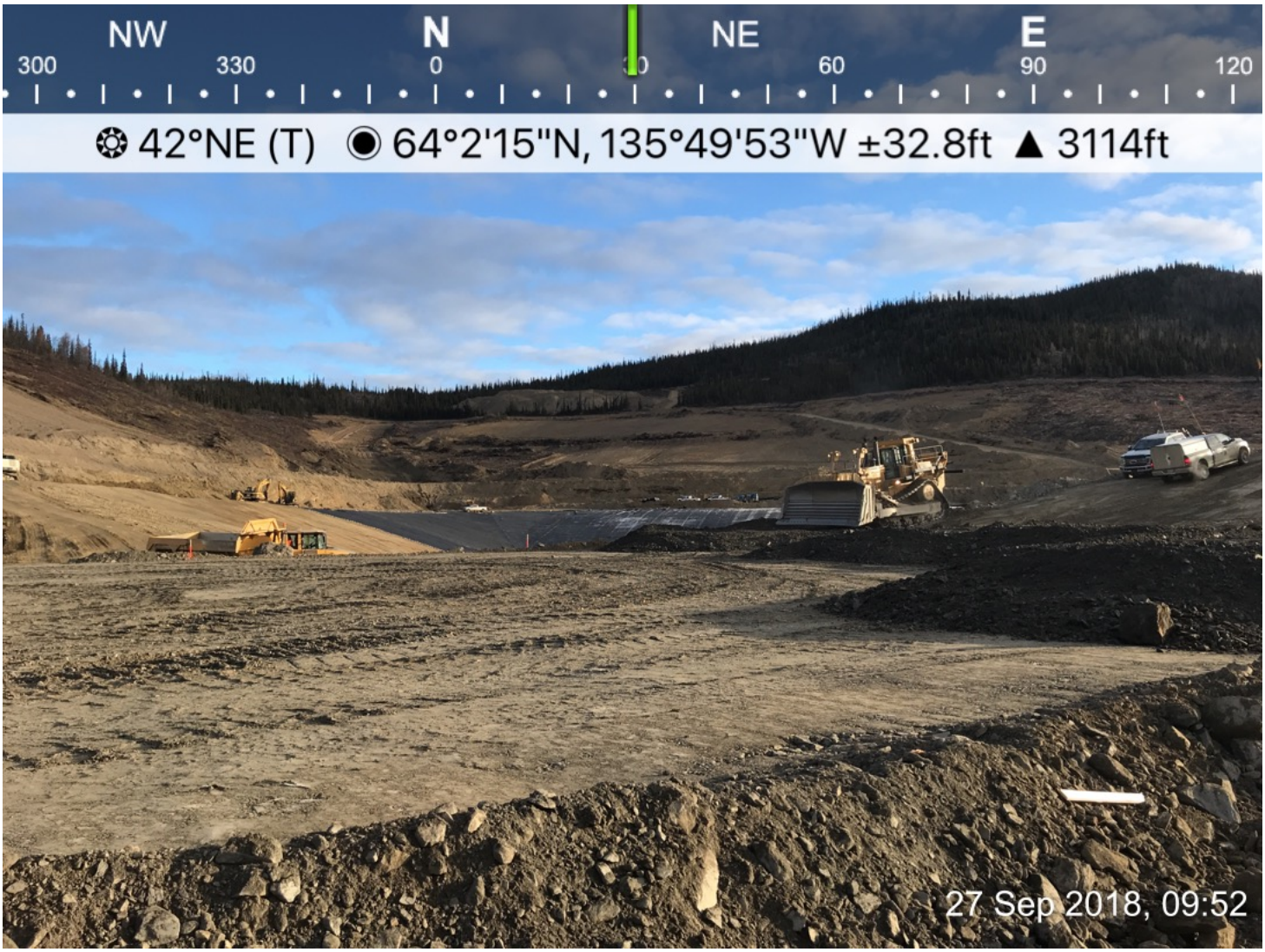


Photo 1: Lift placement at the embankment.



Photo 2: Removal of icy frozen material for liner placement.



Photo 3: Liner installation.



Photo 4: Upstream underdrains in HLF need covers and water management protection.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -8ºC to 9ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Pelly placed geotextile covers and survey markers in case of snow on underdrains upstream (***Photo 4***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 28.
  - Field density and moisture testing were provided to BGC for September 28.
  - Tetra Tech provided QC Daily Reports for liner installation on September 27.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-013	PLS and LDRS Pipe Installation Approach	Sent September 26, 2018. JDS accepted September 28, 2018
BGC-RFI-014	Event Pond Underdrain Clarification	Sent September 26, 2018. JDS accepted September 28, 2018
BGC-RFI-015	HLF Closure Sump Piping Plan Clarification	Sent September 26, 2018. JDS accepted September 28, 2018
BGC-RFI-016	Geomembrane and ODF Placement in Freezing Conditions	Sent September 27, 2018. JDS accepted September 28, 2018
BGC-RFI-017	Event Pond Underdrain Outlet Pipe Clarification	Sent September 28, 2018. JDS accepted September 28, 2018
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Liner installation.



Photo 4: Upstream underdrains in HLF have covers and stakes in case of snowfall.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -8ºC to 5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - Pelly started shaping the downstream slope of the embankment. (***Photo 4***).
  - Pelly is cleaning and hauling waste material on event pond work area (***Photo 5***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 29.
  - Field density and moisture testing were provided to BGC for September 29.
  - Tetra Tech provided QC Daily Reports for liner installation on September 27.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Liner installation.

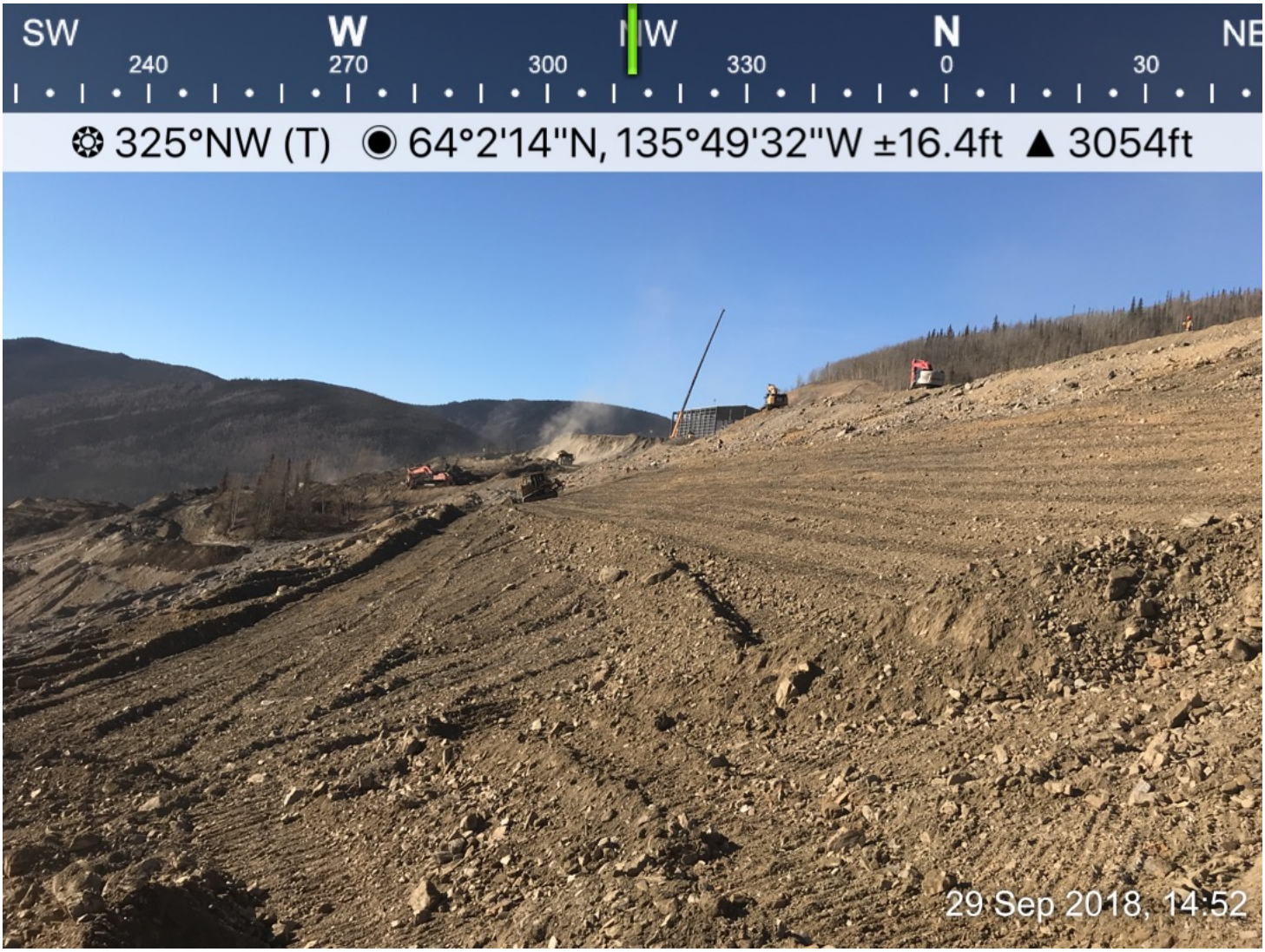


Photo 4: Pelly smoothing out downstream slope face of embankment as part of winterization plan.



Photo 5: Pelly hauling and cleaning waste materials at event pond work zone.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	September 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -6ºC to 8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - Pelly started shaping the downstream slope of the embankment. (***Photo 4***).
  - Pelly is cleaning and hauling waste material on event pond work area (***Photo 5***).
  - During the foundation preparation of the event pond downstream area, BGC noticed soil heaving and excavated a small trench. (***Photo 6***).
  - During the trench excavation, a small ice lens was noted (***Photo 7***).
  - BGC recommended JDS and Pelly to consider a water management plan for the event pond, as a seep was noted coming from the downstream side of the ADR plant to the work area (***Photo 8***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 30.
  - Field density and moisture testing were provided to BGC for September 30.
  - Tetra Tech provided QC Daily Reports for liner installation on September 29.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.

Safety Issues: None



Photo 1: Lift placement at the embankment.

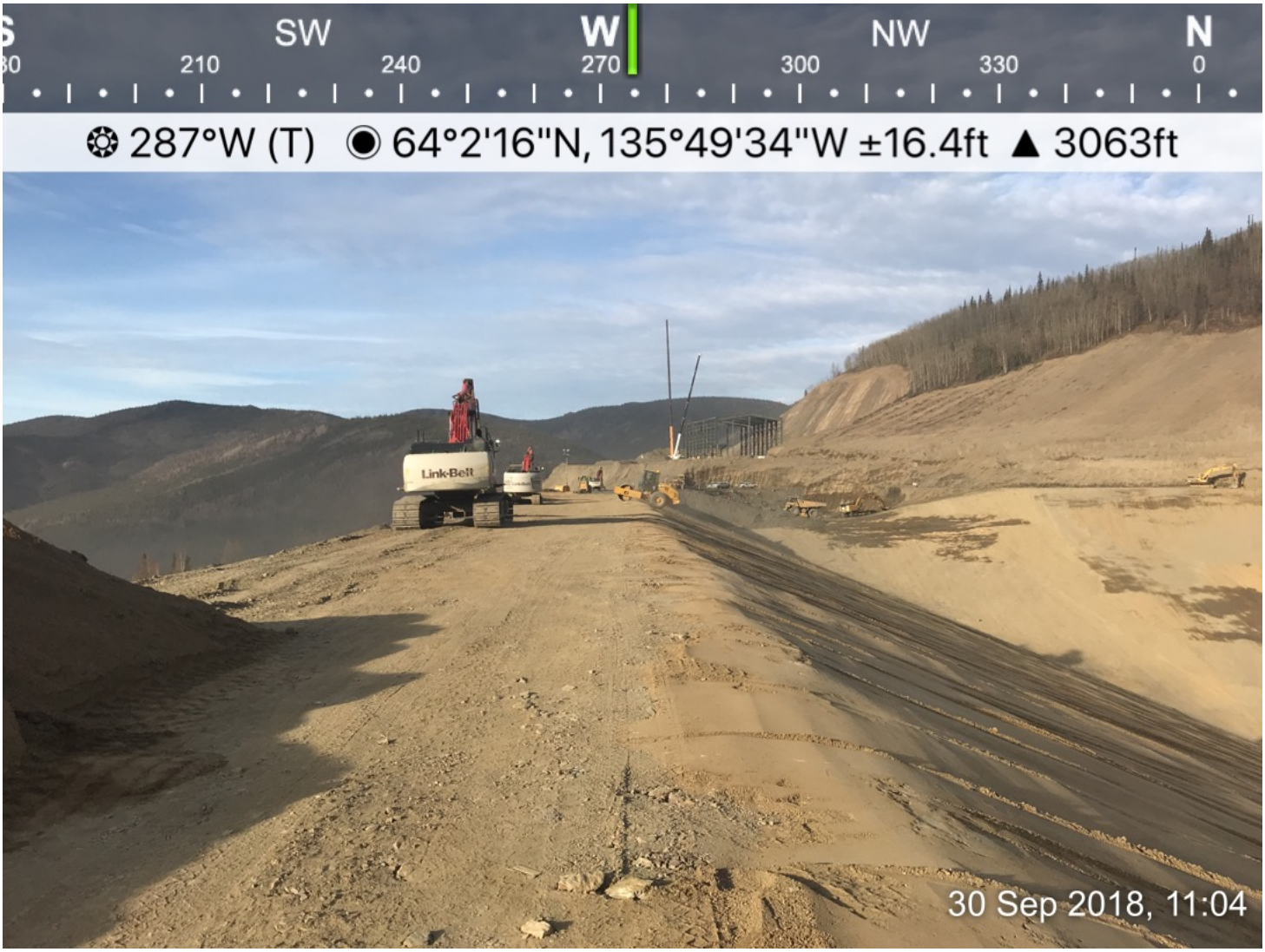


Photo 2: Pelly working on upstream embankment face for liner placement.

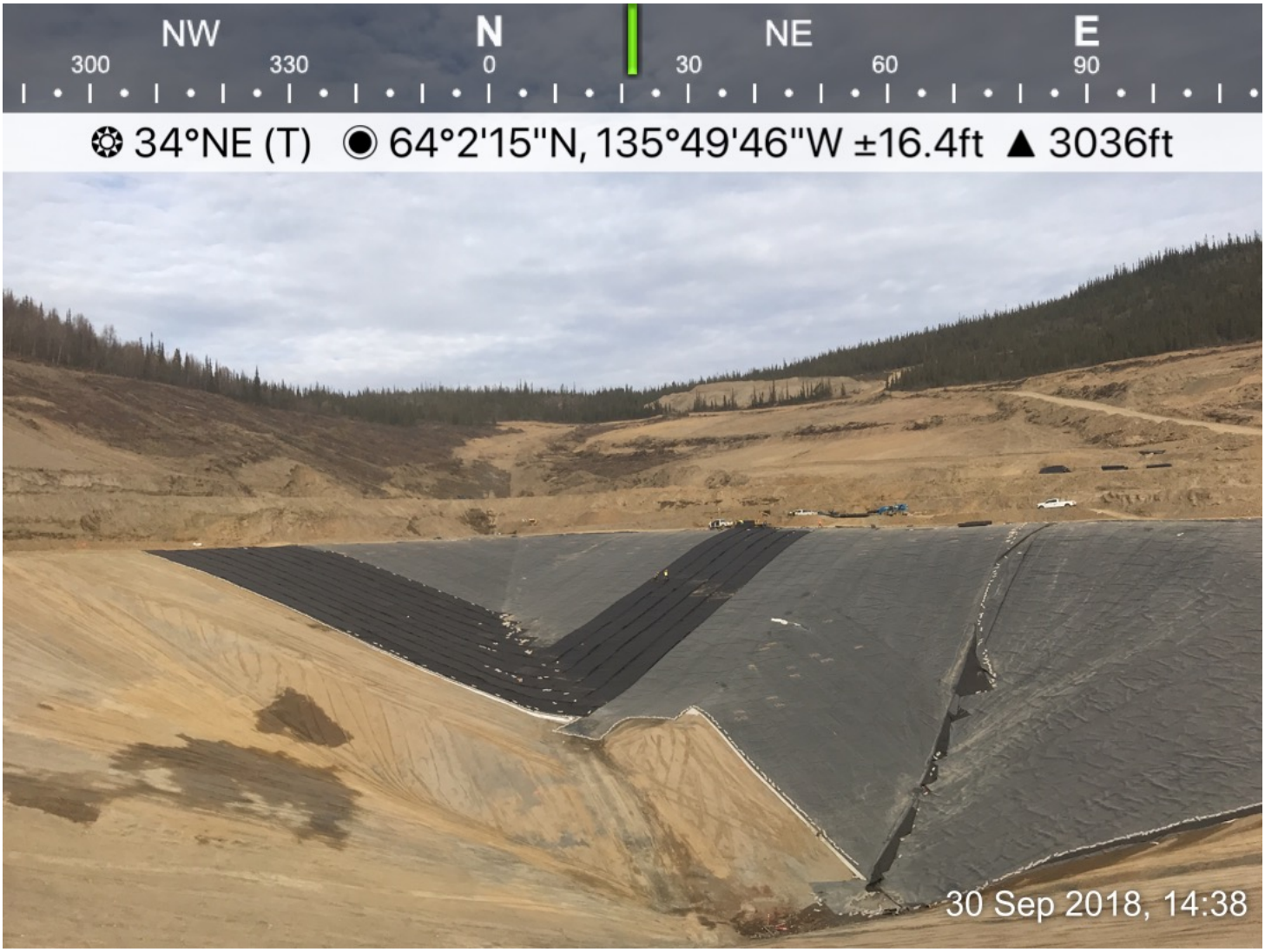


Photo 3: Liner installation.



Photo 4: Pelly smoothing out downstream slope face of embankment as part of winterization plan.



Photo 5: Pelly hauling and cleaning waste materials at event pond work zone.



Photo 6: Soil heave was noticed and trench was excavated, trench will be backfilled with competent material for toe of event pond.



Photo 7: Ice lens was found during trench excavation of event pond.

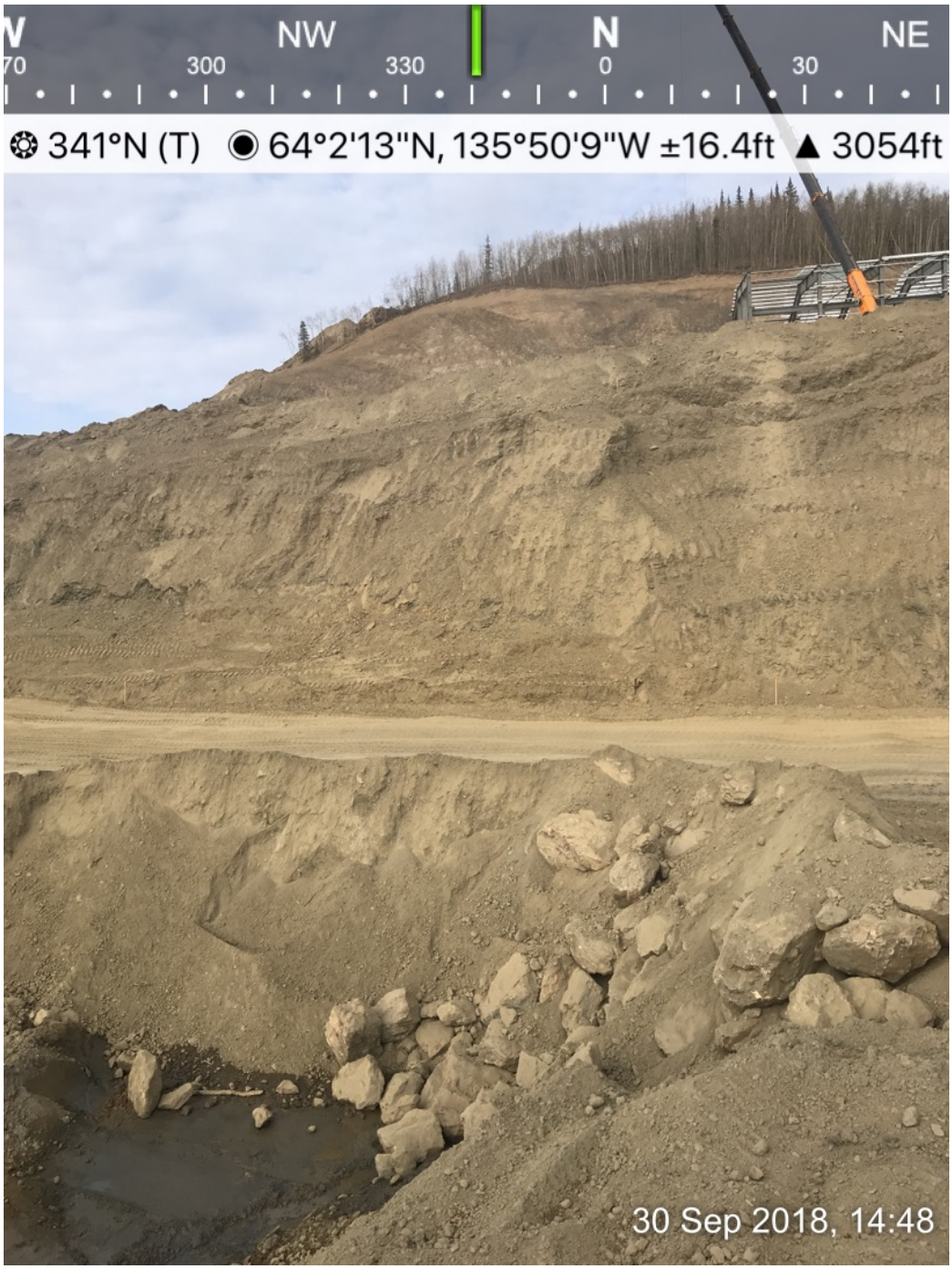


Photo 8: Seep was noted by the current downstream side of the haul road from ADR to Embankment (West side), seep seems to be coming from ADR plant area and making its way to the event pond work area, JDS and Pelly notified.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -8ºC to 7ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - Pelly started shaping the downstream slope of the embankment. (***Photo 4***).
  - Pelly is cleaning and hauling waste material on event pond and spillway work area (***Photo 5***).
  - During the foundation preparation of the event pond downstream area, BGC noticed soil heaving and excavated a small trench. (***Photo 6***).
  - Event pond drain was installed (***Photo 7***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 30.
  - Field density and moisture testing were provided to BGC for September 30.
  - Tetra Tech provided QC Daily Reports for liner installation on September 30.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
EPCM-RFI-047	HLF Geocomposite Liner	Sent October 1, 2018. Response from BGC October 1, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.

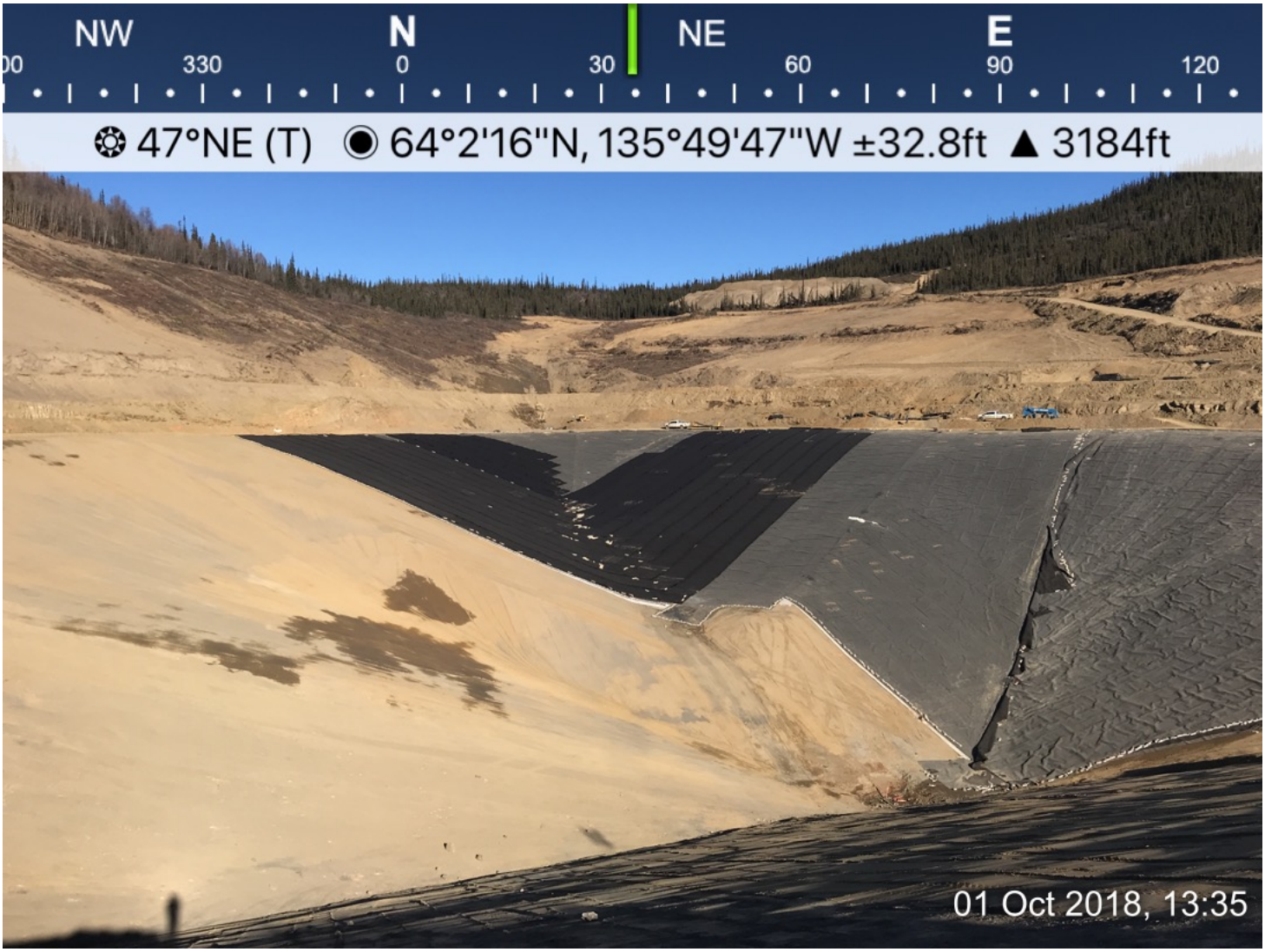


Photo 3: Liner installation.



Photo 4: Pelly smoothing out downstream slope face of embankment as part of winterization plan.

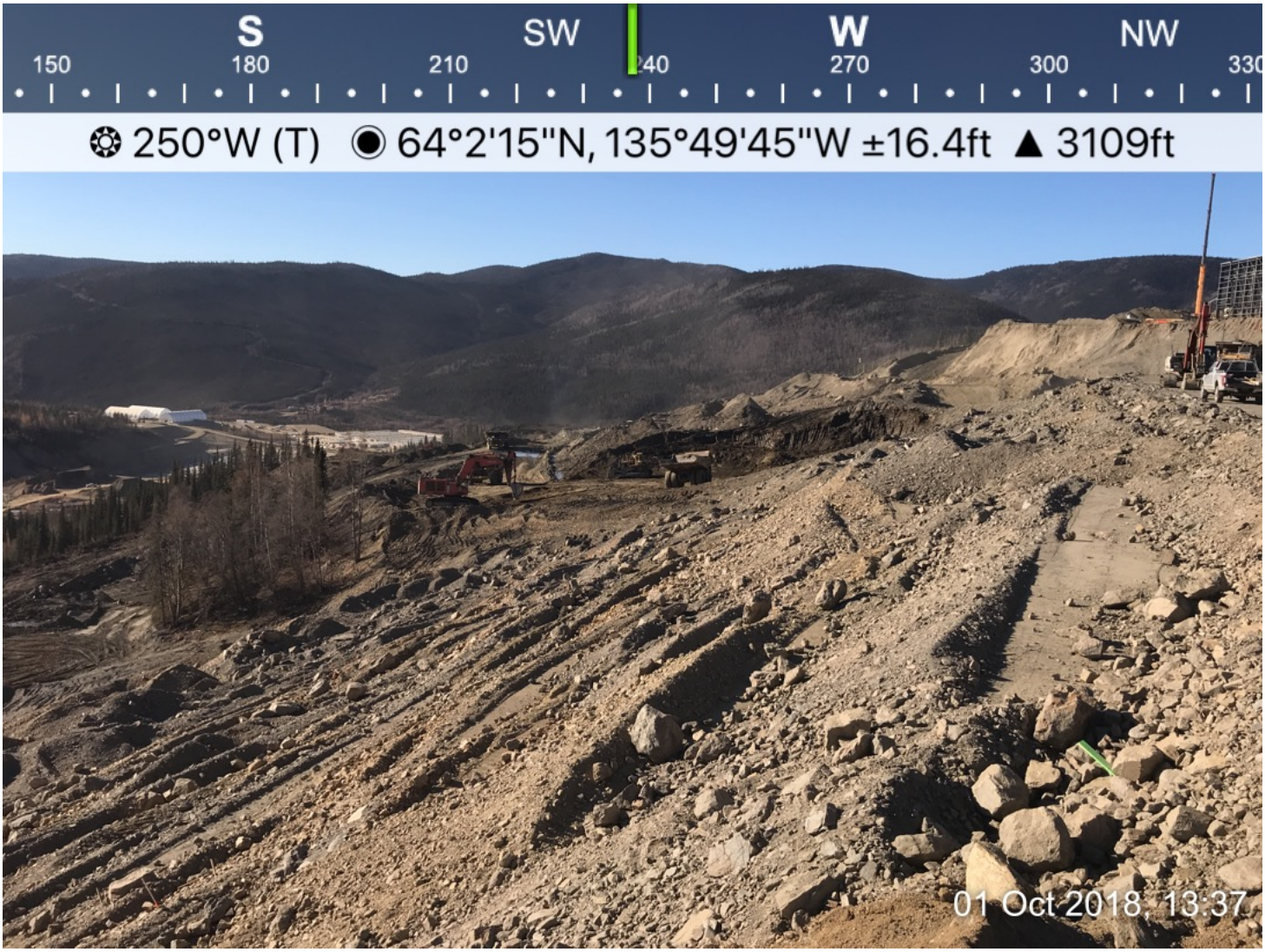


Photo 5: Pelly hauling and cleaning waste materials at event pond work zone and spillway area.



Photo 6: Soil heave was noticed yesterday and trench was excavated, trench will be backfilled with competent material for toe of event pond.



Photo 7: Event pond drain placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny -8ºC to 5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - Pelly started shaping the downstream slope of the embankment. (***Photo 4***).
  - Pelly is cleaning and hauling waste material on event pond and spillway work area (***Photo 5***).
  - Event pond drain was installed (***Photo 6***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for September 30.
  - Field density and moisture testing were provided to BGC for September 30.
  - Tetra Tech provided QC Daily Reports for liner installation on September 30.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Liner installation.

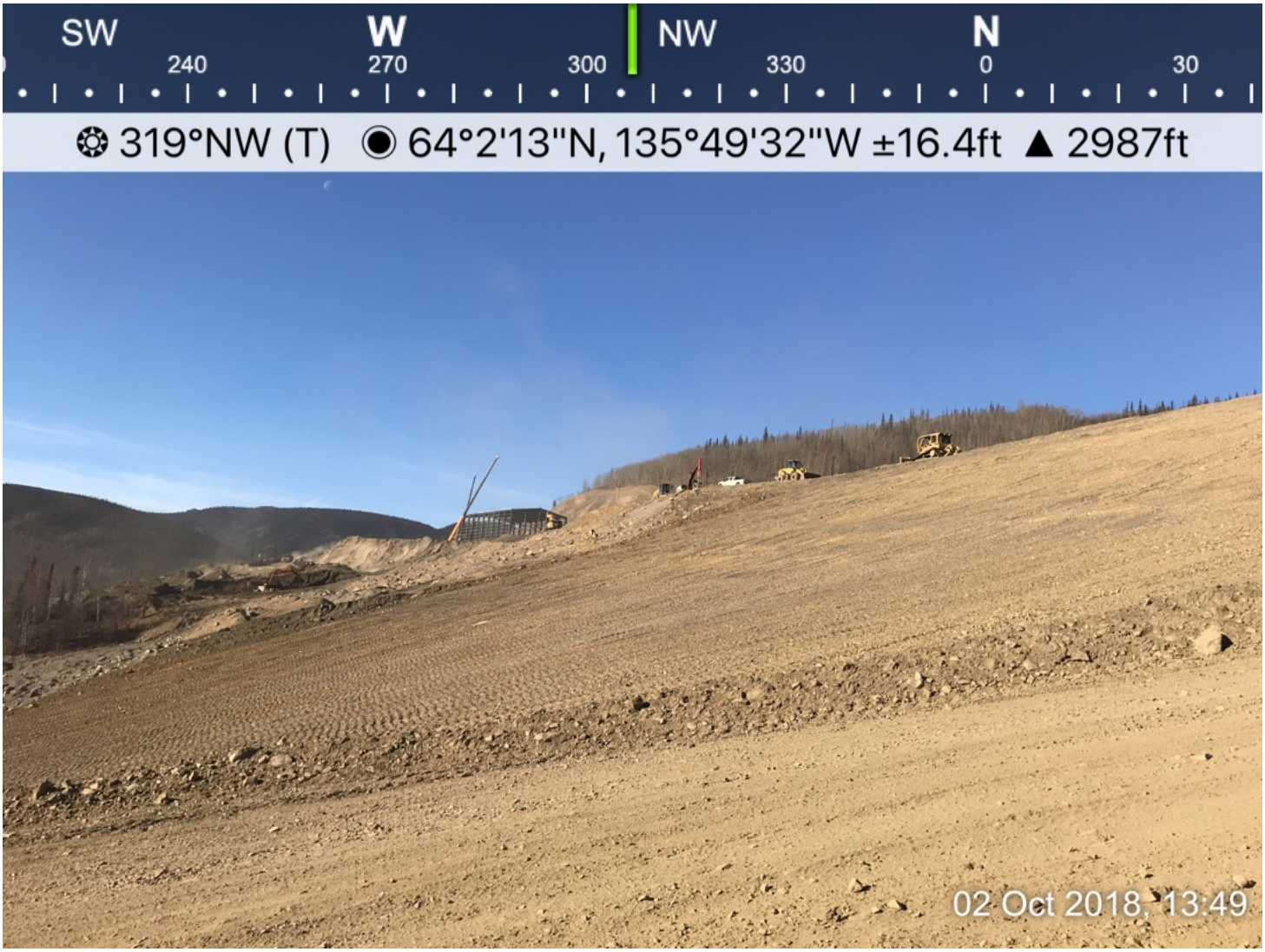


Photo 4: Pelly smoothing out downstream slope face of embankment as part of winterization plan.



Photo 5: Pelly hauling and cleaning waste materials at event pond work zone and spillway area.



Photo 6: Event pond drain placement and ties.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer/ Dan Granda / Elliot Mathews	**Weather:**	Sunny/overcast -7°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer leaves site.
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - Pelly started shaping the downstream slope of the embankment. (***Photo 4***). Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond and spillway work area (***Photo 5***).
  - Event pond drain was installed, tied ad buried (***Photo 6***).
  - Event pond downstream lifts compacted (***Photo 7***).
  - Overview of all the work zones (HLF and Event Pond) (***Photo 8***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 3.
  - Field density and moisture testing were provided to BGC for October 3.
  - Tetra Tech provided QC Daily Reports for liner installation on October 3.
  - Tetra Tech provided QC Daily Reports for event pond on October 3.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Liner installation.



Photo 4: Pelly smoothing out downstream slope face of embankment as part of winterization plan.



Photo 5: Pelly hauling and cleaning waste materials at event pond work zone and spillway area.



Photo 6: Event pond drain installed, tied and buried.



Photo 7: Event pond progress.

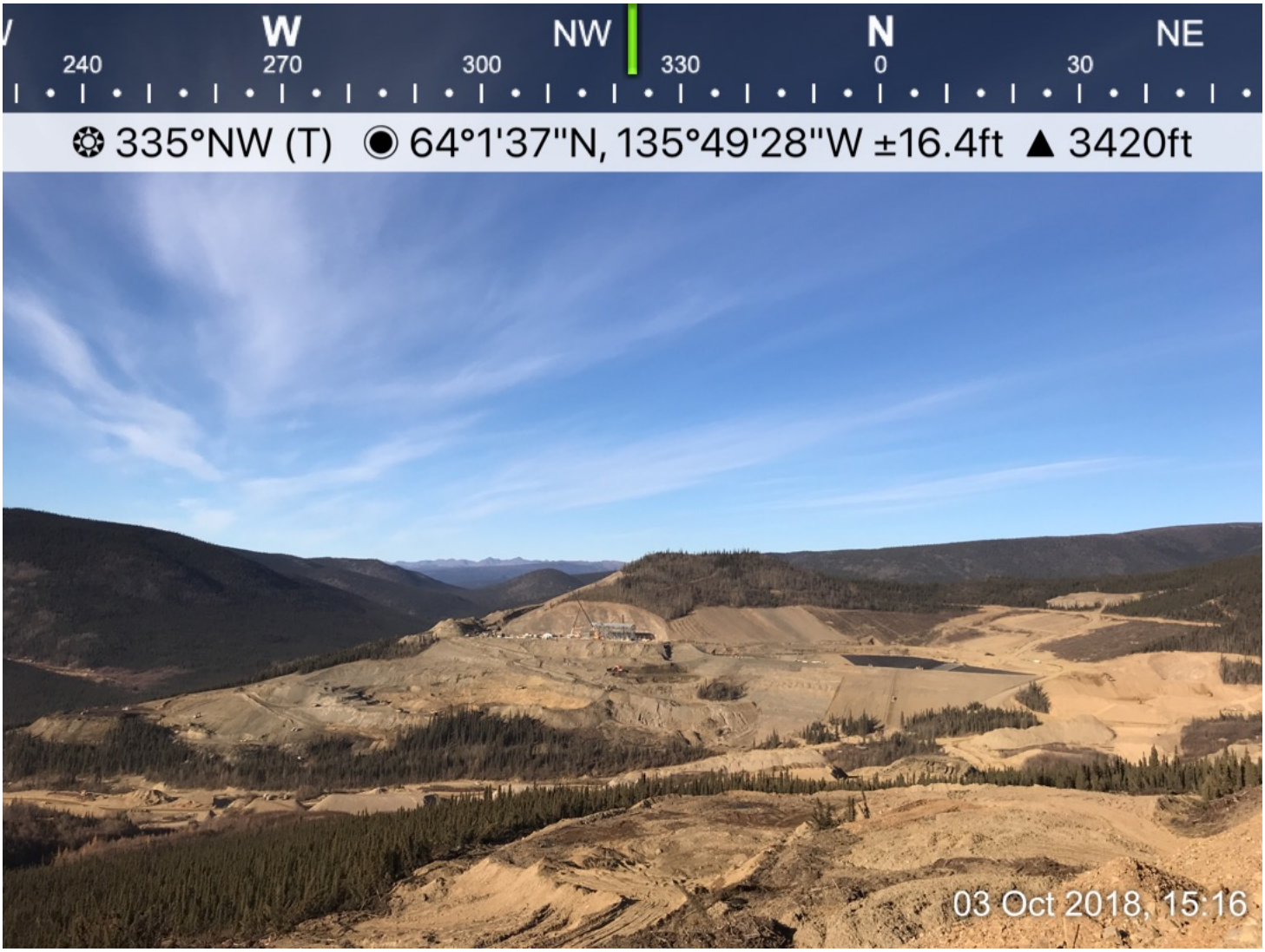


Photo 8: Overview of HLF and Event Pond work areas.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Mathews	**Weather:**	Sunny -11°C to 3°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed on the western area of the embankment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***)
  - Liner installation continued. (***Photo 3***).
  - Winter is coming. BGC discussed with Pelly the status of the winterization progress, Pelly waiting on exfiltration tests to be completed by JDS before starting work in the downstream underdrains area.
  - BGC is now inspecting downstream underdrains for frost as temperatures continue to drop and no implementation of BGC's winterization has taken place to protect underdrains (***Photo 4).***
  - Pelly did not work shaping the downstream slope of the embankment today. Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond and spillway work area.
  - Pelly cleaned upstream sump for layfield to start work (***Photo 5***).
  - Event pond downstream lifts compacted (***Photo 6***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 3.
  - Field density and moisture testing were provided to BGC for October 4.
  - Tetra Tech provided QC Daily Reports for liner installation on October 3.
  - Tetra Tech provided QC Daily Reports for event pond on October 4.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None



Photo 1: Lift placement at the embankment. No more lifts will be placed or QC testing needed on embankment construction as it was complete.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Liner installation.



Photo 4: Cold temperatures continue to get lower, BGC noticed ice starting to build up by the underdrain area, implementing winterization procedures should be prioritized.



Photo 5: Pelly cleared material from sump area to further prepare surface.

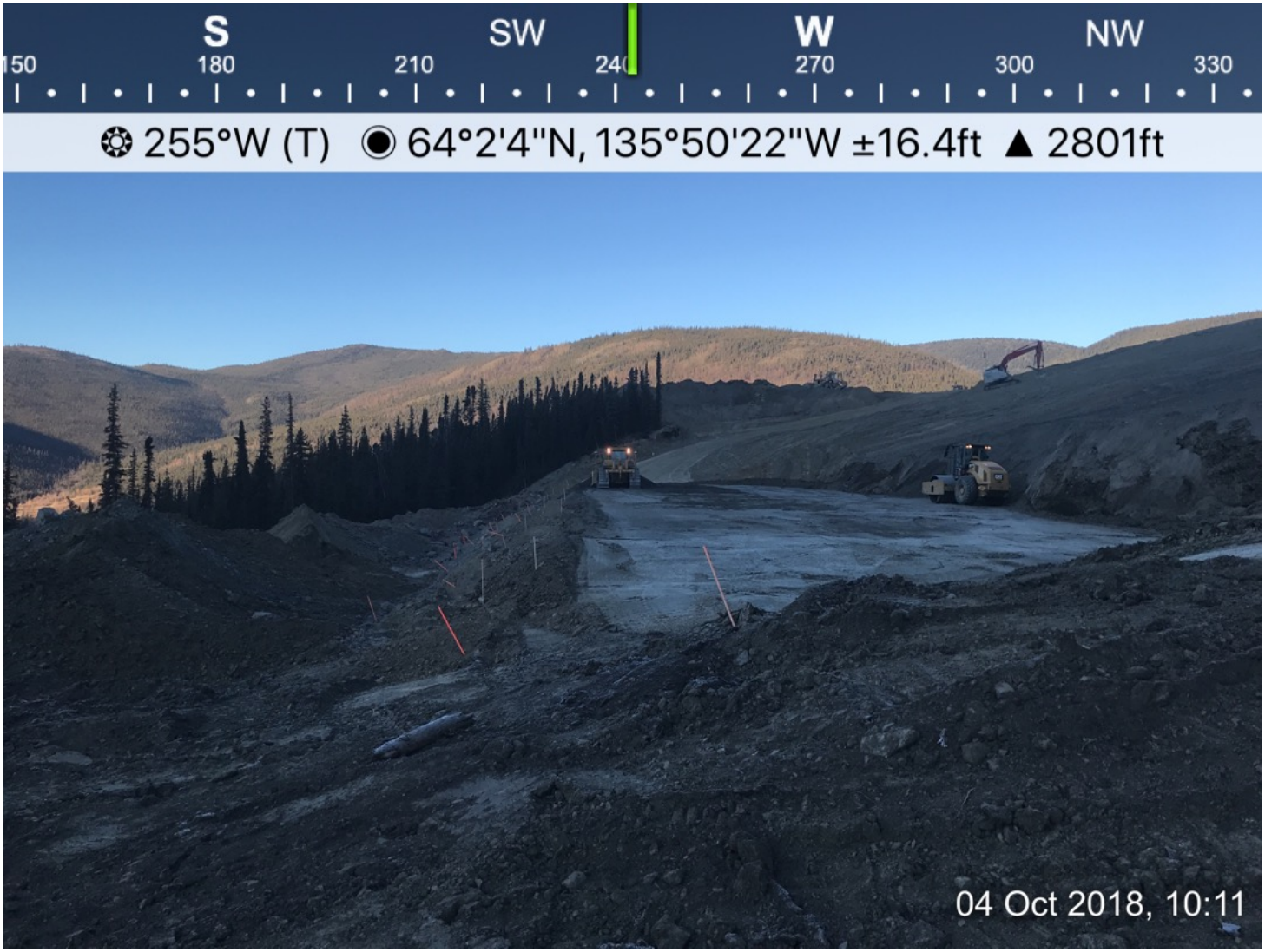


Photo 6: Event pond progress.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Mathews	**Weather:**	Sunny -11ºC to 3ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is shaping slopes by the west abutment. (***Photo 1***).
  - Pelly continues work on shaping the impoundment area in preparation for liner installation. (***Photo 2***).
  - Layfield focused on the sump area before Heavy Norths arrival to embankment. (***Photos 3 and 5).***
  - BGC is now inspecting downstream underdrains for frost as temperatures continue to drop and no implementation of BGC's winterization has taken place to protect underdrains (***Photo 4).***
  - Pelly did not work shaping the downstream slope of the embankment today. Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond and spillway work area.
  - Event pond downstream lifts compacted (***Photo 6***).
  - Pelly began excavation of new underdrain exfiltration area for underdrain winter protection (***Photo 7***).
  - Anchor trench for liner on embankment crest was dug out (***Photo 8***).
- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 5.
  - Field density and moisture testing were provided to BGC for October 5.
  - Tetra Tech provided QC Daily Reports for liner installation on October 5.
  - Tetra Tech provided QC Daily Reports for event pond on October 5.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-010	Acknowledgement of receipt of changes made to the east abutment and perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-011	Acknowledgement of receipt of changes made to the west perimeter road.	Open. Sent September 17, 2018.
BGC-RFI-012	Acknowledgement of receipt of changes made to grade break on the downstream embankment slope.	Open. Sent September 17, 2018.
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None



Photo 1: Pelly shaping impoundment zone on west side of embankment.



Photo 2: Pelly working on upstream embankment face for liner placement.



Photo 3: Sump liner work.



Photo 4: Cold temperatures continue to get lower, BGC noticed ice starting to build up by the underdrain area, implementing winterization procedures should be prioritized.



Photo 5: Layfield working on the sump area.



Photo 6: Event pond progress.

Photo 6: Event pond progress.

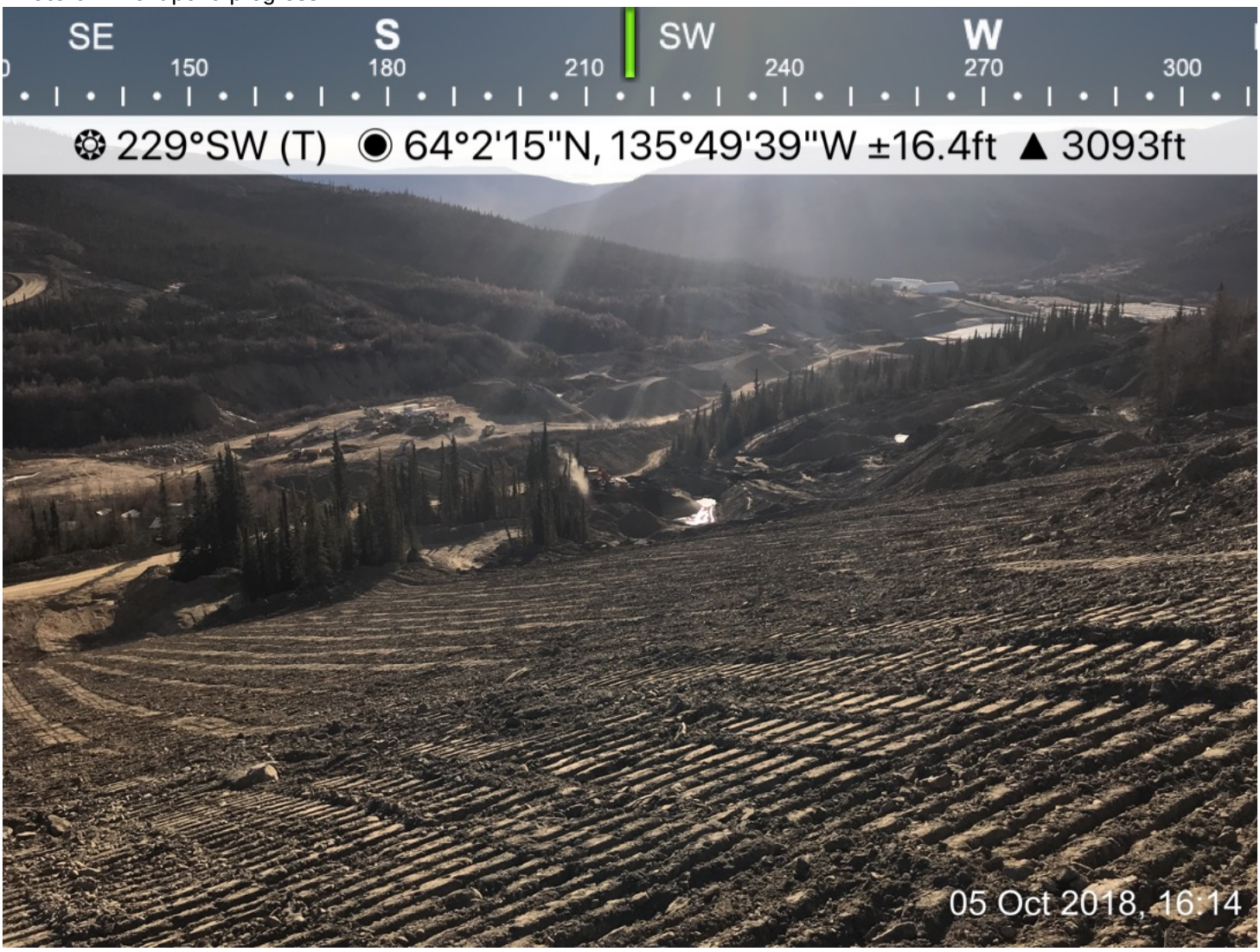


Photo 7: Pelly began new excavation of winterization zone for underdrains.



Photo 8: Trench for liner dug on embankment crest.


SW
W
NW
N
210
240
270
300
330
0
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64°2'16"N, 135°49'39"W ±16.4ft
3077ft
05 Oct 2018, 16:15

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Mathews	**Weather:**	Sunny -10°C to 3°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is shaping slopes by the west abutment. (***Photo 1***).
  - Layfield placed liner from crest to impoundment. (***Photo 2***).
  - Heavy North placed steel plates on sump area. (***Photo 3).*** Was asked to provide survey data of placement and pipe work.
  - BGC is now inspecting downstream underdrains for frost as temperatures continue to drop and no implementation of BGC's winterization has taken place to protect underdrains.
  - Pelly did not work shaping the downstream slope of the embankment today. Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond and spillway work area.
  - Pelly continued excavation of new underdrain exfiltration area for underdrain winter protection (***Photo 4***).
  - Sump was filled with granular material (***Photo 5***).
  - Event pond downstream lifts compacted (***Photo 6***).
- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 6.
  - Field density and moisture testing were provided to BGC for October 6.
  - Tetra Tech provided QC Daily Reports for liner installation on October 5.
  - Tetra Tech provided QC Daily Reports for event pond on October 6.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
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CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None

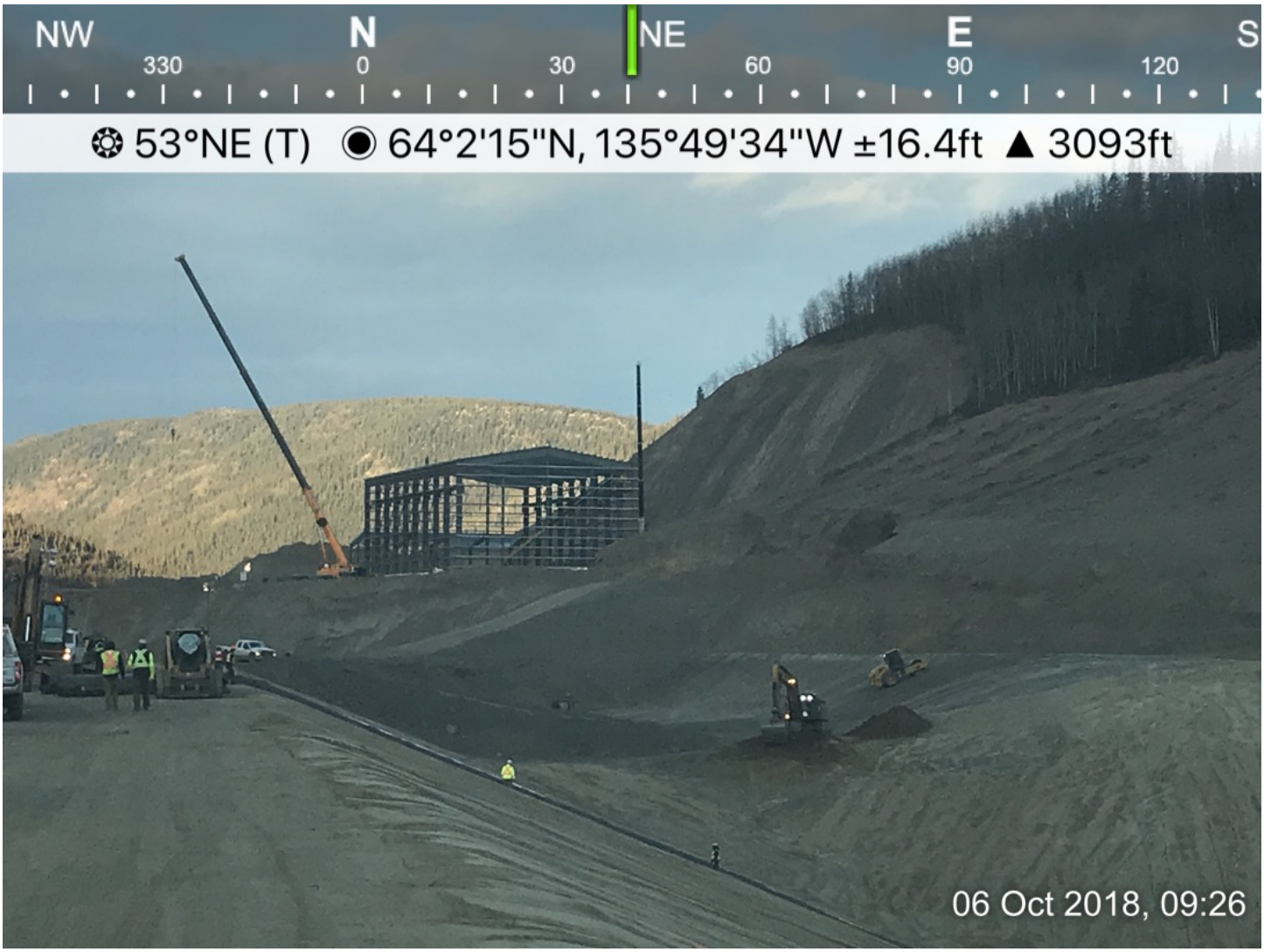


Photo 1: Pelly shaping impoundment zone on west side of embankment.



Photo 2: Layfield laid liner on the crest to impoundment sump.



Photo 3: Heavy North was able to place metal plates on sump.



Photo 4: Pelly continued digging out new are for underdrain winterization.



Photo 5: Working on the sump area.



Photo 6: Event pond progress.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Mathews	**Weather:**	Sunny -13°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is shaping slopes by the west abutment. (***Photo 1***).
  - Layfield placed liner from crest to impoundment. (***Photo 2***).
  - No work from Heavy North was observed**.** Was asked to provide survey data of placement and pipe work.
  - Pelly did not work shaping the downstream slope of the embankment today. Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond and spillway work area.
  - Pelly continued excavation of new underdrain exfiltration area for underdrain winter protection (***Photo 3***).
  - Pelly covered underdrains with geomembrane, will continue to place material for winterization (***Photo 4***).
  - Event pond downstream lifts compacted (***Photo 5***).
- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 6.
  - Field density and moisture testing were provided to BGC for October 6.
  - Tetra Tech provided QC Daily Reports for liner installation on October 5.
  - Tetra Tech provided QC Daily Reports for event pond on October 6.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

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BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018.

Safety Issues: None

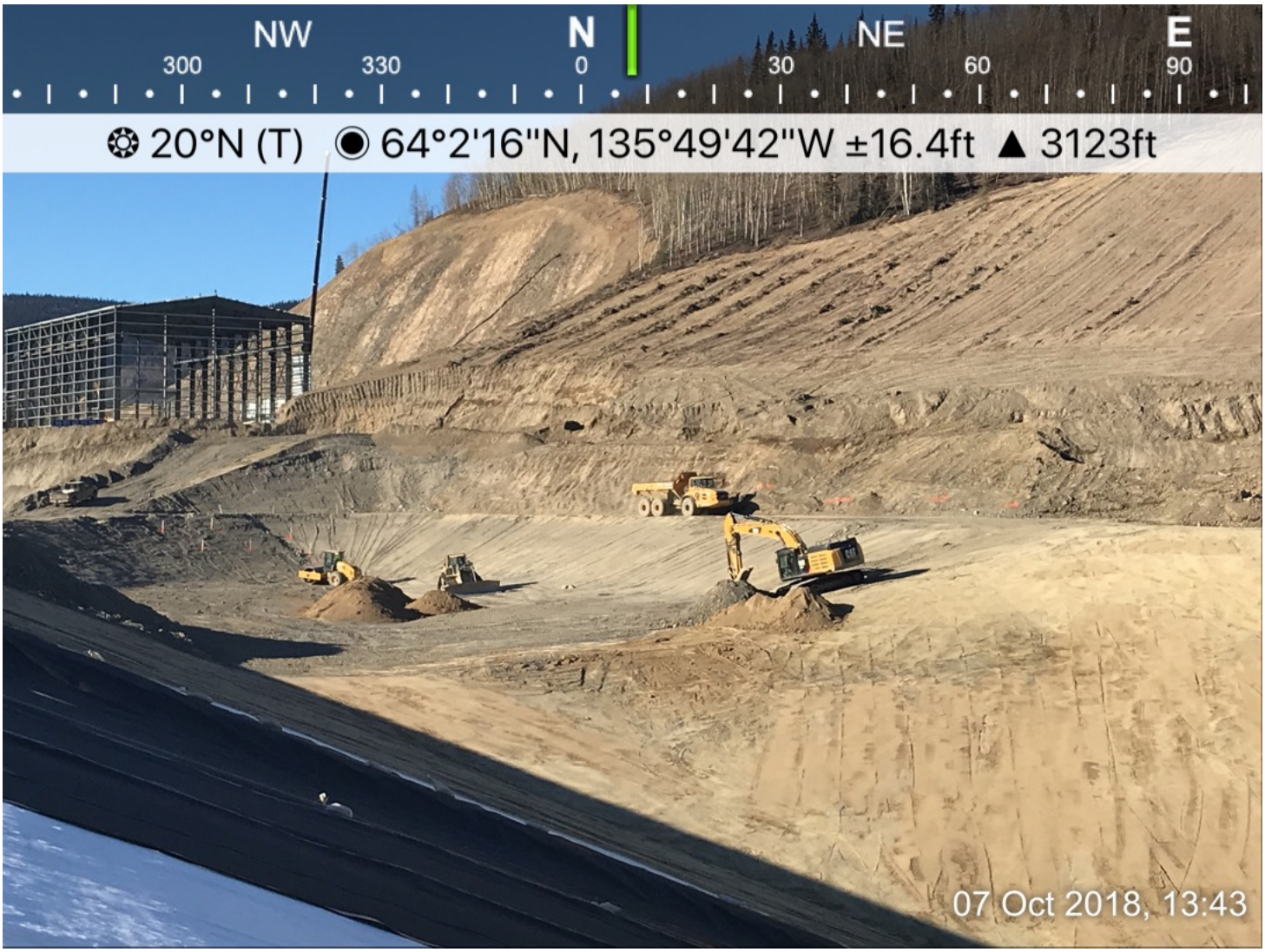


Photo 1: Pelly shaping impoundment zone on west side of embankment.

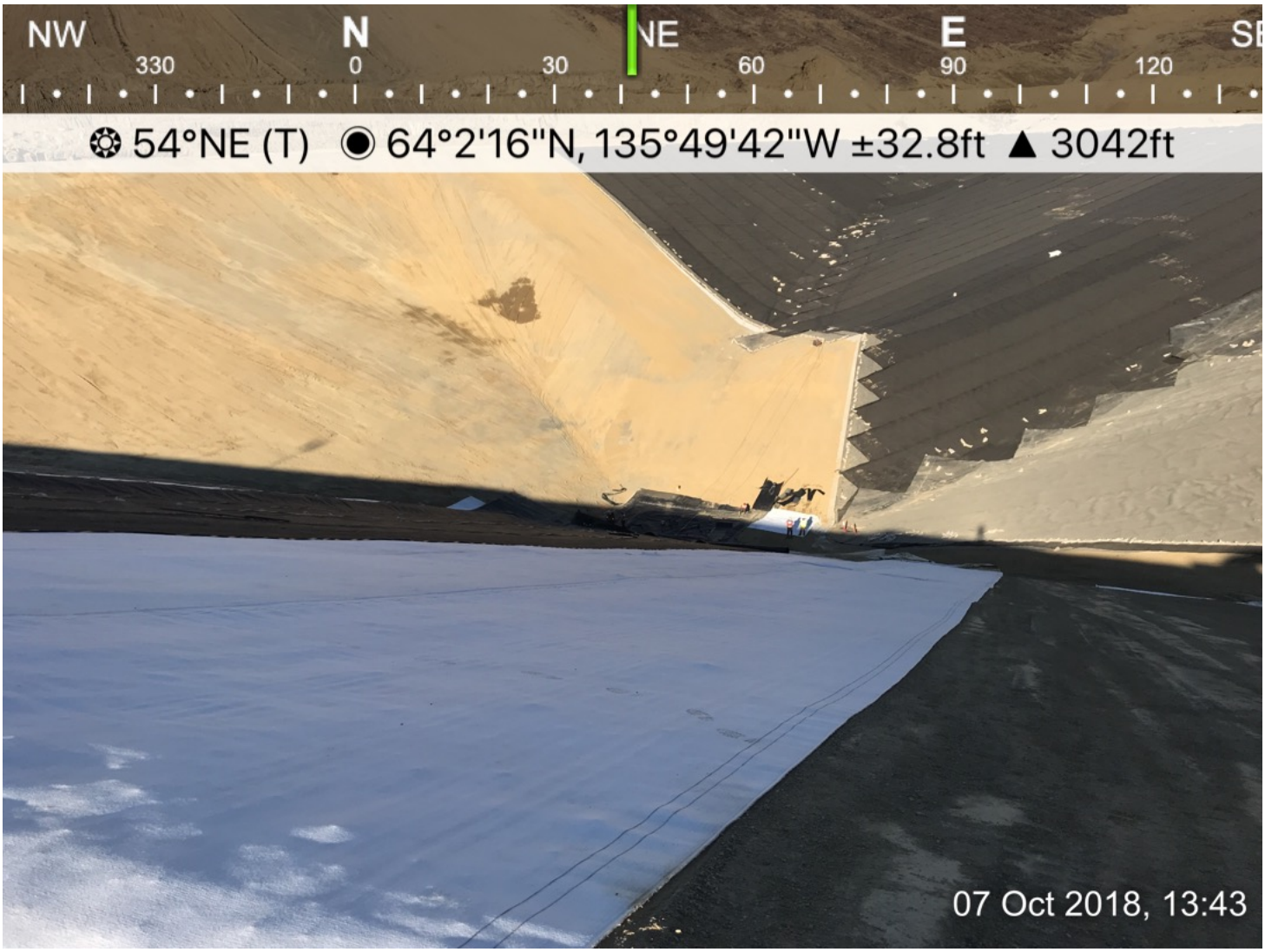


Photo 2: Layfield laid liner on the crest to impoundment sump.



Photo 3: Pelly continued digging out new are for underdrain winterization.



Photo 4: Working on the sump area.



Photo 5: Event pond progress.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Elliot Mathews	**Weather:**	Sunny -13°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is shaping slopes by the west abutment. (***Photo 1***).
  - Layfield placed liner on impoundment. (***Photo 2***).
  - No work from Heavy North was observed**.** Was asked to provide survey data of placement and pipe work.
  - Pelly did not work shaping the downstream slope of the embankment today. Estimated 50-60% complete.
  - Pelly is cleaning and hauling waste material on event pond.
  - Pelly began work for underdrain winter protection by placing river boulders, geotextile and geomembranes (***Photos 3 and 4***).
  - Event pond downstream lifts compacted (***Photo 5***).
- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Material with ice is not permitted in for use as fill in any part of the HLF construction.
  - Frozen, ice-rich, thaw unstable, and frost susceptible soils found during the course of construction will have to be removed. This includes instances where these materials are discovered to dip below already approved construction. This is required in the Foundation Improvement Plan approved for construction of the HLF.
  - An area of thaw unstable soils was built against near the West 940 Lateral. Pelly plans to excavate this construction at a later date to remove the thaw unstable soil once the 940 liner area preparation is complete.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 7.
  - Field density and moisture testing were provided to BGC for October 7.
  - Tetra Tech provided QC Daily Reports for liner installation on October 7.
  - Tetra Tech provided QC Daily Reports for event pond on October 8.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
CC204-RFI-044	PLS Piping Installation Rub Sheets	Sent October 8, 2018.

Safety Issues: None



Photo 1: Pelly shaping impoundment zone on west side of embankment.



Photo 2: Layfield laid liner on impoundment.



Photo 3: Pelly began placing river boulders in the exfiltration zone, marking pipe outlets for fill placement.



Photo 4: Winterization of downstream underdrains continues.



Photo 5: Event pond progress.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda	**Weather:**	Sunny -15°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Elliot Matthews leaves site.
  - Pelly is now placing fill material to get surface ready for liner installation. (***Photo 1***).
  - Layfield placed liner on impoundment. (***Photo 2***).
  - No work from Heavy North was observed**.** Was asked to provide survey data of placement and pipe work via RFI.
  - Pelly shaped the downstream slope of the embankment today. Estimated 60-75% complete.
  - Pelly is cleaning and hauling waste material on event pond.
  - Pelly placed drain material, geotextile and fill for winterization (***Photos 3 and 4***).
  - Event pond downstream lifts compacted and QC test passed/lift accepted (***Photos 5 and 6***).

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 9.
  - Field density and moisture testing were provided to BGC for October 9.
  - Tetra Tech provided QC Daily Reports for liner installation on October 9.
  - Tetra Tech provided QC Daily Reports for event pond on October 9.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
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BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
CC204-RFI-044	PLS Piping Installation Rub Sheets	Sent October 8, 2018. Response sent to JDS/Pelly October 9, 2018. Closed.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.

Safety Issues: None

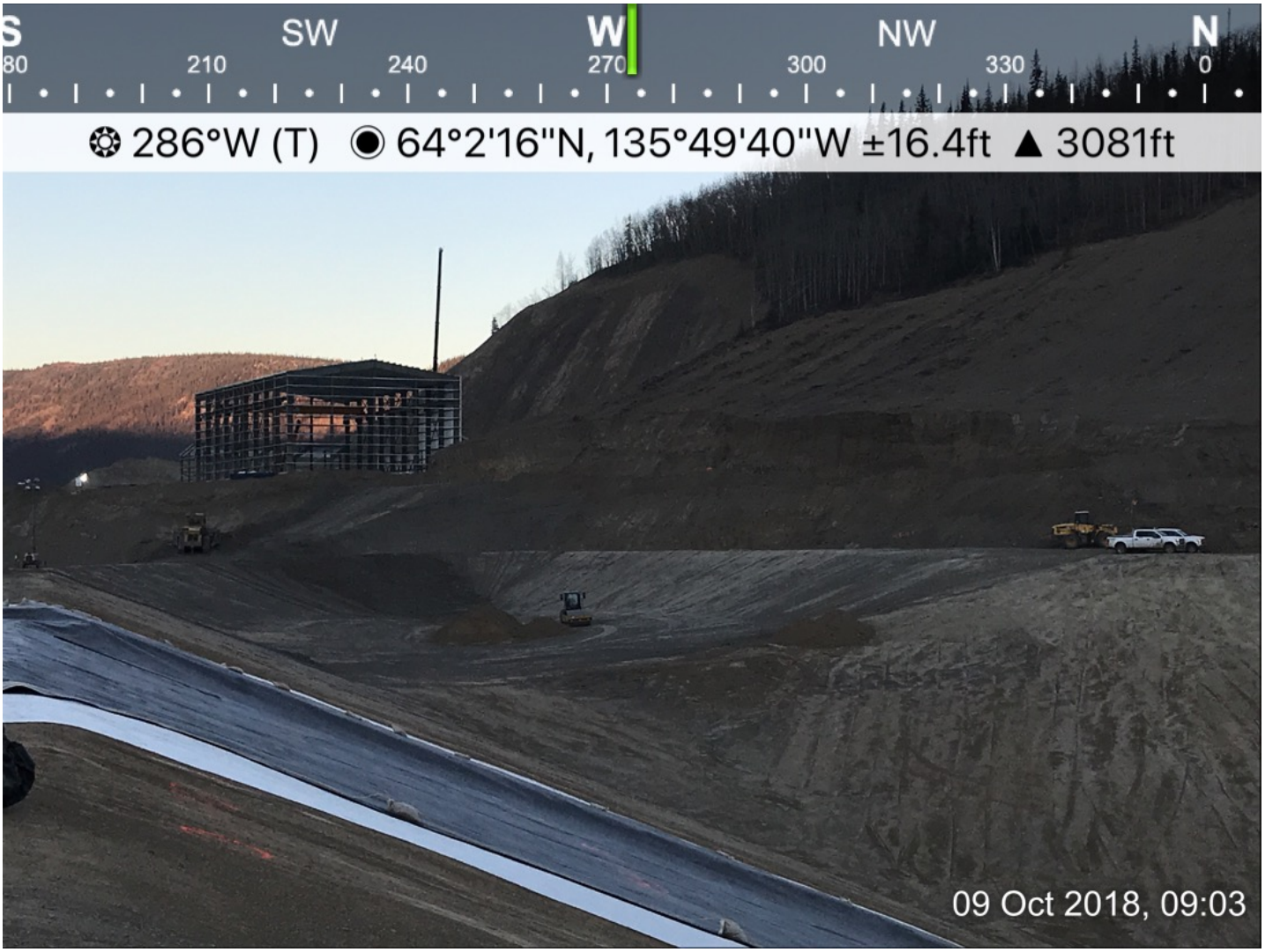


Photo 1: Pelly shaping impoundment zone on west side of embankment and placing fill material for liner installation preparation.

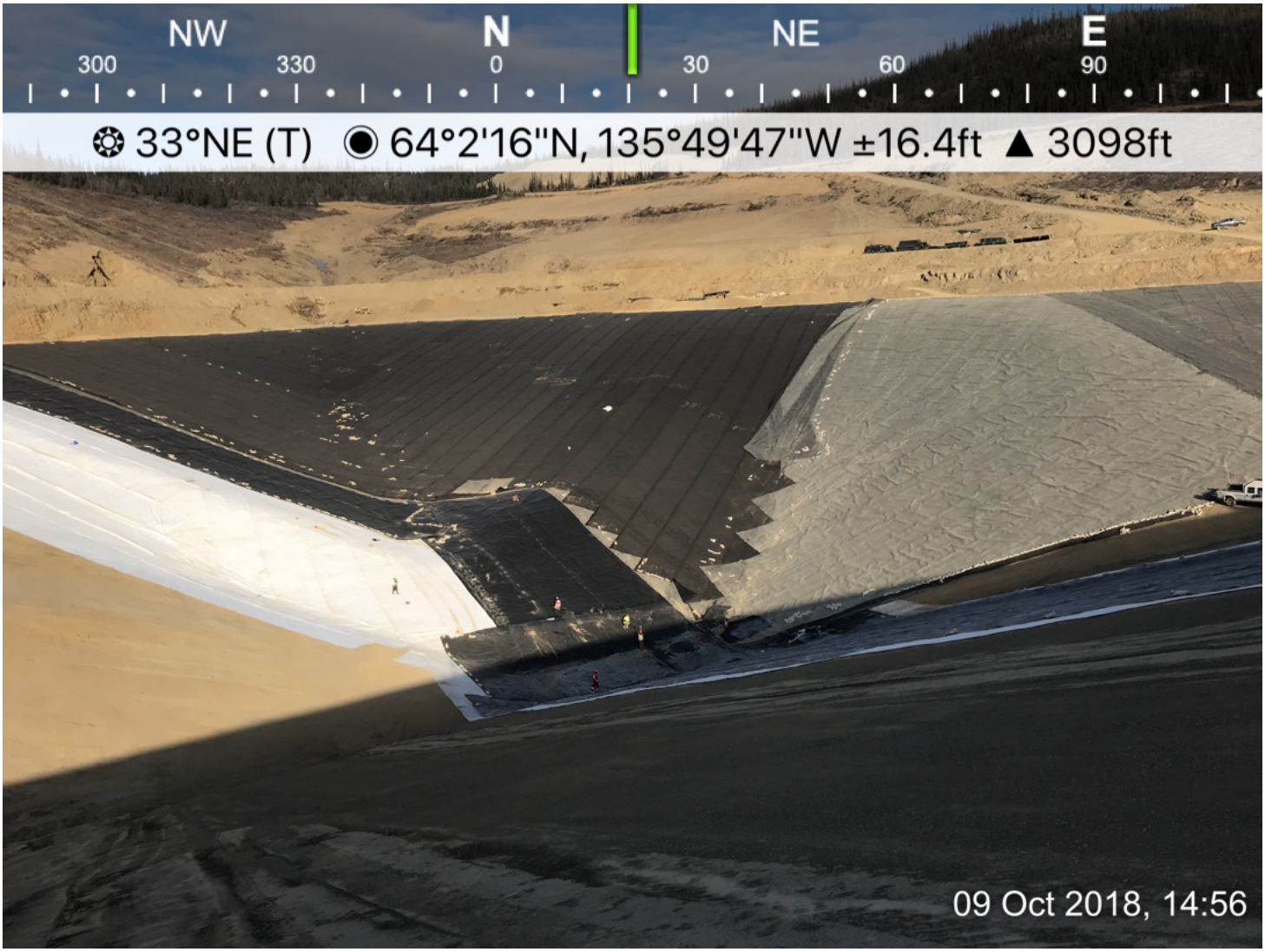


Photo 2: Layfield laid liner on impoundment.



Photo 3: Pelly placed layers of fill on top of geotextile/geomembrane to cover underdrains for winter.



Photo 4: Winterization of downstream underdrains continued with placing fill on top of exfiltration pond.



Photo 5: Event pond progress.



Photo 6: Event pond QC passed compaction and moisture %, lift accepted.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda	**Weather:**	Sunny -17°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is now placing fill material to get surface ready for liner installation. (***Photo 1***).
  - Layfield placed liner on impoundment. (***Photo 2***).
  - No work from Heavy North was observed***.*** BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI.
  - Pelly is cleaning and hauling waste material on event pond.
  - Pelly finished winterization of underdrains under JDS direction, BGC has asked for survey confirmation of height of fill on top of underdrains (***Photo 3***).
  - Event pond drain was extended upstream (***Photo 4***), BGC approved connections and grades with survey data available.
  - Pelly continues construction of Event Pond (***Photo 5***). BGC and Pelly observed ice build up, Pelly mobilized excavator to expose foundation for BGC inspection. BGC noted that ice was isolated, cleaned up to bedrock and accepted for lift placement (***Photos 6 and 7***).
  - Event pond downstream lifts compacted and QC test passed/lift accepted (***Photo 8***). BGC noted to Pelly that low moisture is desirable in cold temperature compaction, RFI to JDS was sent to help plan material sources to continue event pond construction.
  - Pelly shaped the downstream slope of the embankment today (***Photo 9).*** Estimated 75-85% complete.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 9.
  - Field density and moisture testing were provided to BGC for October 9.
  - Tetra Tech provided QC Daily Reports for liner installation on October 10.
  - Tetra Tech provided QC Daily Reports for event pond on October 9.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
CC204-RFI-044	PLS Piping Installation Rub Sheets	Sent October 8, 2018. Response sent to JDS/Pelly October 9, 2018. Closed.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.

Safety Issues: None



Photo 1: Pelly shaping impoundment zone on west side of embankment and placing fill material for liner installation preparation.

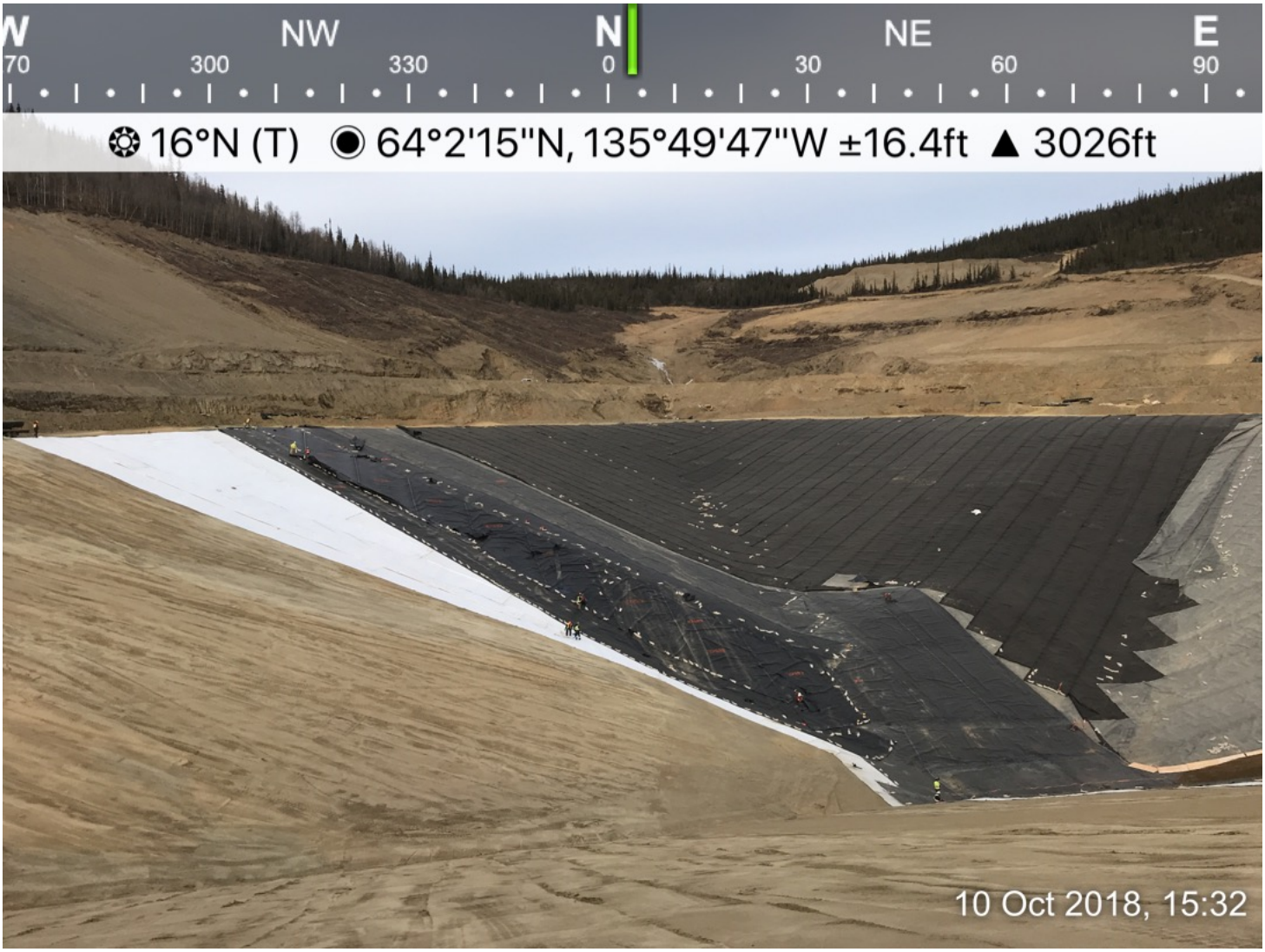


Photo 2: Layfield laid liner on impoundment.

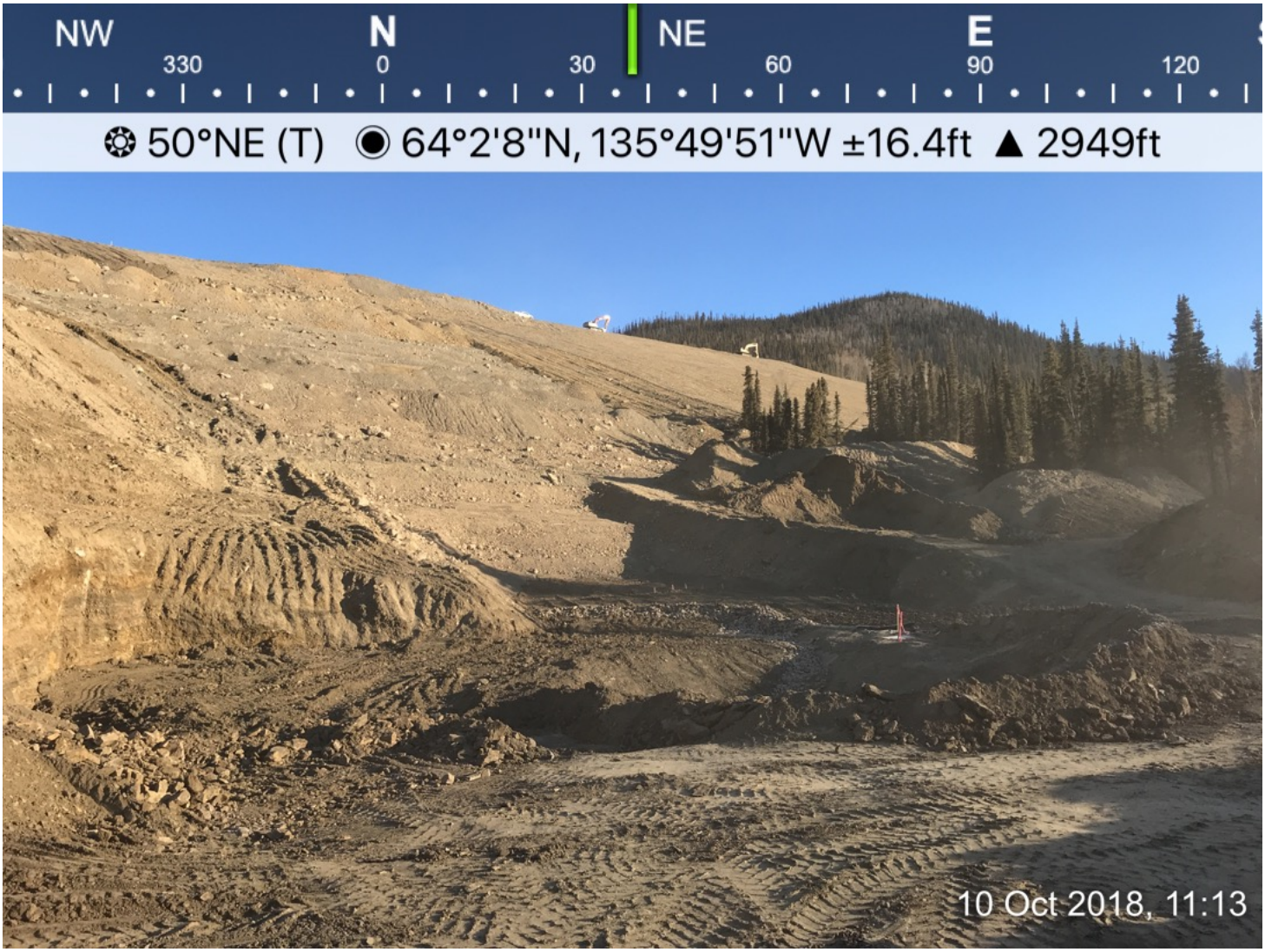


Photo 3: Pelly finished winterization of underdrains downstream of embankment, waiting for final survey to confirm cover height.



Photo 4: Event pond drain extended upstream.



Photo 5: Event pond progress and ice build up on foundation (East side).



Photo 6: Pelly removed ice promptly for foundation approval on Event pond



Photo 7: BGC inspected foundation, no ice or permafrost present, bedrock was scraped clean and accepted for lift placement for Event pond construction



Photo 8: Event pond QC passed compaction and moisture %, lift accepted. Good materials are running low, JDS was asked to plan material sources to continue construction efforts.

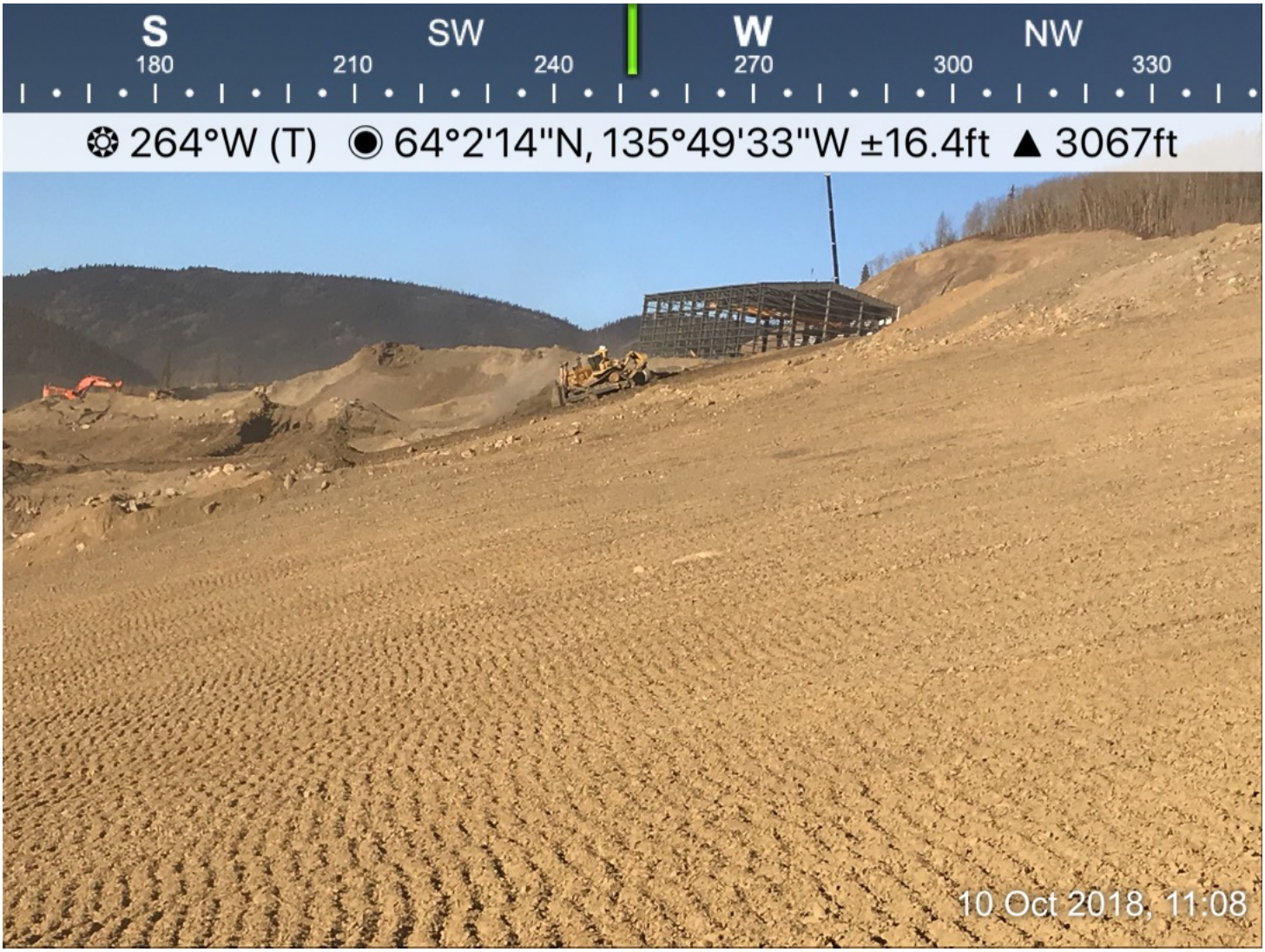


Photo 9: Pelly continued the downstream grading of the embankment slope for winterization.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda	**Weather:**	Snow/Overcast -4°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly is now placing fill material to get surface ready for liner installation. (***Photo 1***).
  - Layfield cleaned snow off liner on impoundment. (***Photo 2***).
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI.
  - Pelly is cleaning and hauling waste material on event pond.
  - Pelly finished winterization of underdrains under JDS direction, BGC has asked for survey confirmation of height of fill on top of underdrains (***Photo 3***).
  - Event pond lift on East side was rejected due to over saturation and water pumping out of surface (***Photos 4 and 5***), BGC asked Pelly to remove lift, Tetra Tech took sample of material being used for testing.
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this.
  - Pelly shaped the downstream slope of the embankment today (***Photo 6).*** Due to snow, estimation of completion is not available at this time.
  - Pelly notified BGC of a new source for material, temporary labeled as "Event Pond Switch Back", BGC tentatively approved the material for lifts on the event pond, pending proctor and moisture results from Tetra Tech. (***Photos 7 and 8***).
  - BGC aided Pelly on site with regards to the spillway re-design submitted to JDS.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 10.
  - Field density and moisture testing were provided to BGC for October 10.
  - Tetra Tech provided QC Daily Reports for liner installation on October 10.
  - Tetra Tech provided QC Daily Reports for event pond on October 10.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
CC204-RFI-041	Pelly is requesting details and requirements for the extension of the PLS header pipes from the PLS sump through the impoundment area	BGC discussed with Pelly. Pelly to provide plan to use ordered joints. BGC will evaluate and respond.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
CC204-RFI-044	PLS Piping Installation Rub Sheets	Sent October 8, 2018. Response sent to JDS/Pelly October 9, 2018. Closed.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.

Safety Issues: BGC reported a Cobalt Mechanic Truck going 60 km/hr down Dublin Road at kilometer 1. BGC tried to tell the Cobalt employee to slow down but he refused. BGC will now be taking the ADR road to the event pond and embankment for inspections given Cobalt has been cited numerous times and no action has taken place to resolve safety concerns. Tetra Tech and Pelly have also experienced aggressive driving and speeding from Cobalt drivers and have been copied on the formal email from BGC to JDS regarding safety on Dublin Road.

Snow and icy conditions are safety concerns for all mine site vehicles on haul roads with high grades.

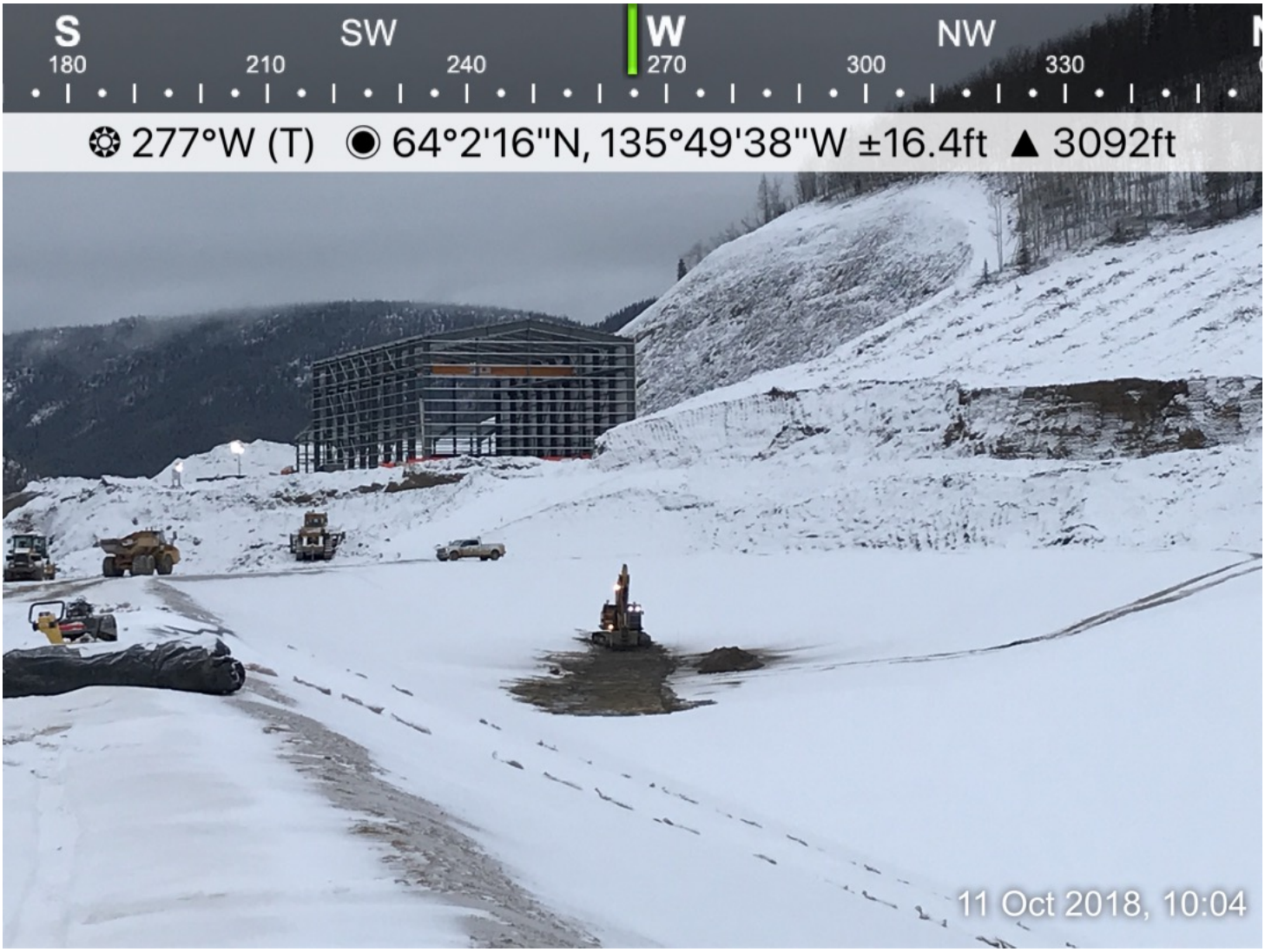


Photo 1: Pelly shaping impoundment zone on west side of embankment and placing fill material for liner installation preparation.

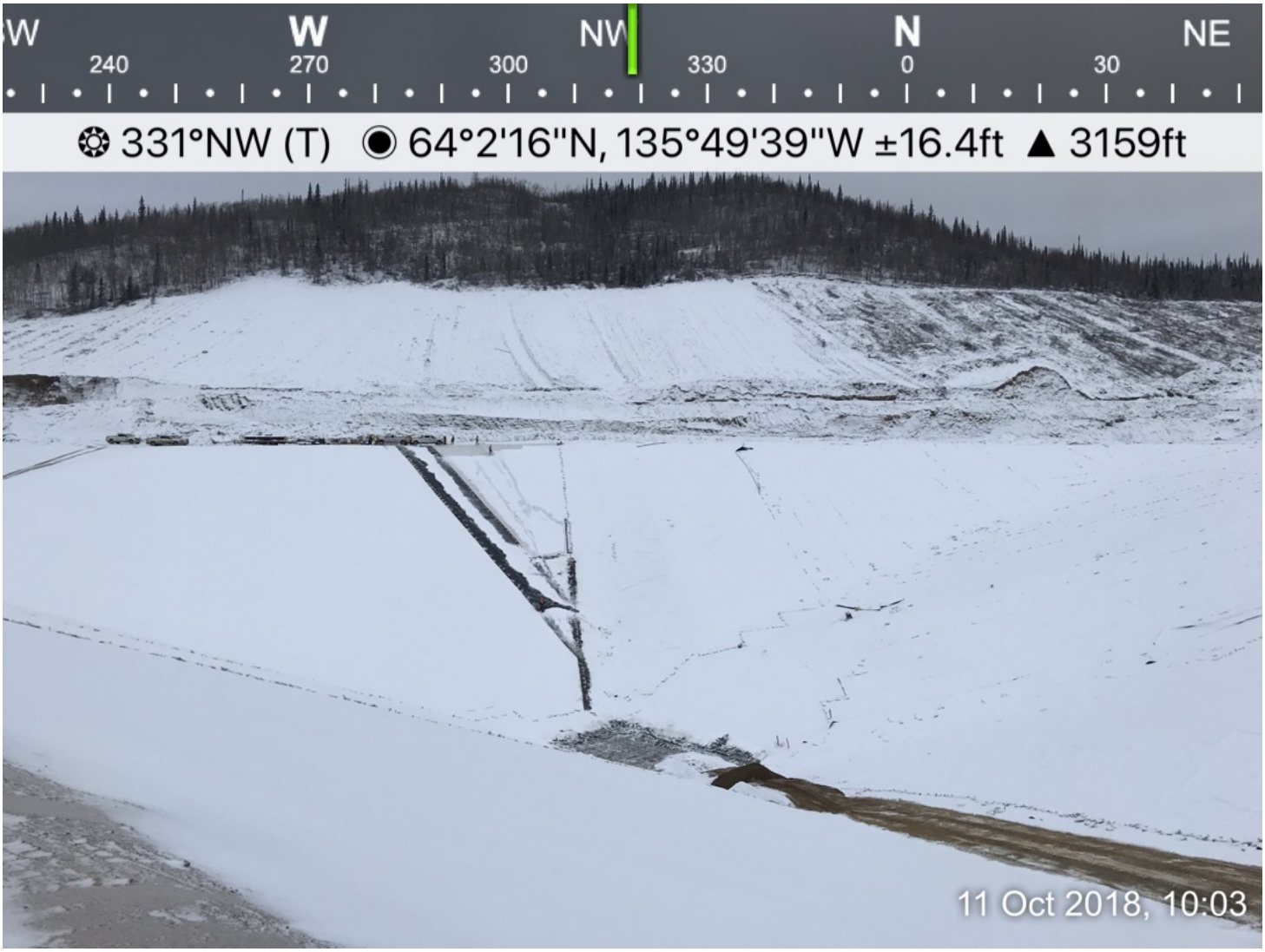


Photo 2: Layfield clean snow on impoundment.

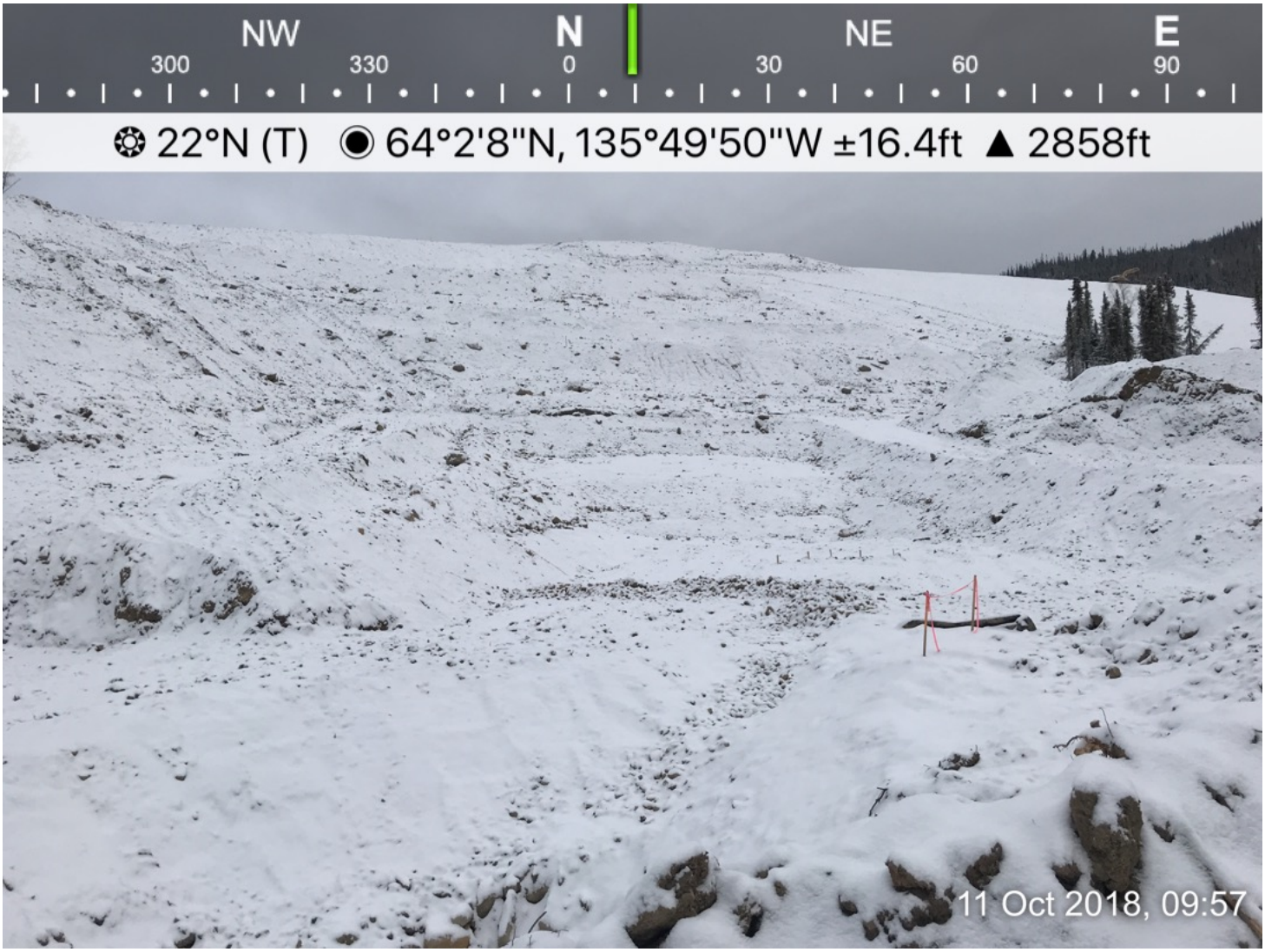


Photo 3: Pelly finished winterization of underdrains downstream of embankment, waiting for final survey to confirm cover height.

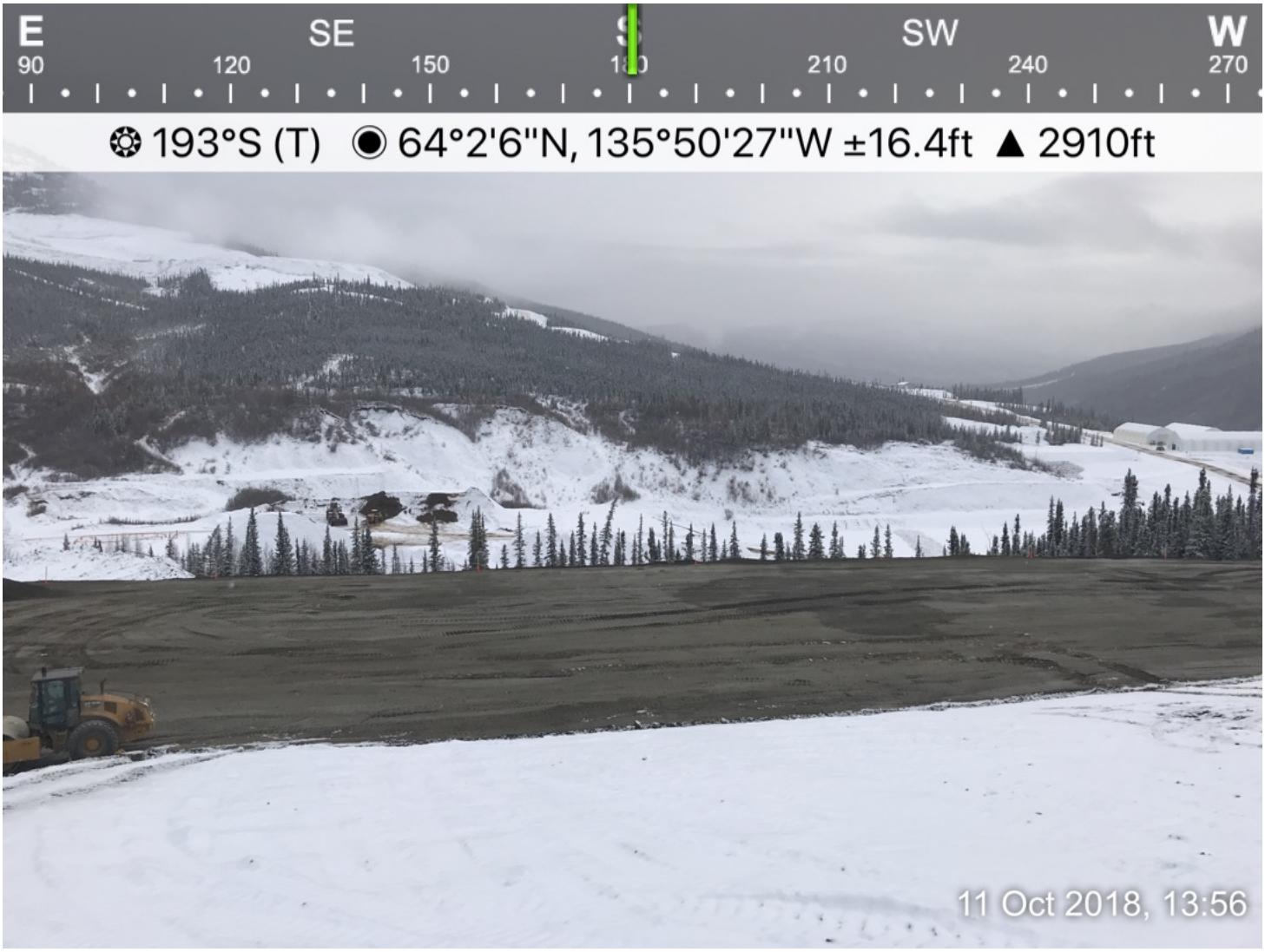


Photo 4: Event pond east side embankment has over saturation (seen on patches of dark grey).



Photo 5: Event pond lift was tested for density but over saturated with over 10%, water was pumping out and BGC rejected lift for removal (West side). Oversaturation on winter construction means ice jacking, void generation and potential removal of lifts in the Spring 2019 due to poor construction.



Photo 6: Pelly used a D10 to continue shaping downstream slope



Photo 7: Pelly notified BGC of a new source for material, temporary labeled as “Event Pond Switch Back”, BGC tentatively approved the material for lifts on the event pond, pending proctor and moisture results from Tetra Tech.



Photo 8: Pelly notified BGC of a new source for material, temporary labeled as “Event Pond Switch Back”, BGC tentatively approved the material for lifts on the event pond, pending proctor and moisture results from Tetra Tech

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Troy Meyer	**Weather:**	Cloudy/Fog -5°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer (BGC) arrived to site.
  - Pelly regraded slopes on west side of the impoundment, as-built survey presented to BGC and accepted. (***Photo 1***).
  - Layfield cleaned snow off liner on impoundment. (***Photo 2***).
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI.
  - Pelly is cleaning and hauling waste material on event pond.
  - Heavy North has placed ODF on east abutment area to sump. Heavy North placed ODF without communicating with Layfield and blocked areas that needed testing, this material was removed for tests to be completed. Ice chunks on ODF were also noted and gradation tests on ODF show it to compliant with specifications (***Photos 3 and 4***).
  - Event pond lift that had saturation over 10% that was not removed or scraped off yesterday exhibited ice jacking as visible in this picture Pelly instructed to remove this lift completely before placing a new lift (***Photo 5***).
  - Event pond lift on East side was rejected due to over saturation and water pumping out of surface (***Photos 4 and 5***), BGC asked Pelly to remove lift, Tetra Tech took sample of material being used for testing.
  - Event pond lift 26B was tested for moisture and density, lift was accepted and Pelly continued work on Event Pond (***Photos 6 and 7***).
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this.
  - Pelly shaped the downstream slope of the embankment today**.** Due to snow, estimation of completion is not available at this time.
  - BGC aided Pelly on site with regards to the spillway re-design submitted to JDS.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.
  - There are currently 3 RFI Clarifications that remain to be signed/accepted formally by JDS and 5 RFI from BGC to JDS that remain unanswered.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - Layfield reported issues placing liner on slopes steeper than 2.5:1. Liner slipping is an issue as well as crew safety. Layfield has requested that surfaces be no steeper than 2.5:1 for future approved subgrade. BGC approved the use of slopes up to 2:1 in small, discontinuous areas. However, if the installation contractor is reporting real world observations that could affect the integrity of the liner or the safety of workers these should be taken into account. BGC recommends that if slopes steeper than 2.5:1 are expected Pelly/JDS should provide BGC and Layfield with a drawing showing the extent of these areas. BGC, Pelly, JDS, and Layfield should then meet to discuss potential issues and a path forward.
  - BGC has recommended the use of finer material in smaller lifts for shaping of the in-heap pond, especially at the finished grade where liner will be placed.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 10.
  - Field density and moisture testing were provided to BGC for October 10.

- Tetra Tech provided QC Daily Reports for liner installation on October 10.
- Tetra Tech provided QC Daily Reports for event pond on October 10.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
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BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None today



Photo 1: Pelly shaping impoundment zone on west side of embankment and placing fill material for liner installation preparation. Survey as-built confirmed slopes were to design, shaping was accepted.



Photo 2: Layfield cleaned snow on impoundment.



Photo 3: Heavy North started placing ODF material, ice chunks were noted.

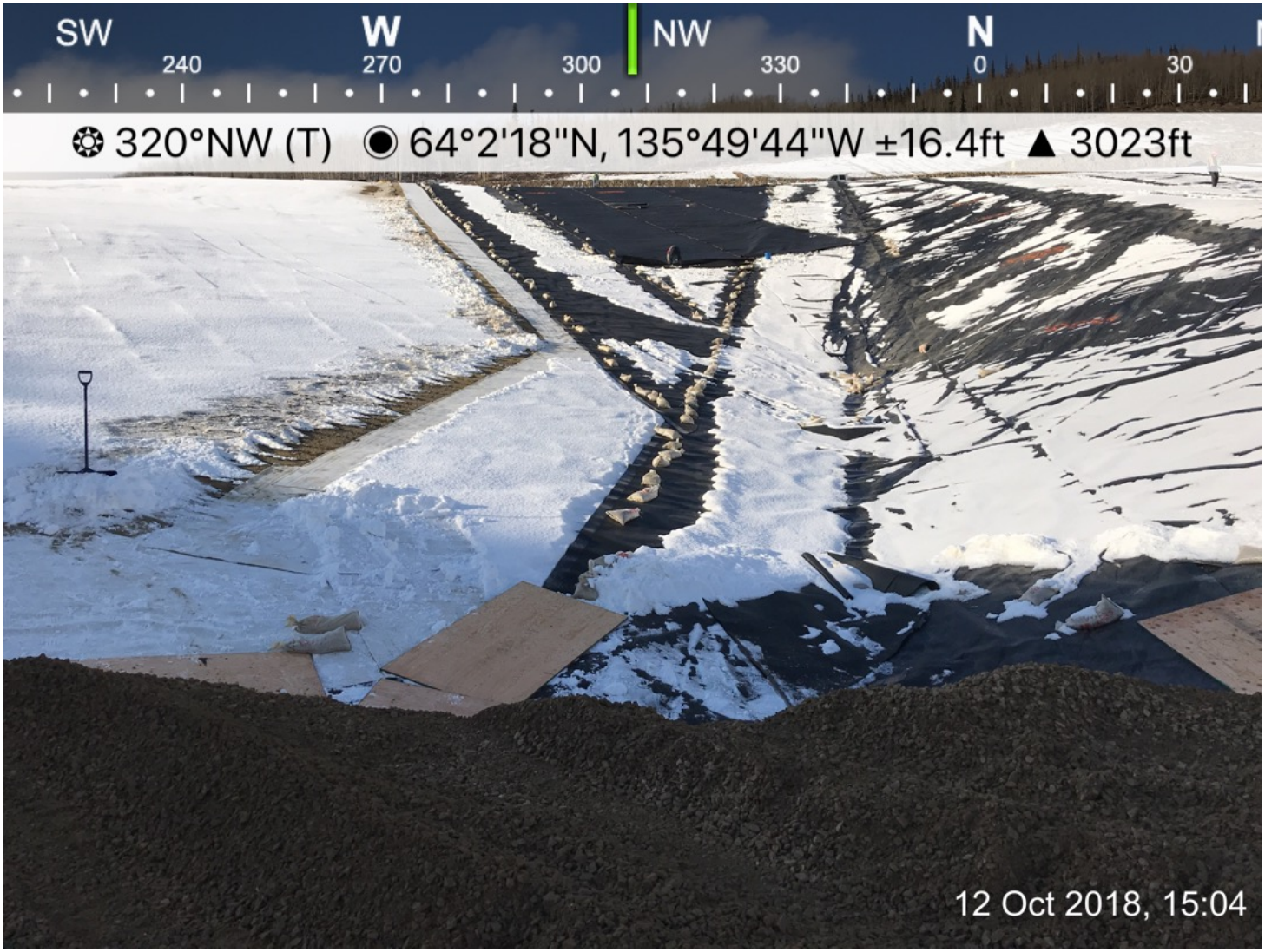


Photo 4: Heavy North placed ODF and blocked areas that needed testing by Layfield, it was instructed to remove material by areas not tested for Layfield to conduct tests necessary to finalize installation.

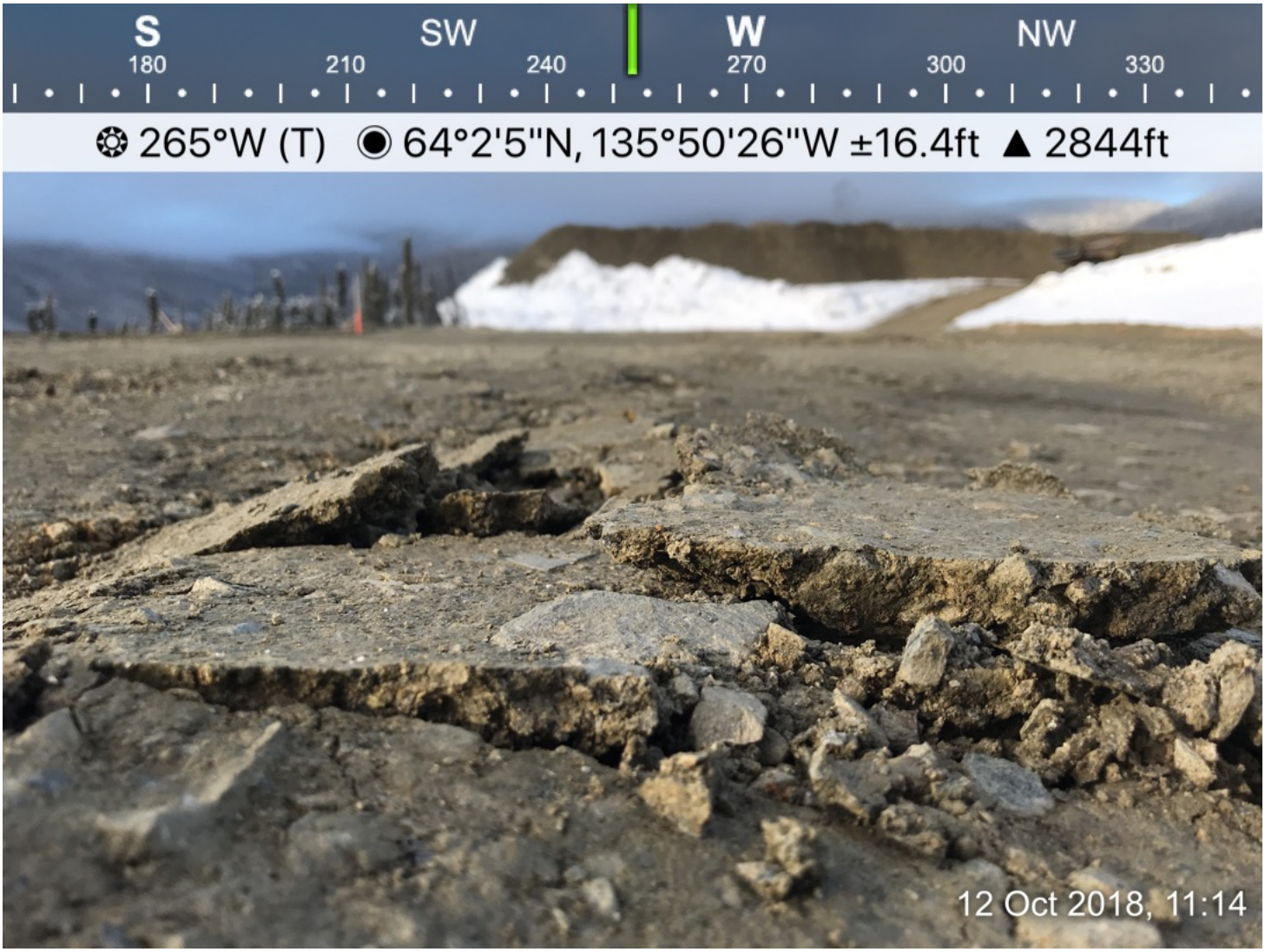


Photo 5: Event pond lift that had saturation over 10% that was not removed or scraped off yesterday exhibited ice jacking as visible in this picture Pelly instructed to remove this lift completely before placing a new lift.



Photo 6: QC density tests on new lift #26B were approved by meeting low moisture content and density.



Photo 7: Upon approval of lift, Pelly continued to place on the east side of the event pond, foundation on east most side was also approved.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Troy Meyer	**Weather:**	Cloudy/Fog/Snow -5°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly has completed the work in the HLF embankment and in-heap and has been approved by BGC.
  - Pelly has completed and confirmed the cover of the underdrains with at least 4 m of cover (***Photo 1),*** approved by BGC.
  - Pelly has completed the winterization grading of the downstream slope of the embankment (***Photos 1 to 3***), approved by BGC.
  - Pelly has completed the slope backs and shaping of the west abutment areas, free of ice and seeps ***(Photo 4***), approved by BGC.
  - Pelly has completed the remaining impoundment area shaping and material placement for liner installation ***(Photo 5)***.
  - Pelly will now focus on the "Spillway" earthworks (***Photo 6***) and "Event Pond" earthworks.
  - Layfield cleaned snow off liner on impoundment. (***Photo 7***).
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI. No response has been received to date.
  - Pelly continues cleaning and hauling waste material on event pond.
  - Heavy North has placed ODF on east abutment area to sump. Heavy North placed ODF without communicating with Layfield and blocked areas that needed testing, this material was removed for tests to be completed. Ice chunks on ODF were also noted and gradation tests on ODF show it to compliant with.
  - Heavy North disregarded RFI-013 Design Clarification signed by JDS and began constructing without placing the two layers of geotextile, Layfield/Tetra Tech notified BGC (**Photo 8**).
  - Event pond lift that had saturation over 10% that was not removed or scraped off yesterday exhibited ice jacking, Pelly instructed to remove this lift completely before placing a new lift.
  - Pelly continued work on the East side of the event pond with foundation preparation and approval from BGC by placing lifts with drier materials that met density and moisture content (also accepted by BGC). Pelly was instructed to compact lifts continuously during a snow storm to avoid freezing by maintaining energy on the lift, QC tests confirmed lift density and moisture content, BGC accepted lift placed on the snow storm (***Photos 9 to 12***).
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.
  - There are currently 3 RFI Clarifications that remain to be signed/accepted formally by JDS and 5 RFIs from BGC to JDS that remain unanswered.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - BGC and JDS visited a potential material source by the ADR ***(Photo 13),*** testfill is required to determine quality, compaction requirements and lift allowance for use on event pond construction.
  - During snow storm, it is recommended to run packers on event pond to provide compaction and kinetic energy on lift to help maintain density and moisture content.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 13.

- Field density and moisture testing were provided to BGC for October 13.
- Tetra Tech provided QC Daily Reports for liner installation on October 13.
- Tetra Tech provided QC Daily Reports for event pond on October 13.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None today



Photo 1 Pelly finished sloping the downstream side of the embankment for winterization, BGC accepted slope. Underdrain winterization was also completed with 4 m of cover, BGC accepted underdrain winterization.

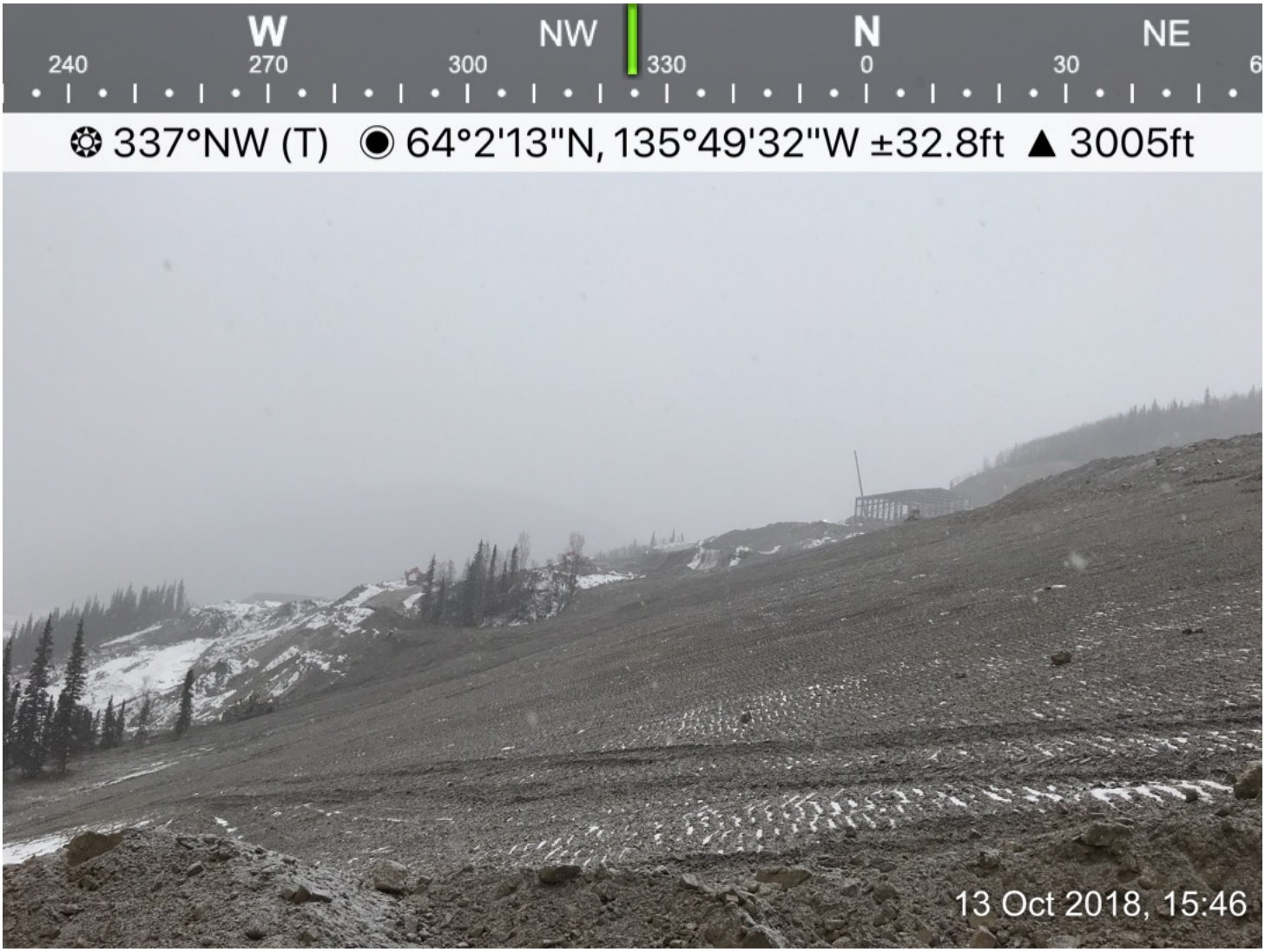


Photo 2: Pelly finished sloping the downstream side of the embankment for winterization, BGC accepted slope.

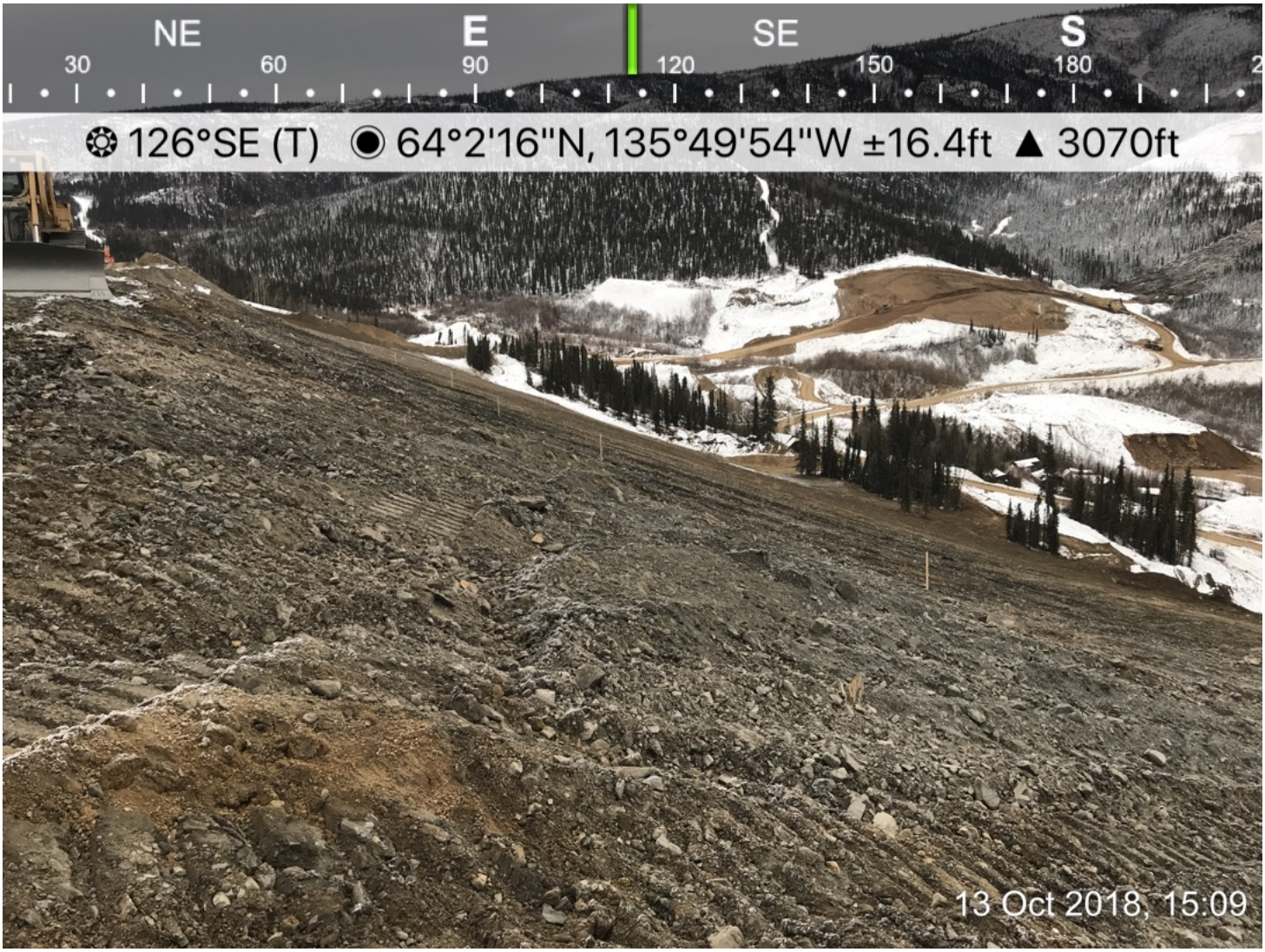


Photo 3: Pelly finished sloping the downstream side of the embankment for winterization, BGC accepted slope.

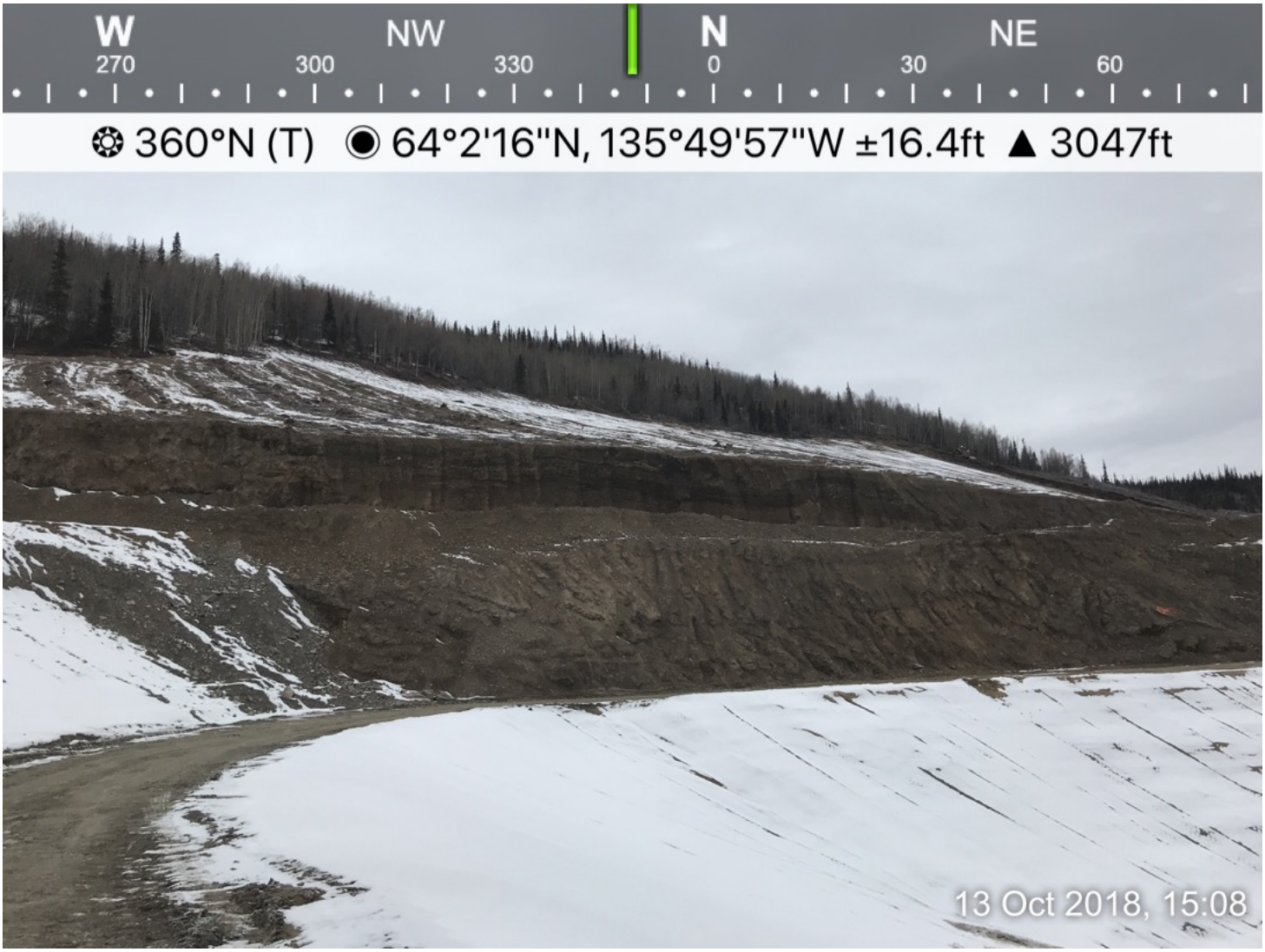


Photo 4: Pelly finished sloping and shaping slopes by the west abutment, BGC accepted surfaces (free of ice and seeps).

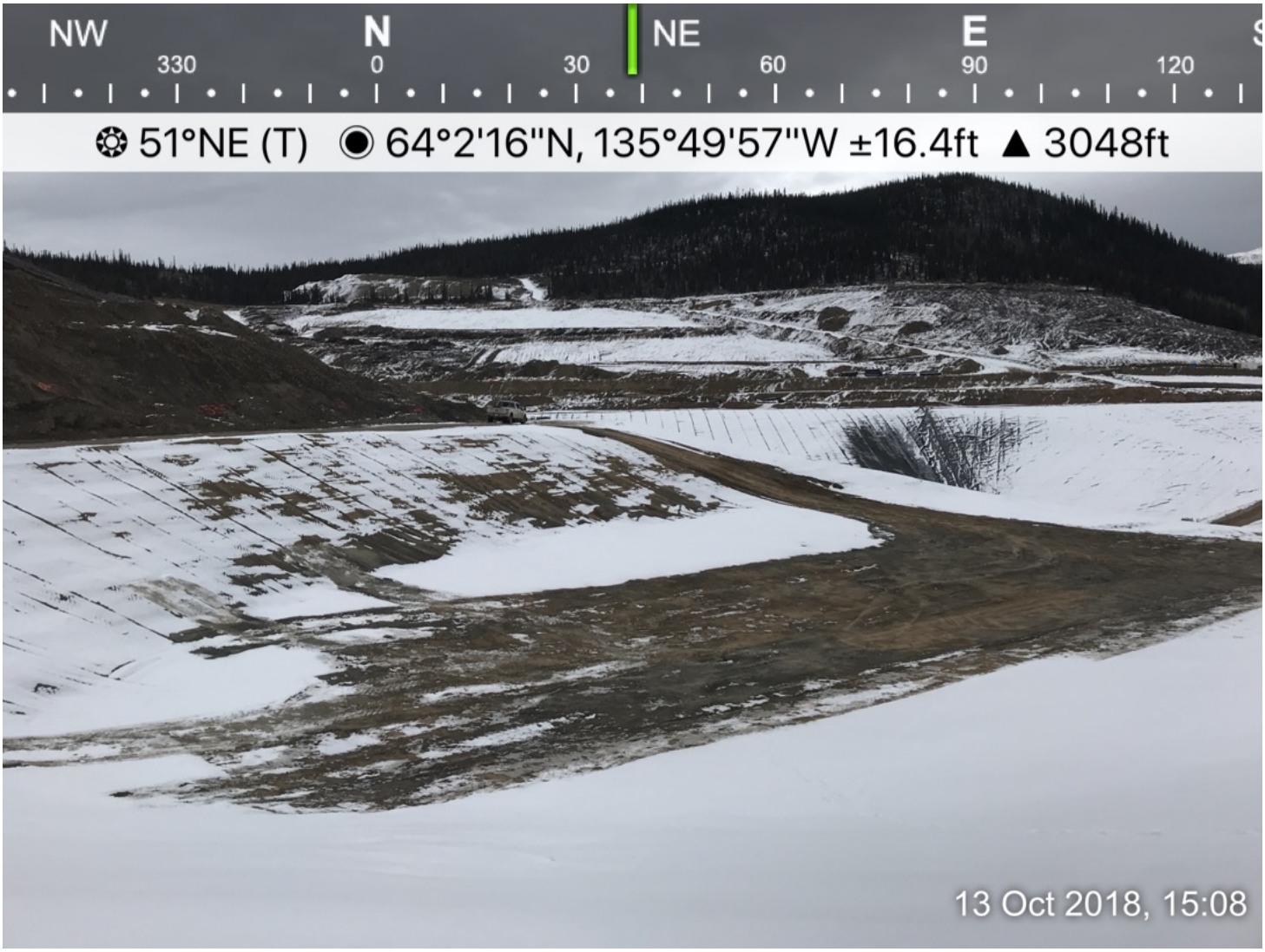


Photo 5: West side of embankment was completed by Pelly and accepted by BGC.



Photo 6: Pelly compacted area preparation for Spillway.



Photo 7: Layfield cleaned snow. Heavy North placed ODF at the sump.



Photo 8: Heavy North disregarded RFI-013 Design Clarification signed by JDS and began constructing without placing the two layers of geotextile, Layfield/Tetra Tech notified BGC.



Photo 9: Event pond progress continues as BGC approved East side foundation preparations and lifts on east side, west side saturated lift remains to be removed before work can begin on West side.



Photo 10: Tetra Tech conducted QC tests on new lift and BGC accepted results and lift.

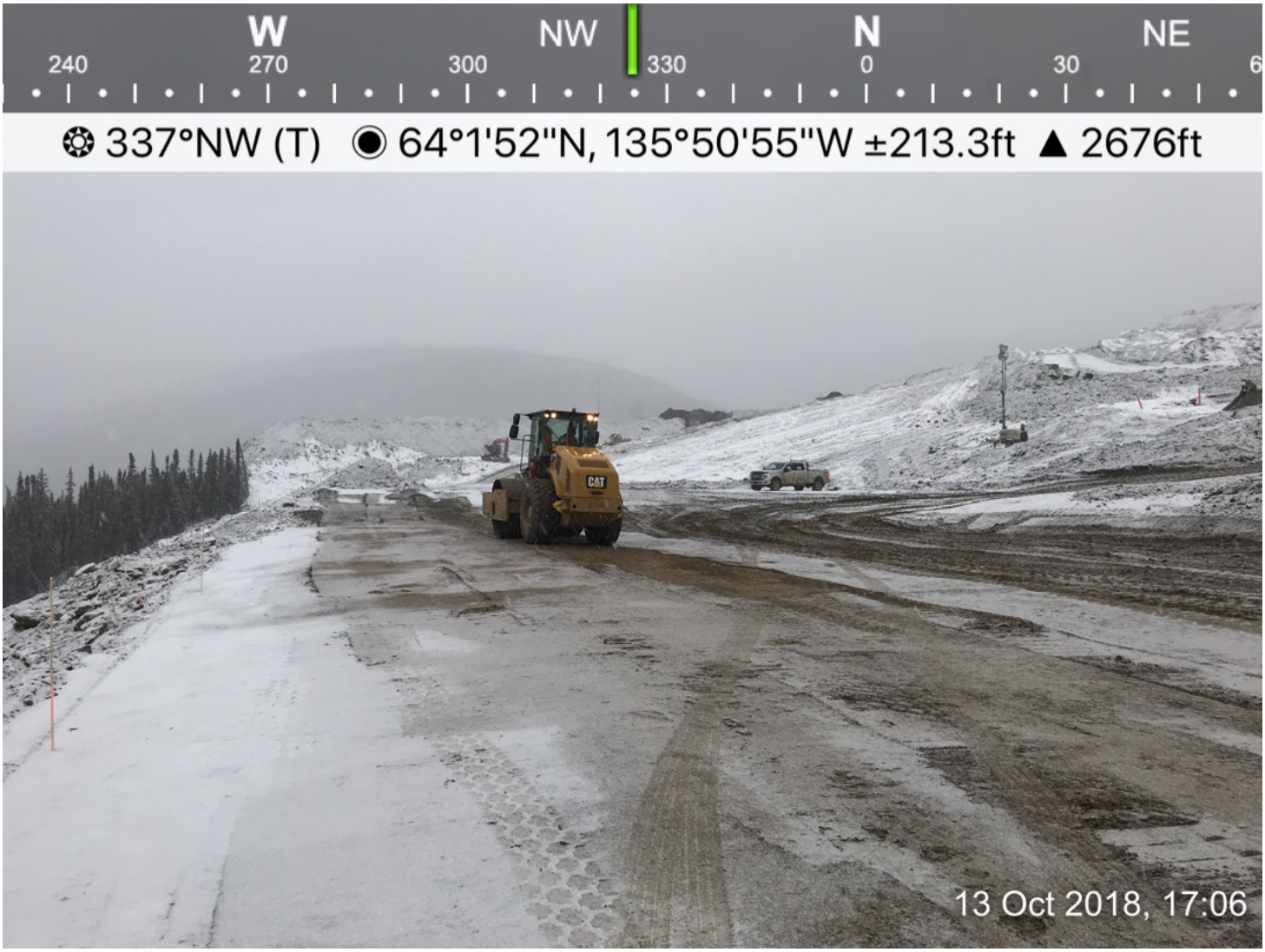


Photo 11: Snow storm saturated lift on the event pond, BGC instructed Pelly to continue packing to keep energy on lift from forming ice.



Photo 12: Tetra Tech conducted density and moisture tests on lift and BGC accepted density and moisture content.

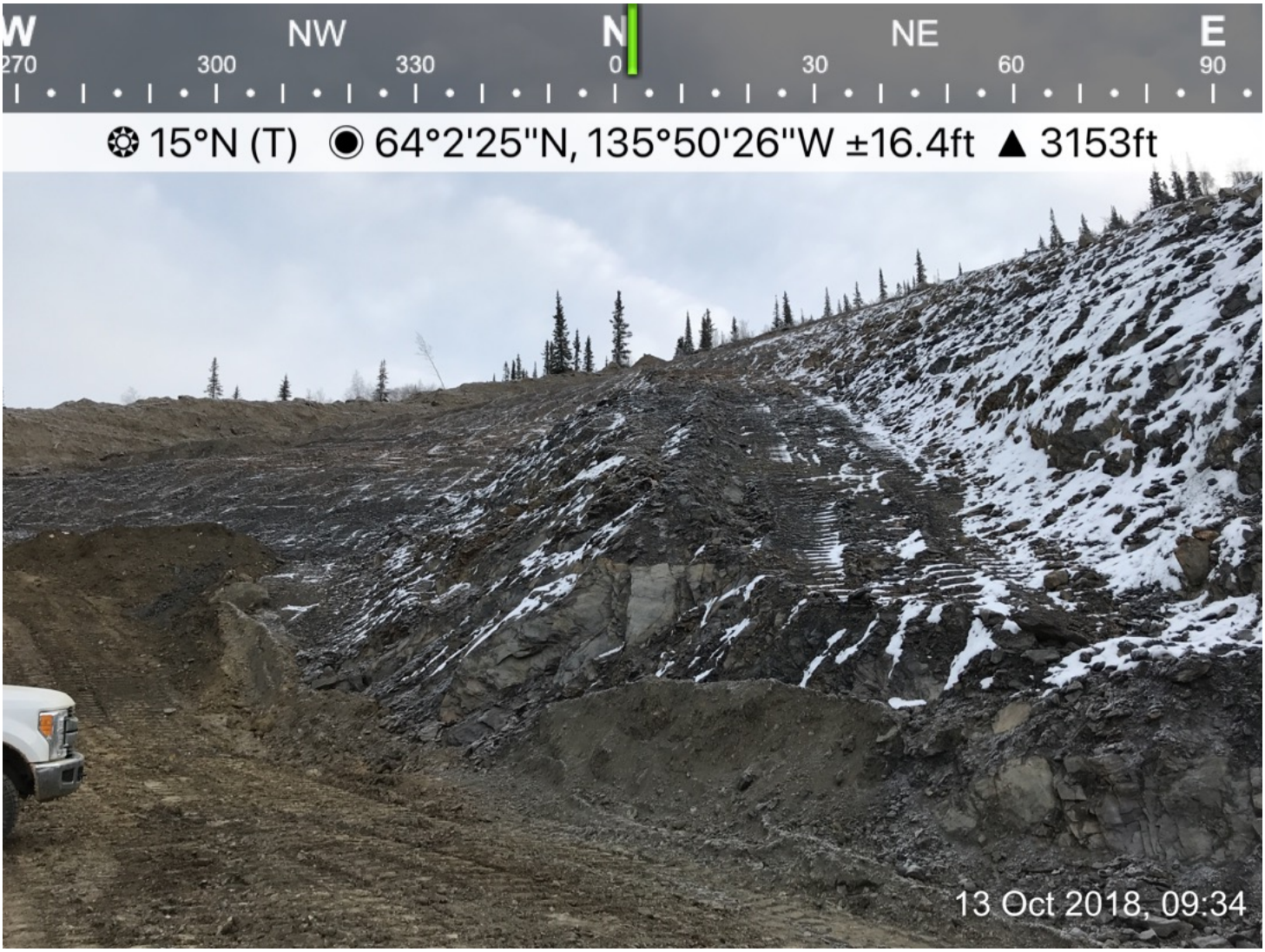


Photo 13: Potential ADR source for Event Pond Construction visited by BGC/JDS.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Troy Meyer	**Weather:**	Cloudy/Fog/Snow -5°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly has completed the work in the HLF embankment and in-heap and has been approved by BGC.
  - Pelly has completed and confirmed the cover of the underdrains with at least 4 m of cover (***Photo 1),*** approved by BGC.
  - Pelly has completed the winterization grading of the downstream slope of the embankment (***Photos 1 to 3***), approved by BGC.
  - Pelly has completed the slope backs and shaping of the west abutment areas, free of ice and seeps ***(Photo 4***), approved by BGC.
  - Pelly has completed the remaining impoundment area shaping and material placement for liner installation ***(Photo 5)***.
  - Pelly will now focus on the "Spillway" earthworks (***Photo 6***) and "Event Pond" earthworks.
  - Layfield cleaned snow off liner on impoundment. (***Photo 7***).
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI. No response has been received to date.
  - Pelly continues cleaning and hauling waste material on event pond.
  - Heavy North has placed ODF on east abutment area to sump. Heavy North placed ODF without communicating with Layfield and blocked areas that needed testing, this material was removed for tests to be completed. Ice chunks on ODF were also noted and gradation tests on ODF show it to compliant with.
  - Heavy North disregarded RFI-013 Design Clarification signed by JDS and began constructing without placing the two layers of geotextile, Layfield/Tetra Tech notified BGC (**Photo 8**).
  - Event pond lift that had saturation over 10% that was not removed or scraped off yesterday exhibited ice jacking, Pelly instructed to remove this lift completely before placing a new lift.
  - Pelly continued work on the East side of the event pond with foundation preparation and approval from BGC by placing lifts with drier materials that met density and moisture content (also accepted by BGC). Pelly was instructed to compact lifts continuously during a snow storm to avoid freezing by maintaining energy on the lift, QC tests confirmed lift density and moisture content, BGC accepted lift placed on the snow storm (***Photos 9 to 12***).
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.
  - There are currently 3 RFI Clarifications that remain to be signed/accepted formally by JDS and 5 RFIs from BGC to JDS that remain unanswered.

- Observations and Recommendations (Open/Ongoing):
  - Piles located near borrow sources that are pending labels and inclusion in the stockpile management plan are:
    - Waste pile(s) approximately 15m west of the ADR cut.
    - Waste topsoil approximately 50m south of the Event Pond footprint.
    - Material 1 – Site Grading Fill stockpile/borrow on the western portion of the Event Pond footprint.
    - Ice rich material directly adjacent to the Event Pond Material 3 borrow within the Event Pond footprint.
  - BGC and JDS visited a potential material source by the ADR ***(Photo 13),*** testfill is required to determine quality, compaction requirements and lift allowance for use on event pond construction.
  - During snow storm, it is recommended to run packers on event pond to provide compaction and kinetic energy on lift to help maintain density and moisture content.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 13.

- Field density and moisture testing were provided to BGC for October 13.
- Tetra Tech provided QC Daily Reports for liner installation on October 13.
- Tetra Tech provided QC Daily Reports for event pond on October 13.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt.
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BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None today



Photo 1: Pelly shaping impoundment zone on west side of embankment and placing fill material for liner installation preparation. Survey as-built confirmed slopes were to design, shaping was accepted.

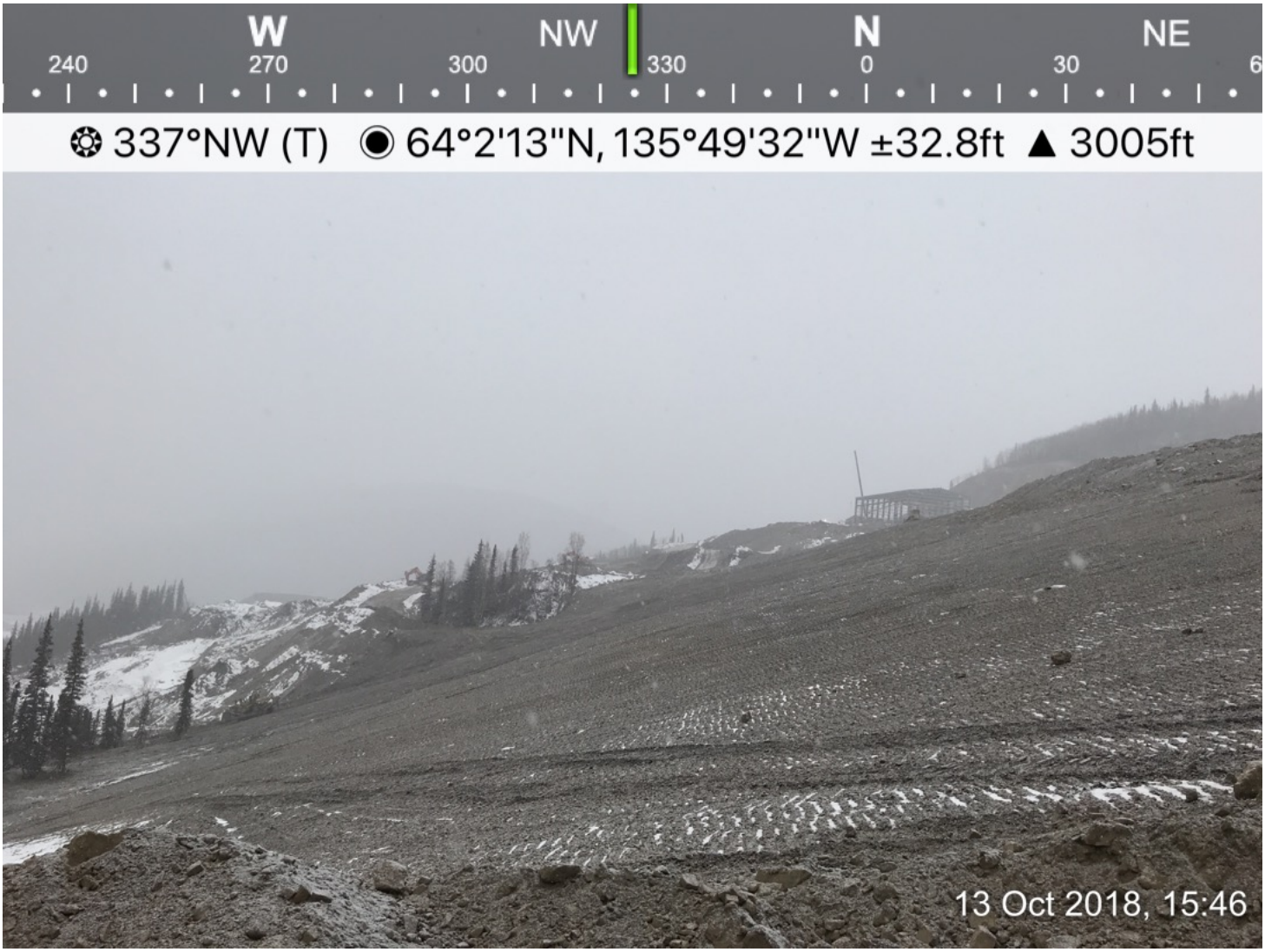


Photo 2: Layfield cleaned snow on impoundment.

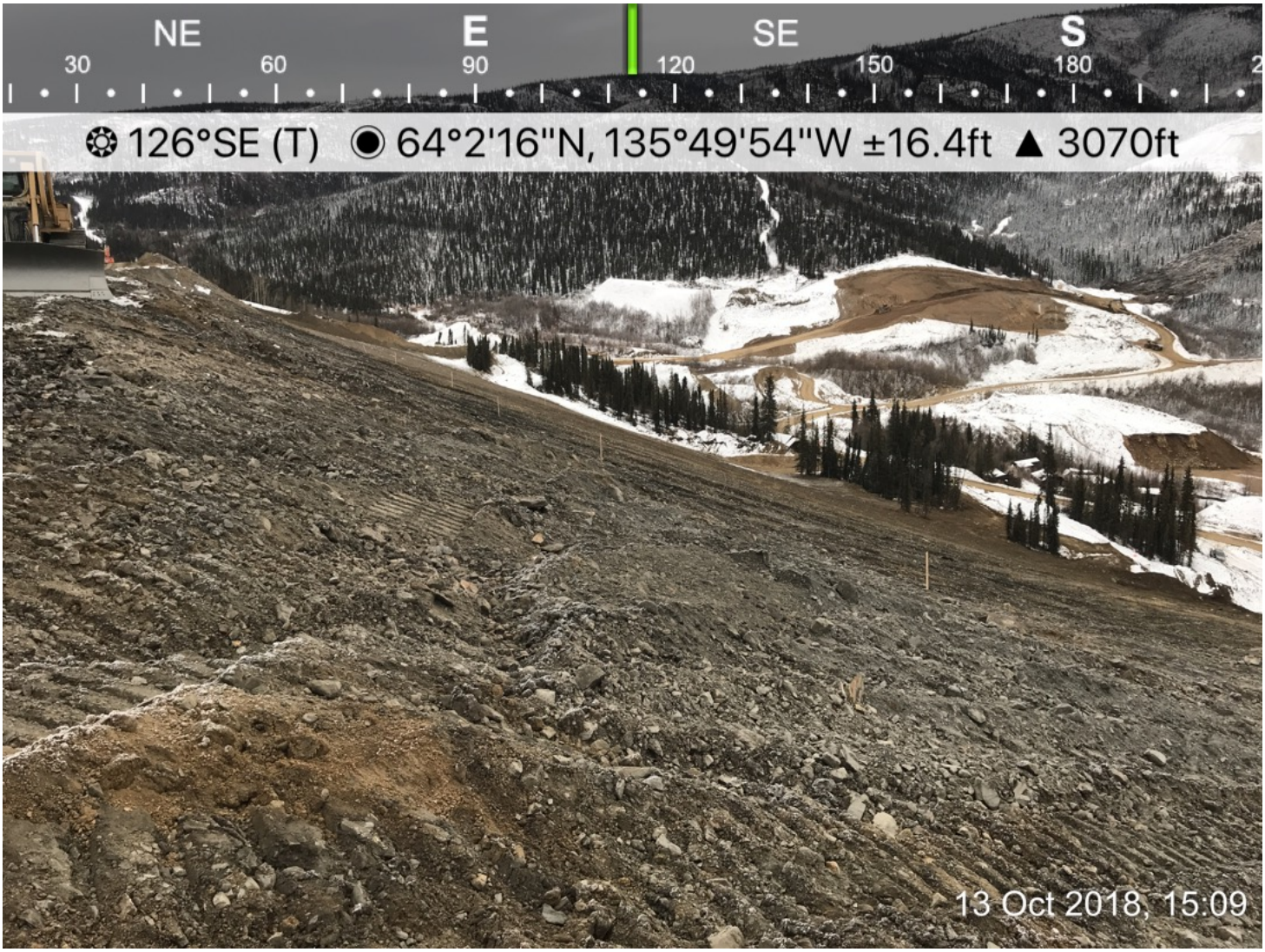


Photo 3: Heavy North started placing ODF material, ice chunks were noted.

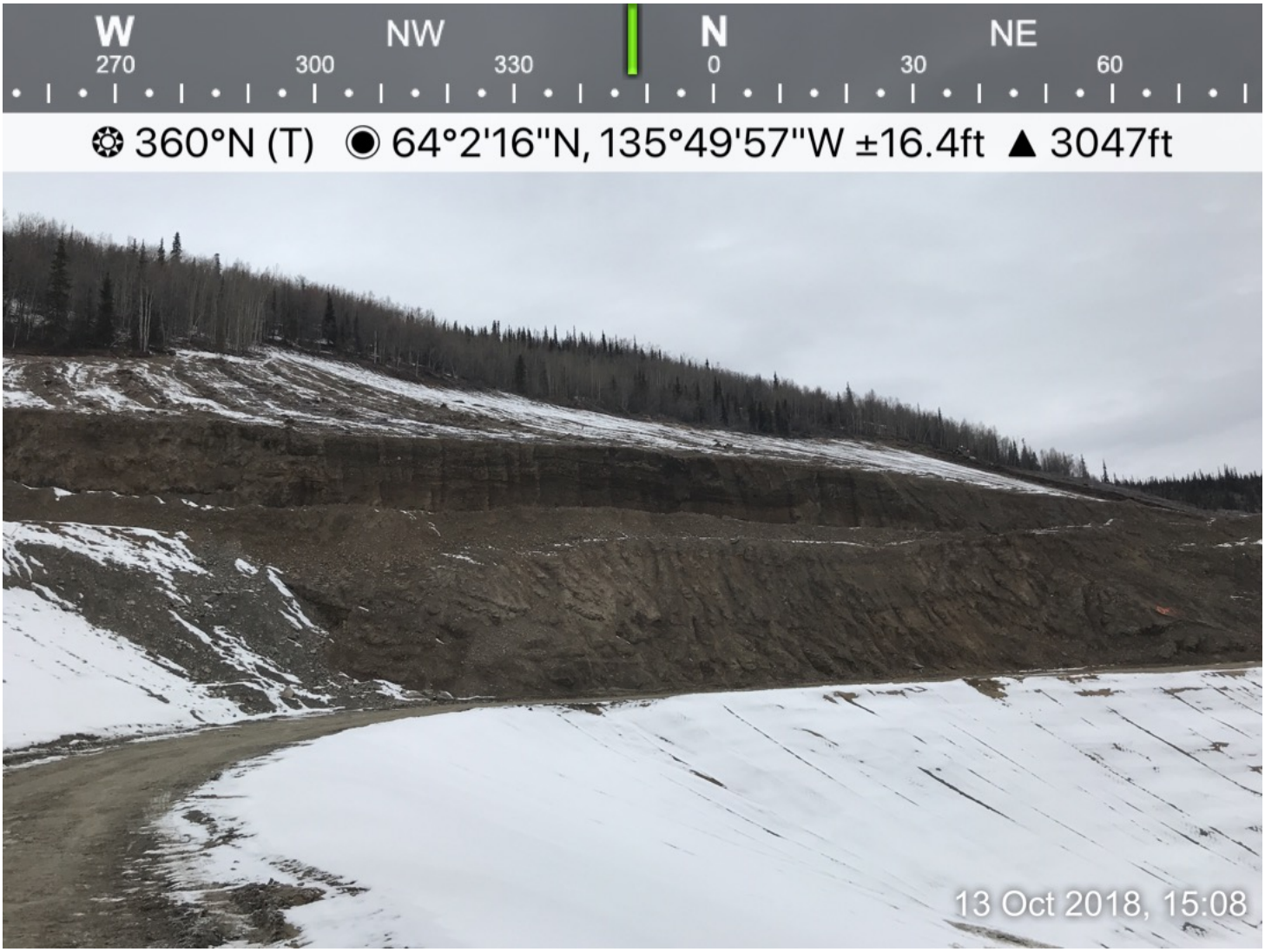


Photo 4: Heavy North placed ODF and blocked areas that needed testing by Layfield, it was instructed to remove material by areas not tested for Layfield to conduct tests necessary to finalize installation.

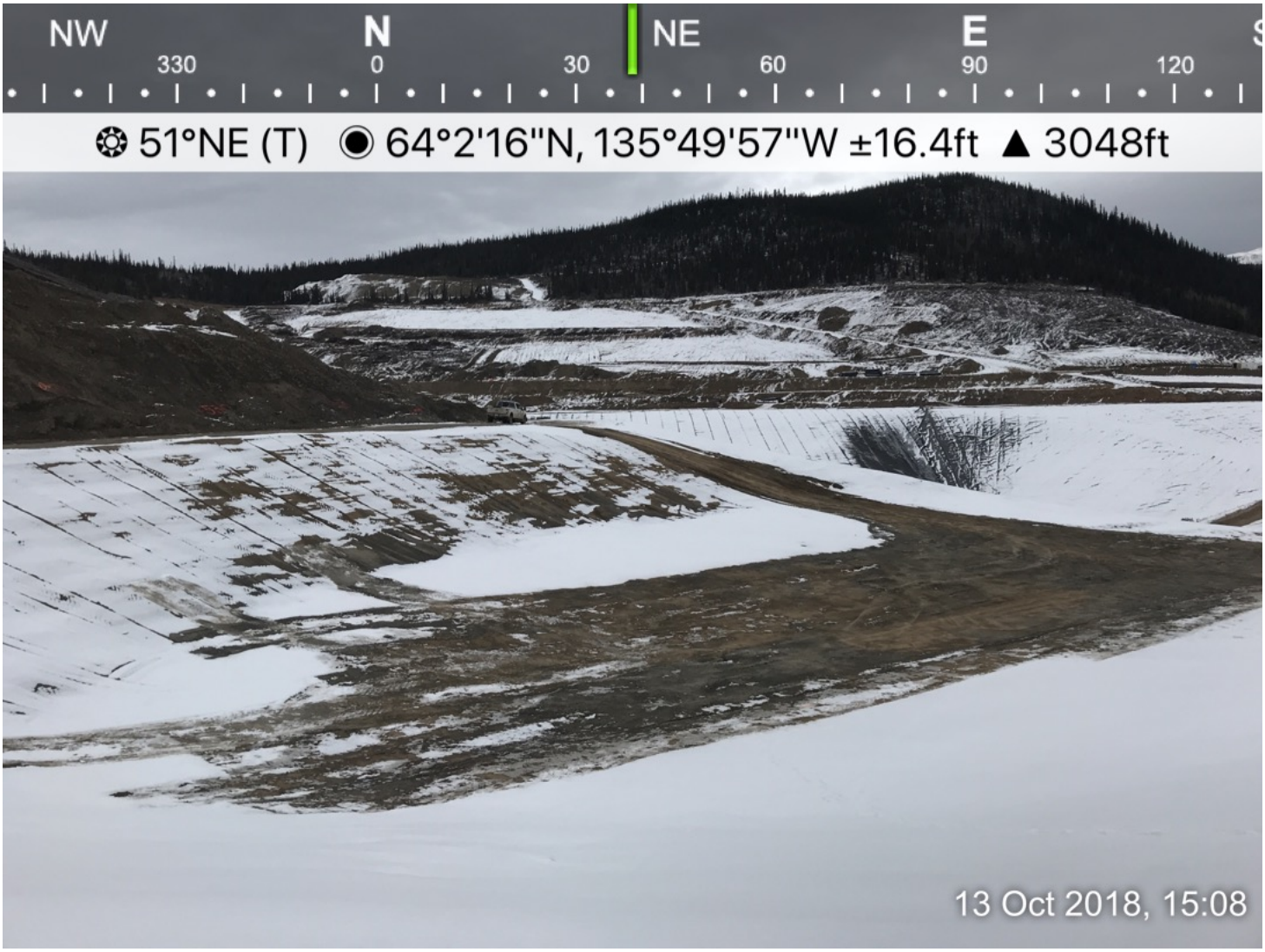


Photo 5: Event pond lift that had saturation over 10% that was not removed or scraped off yesterday exhibited ice jacking as visible in this picture Pelly instructed to remove this lift completely before placing a new lift.



Photo 6: QC density tests on new lift #26B were approved by meeting low moisture content and density.



Photo 7: Upon approval of lift, Pelly continued to place on the east side of the event pond, foundation on east most side was also approved.



Photo 8: Heavy North disregarded RFI-013 Design Clarification signed by JDS and began constructing without placing the two layers of geotextile, Layfield/Tetra Tech notified BGC.



Photo 9: Event pond progress continues as BGC approved East side foundation preparations and lifts on east side, west side saturated lift remains to be removed before work can begin on West side.



Photo 10: Tetra Tech conducted QC tests on new lift and BGC accepted results and lift.

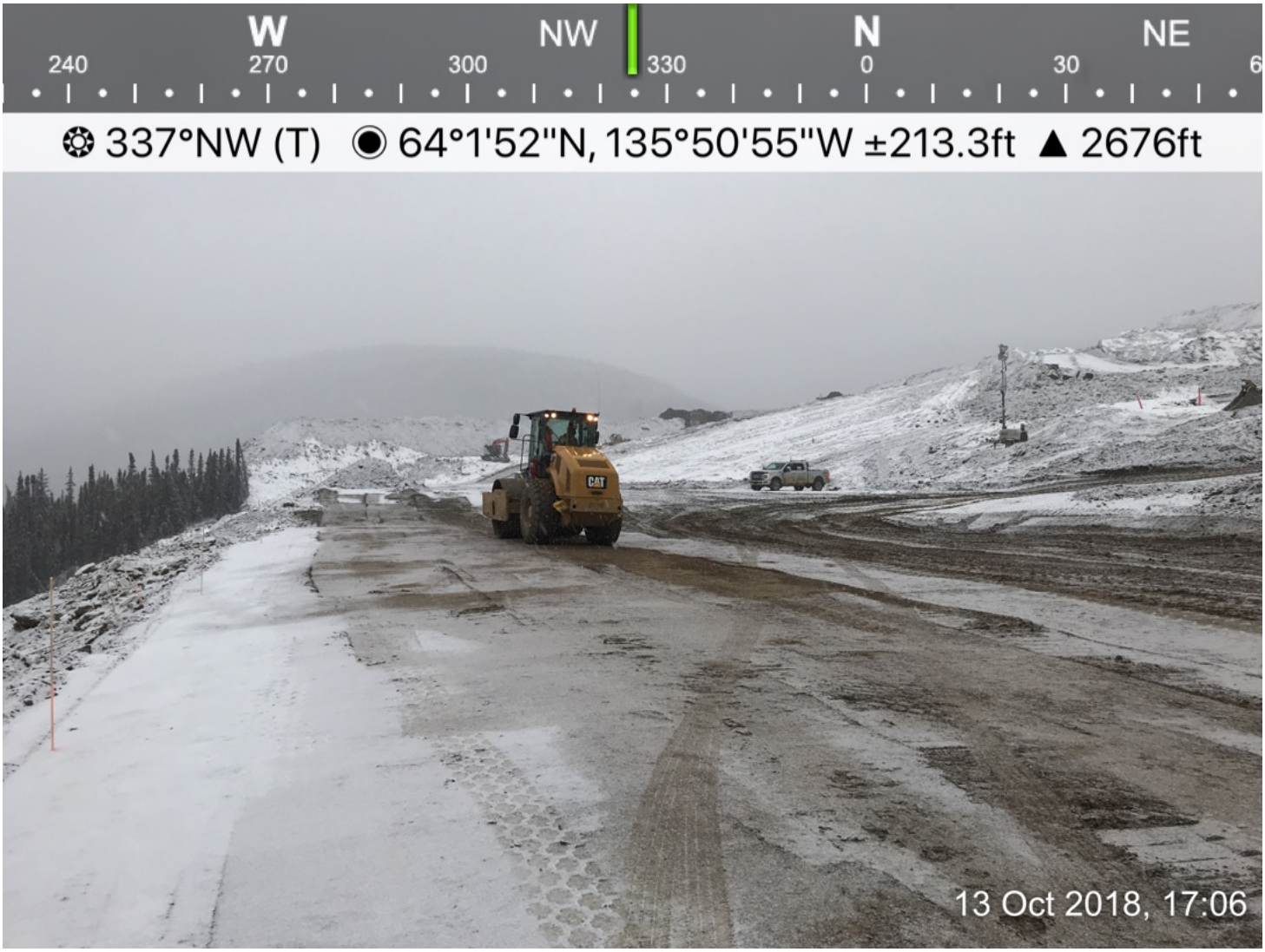


Photo 11: Snow storm saturated lift on the event pond, BGC instructed Pelly to continue packing to keep energy on lift from forming ice.



Photo 12: Tetra Tech conduct density and moisture tests on lift and BGC accepted density and moisture content.

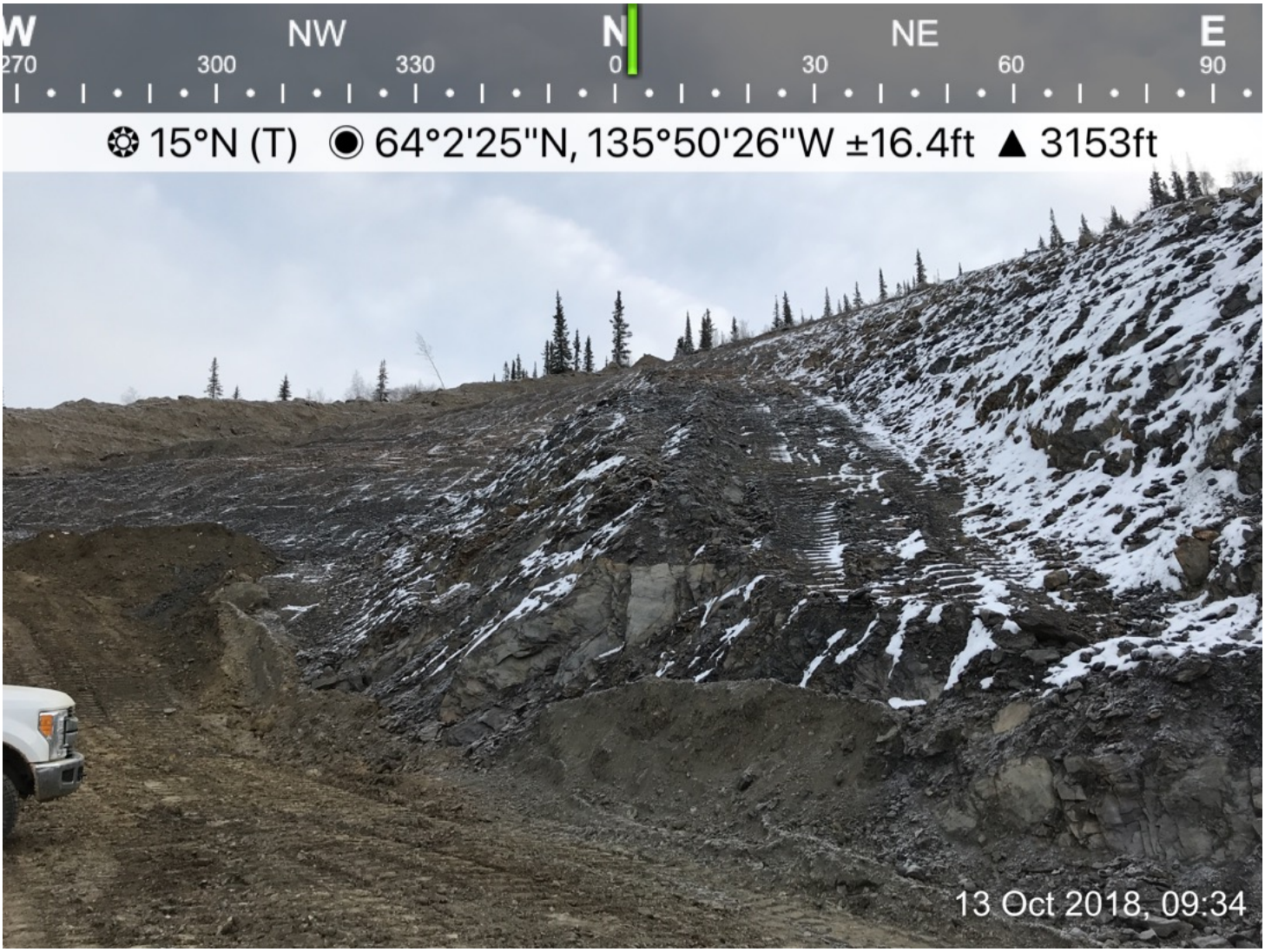


Photo 13: Potential ADR source for Event Pond Construction visited by BGC/JDS.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Troy Meyer	**Weather:**	Fog/Sunny -3°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continues to work in the event pond. Pelly scraped off the rejected lift, placed a new lift with drier material composed of more quartzite. BGC took a sample and QC tested density and moisture, lifts were accepted (***Photos 1 to 4).***
  - Pelly cleaned east side and northern upper sections of the event pond foundation, BGC approved zones with survey spray paint and communicated with field supervisors and Pelly Engineer.
  - Pelly continued placing and compacting material for preparation of spillway area (***Photo 5***).
  - Snow affected work areas for Heavy North and Layfield, both teams cleaned snow to proceed with liner installation and ODF placement (***Photos 6 and 7***).
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI. No response has been received to date.
  - Pelly continues cleaning and hauling waste material on event pond.
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this. BGC may reject lifts if the material placed is frost susceptible, RFIs to help plan have been sent out.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.
  - There are currently 3 RFI Clarifications that remain to be signed/accepted formally by JDS and 5 RFIs from BGC to JDS that remain unanswered.
  - JDS has proposed to BGC the creation of a new pit for ADR material access for event pond construction. BGC noted to JDS that a testfill will be needed to come up with lift size, compactor passes and necessary protocol/procedures for lift placement. It is assumed the material will be a mixture of quartzite and phyllite, similar to embankment material but this remains to be determined.
  - Pelly asked BGC if an access road bordering the west side of the embankment could be placed. BGC agreed under the condition of such road not being a cut into the embankment and having a grade that guides runoff away from the groin and embankment.

- Observations and Recommendations (Open/Ongoing):
  - Lack of stockpile management and labels will start causing confusion on materials that are suitable and unsuitable for event pond. BGC may reject lifts that contain excessive phyllite, organics or over saturated fines deemed unsuitable but hauled due to lack of stockpile management (RFI 023 and 024 still pending response/action).
  - During snow storms, it is recommended to run packers on event pond to provide compaction and kinetic energy on lift to help maintain density and moisture content.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 13.
  - Field density and moisture testing were provided to BGC for October 13.
  - Tetra Tech provided QC Daily Reports for liner installation on October 14.
  - Tetra Tech provided QC Daily Reports for event pond on October 13.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
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BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.

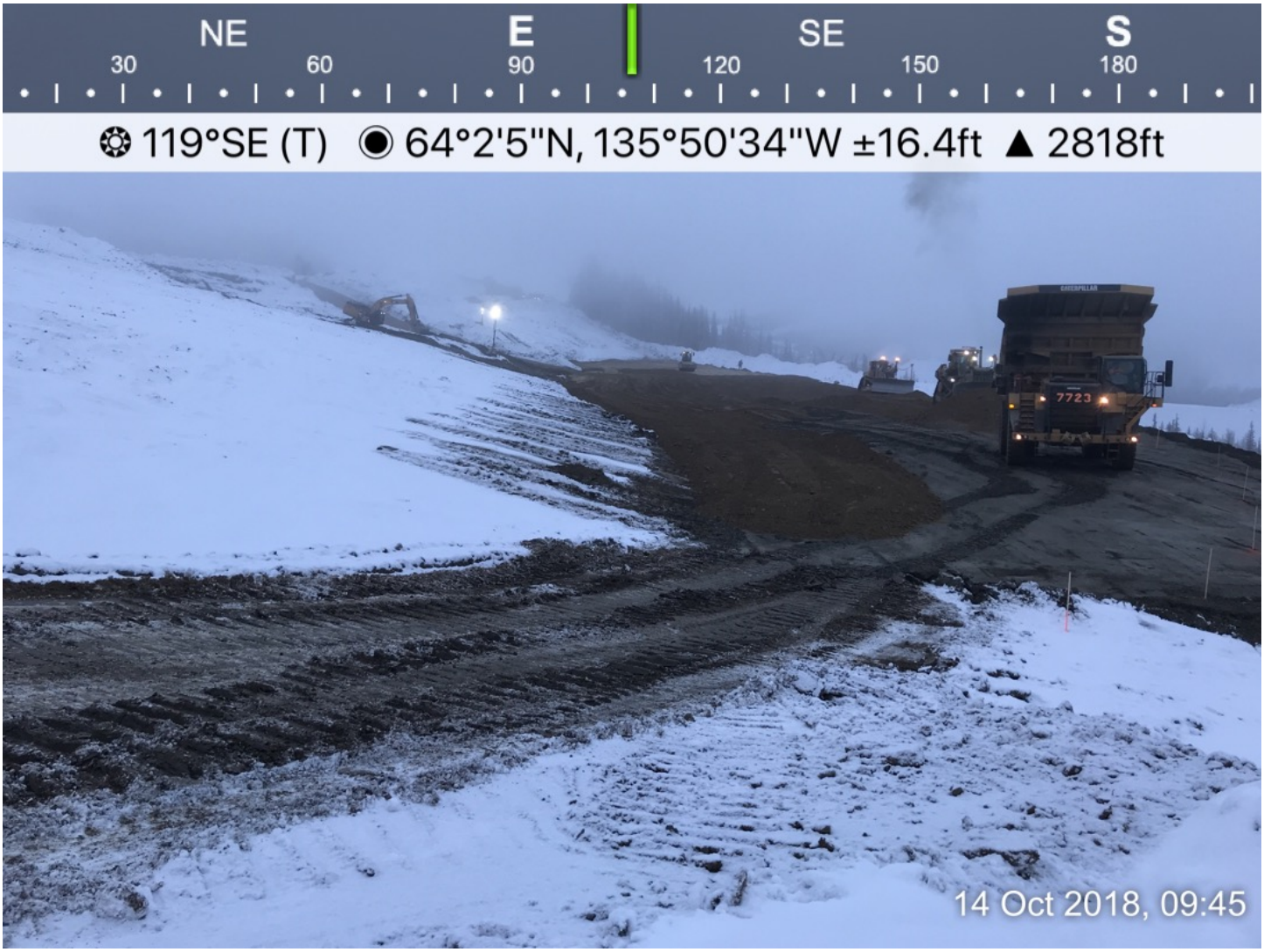


Photo 1: Pelly removed the rejected lift and placed material on top.



Photo 2: BGC took a sample for Tetra Tech to test of the loose lift for QA/QC records (Standard proctor to be performed, results pending).

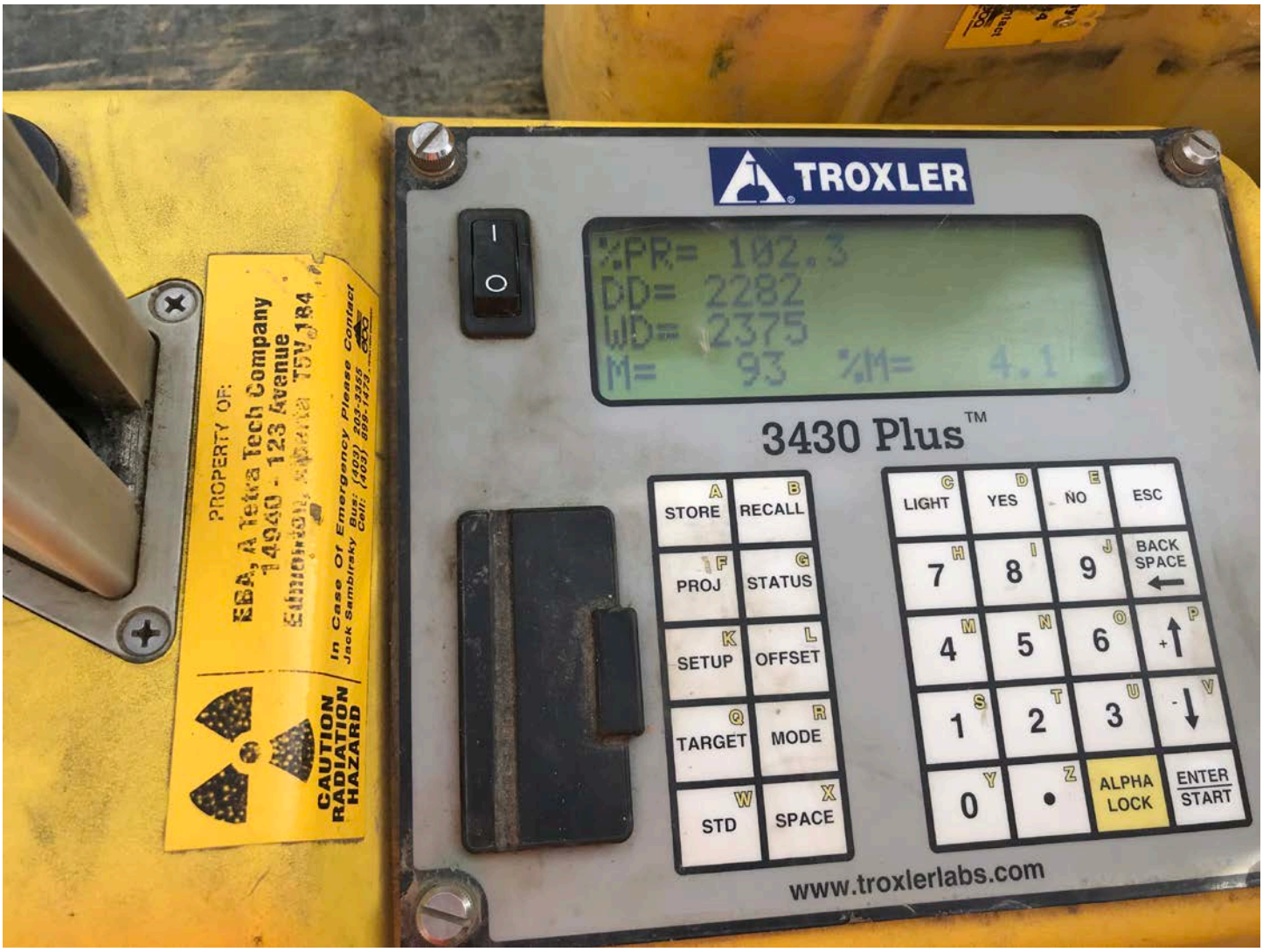


Photo 3: QC Tetra Tech did a nuclear density test in the afternoon with BGC present, the lift was accepted, the lift had more quartzite than previous lifts and lower moisture content despite the high humidity of the day.

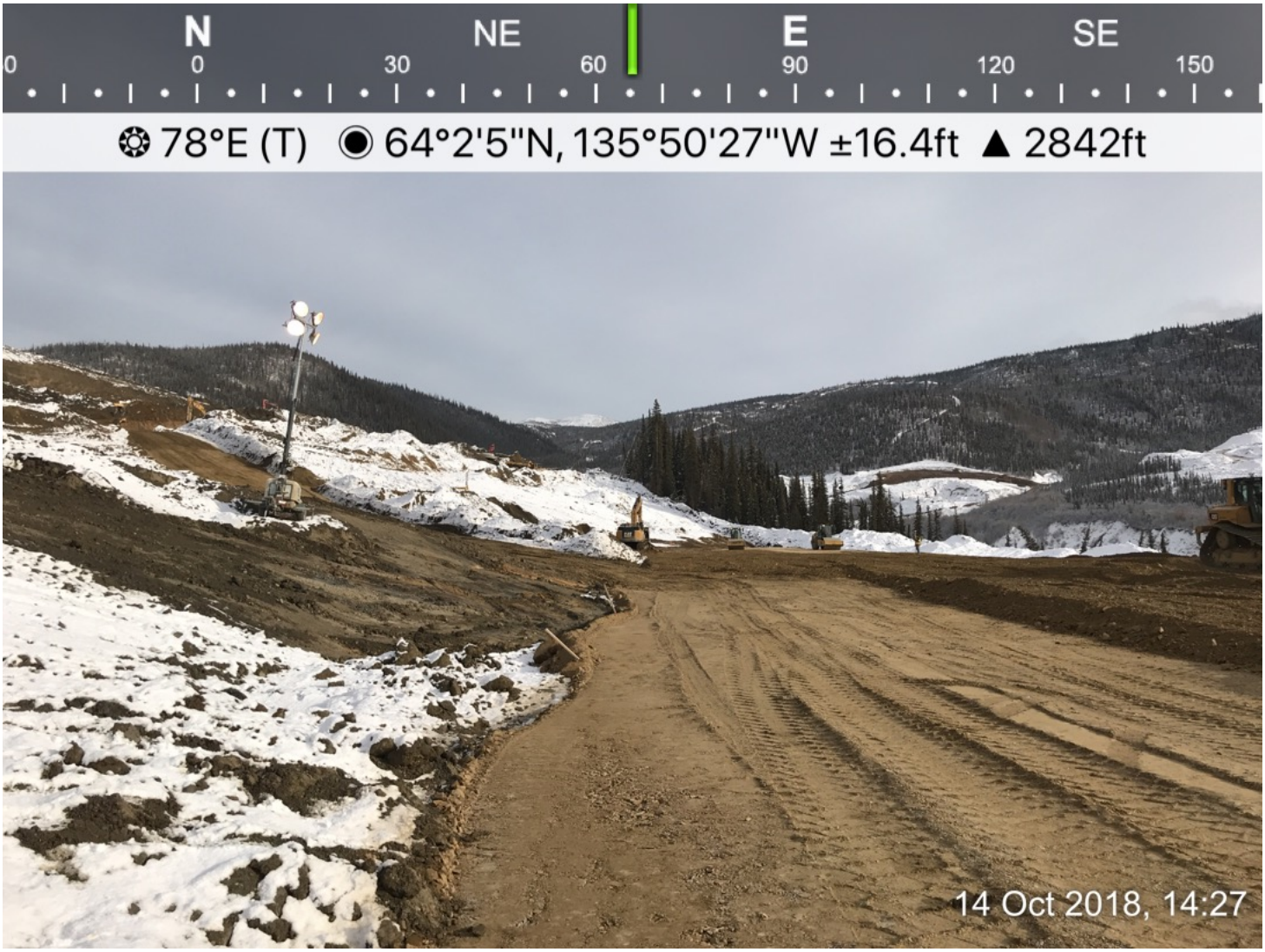


Photo 4: Accepted lift, Pelly continued clearing foundation areas which were approved by BGC and placing material.



Photo 5: Pelly continued placing and compacting material for preparation of spillway area.



Photo 6: Snow affected work areas for Heavy North and Layfield, both teams cleaned snow to proceed with liner installation and ODF placement.



Photo 7: Heavy north continues to place ODF from sump to crest and Layfield conducting checks of liner with Tetra Tech representative.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Dan Granda / Troy Meyer	**Weather:**	Sunny/cloudy -10°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continues to work in the event pond. Pelly continues to place lifts with visible quartzite material, QC tests verified density and moisture content and BGC accepted lifts (***Photos 1 to 3).***
  - Pelly begins compacting upper areas of event pond foundation approved by BGC for material placement (***Photo 4)***.
  - Pelly continued placing and compacting material for preparation of spillway area (***Photo 5***).
  - Snow affected work areas for Heavy North and Layfield, both teams cleaned snow to proceed with liner installation and ODF placement (***Photo 6***).
  - BGC approved sections of east side of Event Pond ***(Photos 7 and 8),*** there were areas not approved and communicated to Pelly that will require removal of over saturated/thawing highly weathered phyllite zones.
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI. No response has been received to date.
  - Pelly continues cleaning and hauling waste material on event pond.
  - BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this. BGC may reject lifts if the material placed is frost susceptible, RFIs to help plan have been sent out.
  - BGC provided JDS with the spillway re-design CAD drawings, JDS passed on the information to Pelly.
  - There are currently 3 RFI Clarifications that remain to be signed/accepted formally by JDS and 5 RFIs from BGC to JDS that remain unanswered.
  - JDS has proposed to BGC the creation of a new pit for ADR material access for event pond construction. BGC noted to JDS that a testfill will be needed to come up with lift size, compactor passes and necessary protocol/procedures for lift placement. It is assumed the material will be a mixture of quartzite and phyllite, similar to embankment material but this remains to be determined.

- Observations and Recommendations (Open/Ongoing):
  - Lack of stockpile management and labels will start causing confusion on materials that are suitable and unsuitable for event pond. BGC may reject lifts that contain excessive phyllite, organics or over saturated fines deemed unsuitable but hauled due to lack of stockpile management (RFI 023 and 024 still pending response/action).
  - During snow storms, it is recommended to run packers on event pond to provide compaction and kinetic energy on lift to help maintain density and moisture content.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided HLF earthworks QC Daily Reports for October 14.
  - Field density and moisture testing were provided to BGC for October 14.
  - Tetra Tech provided QC Daily Reports for liner installation on October 14.
  - Tetra Tech provided QC Daily Reports for event pond on October 14.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.

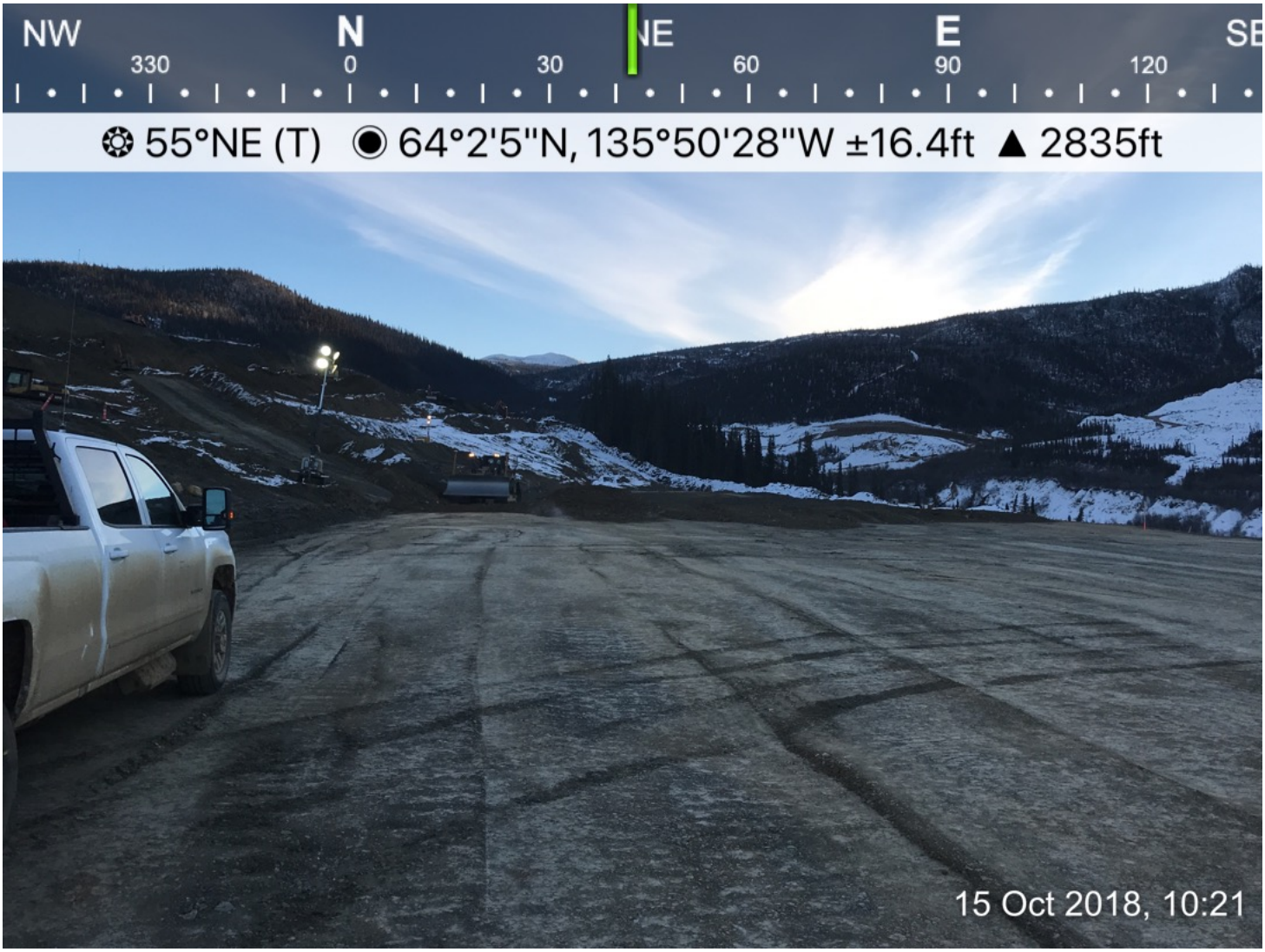


Photo 1: Pelly continues to place lifts on Event Pond, currently doing 5 passes for compaction.



Photo 2: QC Tetra Tech did a nuclear density test with BGC present, the lift was accepted, the lift was observed to be similar in composition from yesterday.



Photo 3: QC test results for 5 passes with current compactor, Pelly asked to continue with 5 passes until bigger compactor is fixed.

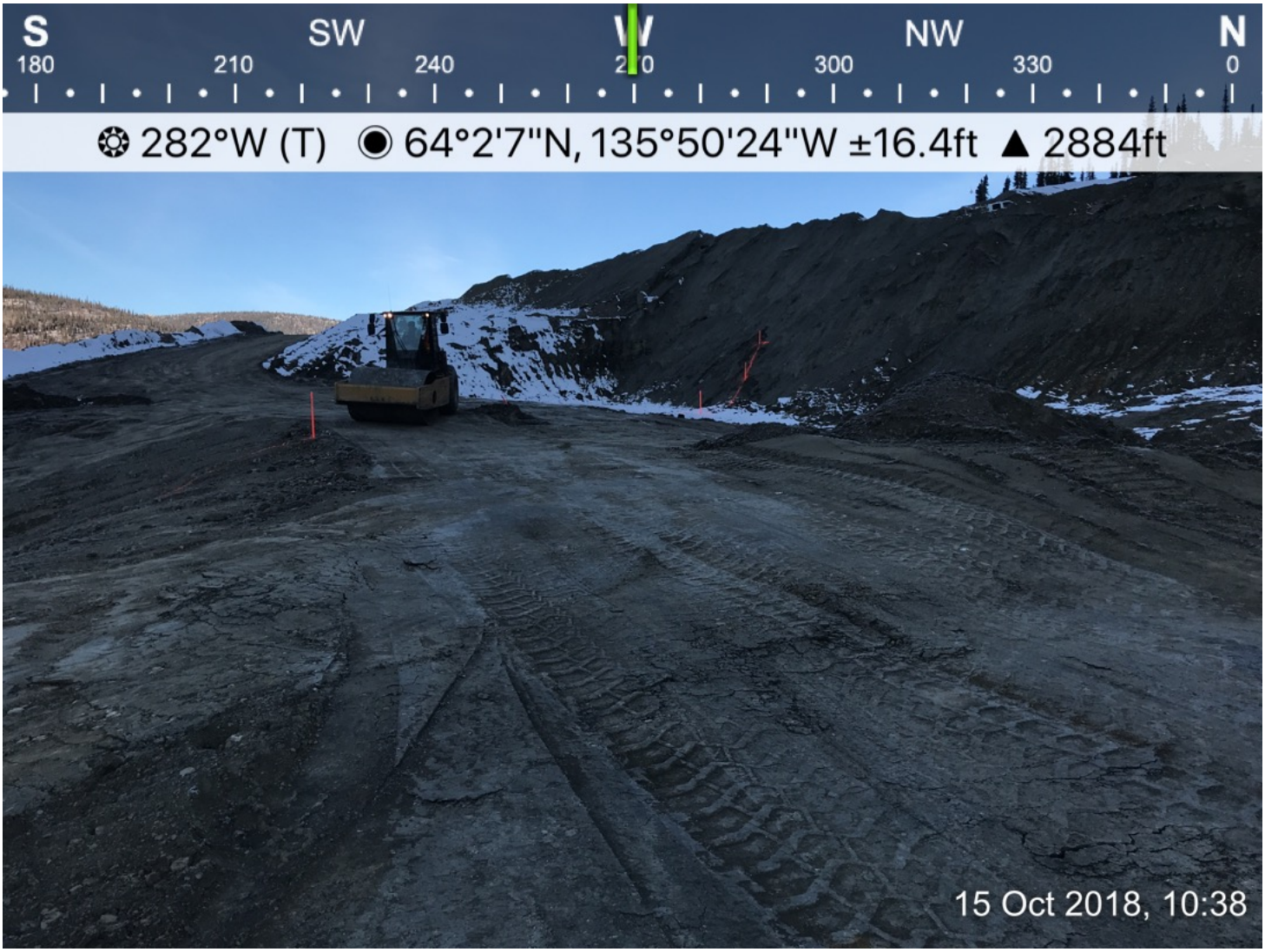


Photo 4: Pelly compacting foundation approved upstream before material placement.



Photo 5: Pelly continued placing and compacting material for preparation of spillway area.

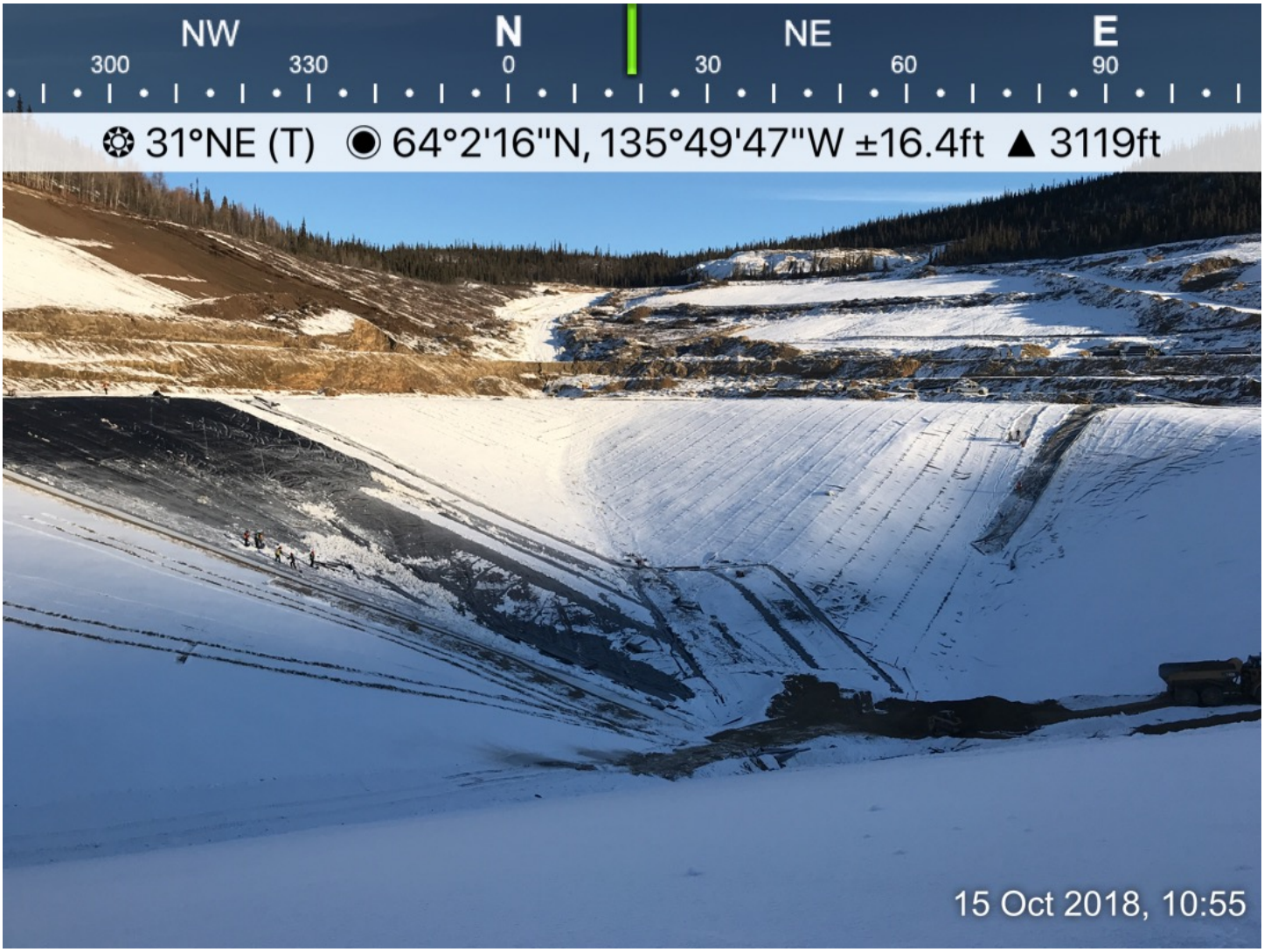


Photo 6: Snow from over 24 hours ago continues to affect work areas for Heavy North and Layfield, both teams continue to clean snow to proceed with liner installation and ODF placement.



Photo 7: During Event Pond foundation approval, BGC asked Pelly to remove frost susceptible phyllite, seen in this picture melting (having oozing effect during the thaw/freeze process). Foundation was approved with stakes, going under this area that needs removal.



Photo 8: Event pond East side was approved, Pelly had reached bedrock and surfaces not susceptible to ice, areas of clear quartzite were observed during inspection with Pelly and marked for survey pick up.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Sunny/cloudy 3°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Dan Granda left site. Roy Morlan arrived on site.
  - Pelly continues to work in the event pond. For most of the day quartzite rich fill was used. However, at the end of the day Phyllite rich material was placed on the lift. Pelly was informed that phyllite material can only be used if mixed on part phyllite to 2 parts quartzite. (***Photos 1).***
  - Pelly compacted an approved area of the event pond subgrade.
  - Snow was removed from the in-heap pond area that is pending liner placement. Snow was removed using an excavator and an I beam (***Photo 2)***. This resulted in gouging of the subgrade surface. Liner bedding material will have to be spread over this surface prior to placement of liner.
  - One of Heavy North's skid steers attempted a turn and drove off the ODF material and partially on the embankment liner. BGC inspected the liner for damage. No damage was found. (***Photo 3***)
  - Frozen soils were observed from approximately 0+080 to 0+065 along the foundation for the event pond berm. (***Photo 4***). Pelly began removing the frozen soils.
  - Pelly continues cleaning and hauling waste material on event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting.
  - The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material.

- Observations and Recommendations (Open/Ongoing):
  - During snow storms, it is recommended to run packers on event pond to provide compaction and kinetic energy on lift to help maintain density and moisture content.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter. Saturation of the event pond berms can cause damage due to frost which may result in removal of significant portions of already completed construction early next season. BGC would like to provide input to the plan and would like to review the completed plan.
  - BGC asked JDS/Heavy North to provide survey data of placement of steel plates and pipe work via RFI. No response has been received to date. The surveyed location of this plate is critical for closure to function properly. This item should be resolved quickly before closure sump is buried too deep.
  - As temperatures drop and construction shifts from the massive embankment fill to the smaller event pond berm fills moisture content and the use of frost susceptible soils will become more critical. QA and QC will monitor moisture and fines content of placed materials to determine if the material is suitable. BGC communicated to JDS and Pelly that both BGC and Tetra Tech need to know 24 hours in advance of all sources of material for the event pond to develop compaction and moisture criteria for lifts, RFI sent to help achieve this. BGC may reject lifts if the material placed is frost susceptible, RFIs to help plan have been sent out.
  - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - A testfill should be completed once borrow from the ADR West resumes in order to determine lift sizes, compactor passes and necessary protocol/procedures for lift placement.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech's nuclear density gauge was not functioning properly and no density or moisture tests were performed on the day shift. The issue was resolved, and testing continued on the night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 16.
  - Tetra Tech provided QC Daily Reports for event pond on October 16.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-020	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt. BGC printed copy and left on desk of JDS for confirmation of receipt Oct 13, 2018.
BGC-RFI-021	Steel plate installation and closure drain pipe (Asking for as-built survey)	Open. Sent Oct 9, 2018.
BGC-RFI-022	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-023	Event Pond Material Source Plan	Open. Sent Oct 10, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Phyllite material delivered to the Event Pond berm at the end of the day shift.



Photo 2: Snow removal at the in-heap pond.



Photo 3: Skid steer that partially drove off ODF onto the liner on the upstream embankment face.



Photo 4: Frozen ground found within the Event Pond subgrade. Frozen ground will have to be removed as part of the final subgrade preparation.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Sunny/cloudy -2°C to 9°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. Material sources included fill that meets the criteria for Material 1 sourced from the northwest pond slope cut and fill that meets the criteria for Material 2 sourced from rock being excavated from the eastern portion of the event pond. (***Photos 1).***
  - An area of frozen, ice rich soils was excavated from the event pond. After removal this area was approved for construction. (***Photo 2***).
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting.
  - The ODF material placed on the upstream dam face as access for Heavy North failed. The mechanism for the failure appears to have been triggered by undercutting the toe and exasperated by frost accumulation between the geotextile rub sheet and liner. (***Photos 3 through 5***). Heavy North will remove all ODF material from this area to allow BGC and Tetra Tech to inspect the liner. BGC is in the process of redesigning the piping configuration to reduce the risk of future failures.
  - Liner placement continued below the 940m bench. (***Photo 6***)
  - BGC received the survey data for the steel closure drill plate. The closure pipe in the closure sump was not surveyed but can be estimated. With this information BGC-RFI-020 will be closed.
  - BGC is developing a memorandum with procedures for placement of material during cold weather as guidance for the Constructor and EPCM.
  - Snow is expected on Friday, October 19. As with precipitation events we experienced during the embankment construction it will be critical to tightly coordinate dumping material, spreading, and compacting it. Pelly should be prepared to remove layers of snow and/or ice that may accumulate on the surface of lifts prior to placement of new lifts. Pelly should be prepared to remove pooled water from melted snow if it has the potential for saturating a lift and causing frost jacking. Pelly should be prepared to scrape portions of frozen lifts off and/or scarify lift surfaces if needed and under the direction of BGC. It would be better to place courser material (ie Material 2) during events like this instead of finer material (ie Material 1) as Material 2 will be less susceptible (although not immune) to frost.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - During snow storms, it is recommended to run packers on the completed lifts to help maintain density and moisture content.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade.
    - QA and QC will monitor moisture and fines content of placed materials to determine if the material is frost suitable.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - A testfill should be completed once borrow from the ADR West resumes in order to determine lift sizes, compactor passes and necessary protocol/procedures for lift placement.
  - Liner bedding material will have to be spread over the west in-heap pond surface prior to liner placement. The surface was gouged during snow removal.

- The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material. (***Photo 7)***

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 17.
  - Tetra Tech provided QC Daily Reports for event pond on October 17.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Sent September 29, 2018. Waiting confirmation of receipt.
BGC-RFI-019	Closure Sump Steel Plate Detail	Sent October 1, 2018. Waiting confirmation of receipt.
BGC-RFI-020	Steel plate installation and closure drain pipe (Asking for as-built survey)	Closed. Response given by JDS to BGC on October 17.
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-022	HLF VALID Liner Testing	Sent October 2, 2018. Waiting confirmation of receipt.
BGC-RFI-023	Event Pond Material Source Plan	Closed. Response given by JDS to BGC on October 17.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.

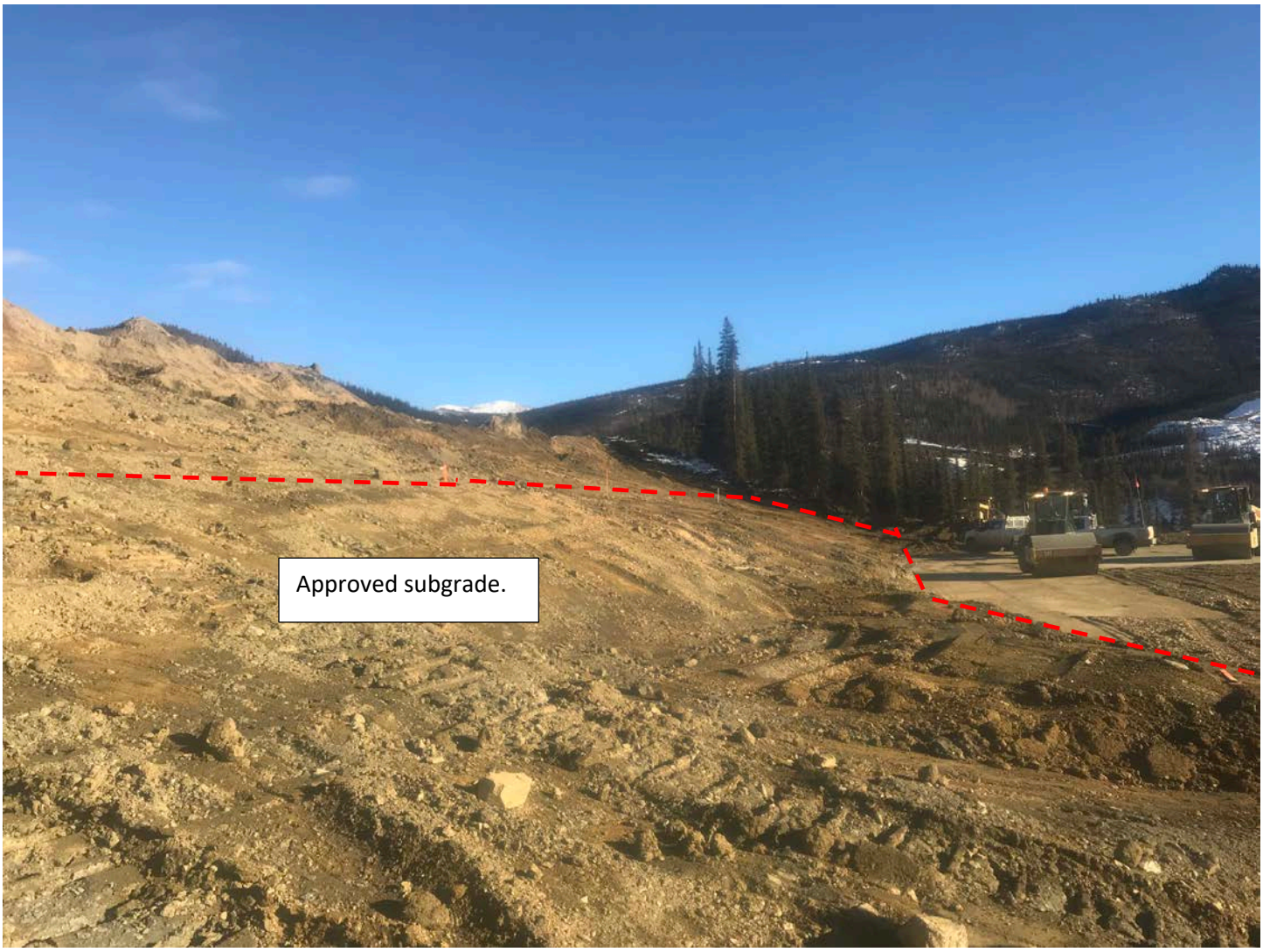


Photo 2: Approved subgrade after frozen, ice rich soils were removed.



Photo 3: ODF placement on upstream face prior to failure.



Photo 4: ODF placed on upstream face after failure.



Photo 5: Another view of ODF placed on upstream face after failure.



Photo 6: Liner placement.

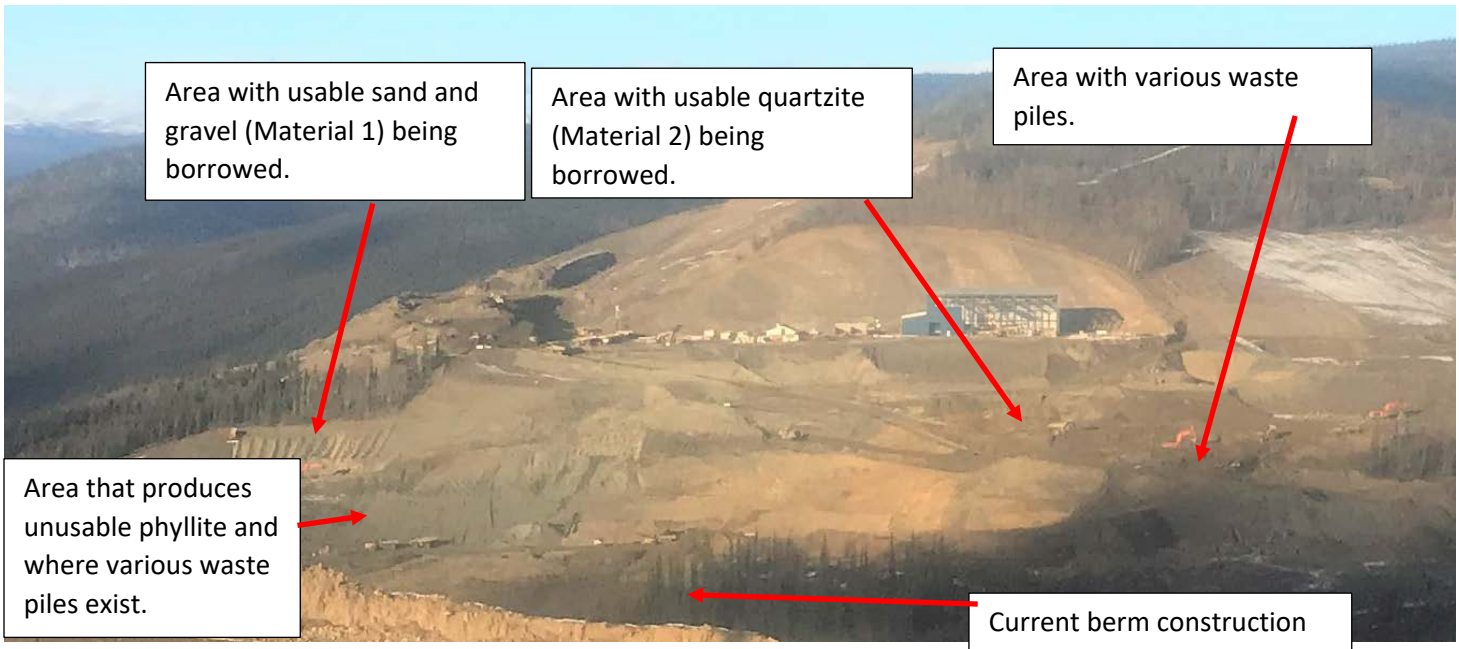


Photo 7: Rough event pond configuration as of today.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Sunny/cloudy -6°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Troy Meyer left site.
  - Construction of the Event Pond berms continued. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting.
  - Heavy north removed their front end loader involved with the ODF material slide from the area. Heavy North plans to uncover the area affected tomorrow so the liner can be inspected for damage.
  - Liner placement continued below the 940m bench. (***Photo 2***)
  - BGC received a response to close BGC-RFI-18, BGC-RFI-19, and BGC-RFI-22.
  - Snow is expected on Friday, October 19. As with precipitation events we experienced during fill placement it will be critical to tightly coordinate dumping material, spreading, and compacting it. Pelly should be prepared to remove layers of snow and/or ice that may accumulate on the surface of lifts prior to placement of new lifts. Pelly should be prepared to remove pooled water from melted snow if it has the potential for saturating a lift and causing frost jacking. Pelly should be prepared to scrape portions of frozen lifts off and/or scarify lift surfaces if needed and under the direction of BGC. It would be better to place courser material (ie Material 2) during events like this instead of finer material (ie Material 1) as Material 2 will be less susceptible (although not immune) to frost.
  - Test pits were dug on the western portion of Phase 1 heap leach pad footprint. (***Photo 3***)
  - Thermistors were ordered. These thermistors will be used to monitor frost and ice accumulation in various part of the construction (placed fill, drains, ODF, ect) over the winter.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - During snow storms, it is recommended to run packers on the completed lifts to help maintain density and moisture content.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade.
    - QA and QC will monitor moisture and fines content of placed materials to determine if the material is frost suitable.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - A testfill should be completed once borrow from the ADR West resumes in order to determine lift sizes, compactor passes and necessary protocol/procedures for lift placement.
  - Liner bedding material will have to be spread over the west in-heap pond surface prior to liner placement. The surface was gouged during snow removal.
  - The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material and to prevent wasting material that can be used during construction.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 18.
  - Tetra Tech provided QC Daily Reports for event pond on October 18.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-018	Event Pond Excavation Specification	Closed.
BGC-RFI-019	Closure Sump Steel Plate Detail	Closed.
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-022	HLF VALID Liner Testing	Closed.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Linder placement at the in-heap pond.



Photo 3: Test pits being dug to delineate frozen ground in the Phase 1 heap leach pad footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 19, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow -4°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. It snowed today. Pelly had a very efficient method for removing, dumping, spreading, and compacting material in the snow. Lifts placed had increased moisture (approximately 7%). However, the material achieved good density and Pelly ensured that frost did not set in on the wetter lift by constantly rolling and scarifying before placement of drier lifts on the night shift. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting.
  - Pelly is working to shape the Phase 1 HL pad area and extend the underdrain.
  - No work was performed by Heavy North at the embankment due to heavy snow.
  - No liner was placed today due to heavy snow. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - During snow storms, it is recommended to run packers on the completed lifts to help maintain density and moisture content.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade.
    - QA and QC will monitor moisture and fines content of placed materials to determine if the material is frost suitable.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - A testfill should be completed once borrow from the ADR West resumes in order to determine lift sizes, compactor passes and necessary protocol/procedures for lift placement.
  - Liner bedding material will have to be spread over the west in-heap pond surface prior to liner placement. The surface was gouged during snow removal.
  - The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material and to prevent wasting material that can be used during construction.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 19.
  - Tetra Tech provided QC Daily Reports for event pond on October 19.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Snow accumulation in liner area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 20, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Light snow -3°C to 7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. No issues. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting. Blasting is scheduled to begin October 21.
  - Pelly is working to shape the Phase 1 HL pad area and extend the underdrain. The area in the center valley where the underdrain header trench is being dug is frozen. (***Photo 2***)
  - Heavy north worked on removing the ODF from the in-heap area. (***Photo 3***)
  - Layfield cleared snow for liner placement at the in-heap pond. (***Photo 4***)
  - BGC dug additional test pits to delineate ice rich, thaw unstable soils in the Phase 1 area. Ice rich, thaw unstable soils were originally identified in the center valley near the underdrain header trench during the July 2018 test pitting. Today three test pits were excavated by Ewing. Additional test pits will be dug tomorrow. Frost unstable soils were observed in the test pit dug near the center of the valley (***Photo 5 through 7***). Test pits dug on the slope above the drain trench did not have ice. A preliminary figure showing ice impacted soils based on the July 2018 and October 2018 test pits is included is ***Figure 1***. An updated test pit memorandum with an updated figure will be completed once test pit has finished.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - During snow storms, it is recommended to run packers on the completed lifts to help maintain density and moisture content.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - QA and QC will monitor moisture and fines content of placed materials to determine if the material is frost suitable.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - A testfill should be completed once borrow from the ADR West resumes in order to determine lift sizes, compactor passes and necessary protocol/procedures for lift placement.
  - Liner bedding material will have to be spread over the west in-heap pond surface prior to liner placement. The surface was gouged during snow removal.
  - The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material and to prevent wasting material that can be used during construction.
- Engineering:
  - None

QA/QC Results

- QA/QC:

- Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
- Tetra Tech provided QC Daily Reports for liner installation on October 20.
- Tetra Tech provided QA Daily Reports for event pond on October 20.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Excavation in the center valley along the footprint of the underdrain header trench.



Photo 3: Heavy North removed ODF.



Photo 4: Layfield removed snow by hand.



Photo 5: Frozen ground throughout test pit dug in center valley near the underdrain header trench. Frozen ground from surface to 3m was frozen but not ice rich or thaw unstable. Material from 3 to 3.5m was frozen and ice rich.



Photo 6: Frozen ice rich soil from test pit prior to thawing.



Photo 7: Same frozen ice rich sample after thawing.

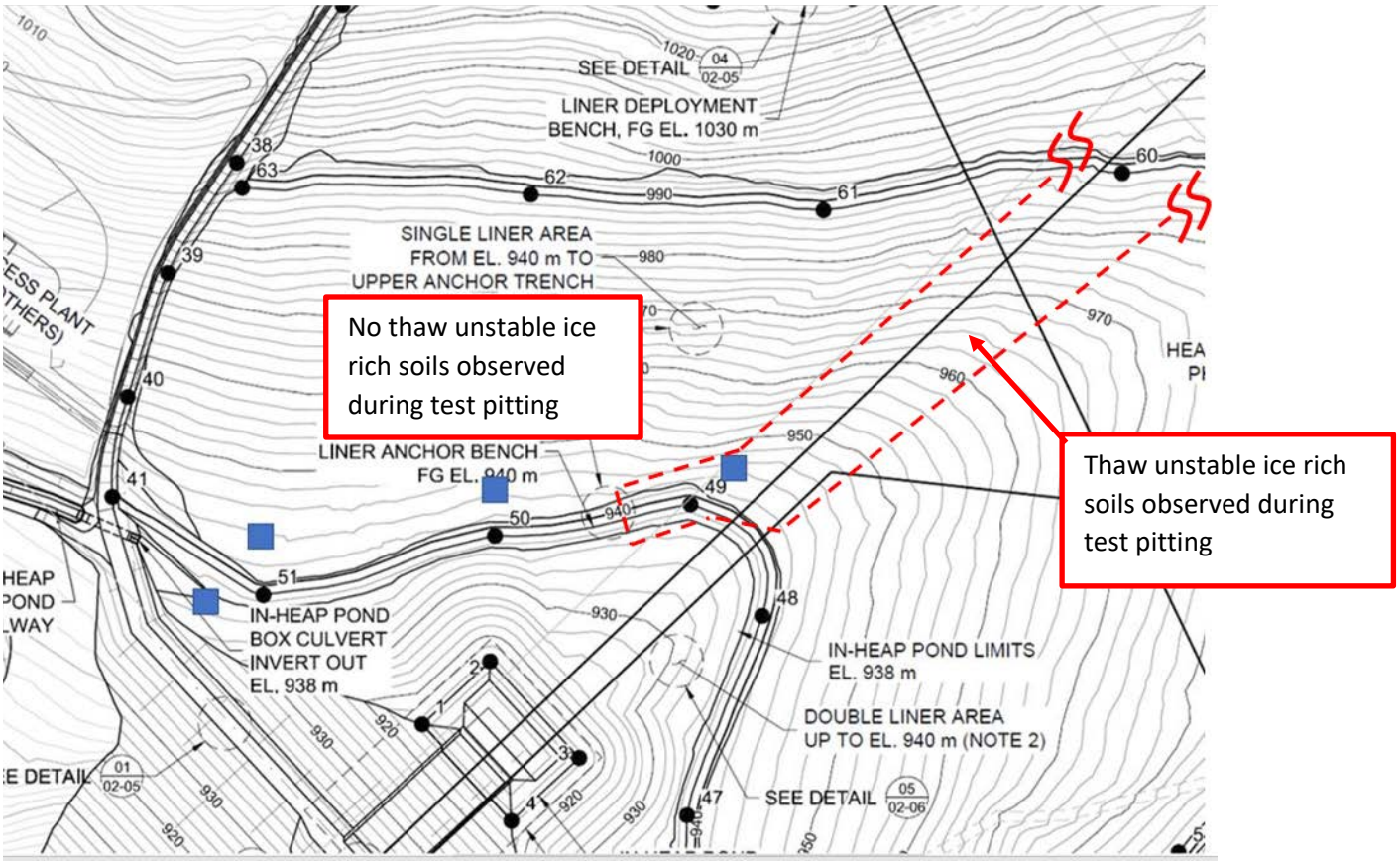


Photo 7: Preliminary drawing showing presence of ice rich soils.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 21, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy some rain at night -4°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. No issues. Another area of subgrade was approved. There are a number of piles of uncontrolled fill on sections of the subgrade. This fill was either stockpiled for future/disposal or used to construct the network of roads and safety berms throughout the event pond. The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. This was made clear to Pelly at the time of the approval. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Most of the uncontrolled fill observed was suitable for use in construction at the event pond. Approval of the subgrade constitutes that no further excavation of the natural in place ground is needed. However, subgrade should be proof rolled and compacted prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed. (***Photos 1 and 2).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. JDS/Pelly continue planning to continue borrowing the ADR West with the use of blasting. Blasting is scheduled to begin October 21.
  - Pelly is working to shape the Phase 1 HL pad area and extend the underdrain. The area in the center valley where the underdrain header trench is being dug is frozen.
  - Heavy north worked on removing the ODF from the in-heap area. (***Photo 3***)
  - Ewing cleared snow for liner placement at the in-heap pond. (***Photo 4***)
  - GCL was placed on a section of the in-heap pond. (***Photo 5***)
  - Ewing was busy removing snow for Layfield and helping with liner installation. No test pits were dug today. Test pit to delineate ice rich material in the Phase 1 HL area will resume tomorrow.
  - A meeting was held between JDS, Heavy North, Ewing, BGC, and Tetra Tech to discuss the path forward in the area where the slide took place. In summary the area will be uncovered to allow inspection of the liner and welds and to install the closure plates.
  - The first blast in the ADR West borrow took place at 6:30pm.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - During snow storms, it is recommended to run packers on the completed lifts to help maintain density and moisture content.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - QA and QC will monitor moisture and fines content of placed materials to determine if the material is frost suitable.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - The Event Pond work area is currently a maze of roads and stockpiles. JDS/Pelly should update the stockpile management plan and label all piles in the field to prevent borrow and placement of unsuitable material and to prevent wasting material that can be used during construction.
- Engineering:

- None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 21.
  - Tetra Tech provided QA Daily Reports for event pond on October 21.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Example of good subgrade.



Photo 3: Heavy North removed ODF.



Photo 4: Area cleared by Ewing for liner placement.



Photo 5: GCL placed on a section of the in-heap pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 22, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 2ºC to 4ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. No issues. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. A second blast to produce material for the Event Pond is scheduled for October 24.
  - Pelly is working to shape the Phase 1 HL pad area and extend the underdrain. The area in the center valley where the underdrain header trench is being dug is frozen.
  - Heavy north worked on removing the ODF from the in-heap area. Rain from the previous night resulted in water accumulation in the in-heap pond, which needed to be pumped out. (***Photo 2***)
  - Ewing cleared snow for liner placement at the in-heap pond.
  - No liner was placed today.
  - Ewing was busy removing snow for Layfield and helping with liner installation. No test pits were dug today. Test pit to delineate ice rich material in the Phase 1 HL area will resume tomorrow.
  - JDS provided a plugging report for a well casing found within the Event Pond footprint. The well is not located under any lined areas. Once the foundation it cut to final grade a final inspection will be performed.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - Methods to ensure lifts do not freeze or do not have frost when placed should include; during snow storms, it is recommended to run packers on the completed lifts to help prevent frost buildup; if stockpiles surfaces freeze the crust should be removed and wasted; loose lifts should not be allowed to sit for too long and tight borrow, haul, dumping, spreading, and compacting sequence should be maintained; overly wet lifts (>4% moisture) may need removal based on outside and material temperatures.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - There are a number of piles of uncontrolled fill on sections of approved subgrade (berms, roads, ect). The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Approved subgrade should be proof rolled, compacted, and keyed into prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed.
- Engineering:
  - None

QA/QC Results

- QA/QC:

- Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
- Tetra Tech provided QC Daily Reports for liner installation on October 22.
- Tetra Tech provided QA Daily Reports for event pond on October 22.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Heavy North removed ODF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 23, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 2ºC to 9ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. Rain caused access issues. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. A second blast to produce material for the Event Pond is scheduled for October 24.
  - Heavy north worked on removing the ODF from the in-heap area. Rain today added more water to in-heap pond bottom, which was being pumped out. (***Photo 2***)
  - Ewing cleared snow for liner placement at the in-heap pond.
  - No liner was placed today.
  - Test pits in the Phase 1 HL area continued. Five test pits were excavated to delineate ice rich frozen ground in the HL area. Ice rich ground was observed in the center valley. The approximate extent of ice rich soils is included in ***Figure 1***. A memorandum showing the ice rich region that will likely require additional excavation will be completed by BGC.
  - Wheel packing with the haul trucks was used on the night shift for a part of one lift. Tetra Tech monitored this. Wheel packing with haul trucks should not be used until a method to compact and track it has been developed.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - Methods to ensure lifts do not freeze or do not have frost when placed should include; during snow storms, it is recommended to run packers on the completed lifts to help prevent frost buildup; if stockpiles surfaces freeze the crust should be removed and wasted; loose lifts should not be allowed to sit for too long and tight borrow, haul, dumping, spreading, and compacting sequence should be maintained; overly wet lifts (>4% moisture) may need removal based on outside and material temperatures.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - There are a number of piles of uncontrolled fill on sections of approved subgrade (berms, roads, ect). The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Approved subgrade should be proof rolled, compacted, and keyed into prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed.
- Engineering:
  - None

QA/QC Results

- QA/QC:

- Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
- Tetra Tech provided QC Daily Reports for liner installation on October 23.
- Tetra Tech provided QA Daily Reports for event pond on October 23.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Heavy North removed ODF.

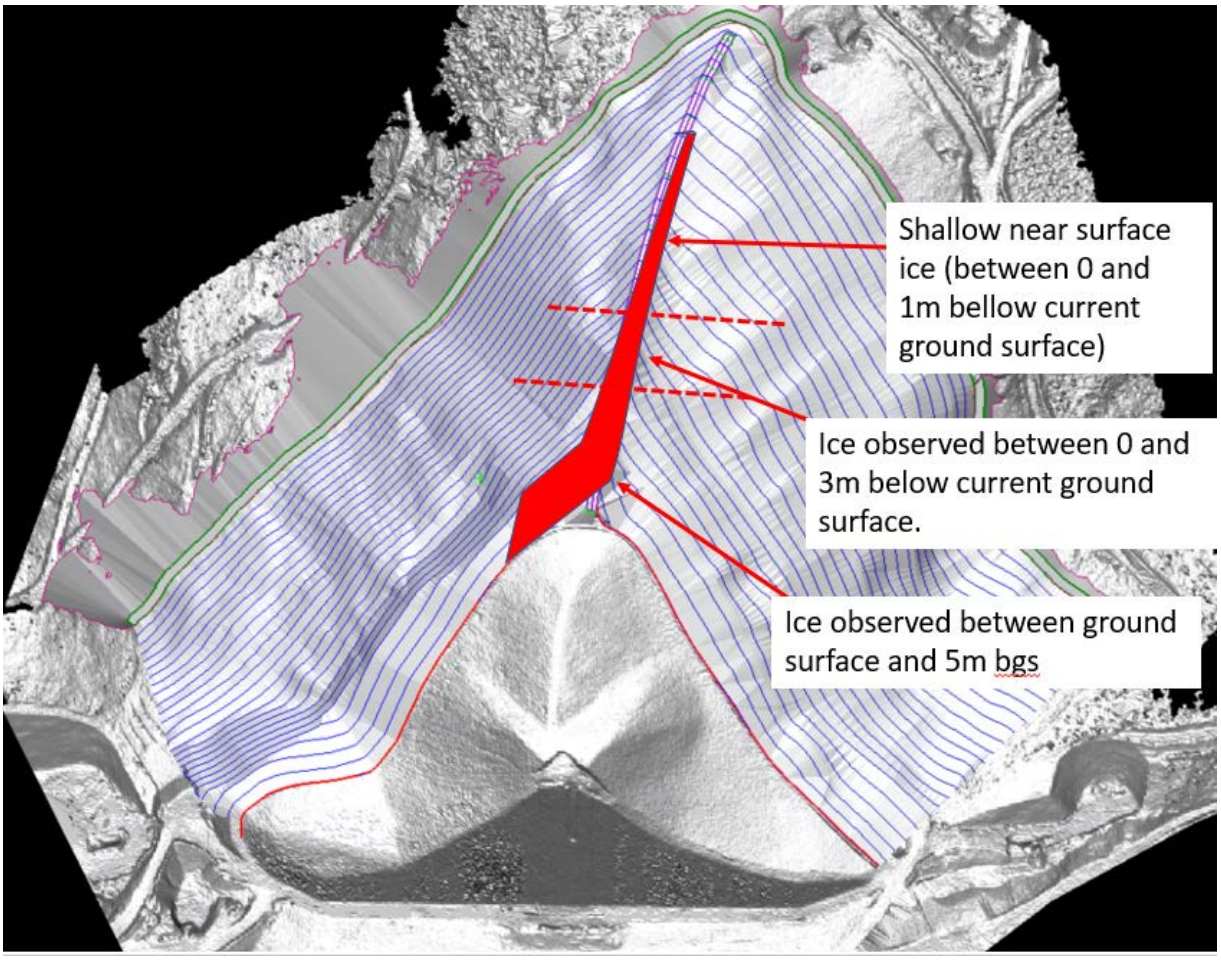


Figure 1: Preliminary estimate of frozen ground in the Phase 1 HLF area after completions of test pits today.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 24, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 1°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly continued construction of an access road to the ADR west borrow area. The second blast to produce material for the Event Pond has moved to October 26.
  - Heavy north worked on placing ODF in the in-heap area. (***Photo 2***)
  - The Event Pond liner near the slide was inspected. One damaged section was found and repaired. Additionally, water has made its way under the liner creating a bubble. Layfield drained it by making a hole in the liner to allow water to be pushed out. Details are included in Tetra Tech's Daily QA report for October 24.
  - Liner was placed today on the upstream face of the embankment (***Photo 2***).

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - Methods to ensure lifts do not freeze or do not have frost when placed should include; during snow storms, it is recommended to run packers on the completed lifts to help prevent frost buildup; if stockpiles surfaces freeze the crust should be removed and wasted; loose lifts should not be allowed to sit for too long and tight borrow, haul, dumping, spreading, and compacting sequence should be maintained; overly wet lifts (>4% moisture) may need removal based on outside and material temperatures.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - There are a number of piles of uncontrolled fill on sections of approved subgrade (berms, roads, ect). The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Approved subgrade should be proof rolled, compacted, and keyed into prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 24.
  - Tetra Tech provided QA Daily Reports for event pond on October 24.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Heavy North building ODF on the liner. Layfield placing liner on the upstream face can be seen on the right side of the photo.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 25, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Light snow 1ºC to 8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. Pelly had shift change today. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly drilled for the second blast at the ADR. The second blast to produce material for the Event Pond has moved to October 26.
  - Heavy north worked on placing ODF in the in-heap area and placing the hammer head pipes for the LDRS. (***Photo 2***).
  - Liner was placed today near the right abutment groin (***Photo 3***).
  - JDS asked BGC to looking into ore stack volume reductions estimates for an area of the Phase 1 HL near the spillway.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - Methods to ensure lifts do not freeze or do not have frost when placed should include; during snow storms, it is recommended to run packers on the completed lifts to help prevent frost buildup; if stockpiles surfaces freeze the crust should be removed and wasted; loose lifts should not be allowed to sit for too long and tight borrow, haul, dumping, spreading, and compacting sequence should be maintained; overly wet lifts (>4% moisture) may need removal based on outside and material temperatures.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - There are a number of piles of uncontrolled fill on sections of approved subgrade (berms, roads, ect). The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Approved subgrade should be proof rolled, compacted, and keyed into prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 25.
  - Tetra Tech provided QA Daily Reports for event pond on October 25.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Heavy North moving the 3rd LDRS hammer head into place.



Photo 3: Layfield placing GCL near the right abutment groin area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 26, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear -3ºC to 6ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. (***Photos 1).***
  - A thermistor was installed in the Event Pond fill (***Photo 2***).
  - Pelly continues hauling waste material out of the event pond.
  - Pelly drilled for the second blast at the ADR. The second blast to produce material for the Event Pond has moved to October 27.
  - Heavy north worked on placing ODF in the in-heap area and placing the hammer head pipes for the LDRS. (***Photo 3***).
  - Liner was placed today on the west side of the in-heap pond (***Photo 4***).
  - Layfield drained more water from underneath the liner. This is discussed in more detail in Tetra Tech's October 26 Liner Installation QA daily report (***Photo 5***).

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. BGC has provided the following recommendations to ensure quality standards are met during cold weather placement of material. The technical specifications should be consulted for guidance on cold weather placement. BGC is also developing a guidance memorandum to help with construction.
    - Methods to ensure lifts do not freeze or do not have frost when placed should include; during snow storms, it is recommended to run packers on the completed lifts to help prevent frost buildup; if stockpiles surfaces freeze the crust should be removed and wasted; loose lifts should not be allowed to sit for too long and tight borrow, haul, dumping, spreading, and compacting sequence should be maintained; overly wet lifts (>4% moisture) may need removal based on outside and material temperatures.
    - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt.
    - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
    - Due to frost susceptibility, material used in the Event Pond must not have more than 33% phyllite and phyllite must be blended in the delivered material.
  - There are a number of piles of uncontrolled fill on sections of approved subgrade (berms, roads, ect). The approved subgrade is the natural in place colluvium and rock and not the uncontrolled fill. Uncontrolled fill should be excavated and the event pond fill should be placed on approved subgrade. Approved subgrade should be proof rolled, compacted, and keyed into prior placement of lifts and BGC (or Tetra Tech on the night shift) should have the opportunity to inspect the foundation once more before lifts are placed.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 26.
  - Tetra Tech provided QA Daily Reports for event pond on October 26.
- BGC Recommendations:

- Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: Thermistor EP-T-01 installation.



Photo 3: ODF placed around LDRS hammerheads.



Photo 4: Liner installation.



Photo 5: Removing water underneath the liner.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear -8ºC to 2ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond.
  - Pelly blasted the ADR west today.
  - Heavy north worked on constructing the LDRS pipe network. (***Photo 2***).
  - Liner was placed today on the west side of the in-heap pond.
  - BGC delivered memorandum FM18-020 Winter Condition Earthfill Placement to JDS.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 27.
  - Tetra Tech provided QA Daily Reports for event pond on October 27.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: LDRS piping system installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear -8ºC to 3ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Construction of the Event Pond berms continued. BGC requested that Pelly begin scarifying lift surfaces to break up hard frozen surfaces going forward (***Photos 1).***
  - Pelly continues hauling waste material out of the event pond. Mostly topsoil heavy in organics.
  - Heavy north worked on constructing the LDRS pipe network and started installing the LDRS closure drill plate. (***Photo 2***).
  - Pelly worked on shaping the Phase 1 HL area.
  - Liner was placed today on the west side of the in-heap pond. (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 28.
  - Tetra Tech provided QA Daily Reports for event pond on October 28.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Open. Sent Oct 12, 2018.

BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond berm construction.



Photo 2: LDRS piping system installation.



Photo 3: Liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear -2ºC to -11ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Placement of the Event Pond berm was suspended. Material generated from the Event Pond cut contained some ice, moisture of about 7%, and soil temperatures were 0C or less at the borrow. Some ice had been noted in this borrow before but when temperatures were warmer this ice usually melted in the borrow, haul, spreading, compaction process. Due to a 24 hour cycle of sub-zero temperatures and sub-zero soil temperatures at the borrow ice could not melt and, therefore, densities in compacted lifts were very low. Additionally, due to high moisture and low temperatures frost penetrated through most of the 30cm lift caused frost jacking, further lowering density. Measured density in the lifts were between 89 and 92% of the maximum density observed in the proctor test. Lifts placed early morning on the 28th were partially removed in an unsuccessful attempt to compact them further. The remaining 20cm will be left in place until placement resumes to help insulate lower lifts. Immediately prior to resuming lift placement this remaining 20cm should be removed. (***Photo 1 and 2***)
  - Two test fills were performed at the event pond (***Photo 3***).
    - The first test fill used material produced from the Event Pond borrow. Soil temperatures were measured between 0 and -0.5C. Some visible ice was present. Moisture was measured between 6 and 7%. Test fill lift thickness was 0.45m. Multiples attempts were tried to compact the material using a 6ton and 9ton compacter, with up to 10 passes from each. Measured density after compaction ranged from 88% to 93%.
    - The second test fill used fill produced from the ADR West. Soil temperatures were measured 0 to 0.5C (slightly above freezing). No visible ice. Moisture was measured at 4.4%. Lift thickness was 0.45m. Multiples attempts were tried to compact the material using a 6ton and 9ton compacter. Compaction was successful using 10 passes with a minimum 6 ton compactor. Final measure density ranged from approximately 95.5% to 98%.
  - The plan move forward is to build access roads to the ADR West blast material using the Event Pond borrow material and begin providing material to Event Pond berm on October 30 or 31.
  - Additional test fills will be needed depending on the moisture, gradation, densities, and soil temperatures observed in the ADR West blast rock.
  - Pelly continues hauling waste material out of the event pond. Mostly topsoil heavy in organics.
  - Heavy North installed the closure drill pipe. (***Photo 4***)
  - Heavy North continued backfilling the LDRS sump with ODF. (***Photo 5***).
  - Pelly worked on shaping the Phase 1 HL area. (***Photo 6***)
  - Liner was placed today on the west side of the in-heap pond. (***Photo 7***)
  - BGC and JDS agreed to close BGC-RFI-024 because all piles have been removed from the Event Pond so this RFI has become obsolete.

- Observations and Recommendations (Open/Ongoing):
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results
• QA/QC: o Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. o Tetra Tech provided QC Daily Reports for liner installation on October 29. o Tetra Tech provided QA Daily Reports for event pond on October 29. • BGC Recommendations: o Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-024	Event Pond Material Stockpile Management	Closed October 29.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Frozen lift at the Event Pond.



Photo 2: Crust was frozen up to 13cm below ground surface. Soil below measured up to -2C. Measured densities were very low and frost jacking was likely occurring.



Photo 3: Test fill on material from the ADR.



Photo 4: Closure drill pipe installation.



Photo 5: Test fill on material from the ADR.



Photo 6: Excavating and hauling topsoil from the Phase 1 heap pad area.



Photo 7: Liner placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow -2°C to -7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm. Pelly expects to resume filling last this week or early next week.
  - Pelly blasted the ADR West to produce material for event pond berm fill.
  - Pelly continues hauling waste material out of the event pond. Mostly topsoil heavy in organics.
  - A combination of temperature between -5C and -15C for 24 hour and the presence of water in the LDRS caused the ODF material to freeze. Heavy North covered the pipe today and began warming it to thaw the ODF material. (***Photo 1***)
  - Some liner was placed today. Snow throughout the day impeded progress.
  - The flight from Whitehorse to Mayo was canceled. Troy Meyer is now scheduled to arrive on site October 31.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 30.
  - Tetra Tech provided QA Daily Reports for event pond on October 30.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.

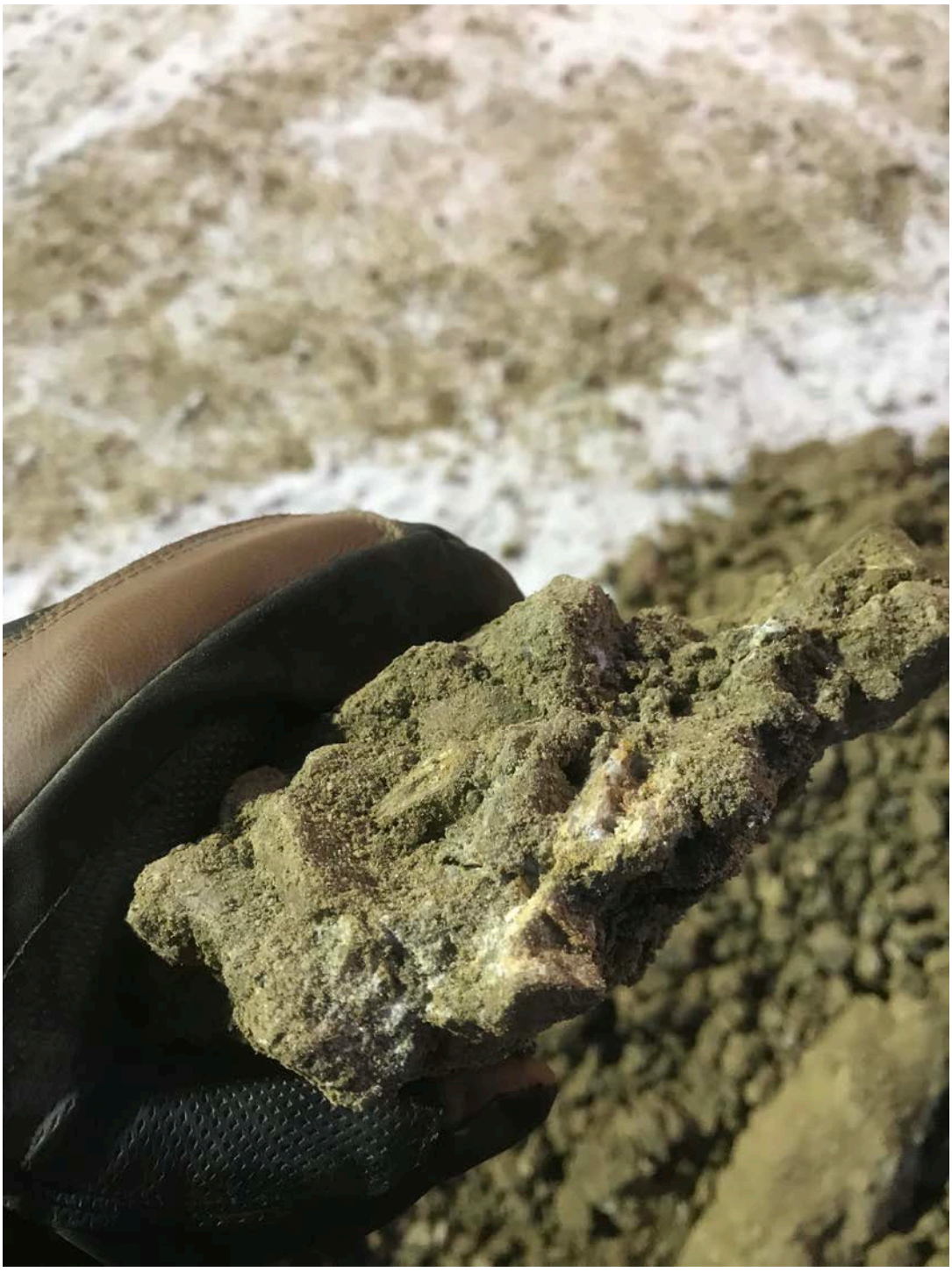


Photo 1: Frozen ODF in the LDRS.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	October 31, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Snow -5°C to -19°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm. Pelly expects to resume filling last this week or early next week.
  - Pelly worked on access to the ADR West blast material.
  - Pelly continues hauling waste material out of the event pond. Mostly topsoil heavy in organics.
  - Heavy North thawed ODF material using tarps and heaters. Some ODF placement was resumed today. (***Photo 1***)
  - No liner was placed today. Activities included snow removal and liner detail work. (***Photo 2***)
  - Topsoil is being hauled to and pushed off the embankment crest. This has created a platform at the crest. The platform may be unstable and BGC recommends that no vehicles use this platform.
  - Troy Meyer arrived on site.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on October 31.
  - Tetra Tech provided QA Daily Reports for event pond on October 31.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Test trench dug in ODF material after night of thawing. No ice was observed.



Photo 2: Snow clearing for liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Snow -10°C to -18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm. Pelly expects to resume filling last this week or early next week. A blast at the ADR West is planned for November 2.
  - Pelly worked on access to the ADR West blast material. (***Photo 1***)
  - Pelly continues hauling waste material out of the event pond. Mostly topsoil heavy in organics. Pelly is using some of the material that would be hauled as waste to build the road to the ADR West.
  - Heavy North thawed ODF material using tarps and heaters. The second connection from the BBQ grill and hammer heads was completed. Some ODF backfill was completed. ODF material should not be allowed to freeze to prevent loss of permeability once the HLF is in use. (***Photo 2 and 3***)
  - Liner was placed today. (***Photo 4***).
  - Topsoil is being hauled to and pushed off the embankment crest. The topsoil was also partially spread across the embankment face today. BGC recommends that vehicles use care when traveling over the material platform created for this work as it is steep and has not been compacted and can potentially fail.
  - Excavation of unsuitable material continued in the Phase 1 HL area.
  - BGC sent BGC-RFI-027 for clarification of ODF sources. The RFI was received by JDS and closed the same day.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QC Daily Reports for liner installation on November 1.
  - Tetra Tech provided QA Daily Reports for event pond on November 1.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Material at the ADR West being borrowed.



Photo 2: Steel connections to the LDRS hammer heads.



Photo 3: ODF material being kept warm.



Photo 4: Liner placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Snow -12°C to -25°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm. The ADR West was blasted today.
  - Pelly worked on access to the ADR West blast material.
  - Pelly continues hauling waste material out of the event pond. Pelly is using some of the material that would be hauled as waste to build the road to the ADR West.
  - Ampworks continued to work on the connections from the BBQ grill to the LDRS pump casings. The crew is waiting for delivery of some flange screws before they can finish he installation and start backfilling. (***Photo 1***)
  - Heavy North thawed ODF material using tarps and heaters. The tarp system is not large enough to cover the entire ODF area. This may result in sections of frozen ODF remaining. Additionally, water in the LDRS sump under the ODF is likely contributing to the rapid freezing of the material. (***Photo 2***)
  - Liner was placed today. (***Photo 3***).
  - Topsoil is being hauled to and pushed off the embankment crest. The topsoil was also partially spread across the embankment face today. BGC recommends that vehicles use care when traveling over the material platform created for this work as it is steep and has not been compacted and can potentially fail.
  - Excavation of unsuitable material continued in the Phase 1 HL area.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 2.
  - Tetra Tech did not provided QC Daily Reports for liner installation on November 2. Due to issues with the plane to Mayo Tetra Tech did not have liner QA present for most of the day November 2. It is expected that the Tetra Tech liner QA will arrive the afternoon of November 3. BGC will assist with QA in the interim.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: LDRS pipe connection.



Photo 2: Tarp system warming the ODF.



Photo 3: Liner placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Snow -15°C to -23°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm.
  - Work continued on the ADR West.
  - Pelly continues hauling waste material out of the event pond. Pelly is using some of the material that would be hauled as waste to build the road to the ADR West.
  - Ampworks continued to work on the connections from the BBQ grill to the LDRS pump casings. The angle of the that the pump casing pipes connect to the BBQ grill was off and Heavy North had to modify some of the BBQ grill sections to connect. (***Photo 1 and 2***). Additionally, not all of the of the bolts needed to fasten the flanges arrived in the the shipment today. BGC approved the connections between steel and corrugated pipes, which are going to be staggered (for a total of 6 bolts per flange) due to the lack of bolts. It was reported that all steel to steel flange connection will get the 12 bolts needed for those connections. (***Photo 3 and 4***). Some bolts appeared to be hand tightened and could be easily unscrewed by hand. It was reported to BGC that all bolts will be properly tightened before being buried.
  - Heavy North thawed ODF material using tarps and heaters. The tarp system is not large enough to cover the entire ODF area. This may result in sections of frozen ODF remaining. Additionally, water in the LDRS sump under the ODF is likely contributing to the rapid freezing of the material.
  - Liner was placed today. (***Photo 5***).
  - Topsoil is being hauled to and pushed off the embankment crest. The topsoil was also partially spread across the embankment face today. BGC recommends that vehicles use care when traveling over the material platform created for this work as it is steep and has not been compacted and can potentially fail.
  - Excavation of unsuitable material continued in the Phase 1 HL area.
  - Due to mobilization issues Tetra Tech's liner QA was not on site during work today. Due to the critical nature of the liner placement BGC recommends some overlap between (minimum 24 hours overlap) to ensure that QC testing and QA tracking is being performed and tracked properly and without gaps.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:

- Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 3.
- Tetra Tech did not provided QC Daily Reports for liner installation on November 3. Due to issues mobilizing to site Tetra Tech liner QA did not arrive until the evening of November 3. BGC observed liner placement in the interim and Layfield stated that they would not perform QC shear tests until Tetra Tech arrived.

- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Corrugated pipe angled up off the ground after connection.



Photo 2: Connection to BBQ grill. The bellhead connection had a minimum of 2 slots snapped into. The joint was wrapped with geotextile and material was hand shoveled underneath the pipe to ensure proper support.



Photo 3: Example of flange missing bolts. Some bolts were loose and could be unscrewed by hand.



Photo 4: Example of flange missing bolts.



Photo 5: Liner placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Snow -19°C to -26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm.
  - Work continued on the ADR West.
  - Pelly continues hauling waste material out of the event pond. Pelly is using some of the material that would be hauled as waste to build the road to the ADR West.
  - ODF backfill continued in the LDRS sump. (***Photo 1***)
  - Heavy North thawed ODF material using tarps and heaters. The tarp system is not large enough to cover the entire ODF area. This may result in sections of frozen ODF remaining. Additionally, water in the LDRS sump under the ODF is likely contributing to the rapid freezing of the material.
  - Liner was placed today.
  - Topsoil is being hauled to and pushed off the embankment crest. The topsoil was also partially spread across the embankment face today. BGC recommends that vehicles use care when traveling over the material platform created for this work as it is steep and has not been compacted and can potentially fail.
  - Excavation of unsuitable material continued in the Phase 1 HL area.
  - Tetra Tech's liner QA arrived on site yesterday evening. Tetra Tech performed QA on the liner installation today.
  - BGC installed thermistor LDRS-T-01 in the ODF at the LDRS sump.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Placement will continue once the ADR source with lower moisture is ready. A test fill will be needed to determine compaction requirements and lift thickness for this material. The exposed lift at the event pond berm will likely have to be removed immediately prior to resuming lift placement. This is because the moisture in this placed lift is high (6 to 7%) and the lift has been exposed for over 24 hours. This likely has resulted in frost jacking of the lift. Testing will be performed prior to placement to determine if removal is necessary.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 4.
  - Tetra Tech did not provide a QA report for November 4 today.
- BGC Recommendations:
  - Moisture will be monitored by BGC and adjustments made as needed.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: ODF Backfill.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan / Troy Meyer	**Weather:**	Clear -19°C to -26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm.
  - Work continued on the ADR West. A test fill was performed on the produced blast rock was from the upper quarry for suitability as fill for the Event Pond embankment.
  - Pelly continues hauling waste material out of the event pond. Pelly is using some of the material that would be hauled as waste to build the road to the ADR West. A test fill was performed on this material for suitability as fill for the Event Pond embankment.
  - Liner was placed today at the HLF.
  - Topsoil is being hauled to and pushed off the embankment crest for spreading as part of reclamation.
  - Excavation of unsuitable material continued in the Phase 1 HL area.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond berm was suspended due to the inability to achieve required compacted density. Two test fills were initiated today for material generated from blasting at the ADR West borrow and from the north and east walls of the Event Pond Cut. Placement will continue once suitability is confirmed and a method specification is developed.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pell. Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 5.
  -
- BGC Recommendations:
  - Test fill results will be provided in a separate memo.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Test fill for event pond embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear -20°C to -27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm, but the crest was being stripped of frozen material in preparation for placement of fill during night shift. About 30cm of frozen material as removed (**Photo 1**).
  - Blasting at the ADR west borrow continued to produce rockfill for the Event Pond embankment.
  - Pelly continues hauling waste material out of the event pond. The material is coming from the north wall of the excavation and is fine grained weather rock and colluvium with some frozen material (**Photo 2**).
  - Material from the eastern portion of the Event Pond cut has been approved as rockfill for Event Pond embankment construction (**Photo 3**).
  - Liner was placed today at the HLF.
  - Topsoil is being hauled to and pushed off the embankment crest for spreading as part of reclamation.
  - Excavation of unsuitable material continued in the Phase 1 HLF area.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendation from the test fill documented in CTFM-05.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 6.
  - Tetra Tech provided QA report for the HLF liner for November 6.
- BGC Recommendations:
  - QA/QC will continue for the liner and resume for the Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Removal of frozen material on Event Pond embankment.



Photo 2: Event Pond shaping producing unsuitable material along northern wall.



Photo 3: Rockfill produced from required excavation at eastern Event Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear -20°C to -27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No material was placed at the event pond berm, but the crest was being stripped of frozen material in preparation for placement of fill during night shift. About 30cm of frozen material as removed (**Photo 1**).
  - Blasting at the ADR west borrow continued to produce rockfill for the Event Pond embankment.
  - Pelly continues hauling waste material out of the event pond. The material is coming from the north wall of the excavation and is fine grained weather rock and colluvium with some frozen material (**Photo 2**).
  - Material from the eastern portion of the Event Pond cut has been approved as rockfill for Event Pond embankment construction (**Photo 3**).
  - The materials were delivered to the Event Pond embankment and dumped in separate areas (**Photo 4**). The soil temperature of the delivered material was measured as -9 deg C with the surface of the piles measured as -15 deg C.
  - Liner was placed today at the HLF.
  - Topsoil is being hauled to and pushed off the embankment crest for spreading as part of reclamation.
  - Excavation of unsuitable material continued in the Phase 1 HLF area.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 7.
  - Tetra Tech provided QA report for the HLF liner for November 7.
- BGC Recommendations:
  - QA/QC will continue for the liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Delivered Event Pond Cut material for placement at Event Pond embankment.



Photo 2: Delivered ADR Blast Rock material for placement at Event Pond embankment.



Photo 3: Rockfill placement at Event Pond embankment.

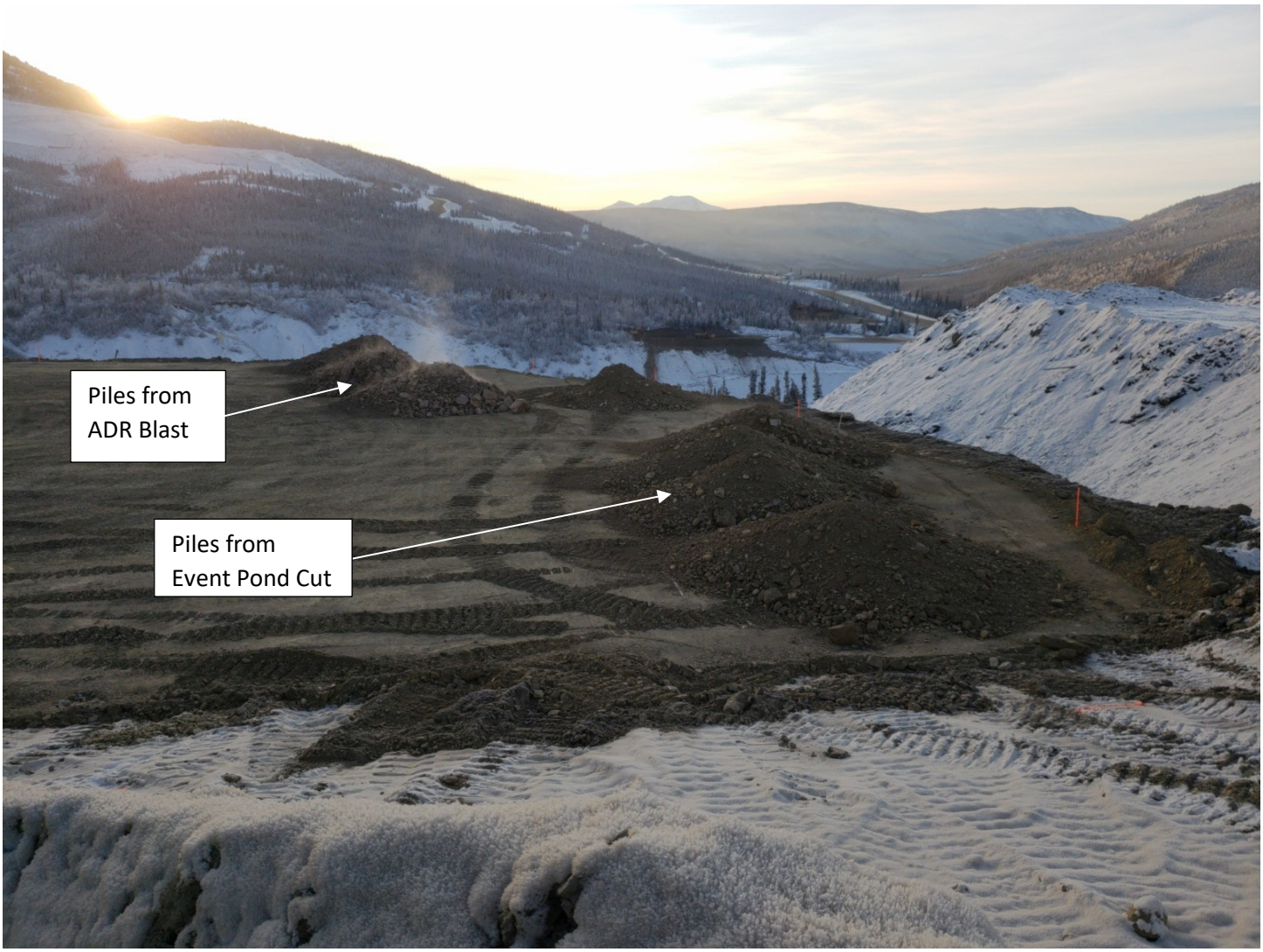


Photo 4: Material delivery at the Event Pond embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy -13°C to -26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond Embankment (**Photo 1**).
  - Pelly continues hauling waste material out of the event pond. The material is coming from the north wall of the excavation and is fine grained weather rock and colluvium with some frozen material.
  - Material from the eastern portion of the Event Pond cut has been approved as rockfill for Event Pond embankment construction.
  - The southeastern corner of the Event Pond was being stripped and prepared for foundation of the embankment (**Photo 2**). Some small ice lenses were noted in the upper 0.5m of colluvium (**Photo 3**). This material was removed down to competent, thaw-stable material.
  - Liner was placed today at the HLF in the sump area (**Photo 4**).

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 7.
  - Tetra Tech provided QA report for the HLF liner for November 7.
- BGC Recommendations:
  - QA/QC will continue for the liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond embankment construction.



Photo 2: Event Pond embankment foundation preparation at southeast corner.



Photo 3: Event Pond embankment foundation material removed.



Photo 4: Liner Placement in HLF sump area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Light Snow -9°C to -18°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond main embankment (**Photo 1**). The fill material source is blast rock from the ADR borrow area.
  - Material was placed at the Event Pond east embankment (**Photo 2**). The fill material is from the eastern portion of the Event Pond cut which has been approved as rockfill to be placed at 0.9 m maximum lifts. The material delivered to the southeast corner of the embankment was finer weathered quartzite today with less rock over 19mm size than previous days. This material must be placed in maximum 0.45m lifts and compacted with 3 passes of a minimum 9 tonne vibratory compactor or 1 pass with a loaded 777 haul truck. The material may also be mixed with ADR Blast Rock at a volume ratio of 2:1 (Blast Rock to Pond Cut). This material is not phyllitic but can be expected to be somewhat moisture/frost susceptible due to the fines content. BGC will evaluate the material from the event pond cut and make further recommendations, as appropriate.
  - The area of the Event Pond foundation between the main embankment and the east embankment was being stripped and prepared for foundation (**Photo 3**). A small area of ice rich material was encountered just below the root zone. The material is frozen colluvium and must be removed down to thaw-stable material.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 8.
  - Tetra Tech provided QA report for the HLF liner for November 8.
- BGC Recommendations:
  - QA/QC will continue for the liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond main embankment construction.



Photo 2: Event Pond embankment construction at southeast corner.

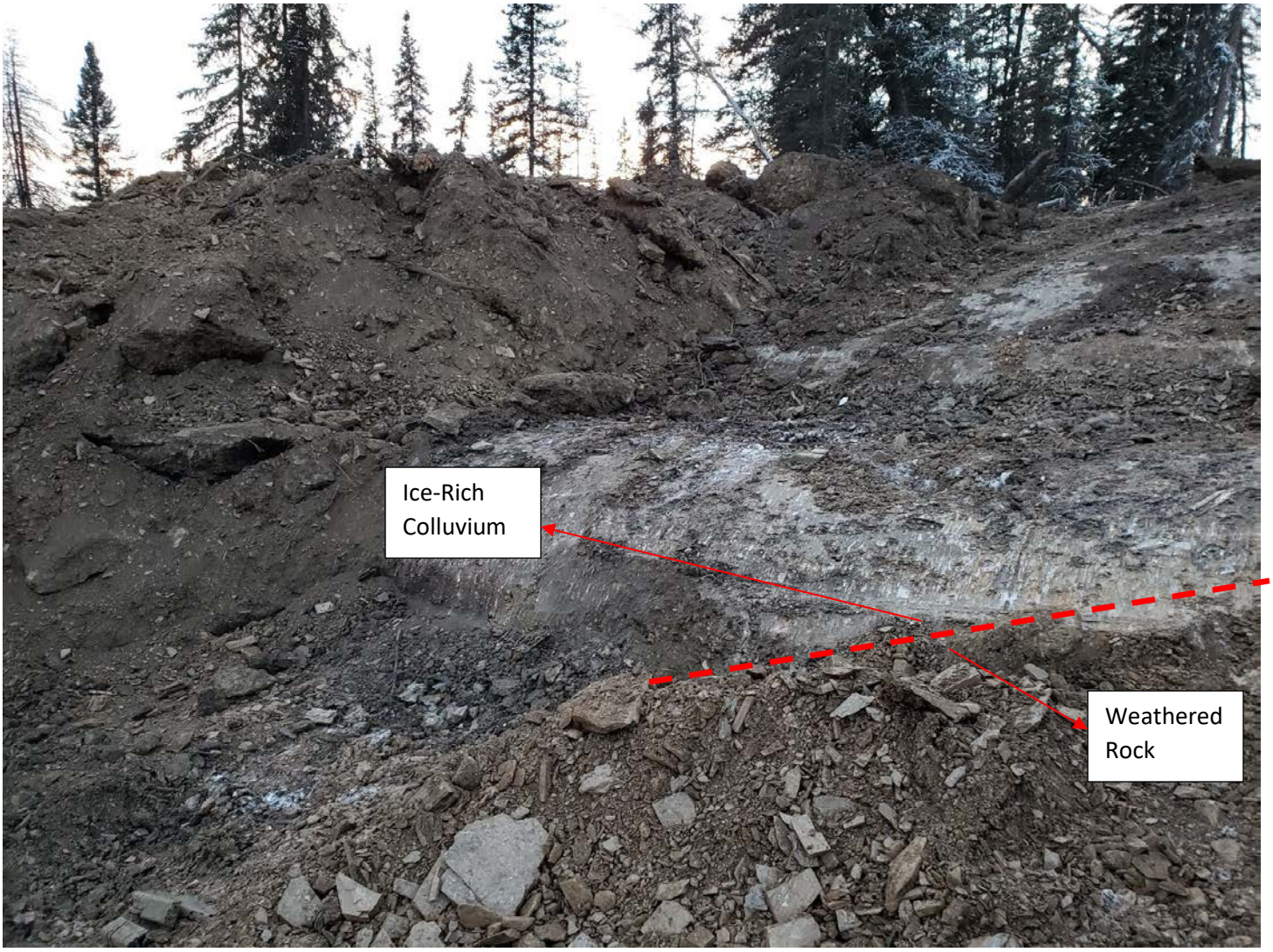


Photo 3: Event Pond embankment foundation between main and east embankments.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Light Snow -13°C to -20°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond main embankment. The fill material source was blast rock from the ADR borrow area blended at the fill with Event Pond Cut material.
  - The ADR borrow was inspected. Two excavators are loaded the blasted rock (**Photo 1**). There is a 2m wide zone of Phyllite rock (**Photo 2**) in the face. This material is fairly competent and may produce acceptable quality rockfill. There is also a pile of stripped overburden (**Photo 3**) at the eastern edge of the quarry. This material is gravelly with significant fines and should be avoided. Otherwise the quarry face is good quality quartzite rock.
  - The area of the Event Pond foundation between the main embankment and the east embankment was being stripped and prepared for foundation (**Photo 4**). A small area of ice rich material was encountered just below the root zone and was ripped with a dozer and removed.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring. One major goal for the plan should be to prevent water and ice from collecting in the Event Pond over the winter, which could result in major repairs to the unlined Event Pond berms and exposed subgrade. BGC has suggested installing the event pond underdrains then protecting them with sacrificial gravel (such as ODF) to allow a place for water drain during melt. Pelly has verbally stated that this is the plan.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 10.
  - Tetra Tech provided QA report for the HLF liner for November 10.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Loading of Rockfill at ADR Borrow area.

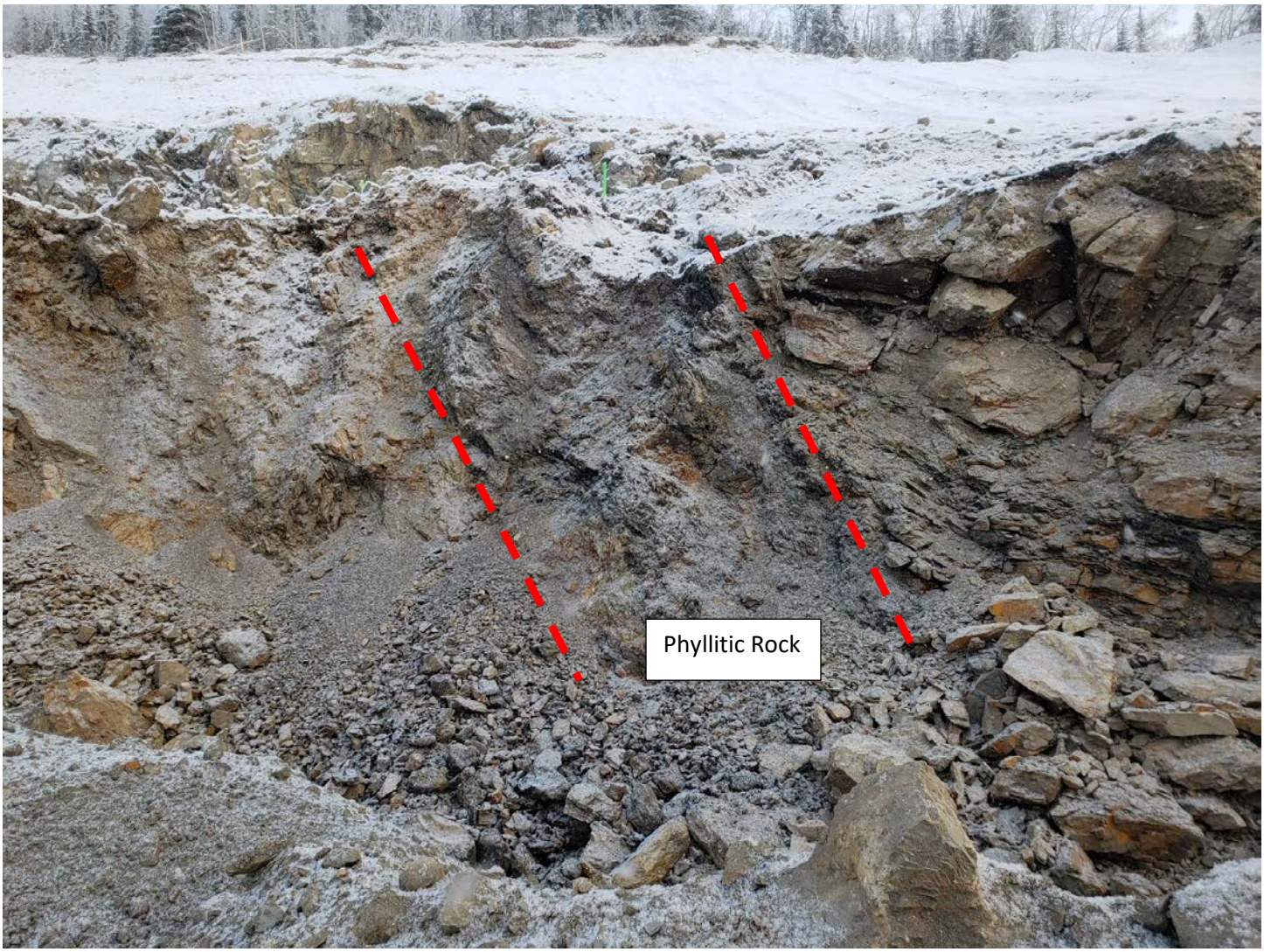


Photo 2: Small zone of Phyllitic rock in ADR borrow area.

Photo 2: Event Pond embankment construction at southeast corner.



Photo 3: Fine grained overburden at east edge of ADR borrow area.



Photo 4: Event Pond embankment foundation between main and east embankments.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Light Snow -7°C to -10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment (**Photo 1**). The fill material source was blast rock from the ADR borrow area blended at the fill with Event Pond Cut material.
  - A portion of the HLF Spillway foundation above the eastern portion of the Event Pond was inspected (**Photo 2**). The area requires about 3 meters of fill to construct the spillway upper ramp between the HLF and Event Pond. A lens of ice (**Photo 3**) was found extending along about 12 meters on the excavated bench. This area received runoff water which apparently became trapped, buried and frozen. The excavator could not dig through the ice and it was suggested that a dozer was needed to rip the area to remove all ice and frozen material prior to fill placement. Test pits will be excavated east of this area to confirm the extent of the ice.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 11.
  - Tetra Tech provided QA report for the HLF liner for November 11.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at Event Pond embankment.



Photo 2: Foundation area for HLF Spillway fill.



Photo 3: Ice lens in HLF Spillway foundation area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Light Snow -3°C to -9°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The fill source was primarily Event Pond Cut material. The ADR quarry was being prepared for blasting for tonight.
  - Snow removal was performed on the completed lifts prior to placement of new lifts. A portion of the foundation along the Event Pond embankment northern edge is covered with snow and some loose material. An old partially filled test pit is also obscured by snow (**Photo 1**). The test pit should be cleaned out and filled with compacted fill and about 30m of foundation on either side of the test pit should be cleaned and inspected by BGC / Tetra Tech prior to placement of fill against the slope.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 12.
  - Tetra Tech provided QA report for the HLF liner for November 12.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at Event Pond embankment near old test pit.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Light Snow -9°C to -13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The fill source was primarily Event Pond Cut material at the main embankment and ADR Blast Rock material for the smaller east corner of the embankment. Snow was removed on the lift and the surface of the fill was roughed up using dozers (**Photo 1**) to scarify.
  - A portion of the foundation between the main and eastern embankments required additional preparation to remove apparent organic layer (**Photo 2**). The material was removed with a dozer to competent foundation prior to fill placement (**Photo 3**).

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 13.
  - Tetra Tech provided QA report for the HLF liner for November 13.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill surface preparation prior to placement at Event Pond embankment.



Photo 2: Organic layer in Event Pond embankment foundation.



Photo 3: Organic layer removed to competent foundation prior to fill placement at Event Pond embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear -17°C to -21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The fill source was a combination of Event Pond Cut material and ADR Blast Rock material (**Photo 1**).
  - The foundation was being prepared by removing snow and loose material from the final bench wall at the main embankment (**Photo 2**).

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 14.
  - Tetra Tech provided QA report for the HLF liner for November 14.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at Event Pond embankment.



Photo 2: Foundation preparation at Event Pond embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 15, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear -21°C to -26°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The fill source was a primarily ADR Blast Rock material (**Photo 1**).
  - The foundation was being prepared by removing snow and loose material from the final bench wall at the main embankment (**Photo 2 and 3**).
  - The Event Pond Cut source was inspected. The western 1/3 of the stockpile was suitable but the eastern 2/3 of the stockpile was contaminated with frozen soil (**Photo 4**). Pelly was told to waste the unsuitable portion.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 15.
  - Tetra Tech provided QA report for the HLF liner for November 15.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at Event Pond embankment.



Photo 2: Foundation preparation at Event Pond embankment.



Photo 3: Foundation preparation at Event Pond embankment.



Photo 4: Frozen soil contamination of Event Pond Cut pile.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 16, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear -19°C to -31°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The fill source was the ADR Blast Rock material.
  - The northeastern portion of the Event Pond was being shaped with a dozer (**Photo 1**). The cut material has a high fraction of frozen soil (**Photo 2**) and Pelly agreed it should be wasted.
  - The ADR Blast Rock source was inspected. The eastern 50 to 100m of the quarry is now in a more weathered zone and producing rockfill with a higher fines content. Direction to Pelly was to avoid the upper 2 to 3m of this weathered zone to ensure suitable rockfill is delivered to the Event Pond Embankment.
  - Shaping of the HLF was performed above the 940m bench (**Photo 3**).
  - Liner placement continued in the HLF sump.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 16.
  - Tetra Tech provided QA report for the HLF liner for November 16.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Shaping of Event Pond wall near northeastern corner.



Photo 2: Unsuitable frozen soil produced from Event Pond wall cut.



Photo 3: Shaping of the HLF above 940m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 17, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Snow Flurries -12°C to -21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment (**Photo 1**). The fill source was the ADR Blast Rock material. The fill was composed of quartzite rock material with no significant amount of phyllitic rock materials present. No significant amount of ice-rice frozen soil was observed. Compaction was achieved with minimum 3 passes of a 11-tonne vibrating roller-compactor.
  - The northeastern portion of the Event Pond was being shaped with a dozer. The cut material has a high fraction of frozen soil and was sent to waste.
  - A thermistor was installed on lift 100 (elevation 882.45m) and the end of the wire was marked with a blue stake and surveyed.
  - Shaping of the HLF was performed above the 940m bench.
  - Liner placement continued in the HLF sump.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 17.
  - Tetra Tech provided QA report for the HLF liner for November 17.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at the Event Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 18, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy -12°C to -21°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment (**Photo 1**). The fill source was primarily the ADR Blast Rock material.
  - Material was being bulked on the pond floor from required excavations of the pond walls. A portion of this material located in the eastern end of the pond (**Photo 2**) is suitable as rockfill and can be placed in the Event Pond Embankment lift. The remaining piles (**Photo 3**) contain fine material with some frozen soils and must be wasted.
  - The approved fill was composed of quartzite rock material with no significant amount of phyllitic rock materials present. No significant amount of ice-rice frozen soil was observed. Compaction was achieved with minimum 3 passes of a 11-tonne vibrating roller-compactor.
  - Foundation was prepared with an excavator for the eastern Event Pond embankment (**Photo 4**). The foundation in this area is weather quartzite bedrock below dense colluvium/till. The overburden soil does not contain excess ice.
  - Shaping of the HLF was performed above the 940m bench.
  - Liner placement continued in the HLF sump.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift. Tetra Tech provided QA Daily Reports for event pond on November 18.
  - Tetra Tech provided QA report for the HLF liner for November 18.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Fill placement at the Event Pond.



Photo 2: Approved Rockfill from Event Pond wall excavations.



Photo 3: Unsuitable material from Event Pond wall excavations.



Photo 4: Preparation of foundation at eastern Event Pond embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 4ºC to -5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Roy Morlan arrived on site.
  - Material was placed at the Event Pond embankment. The fill source was a mix of the ADR Blast Rock material and the Event Pond cut. BGC has asked that 3 parts blast rock to 1 part event pond cut be used because the event pond cut material is composed of much weaker rock. Material is blended by laying piles on the lift and dozing them across each other. Because this does not result in a true blending BGC has asked that the event pond cut material be used in the center of downstream side of the berm and not the upstream side of the berm where liner will be placed. (***Photo 1***)
  - Fill placement at the Event Pond berm was being completed quickly with little time between loading, hauling, spreading, and compacting. This tight sequence will help in reducing post construction settlement.
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low.
  - Shaping of the HLF was performed above the 940m bench (**Photo 2**).
  - Liner placement continued in the HLF sump. (***Photo 3***)
  - Placement of ODF material in the in-heap pond continued. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond Construction



Photo 2: Construction at the Phase 1 HL area above 940m.



Photo 3: Liner placement.



Photo 4: ODF Fill within the in-heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 27, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 4°C to -8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Roy Morlan arrived on site.
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 889.65m. (***Photo 1***)
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low.
  - Shaping of the HLF was performed above the 940m bench (**Photo 2**).
  - Liner placement continued in the HLF sump. (***Photo 3***)
  - Placement of ODF material in the in-heap pond continued. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event Pond Construction



Photo 2: Construction at the Phase 1 HL area above 940m.



Photo 3: Liner placement.



Photo 4: ODF Fill within the in-heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 28, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -6ºC to -8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 890.55m. (***Photo 1***)
  - Shaping the event pond continues. (***Photo 2***)
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low.
  - Shaping of the HLF was performed above the 940m bench (***Photo 3***).
  - Liner placement continued in the HLF sump. (***Photo 4***)
  - Placement of ODF material in the in-heap pond continued. (***Photo 5***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Rockfill being placed at the event pond berm.



Photo 2: Shaping at the Event Pond.



Photo 3: Shaping above 940m.



Photo 4: Liner placement at the in-heap pond.



Photo 5: Snow and frozen material removal at the in-heap pond for placement of more ODF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 29, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Fog, Light Snow -5°C to -7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 891.45m.
  - Shaping the event pond continues.
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low.
  - Shaping of the HLF was performed above the 940m bench (***Photo 1***).
  - Liner placement continued in the HLF sump. (***Photo 2***)
  - Heavy North placed the LDRS and closure drill casing pipes using a crane. Extensions for the hammerheads were aligned. The extension for the closure drill casing was placed but will be aligned on November 30. The pipes will be welded on December 1. (***Photo 3 and 4***)
  - Heavy North used the excavator to clear snow off the liner. This resulted in 2 punctures of the liner. Prior to placement of more ODF the entire exposed liner should be inspected by Tetra Tech and BGC for punctures and repaired as necessary. This inspection should be documented by QA. The excavator should no longer be used to clear snow from the liner. BGC and Tetra Tech will develop a protocol for the inspection for JDS. It will likely entail uncovering this area again by hand to allow for a detailed inspection. (***Photo 5***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Clearing Phase 1 HL area.



Photo 2: Liner placement.



Photo 3: Crane moving LDRS pipe extension.



Photo 4: LDRS pipe extension placement.



Photo 5: Snow clearing over sump liner.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	November 30, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow -5°C to -8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 892.35m. (***Photo 1***)
  - Shaping the event pond continues.
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low. (***Photo 2***)
  - Shaping of the HLF was performed above the 940m bench (***Photo 3***).
  - Liner placement continued in the HLF sump. (***Photo 4***)
  - Heavy North used the excavator bucket to clear now off a portion of the liner the previous day. In doing so they punctured the liner in 3 placed. (***Photo 5***) BGC and Tetra Tech had Heavy North clear all the snow from the liner in the area affected by hand so it could be inspected. The inspection was documented by Tetra Tech. After inspection the three punctures were patched by Layfield. After patching ODF was placed on top of the liner to make snow removal easier in the future. (***Photo 6***).
  - Snow removal using heavy steel equipment close to the liner has never been permitted. However, BGC developed the following protocols as guidance for work around the liner: 1.) Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. 2.) If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - ODF material in the sump is frozen but not icy. It breaks apart when dug with an excavator. The frozen zone appears to be about 0.5m deep. BGC would like for the frozen ODF to be scarified to 0.5m deep immediately before placement of more ODF. New ODF should not be placed on un-scarified frozen material. (***Photo 7***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event pond berm construction.



Photo 2: Excavation at the rockfill quarry.



Photo 3: Shaping at the event pond.



Photo 4: Liner placement.

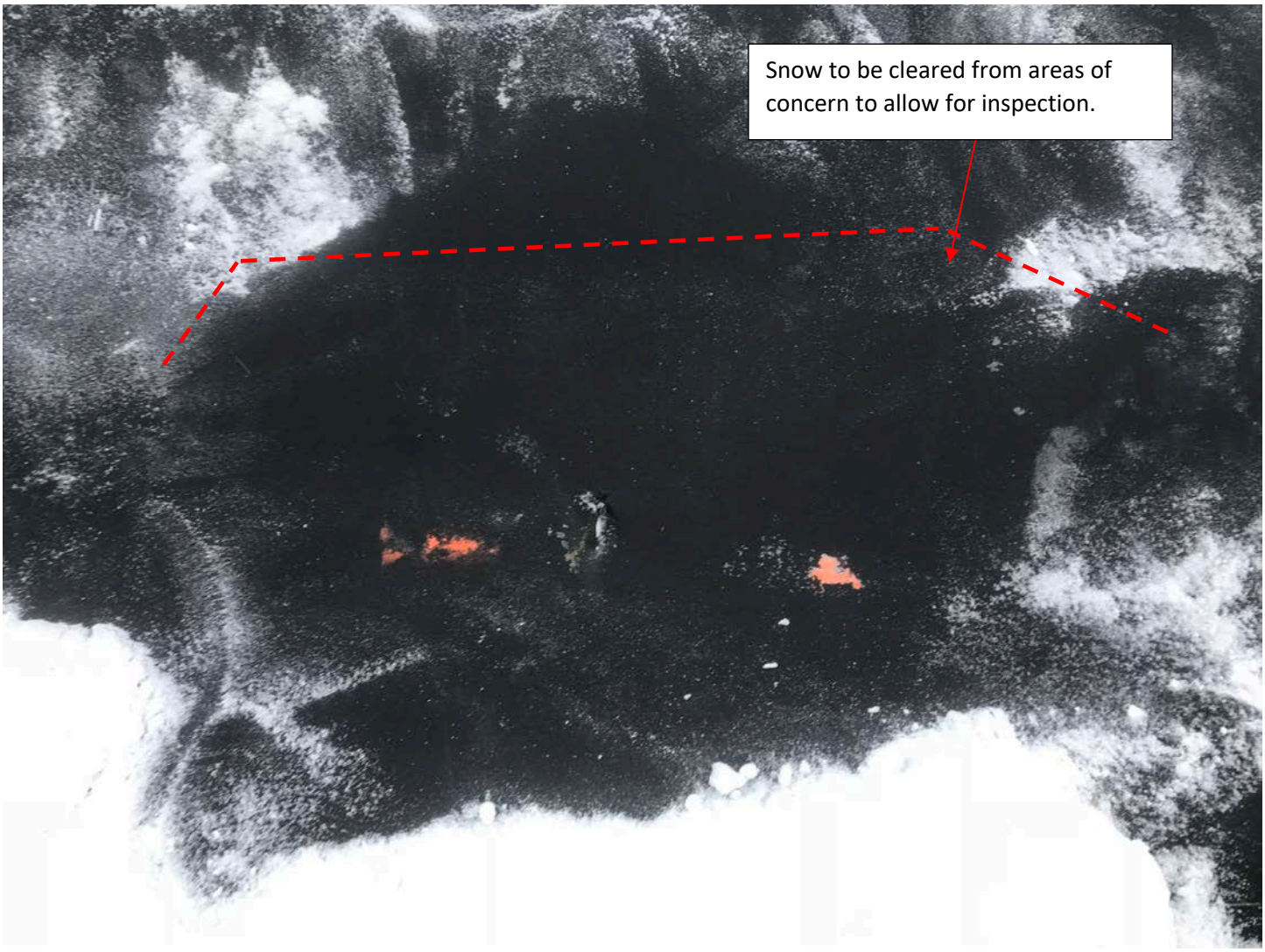


Photo 5: Punctured liner.



Photo 6: ODF being placed on approved sections of liner.



Photo 7: Frozen ODF at the in-heap pond.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 1, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Light snow -8°C to -11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 894.15m. (***Photo 1***)
  - Shaping the event pond continues.
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low. Some finer material was being generated from a portion of the quarry. BGC will monitor to determine if the material becomes too fine to place in 0.9m lifts.
  - Shaping of the HLF was performed above the 940m bench (***Photo 2***).
  - Liner placement continued in the HLF sump. (***Photo 3***)
  - Heavy North scarified the ODF material already placed. An approximately 0.3m to 0.5m layer of the ODF had frozen due to exposure. Material below this frozen layer was loose. (***Photo 4***)
  - Heavy North placed more ODF along the in-heap pond side slopes. (***Photo 5***)
  - Extensions to the LDRS and closure drill pipe were welded into place. Liner was protected by a layer of ODF material. Very little slag was generated during welding. As an extra precaution welding mats were also placed under the welding area as well. (***Photo 6***)

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a "checker-board" pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event pond berm construction.



Photo 2: Shaping of the HL Phase 1 area.



Photo 3: Liner placement continued.

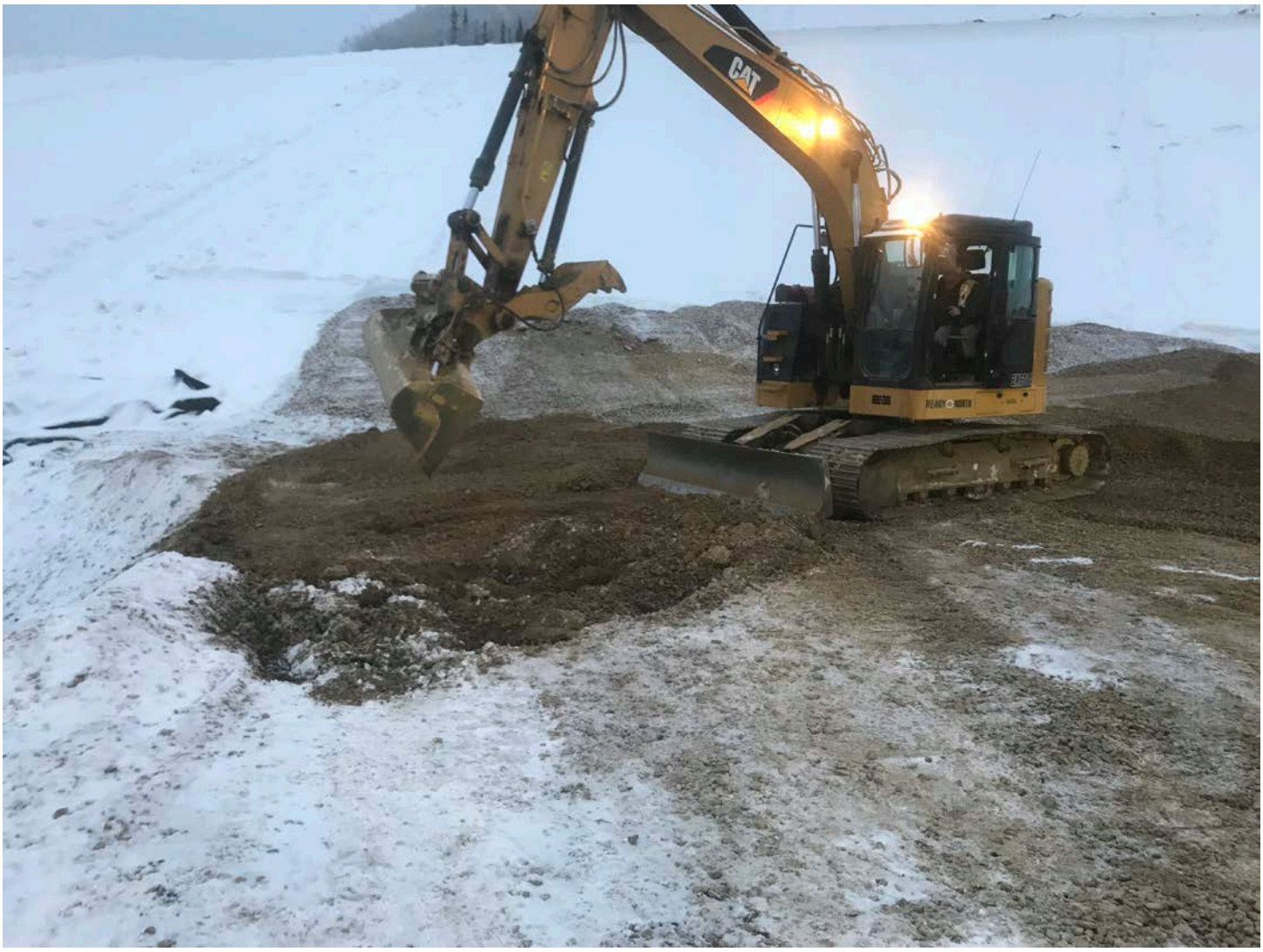


Photo 4: Heavy North using an excavator to break of the top layer of frozen ODF before placement of new ODF.



Photo 5: Placement of ODF material along the lined slope of the in-heap pond.



Photo 6: Work being performed extending the LDRS piping up the embankment slope.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 2, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Light snow -17°C to -23°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. Berm elevation at the end of the night shift was 894.15m. (***Photo 1***)
  - Shaping the event pond continues.
  - The ADR Blast Rock delivered to site was composed of competent, rocky material with material sizes up to 0.5m long. Moisture content appeared low. Some finer material was being generated from a portion of the quarry. BGC will monitor to determine if the material becomes too fine to place in 0.9m lifts.
  - Shaping of the HLF was performed above the 940m bench (***Photo 2***).
  - Liner placement continued in the HLF sump. (***Photo 3***)
  - Heavy North continued to place ODF material. (***Photo 4***) Haul trucks are dumping near the center of the sump and the loaders are spreading it. This method should continue. Haul trucks should not back and dump material near over the liner where ODF is less than 2m thick and there is no rub sheet.

- Observations and Recommendations (Open/Ongoing):
  - Placement at the Event Pond embankment will continue based on recommendations from the test fill documented in CTFM-05. It is recommended that the materials from the two approved sources (Event Pond Cut and ADR Blast Rock) are placed in a manner to facilitate some blending during spreading. This can be done by alternating loads from the two sources dumped on the fill area in a “checker-board” pattern. This will result in a more homogeneous fill overall.
  - The fill operation at Event Pond should be as tight as practical in terms of dump/spread/compact sequencing. Once the dumped material is spread on the fill, it should be compacted as soon as possible to prevent further freezing.
  - Cold weather material placement will be a normal part of construction moving forward. A cold weather placement guidance document was provided to JDS and Pelly (FM18-020). Cold weather placement methods will be dynamic as temperatures drop and the Constructor and Engineer should maintain close and frequent communication to deal with issues and adapt as needed.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - BGC and Tetra Tech should be informed 24 hours in advance of all sources of material changes for the event pond to evaluate it suitability for use in cold temperatures and to develop compaction and moisture criteria.
  - Snow should only be removed from over the liner with hand digging. Snow <1” thick can be left and ODF placed over it. Snow >1” thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event pond berm construction.



Photo 2: Shaping of the HL Phase 1 area.



Photo 3: Liner placement continued with GCL installation.



Photo 4: Heavy North continued to place ODF.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 3, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow -13°C to -24°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Material was placed at the Event Pond embankment. The final berm elevation was achieved. (***Photo 1***)
  - Shaping the event pond continues.
  - Shaping of the HLF was performed above the 940m bench (***Photo 2***). Pelly shared the new shaping surface with BGC. The surface removals the vast majority of ground ice observed in the test pits except for the area in the center valley in the north. (***Figure 1***)
  - Liner placement continued in the HLF sump. (***Photo 3***)
  - Heavy North continued to place ODF material. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event pond berm construction.



Photo 2: Shaping of the HL Phase 1 area.

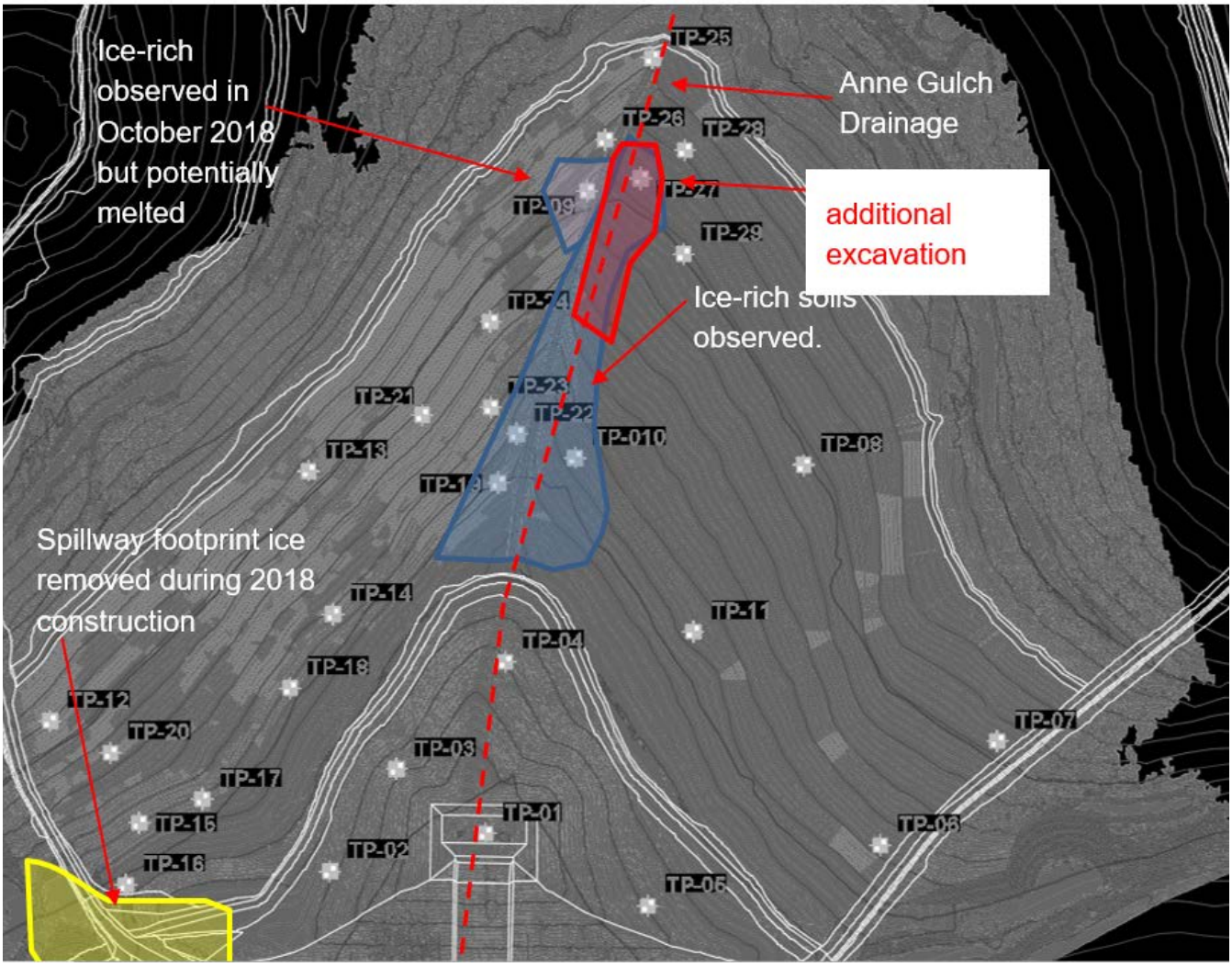


Figure 1: Area in red shows ice rich material observed in the test pits that would not be removed if current surface is used.



Photo 3: Liner being placed over the LDRS piping.



Photo 4: ODF placed in the sump.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 4, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -15ºC to -25ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond continues. (***Photo 1***)
  - Liner placement continued in the HLF sump. (***Photo 2***)
  - Heavy North continued to place ODF material. (***Photo 3***)
  - Heavy North excavated an area of the ODF to prepare for placing the PLS hammerheads. This area was frozen to approximately 1m bgs and required ripping to excavate. (***Photo 4***). This surface was ripped before placement of more ODF two days ago. It is likely this material has frozen over the past 2 days accelerated by heavy traffic during ODF placement. BGC assumes that large portions of the ODF between 914m and 912.5m has refroze. It is not possible to tell how far under the new ODF the frozen layer extends. Now that temperatures are consistently between -15 and -25 there is a higher probability that frozen zones will be buried in the ODF. BGC will install a thermistor in PLS portion of the ODF fill. However, this will only monitor a single point. The plan to thaw the ODF in 2019 is to pump heated air through the PLS piping system. Work to verify if frozen layers have thawed should also be completed in 2019.
  - Shaping continued above the 940m bench. (***Photo 5***)
  - JDS will arrange to have ODF produced from the ADR rockfill quarry. BGC has requested to be present when the sample is collected. BGC would like for two batches of ODF material be produced. One from the weaker phyletic material and one from the more common quartz rich material. These samples will be shipped to Tetra Tech for durability testing.
  - BGC received CC204-RFI-046.

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - Shaping of the HLF was performed above the 940m bench. Pelly shared the new shaping surface with BGC. The surface removals the vast majority of ground ice observed in the test pits except for the area in the center valley in the north. (***Figure 1***)
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QC monitoring and testing for construction of the Event Pond berms on both the day and night shift.
  - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
  - QA/QC will continue for the HLF liner and Event Pond construction.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-046	Collection piping joints	Open. Received December 5, 2018
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Event pond shaping.



Photo 2: Liner welded at in-heap pond.



Photo 3: ODF placement.



Photo 4: Frozen ODF being excavated. Excavator could not complete the digging and the material required ripping.



Photo 5: Shaping continued in the Phase 1 footprint.

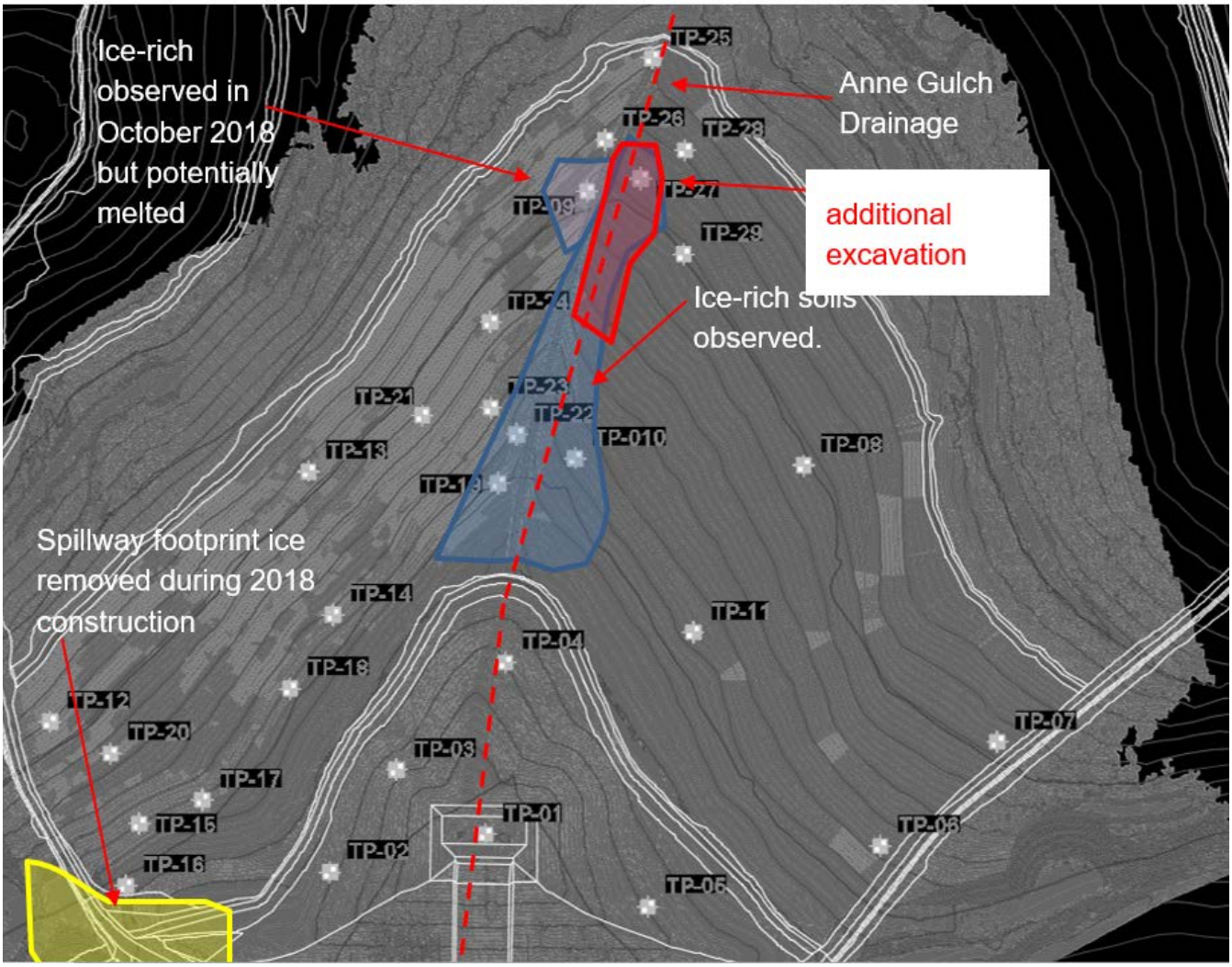


Figure 1: Area in red shows ice rich material observed in the test pits that would not be removed if current surface is used.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 5, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -16°C to -27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond continues. (***Photo 1***)
  - Heavy North made a hole in the liner while clearing snow. Heavy North had previously been instructed not to use heavy equipment or metal shovels to remove snow, however, this occurred early in the morning when a new operator with incorrect instructions began work with the excavator. The area cleared by the excavator was inspected and patched. JDS has reiterated to Heavy North that no snow removal can be performed by heavy equipment.
  - Heavy North completed shaping the ODF for PLS hammer head installation. Heavy North also began backfilling the shaped area up to grade using the screened ODF. (***Photo 2***)
  - Liner continued at the spillway invert bowl.
  - Shaping continued above the 940m bench. Frozen, ice rich material observed in the central/northern portion of the Phase 1 footprint during the test pit program was removed. (***Photo 3***) JDS/Pelly are deciding if they will backfill this area to achieve a grade that is easier to work on. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12” and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.
  - BGC and JDS discussed ballast options for the spillways. Both concrete impregnated fabric and bituminous geomebrane are being investigated.
  - Due to freezing ODF and the potential that it may not thaw in 2019, BGC and JDS decided to not cover the PLS BBQ grill with ODF this season. The piping will be anchored down (likely with piles of ODF or sandbags) and the area thawed with tarps and heaters in 2019 before placement resumes.

- Observations and Recommendations (Open/Ongoing):

- Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
- Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
- Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
- BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.

- Engineering:
    - None

QA/QC Results

- QA/QC:
    - Tetra Tech provided QA report for the HLF liner.
- BGC Recommendations:
    - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-046	Collection piping joints	Open. Received December 5, 2018
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Spillway shaping at the Event Pond.

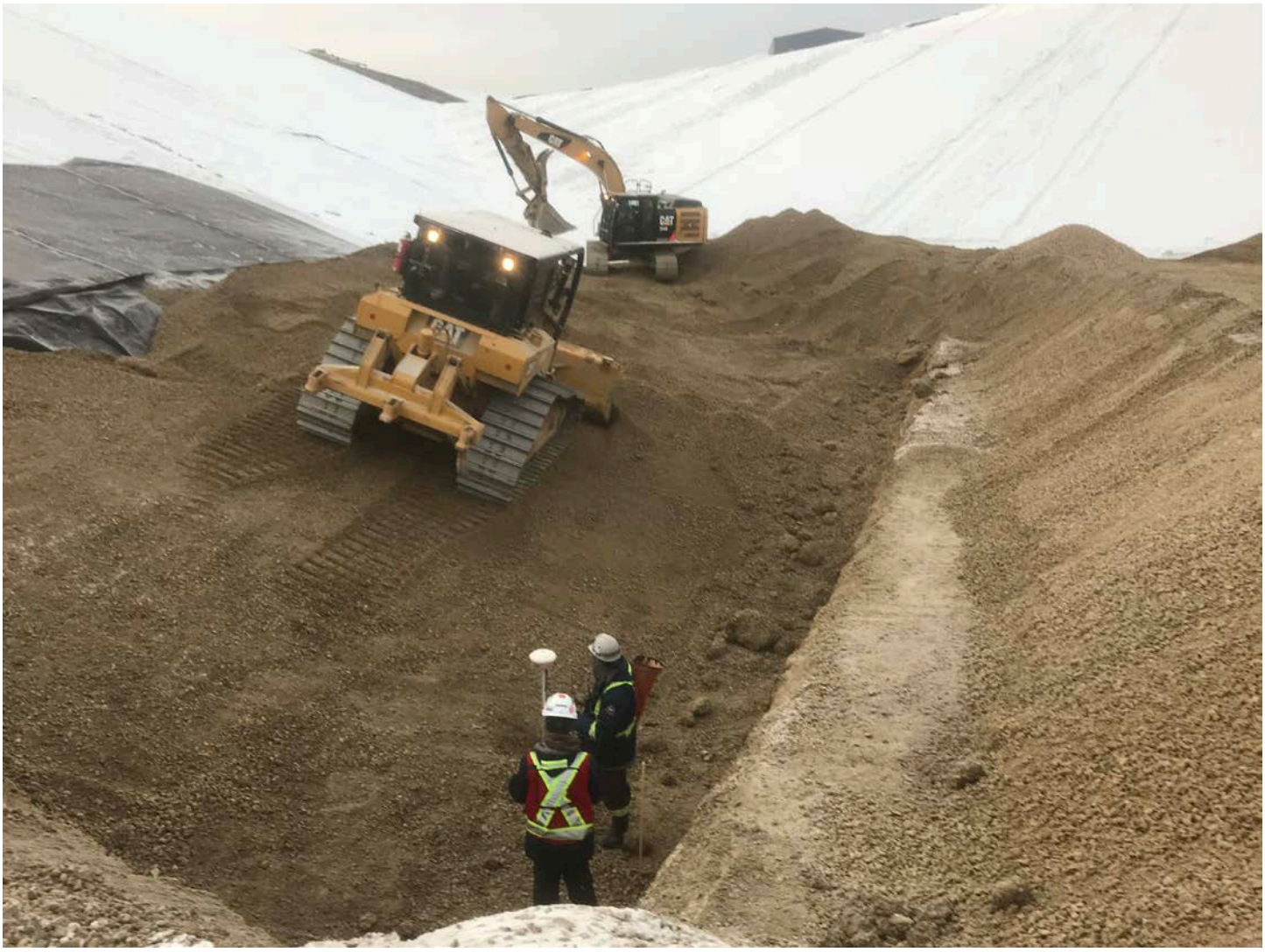


Photo 2: ODF shaping for PLS hammer heads.



Photo 3: Area in the Phase 1 footprint where ice rich soil was removed.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 6, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -15°C to -27°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues.
  - Heavy North began placing PLS hammerheads. (***Photo 1***)
  - Liner continued at the spillway invert bowl.
  - Shaping continued above the 940m bench. (***Photo 2***) Some rockfill was placed and compacted.
  - Pelly began sending BGC their daily report. There was no QC tracking for fill placement on the daily report.

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12" and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction

(ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - No QC data was reported to BGC for the fill placed and compacted in the Phase 1 HL footprint.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-046	Collection piping joints	Open. Received December 5, 2018
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: First PLS hammerhead being placed.



Photo 2: shaping above the 940m bench.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 7, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear -3°C to -19°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. A number of active seeps were observed. Water from the seeps froze into ice sheets. BGC and Pelly plan on putting in gravel drains along the event pond slope walls to direct water to the underdrains. However, the extent of seeps will not be completely understood until temperatures regularly reach above freezing next year. (***Photo 1 and 2***)
  - Heavy North completed placing PLS hammerheads. (***Photo 3***)
  - Liner continued at the spillway invert bowl. (***Photo 4***)
  - Shaping continued above the 940m bench. (***Photo 5, 6 and 7***)
  - BGC responded to CC204-RFI-046.

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12" and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any

subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - Pelly provided QC data for Phase 1 HL fill as part of their daily report. The report was missing some data but BGC is working with Pelly plug those gaps.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-046	Collection piping joints	Closed. Answered December 7, 2018
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Shaping at the Event Pond.



Photo 2: Lenses of ice formed while shaping the Event Pond.



Photo 3: Placing PLS hammer heads in the in-heap sump.



Photo 4: Liner placement at the spillway invert.



Photo 5: Shaping Phase 1 HL area (central valley)



Photo 6: Shaping Phase 1 HL area (eastern portion)



Photo 7: Area in the center valley filled and compacted using Material 7 (Rockfill) from the ADR.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 8, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 2°C to -7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues.
  - Heavy North completed placing PLS hammerheads and began installing the steel manifold. (***Photo 1***)
  - Liner continued at the spillway invert bowl. (***Photo 2***)
  - Shaping continued above the 940m bench. (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12" and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and

subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - Pelly provided QC data for Phase 1 HL fill as part of their daily report.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.

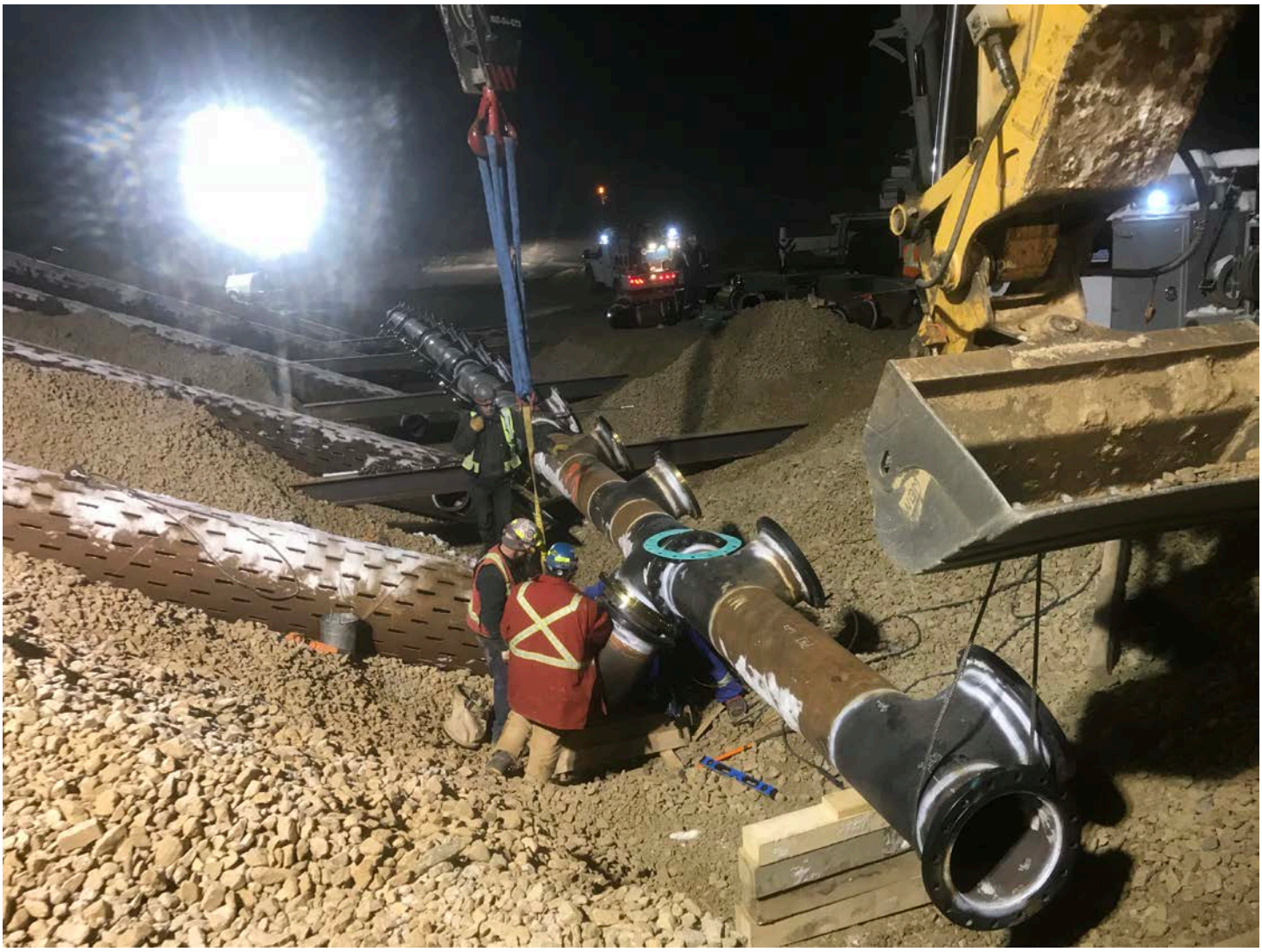


Photo 1: In-heap pond piping installation.



Photo 2: Liner installation.



Photo 3: Shaping above 940m.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 9, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 4ºC to 1ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues.
  - Heavy North continued installing the steel manifold. There was an issue the manifolds fabrication. The angles for the flanges connecting the PLS header pipes are incorrect. JDS and Heavy north are planning options. It is likely that only the manifold will be installed in December and the angle will be corrected using a manufactured elbow next year. (***Photo 1***)
  - Liner continued at the spillway invert bowl. (***Photo 2***)
  - Shaping continued above the 940m bench. (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12" and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is

being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - No fill was placed today at the HLF.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Work being performed at the in-heap pond.



Photo 2: Liner installation.



Photo 3: Shaping above 940m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 10, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 1°C to -6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. (***Photo 1***) Pelly also began digging the underdrains for the Event Pond.
  - Heavy North continued to weld the manifold into place. Heavy north demobed at the end of the day. A portion of the welding still remains. Priority steel will complete this portion tomorrow. (***Photo 2***)
  - Liner continued at the spillway invert bowl. (***Photo 3***)
  - Shaping continued above the 940m bench. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - This week JDS and BGC discussed having Pelly perform QC of the method spec used for rockfill placement as they construct. BGC has no issue with this. When rockfill placement resumes Pelly should begin reporting to BGC the following on a daily basis:
    - Number of passes performed by the roller.
    - Roller weight.
    - Lift thicknesses.
    - Rockfill material appears to meet strength requirements (very little weak rock, usually observed as grey weathered phyllite in this borrow source).
    - The absence of ice in the material.
    - Moisture content (visual estimate or lab sample).
    - Gradation (visual estimate that at least 20% of the material is greater than 12" and that the material is not gap graded).
    - Soil temperatures after placement but before compaction.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof

rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - No fill was placed today at the HLF.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Work being performed at the in-heap pond.



Photo 2: Manifold install at the in-heap pond.



Photo 3: Liner installation.



Photo 4: Phase 1 HL shaping.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 11, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow 2ºC to -11ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. (***Photo 1***) Pelly excavated and began placing drainfill for parts of the underdrains.
  - The in-heap sump manifold welding was completed. Heavy North is ensuring all flange bolts are in place and tight. Backfill with screened ODF will begin tomorrow. (***Photo 2***)
  - Liner continued at the spillway invert bowl. Consistent snow prevent liner placement in the morning (***Photo 3***)
  - Shaping continued above the 940m bench. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - No fill was placed today at the HLF.

- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Underdrain geotextile placement and fill at the event pond.



Photo 2: Manifold install at the in-heap pond.



Photo 3: Liner installation.



Photo 4: Phase 1 HL shaping.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 12, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow -9°C to -24°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. (***Photo 1***) Pelly continued construction of the underdrains. (***Photo 2***)
  - Heavy North buried the manifold to hammer head connections with screened ODF and began demobing from site. (***Photo 3***)
  - Liner continued at the spillway invert bowl. (***Photo 4***)
  - Shaping continued above the 940m bench. (***Photo 5***)
  - BGC and JDS identified two areas in the ADR quarry to collect samples for ODF production. The first material (ADR-ODF-01) is phyllite rich, grey in color, and has weaker rock strength. The second sample (ADR-ODF-02) consists of strong quartzite rock with some phyllite (<30%) and is greyish brown. 5 truck loads of each were sockpiled near the Nueway crushers for processing into ODF on December 18. The samples will be sent to Tetra Tech in Whitehorse for durability analysis. If the sample is collected before December 20 Richard with Tetra Tech can drive the samples to the Whitehorse office. (***Photo 6 and 7***)

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - BGC would like to be present when samples are collected from the ADR rock quarry for potential use as ODF material.
  - JDS/Pelly may backfill areas of the Phase 1 HL footprint with rockfill this season. BGC does not have an issue with backfilling this area, however, the area can also be kept at the current cut depth and shaped to meet the underdrain and collection system sloping and piping criteria if that is easier or more cost effective. If this area is backfilled, due to extremely cold temperatures, it can only be backfilled with rockfill and compacted using the method spec used at the event pond berm. Liner bedding material will have to be placed over the rockfill in 2019 prior to liner placement. As temperatures drop below -20 C consistently additional density testing (a stand alone test fill or drone survey density testing of a placed lift) will be required to determine if the current method being used is still appropriate.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results
• QA/QC: o Tetra Tech provided QA report for the HLF liner. o No fill was placed today at the HLF. • BGC Recommendations: o None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Shaping and drain construction at the Event Pond.



Photo 2: Finger drain construction at the Event Pond.

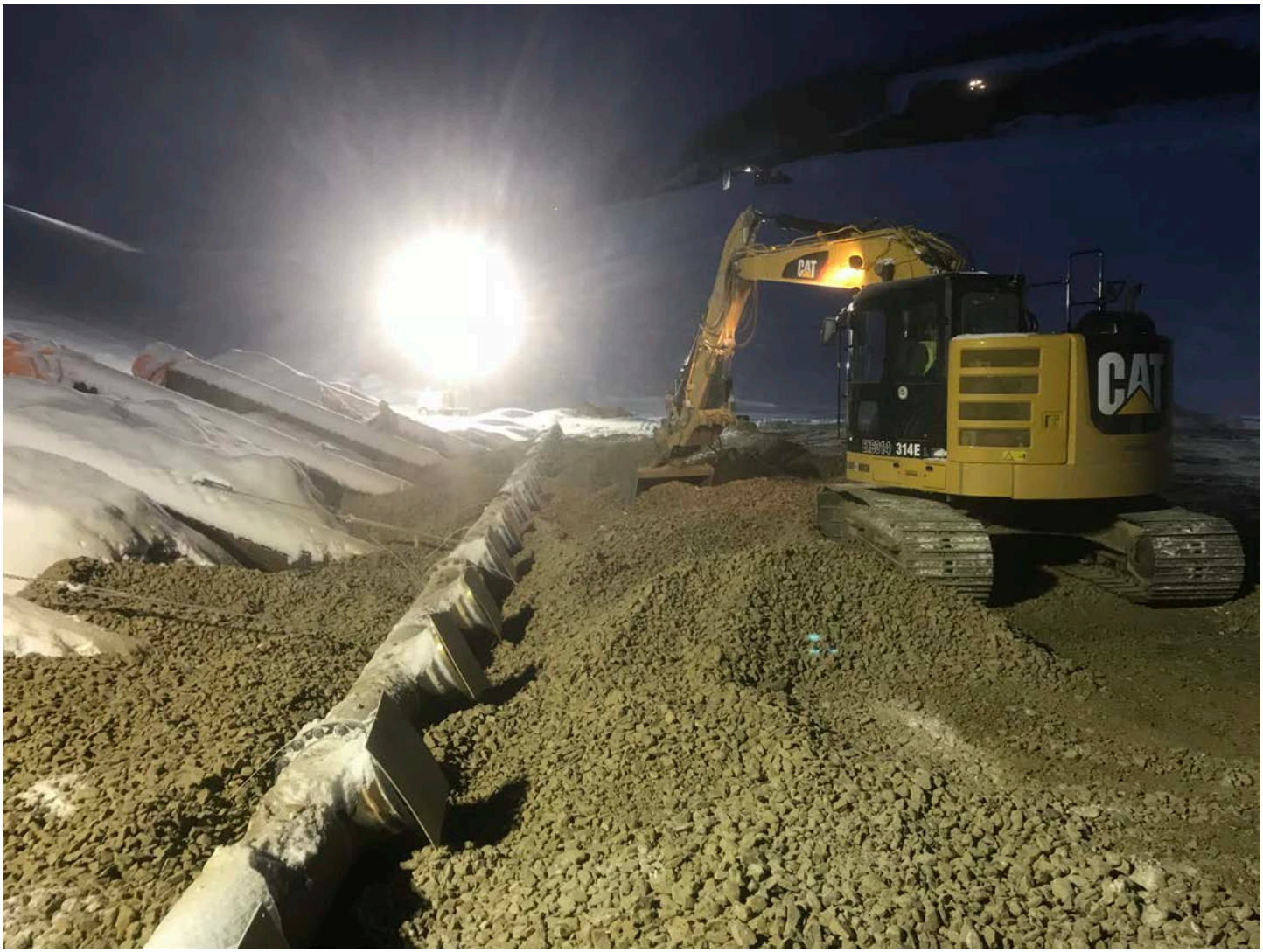


Photo 3: ODF placement at the in-heap sump.



Photo 4: Liner placement.



Photo 5: Phase 1 HL shaping.



Photo 6: Phyllitic material to sampled as ADR-ODF-01.



Photo 7: More quartz rich rock to be sampled as ADR-ODF-02.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 13, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -18ºC to -26ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. (***Photo 1***) Pelly also continued installing the underdrains for the Event Pond. (***Photo 2***)
  - Liner and anchor trench backfill at the spillway invert was completed. Layfield demobed.
  - Shaping continued above the 940m bench. (***Photo 3***)
  - BGC received CC206-RFI-017 related to pipe connections at the in-heap pond.

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Tetra Tech provided QA report for the HLF liner.
  - No fill was placed today at the HLF.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Shaping and drain construction at the event pond.



Photo 2: Liner being placed in the finger drain at the event pond.



Photo 3: Liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792021
Client:	Victoria Gold	**Date and Shift:**	December 14, 2018 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -20°C to -29°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Shaping the event pond/ spillway continues. (***Photo 1***) Pelly also continued installing the underdrains for the Event Pond. (***Photo 2***) Portions of the completed drains were covered to grade with reject sand. Because this cover was placed in the extreme cold it will likely need to be recompacted next year prior to liner placement.
  - Shaping continued above the 940m bench. (***Photo 3***)
  - BGC responded to CC206-RFI-017.
  - BGC will demobe tomorrow, Saturday, December 15. BGC delivered a demobilization memo to JDS. The memo discusses outstanding items and recommendations for January and February construction.

- Observations and Recommendations (Open/Ongoing):
  - Fill placement of rockfill within the Phase 1 footprint should follow the practices used at the Event Pond:
    - Placement should follow recommendations from the test fill documented in CTFM-05.
    - The fill operation should be as tight as practical in terms of dump/spread/compact sequencing.
    - The cold weather placement guidance document (FM18-020) should be followed.
    - BGC should be informed 24 hours in advance of all sources of material changes.
  - Water Management Plan and Winterization Plan is needed to help maintain current event pond construction efforts, failure to do this may result in rework and repairs during Spring.
  - Snow should only be removed from over the liner with hand digging. Snow <1" thick can be left and ODF placed over it. Snow >1" thick must be removed. If excavation of placed ODF is needed over the liner then a machine can be used but excavation must stop a minimum 20cm away from the liner. The last 20cm must be hand excavated. If material is frozen it may need to be heated before excavation to prevent damage to the liner.
  - Over the past several weeks BGC has discussed with Pelly and JDS the subgrade approvals for the Phase 1 heap leach area. This area is being shaped to remove all ice rich material observed in the test pitting, as is required by the Foundation Improvement Plan. However, because this area has been stripped of topsoil the exposed subgrade has frozen, and to a significant depth in some places (between 0.5 to 1.0m bgs). Due to the temperatures construction is being performed in and the length of time the subgrade will be exposed to the elements any subgrade approvals done this season will have to be conditional. A final approval will be needed before liner is being placed. Final approval in 2019 will determine if the subgrade is dense (ie does not deflect much with proof rolls) and dry enough for liner placement. This should also be kept in mind when planning underdrain construction (ie main pipe trench and lateral drains). If underdrains are completed this season with piping and drain rock and subgrade in areas needs to be excavated deeper in 2019 this may require removal and reconstruction of some underdrains.

- Engineering:
  - None

QA/QC Results

- QA/QC:
  - No liner was placed today.
  - No fill was placed today at the HLF.
- BGC Recommendations:
  - None

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-021	Event Pond Water Management Plan	Open. Sent Oct 9, 2018.
BGC-RFI-025	Event Pond Water Winterization Plan	Open. Sent Oct 12, 2018.

Safety Issues: None this shift.



Photo 1: Shaping and drain construction at the event pond.



Photo 2: Drain fill being placed in the finger drains.



Photo 3: Excavation above the 940m bench.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	March 28, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 8ºC to -5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC arrived on site in the afternoon.
  - Pelly excavated portions of the frozen underdrain at the event pond and cleared frozen underdrain pipe using a steam machine. (***Photo 1***)
  - Pelly prepared for blasting at the ADR to be performed on March 29.
  - BGC reviewed the frozen underdrains at the vent pond. The drains likely froze after the underdrain outlet pipe froze and backed up water into the event pond underdrains. BGC will develop a method to prevent the underdrain outlet pipe from freezing.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Work to unfreeze the underdrains at the Event Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	March 29, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 9°C to -4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing reject sand and excavating the anchor trench at the Event Pond in preparation for liner. (***Photo 1***)
  - Pelly continued work shaping the Phase 1 heap pad area (***Photo 2***).
  - Blasting at the ADR quarry was completed.
  - IFC EGHLF-XD-08-02 was delivered to JDS.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Pelly prepping the Event Pond surface for liner placement.



Photo 2: Pelly prepping the surface at the Phase 1 heap pad footprint.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	March 30, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 8°C to -3°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing reject sand at the Event Pond in preparation for liner. (***Photo 1***)
  - Pelly began digging out the blanket drain on the north side of the pond (***Photo 2***).
  - Pelly continued work shaping the Phase 1 heap pad area (***Photo 3***).
  - The spillway invert anchor trench and liner extension was completed. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - BGC will develop a cover for the Event Pond underdrain outlet to reduce the change of the outlet freezing and backing up water into the underdrain system.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Pelly prepping the Event Pond surface for liner placement.



Photo 2: Excavation of blanket drain on north side of pond.



Photo 3: Shaping Phase 1 heap pad area.

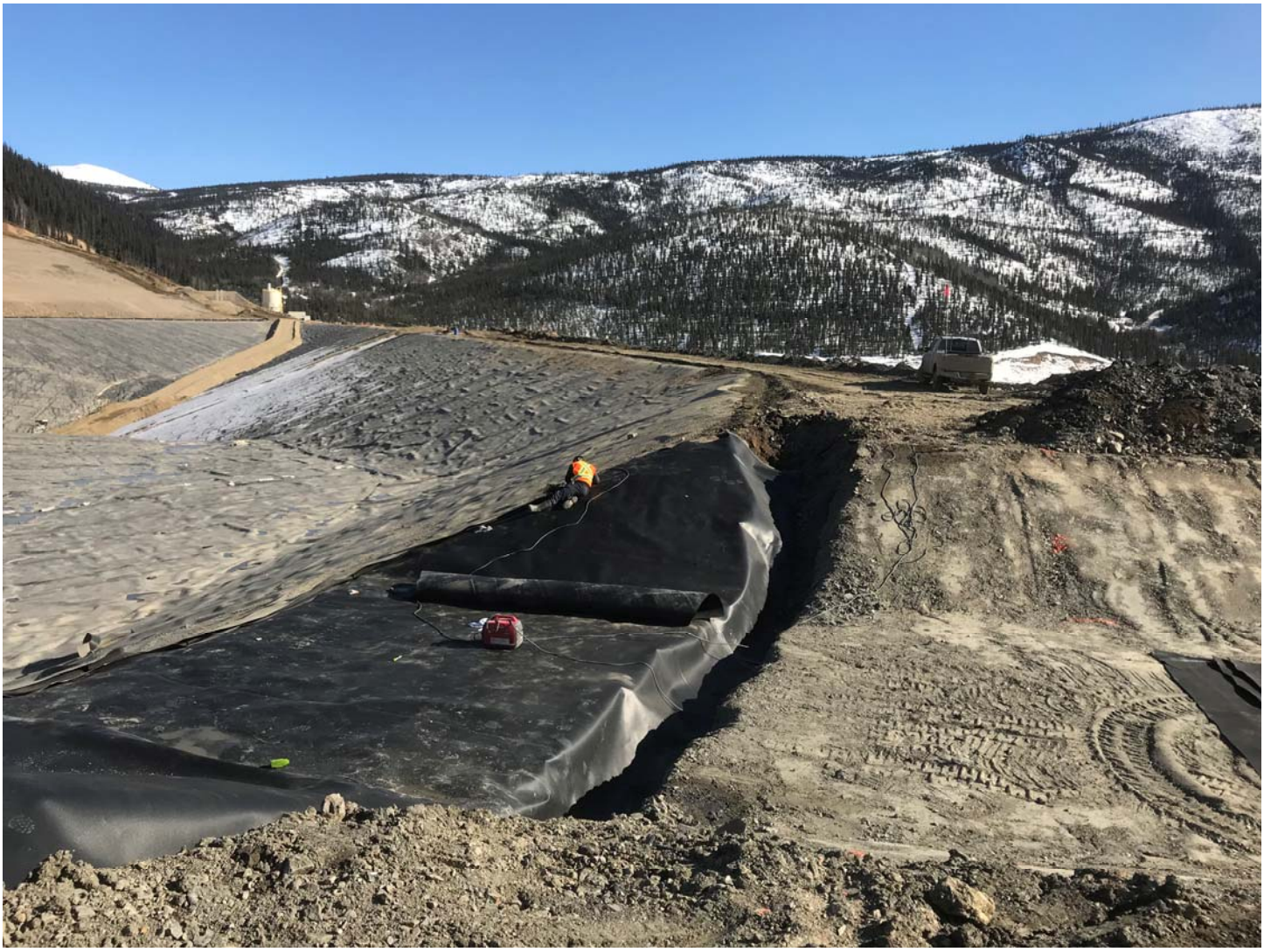


Photo 4: Spillway invert anchor trench.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	March 31, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 11°C to -5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Void space from an apparent fault was observed while cleaning out the previous blanket drain at the event pond northern face. (***Photo 1***) Once this void space was exposed flow in the area of the blanket concentrated from this location. The void was excavated but concentrated flow continued at the fault contact. BGC recommends installing a single pipe drain in this location. (***Photo 2***)
  - Pelly continued prepping the event pond surface for liner (***Photo 3***).
  - Ewing began culvert placement. (***Photo 4***).
  - Pelly continued work shaping the Phase 1 heap pad area (***Photo 5***).
  - BGC and JDS discussed placing an additional 1m bench over the event pond underdrains to add additional insulation over the winter. Adding a ramp to the west side of the vent pond for the pump casing and to provide additional insulation for the underdrains was also discussed. BGC will develop a conceptual drawing for this work.

- Observations and Recommendations (Open/Ongoing):
  - BGC will develop a cover for the Event Pond underdrain outlet to reduce the change of the outlet freezing and backing up water into the underdrain system.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Void observed while clearing the blanket drain on the northern portion of the event pond.



Photo 2: Excavation of blanket drain on north side of pond.

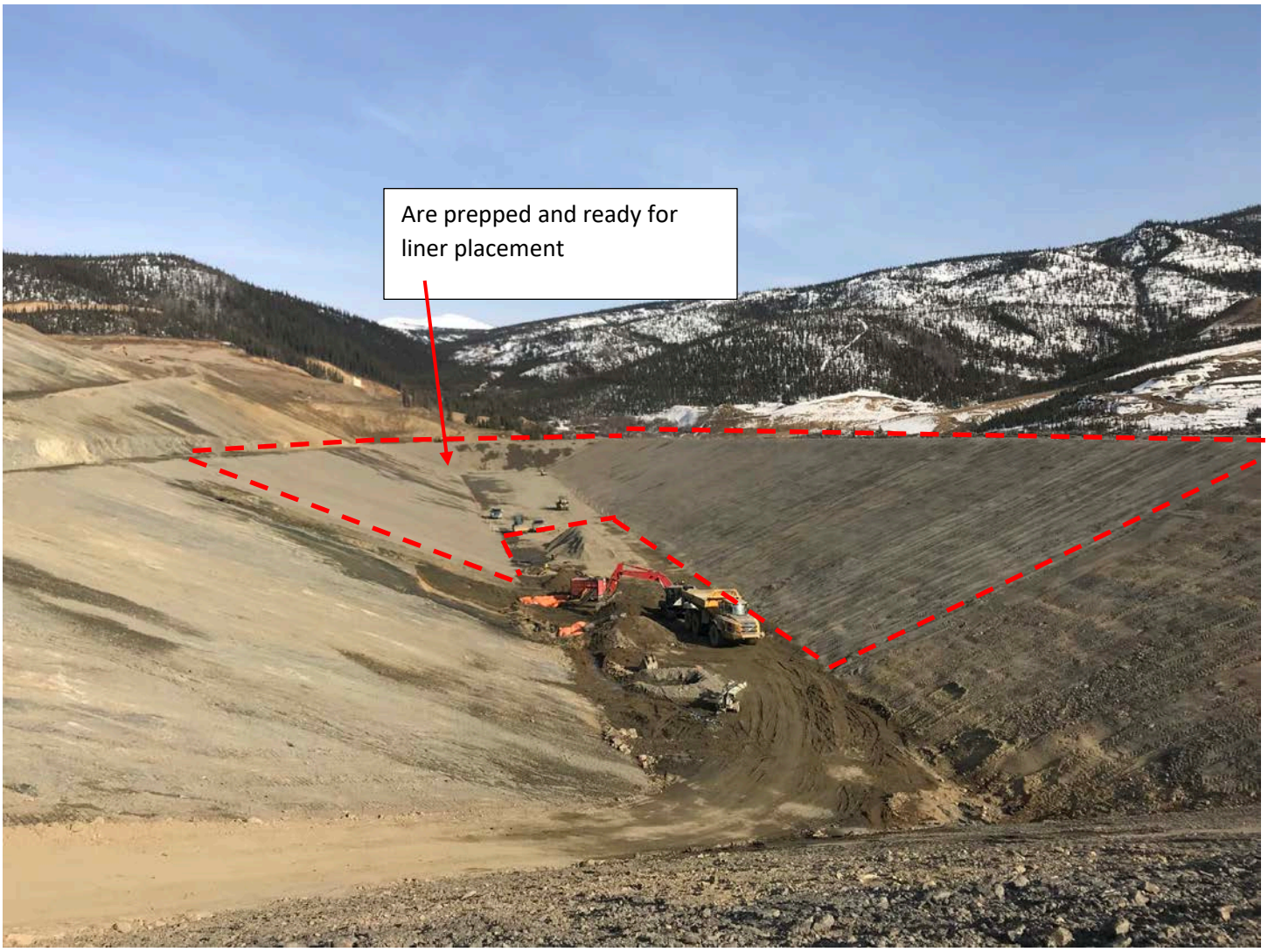


Photo 3: Surface prep at the Event Pond.



Photo 4: Culvert Placement.



Photo 5: Surface shaping at the HL Phase 1 area.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 16, 2019
Construction:	JDS Mining	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan		
Weather:	Clear 6ºC to -4ºC		

Summary and Observations

- Summary and Observations:
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HL Pad.
  - Layfield continued installing liner in the Event Pond. (***Photo 1***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 2***). Rockfill was used in portions to fill areas.
  - Work installing the monitoring wells continued. A detailed daily report was provided by Robin Bruce (BGC) to Steven Wilbur (Victoria Gold).
  - Water was pumped from the PLS sump to the exfiltration sump at the toe of the embankment. The exfiltration sump was overwhelmed by the flow so pumping was stopped until tomorrow when a diversion from the sump could be completed.
  - Once water levels in the LDRS are below the PLS sump liner the leak test will begin. A technical summary and discussion of observations was provided to JDS.
- Recommendations:
  - None

1) QA/QC Results:

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - o Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Safety Issues: None.



Photo 1. Liner installation at the event pond.



Photo 2. Shaping at the Phase 1 heap leach.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 1, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 13ºC to -5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued installing drains at the event pond. (***Photo 1, 2, 3***).
  - Layfield began installing GCL. (***Photo 4***).
  - Ewing continued installation of culverts at the spillway invert. (***Photo 5***). Pipe spacing is close so only hand tamping compaction is possible between culverts. However, hand tamping is done properly and good compaction is being achieved. Culverts appear level per measurement with a spirt level. Connections between culverts appear to be tight. Ewing has stated that they will begin providing QC comments in their daily report starting April 2.
  - Pelly continued work shaping the Phase 1 heap pad area (***Photo 6***).
  - BGC visited the quarry that will produce ODF material near the Eagle Pit. The visit was conducted with Stuart Harris with Victoria Gold. The area delineated for ODF production form the surface appears to be predominantly weak and composed of either highly altered and weak granodiorite and metasediments, moderately weak silicified metasediments, with some stronger granodiorite that appears partially silicified. Producing clean ODF that meets the specifications or that doesn't produce a lot of waste may be difficult. BGC will develop a summary of the observations on April 2. (***Photo 7***)

- Observations and Recommendations (Open/Ongoing):
  - BGC will develop a cover for the Event Pond underdrain outlet to reduce the change of the outlet freezing and backing up water into the underdrain system.
  - BGC and JDS discussed placing an additional 1m bench over the event pond underdrains to add additional insulation over the winter. Adding a ramp to the west side of the vent pond for the pump casing and to provide additional insulation for the underdrains was also discussed. BGC will develop a conceptual drawing for this work
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Drain installation at the Event Pond.



Photo 2: Installation of drain at the Event Pond.



Photo 3: Connection for north slope Event Pond drain and underdrain.



Photo 4: GCL placement at the Event Pond.



Photo 5: Culvert installation at the emergency spillway invert.



Photo 6: Shaping within the Phase 1 footprint continued.

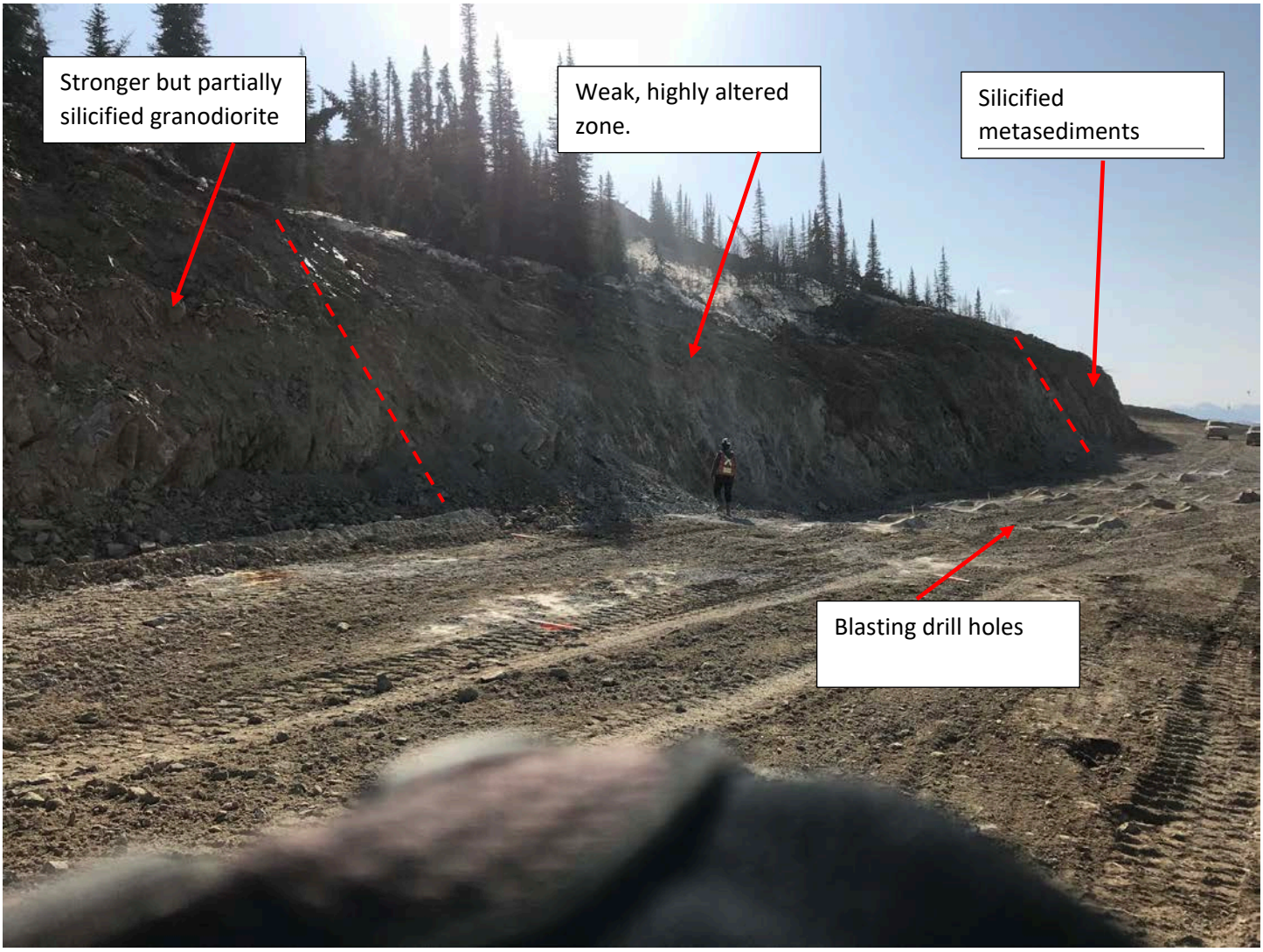


Photo 7: ODF quarry area near the Eagle Gold pit.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 2, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 6ºC to -6ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly completed the additional drains in the Event Pond. (***Photo 1***).
  - Layfield continued installing liner. (***Photo 2***).
  - Ewing continued installation of culverts at the spillway invert. (***Photo 3***). Pipe spacing is close so only hand tamping compaction is possible between culverts. However, hand tamping is done properly and good compaction is being achieved. Culverts appear level per measurement with a spirt level. Connections between culverts appear to be tight. Ewing has stated that they will begin providing QC comments in their daily report starting April 2. However, BGC did not receive a daily report or QC observations.
  - Pelly continued work shaping the Phase 1 heap pad area (***Photo 4***).
  - BGC sent a summary of observations made during the visit to the potential ODF quarry near the Eagle Gold Pit to JDS and Victoria Gold's Geology department.
  - BGC provided a conceptual drawing and guidance on additional measures to protect the drains in the event pond.
  - BGC provided a revised instrumentation figure based on as-built construction.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Pelly covering the drains on the north side of the event pond.



Photo 2: Installation of liner on the east side of the event pond.



Photo 3: Installing spillway culverts.



Photo 4: Pelly shaping the west side of the Phase 1 heap area.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 3, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -5ºC to -11ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond (***Photo 1***).
  - Layfield continued installing liner. (***Photo 2***). High winds slowed work today.
  - Ewing continued installation of culverts at the spillway invert. (***Photo 3, 4***). Material above the culverts was being compacted with a jumping jack. QC testing showed moisture at 0% and compaction at 85% proctor on the first 30cm lift. A second 30m had already been partially placed (about 75% complete). BGC allowed the second lift to be spread and tomorrow we will attempt to wet the material in place before attempting compaction again, if temperatures allow.
  - Pelly continued work shaping the Phase 1 heap pad area.
  - Victoria Gold Geology reported that an attempt to produce ODF from the source near the Eagle Gold pit will move forward. After the blast a test run will be produced.
  - Robin Bruce with BGC arrived on site to assist with piezometer and monitoring well installation. Midnight Sun drilling was delayed and is not expected to arrive at the site until tomorrow.
  - JDS explained that they plan to run two utility pipes (8" HDPE) across the spillway invert above the culverts in case the client needs a utility corridor in the future. The pipes would be booted to the liner. BGC asked that the utility pipes be caped when not in use and sealed when in use. Although these pipes are relatively small and located above the top of the culverts BGC is not sure if the addition of these pipes will be an issue with the regulator. (***Figure 1***)

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report. No QC tracking or daily reports have been provided to BGC yet. Tetra Tech is performing density testing for the fill.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Sand placement in the Event Pond.



Photo 2: Liner installation.



Photo 3: Compaction at the spillway invert.



Photo 4: Density testing at the spillway invert.

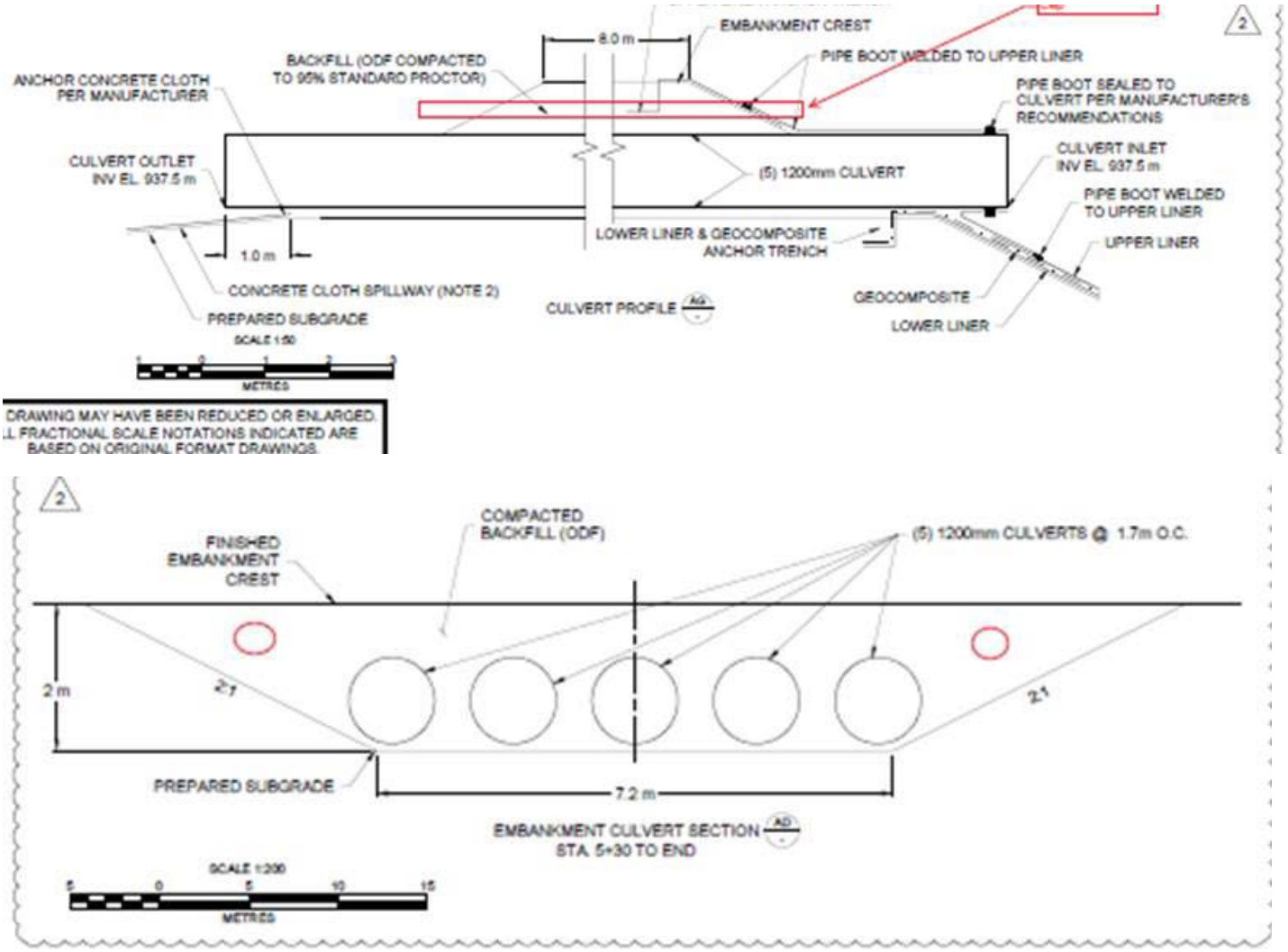


Figure 1: 8” utility corridor pipe layout as explained to BGC.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 4, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy -2°C to -14°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond and constructing the pipe bench (***Photo 1***).
  - Layfield continued installing liner. (***Photo 2***).
  - Material at the spillway culverts was not compacting properly due to low moisture. Ewing will attempt to wet the material prior to compacting. Due to below freezing temperatures the material could not be wetted so work in this area was suspended until Friday.
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 3***)
  - Midnight sun setup to drill VW piezometers on the embankment crest. 6m of P1 were drilled today. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Ewing will provide QC tracking for the spillway culvert installation in daily reports for the construction record. No daily reports have been delivered to BGC as of yet.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report. No QC tracking or daily reports have been provided to BGC yet. Tetra Tech is performing density testing for the fill.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Sand placement and pipe bench construction at the Event Pond.



Photo 2: Liner installation.



Photo 3: Phase 1 heap pad foundation shaping.

Photo 4: Density testing at the spillway invert.



Photo 4: Midnight sun setting up for drilling.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 5, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 0ºC to -12ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond and constructing the pipe bench (***Photo 1***).
  - Layfield continued installing liner. (***Photo 2***).
  - Material at the spillway culverts was not compacting properly due to low moisture. Ewing will attempt to wet the material prior to compacting. Due to below freezing temperatures the material could not be wetted so work in this area was suspended until it warms.
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 3***)
  - Midnight Sun completed VWP-1 to 55m. (***Photo 4***)
  - Pelly delivered RFI-048 related to the cut wall north of the spillway.

- Observations and Recommendations (Open/Ongoing):
  - Ewing will provide QC tracking for the spillway culvert installation in daily reports for the construction record. No daily reports have been delivered to BGC as of yet.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report. No QC tracking or daily reports have been provided to BGC yet. Tetra Tech is performing density testing for the fill.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Sent March 21, 2019. Informal response sent by BGC for event pond. Additional topography required to complete spillway underdrain design.

Safety Issues: None this shift.



Photo 1: Sand placement and pipe bench construction at the Event Pond.



Photo 2: Liner installation.



Photo 3: Phase 1 heap pad foundation shaping.



Photo 4: Midnight Sun installing piezometer on the embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 6, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 3ºC to -4ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond and constructing sump (***Photo 1***).
  - A small area of underdrain geotextile was uncovered during excavation in the Event Pond. Pelly is in the process of patching and covering it again.
  - Layfield continued installing liner. (***Photo 2***).
  - Material at the spillway culverts was not compacting properly due to low moisture. Ewing will attempt to wet the material prior to compacting. Due to below freezing temperatures the material could not be wetted so work in this area was suspended until it warms.
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 3***) BGC inspected the east side of the Phase 1 pad and will provide Pelly and JDS a short report discussing which areas require sand placement.
  - Midnight Sun completed VWP-2 to 35m. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - Ewing will provide QC tracking for the spillway culvert installation in daily reports for the construction record. No daily reports have been delivered to BGC as of yet.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report. No QC tracking or daily reports have been provided to BGC yet. Tetra Tech is performing density testing for the fill.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Open. Received March 21, 2019. Informal response and design sent by BGC for event pond. Underdrain design complete, in internal review.
CC204-RFI-049	Spillway cut modification.	Open. Received April 6.

Safety Issues: None this shift.

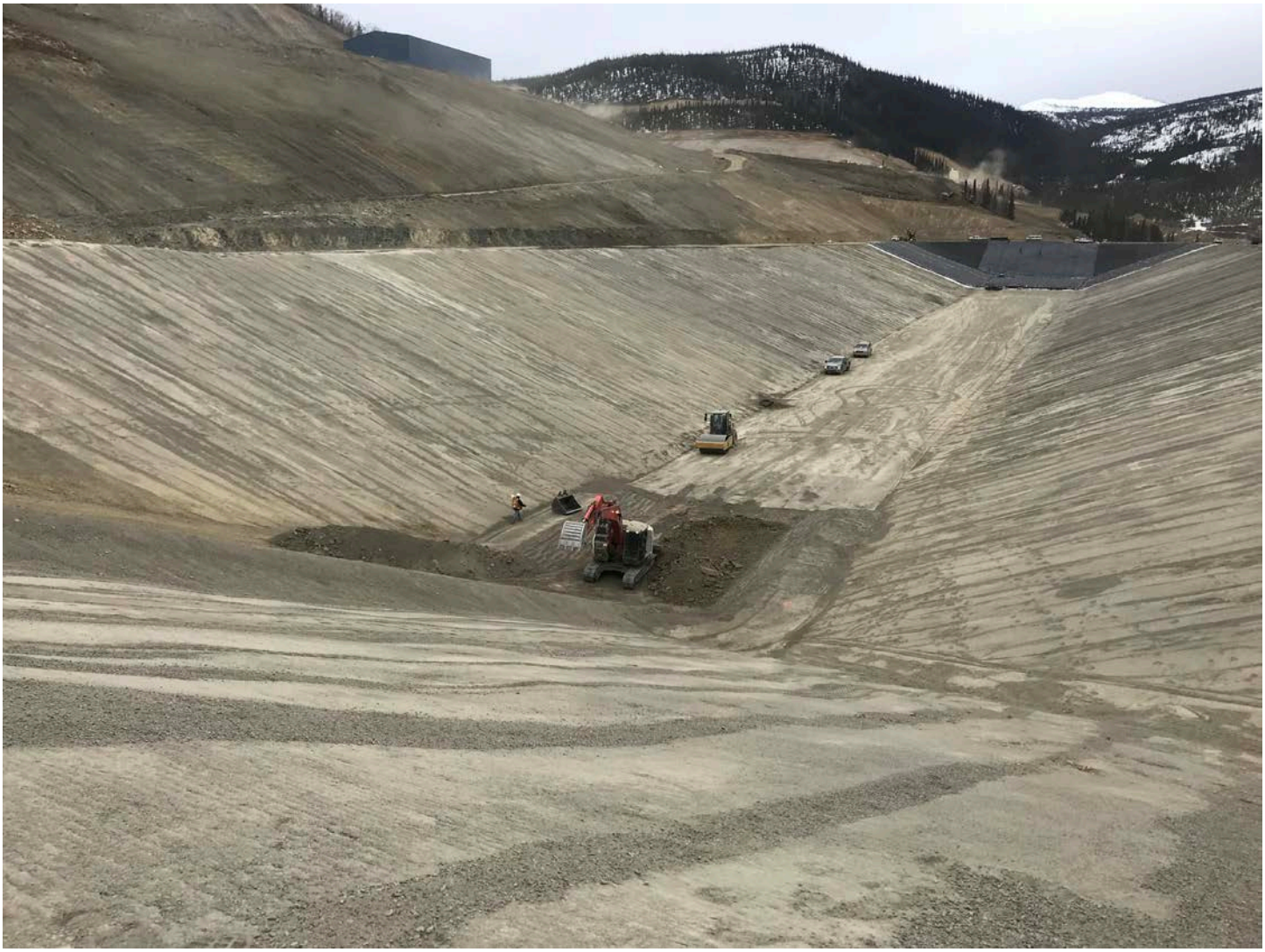


Photo 1: Sand placement and pipe bench construction at the Event Pond.



Photo 2: Liner installation.



Photo 3: Phase 1 heap pad foundation shaping.



Photo 4: Midnight Sun installing piezometer on the embankment.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 7, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy some snow 4°C to -5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond and constructing sump (***Photo 1***).
  - Layfield continued installing liner. (***Photo 2***).
  - Material at the spillway culverts was not compacting properly due to low moisture. Ewing will attempt to wet the material prior to compacting. Due to below freezing temperatures the material could not be wetted so work in this area was suspended until it warms.
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 3***) BGC inspected the east side of the Phase 1 pad and will provide Pelly and JDS a short report discussing which areas require sand placement.
  - Midnight Sun completed VWP-3 and the boring for the inclinometer. (***Photo 4***)
  - Ewing caught up on all missing daily reports and QC tracking.
  - BGC delivered a summary of what will be required for subgrade prep in the eastern portion of the Phase 1 heap pad. (***Photos 5 and 6***). Reject sand is not likely needed over the entire surface, however, hard surfaces that can cause stress in or puncture the liner should be improved.
  - BGC delivered responses to CC204-RFI-048 and 49. BGC also provided BGC-RFI-033 which discusses the construction of the event pond underdrain winter protection.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing is providing QC monitoring and reporting for construction of the spillway invert in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
CC204-RFI-048	Additional event pond/spillway underdrains.	Closed
CC204-RFI-049	Spillway cut modification.	Closed.
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Event Pond sump.



Photo 2: Liner installation.



Photo 3: Phase 1 heap pad foundation shaping.



Photo 4: Midnight Sun installing piezometer on the embankment.



Photo 5: Midnight Sun installing piezometer on the embankment



Photo 6: Midnight Sun installing piezometer on the embankment

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 8, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 10°C to -1°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond and constructing sump (***Photo 1***).
  - Layfield continued installing liner in the Event Pond.
  - Ewing resumed construction at the spillway culverts. Ewing achieved density by wetting the construction material to approximately 2% moisture, using 15cm lifts, and 4 passes (ie 4 passes forward and 4 passes backwards) with a plate tamper. This is the method that will be used construct the rest of the spillway. Ewing may try to reduce the number of passes by wetting the material more (optimal moisture is 6%). However, if this is done density would have to shown to be met via Tetra Tech's nuke gauge testing. (***Photo 2 and 3***)
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 4***) BGC inspected the east side of the Phase 1 pad and will provide Pelly and JDS a short report discussing which areas require sand placement.
  - Midnight Sun completed the inclinometer. (***Photo 5***) Midnight Sun began the monitoring wells in Dublin Gulch. (***Photo 6***) Steve Wilber and Roy Morlan visited the drilling. By end of day approximately 10m had been drilled, 3m in over burden, approximately 3m-7m bgs in weathered bedrock, and approximately 7m -10m bgs in more competent bedrock. Since the drill uses water it is difficult to estimate where groundwater was first encountered. However, from oxidation levels, some core moisture, and lithology described in a 2010 boring drilled near this hole we estimate GW is at about 4m bgs. We pulled casing approximately 1m from the bottom of the hole to expose more of the formation and left the hole overnight to gauge recharge/drainage. Water levels measured in the hole at the end of day today were 6.2m bgs.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing is providing QC monitoring and reporting for construction of the spillway invert in their daily report. No work performed yesterday so no reports received today.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Event Pond sump.



Photo 2: Ewing compacting spillway invert fill.



Photo 3: Spillway culvert fill compaction testing.



Photo 4: Shaping in the Phase 1 heap pad area.



Photo 5: Drilling inclinometer at embankment.



Photo 6: Drilling monitoring wells in Dublin Gulch.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 9, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 11°C to -4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued placing sand at the Event Pond (***Photo 1***).
  - Layfield continued installing liner in the Event Pond.
  - Ewing completed construction at the spillway culverts. (***Photo 2***)
  - Pelly continued work shaping the Phase 1 heap pad area. (***Photo 3***).
  - Work on the monitoring wells was put on hold until Midnight Sun delivers coring attachments for the sonic rig to site.

- Observations and Recommendations (Open/Ongoing):
  - None
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Ewing will provide QC monitoring and reporting for construction of the spillway invert in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Event Pond sump.



Photo 2: Culvert construction.



Photo 3: Shaping in the Phase 1 heap pad area.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 10, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 9ºC to -2ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain.
  - Layfield continued installing liner in the Event Pond.
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 1***).
  - Work on the monitoring wells was put on hold until Midnight Sun delivers and RC rig to the site.
  - JDS began pumping water into the PLS sump for the hydrostatic head test.
  - The piezometers installed in the embankment were gauged today.
    - P-1 (Drilled 55m below crest into the bedrock foundation) measured water at 46.5m below top of crest. Contact between embankment fill and subgrade in this location is approximately 40m bgs.
    - P-2 (Drilled 35m below crest within the embankment fill) was dry.
    - P-3 (Drilled 25m below crest within the embankment fill) was dry.
  - Water was gauged in the LDRS instrument casing. Water in PLS pond was 915.8m. Water level in the LDRS casing was 916.6m.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Phase 1 heap pad area.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 11, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny 11ºC to -3ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain (***Photo 1***).
  - Layfield continued installing liner in the Event Pond. (***Photo 2***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 3 and 4***). Rockfill was used in portions to fill areas. Rockfill was placed in lifts less than 0.9m thick and compaction met the method spec for the fill. Liner bedding sand was also spread around the center drainage which was also compacted per specifications.
  - Work on the monitoring wells resumed. Midnight sun will use a small RC rig to drill the deeper wells. Shallow and deep wells will be installed as separate completions about 6m apart from each other. Four shallow wells were drilled today.
  - JDS continued pumping water into the PLS sump for the hydrostatic liner test. (***Photo 5***)
  - Water was gauged in the LDRS instrument casing. Water levels in the PLS provided by JDS and LDRS measured by BGC are provided below.

Date	PLS Water Elevation (m)	LDRS Water Elevation (m)
4-10-19	915.9	916.6
4-11-19	916.6	916.9

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.

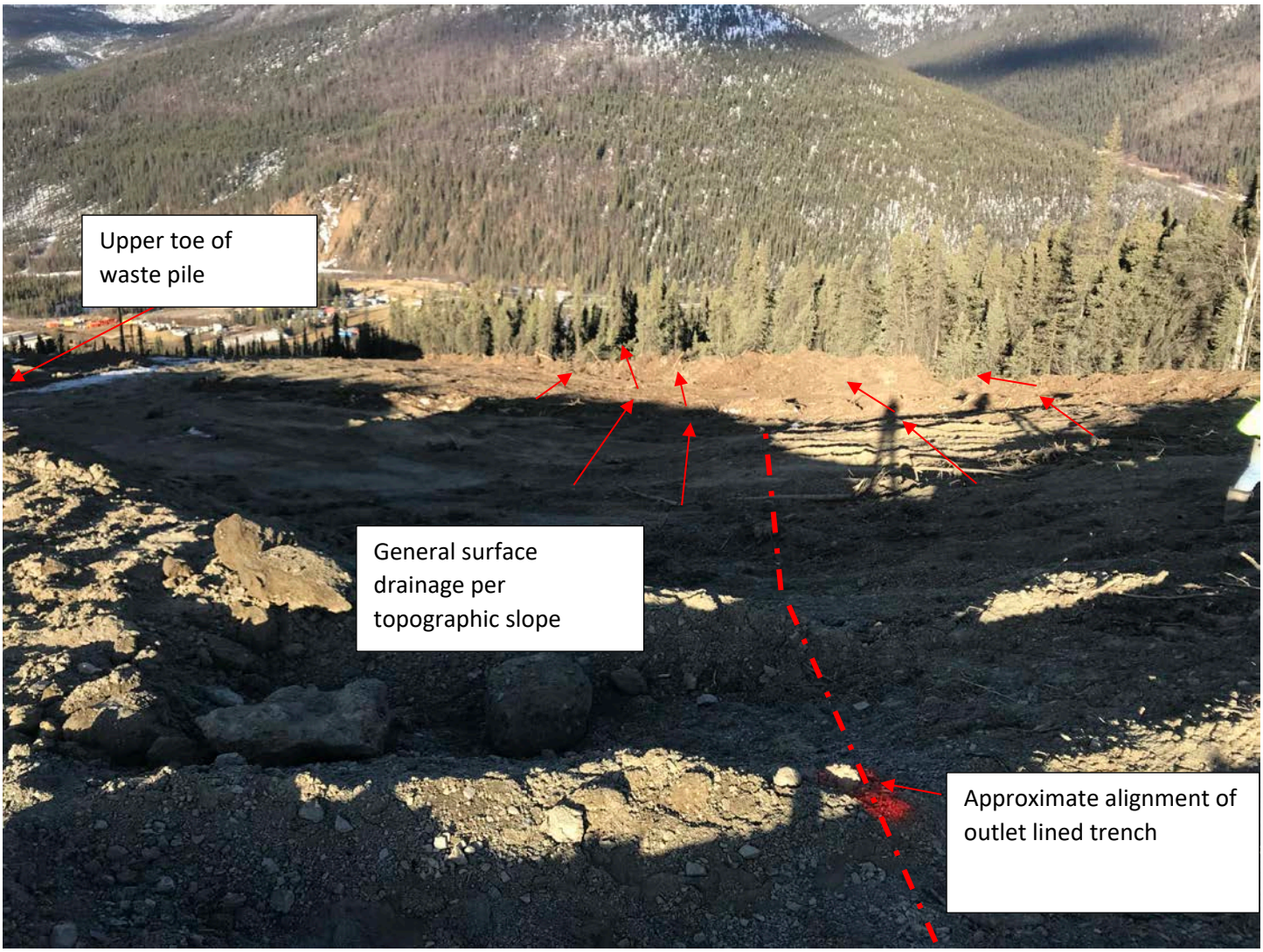


Photo 1: Spillway underdrain outlet.



Photo 2: Liner installation at the Event Pond.



Photo 3: Reject sand spread and packed over west Phase 1 Heap Pad slope.



Photo 4: Rockfill spread and compacted on the east side of the Phase 1 Heap Pad area.

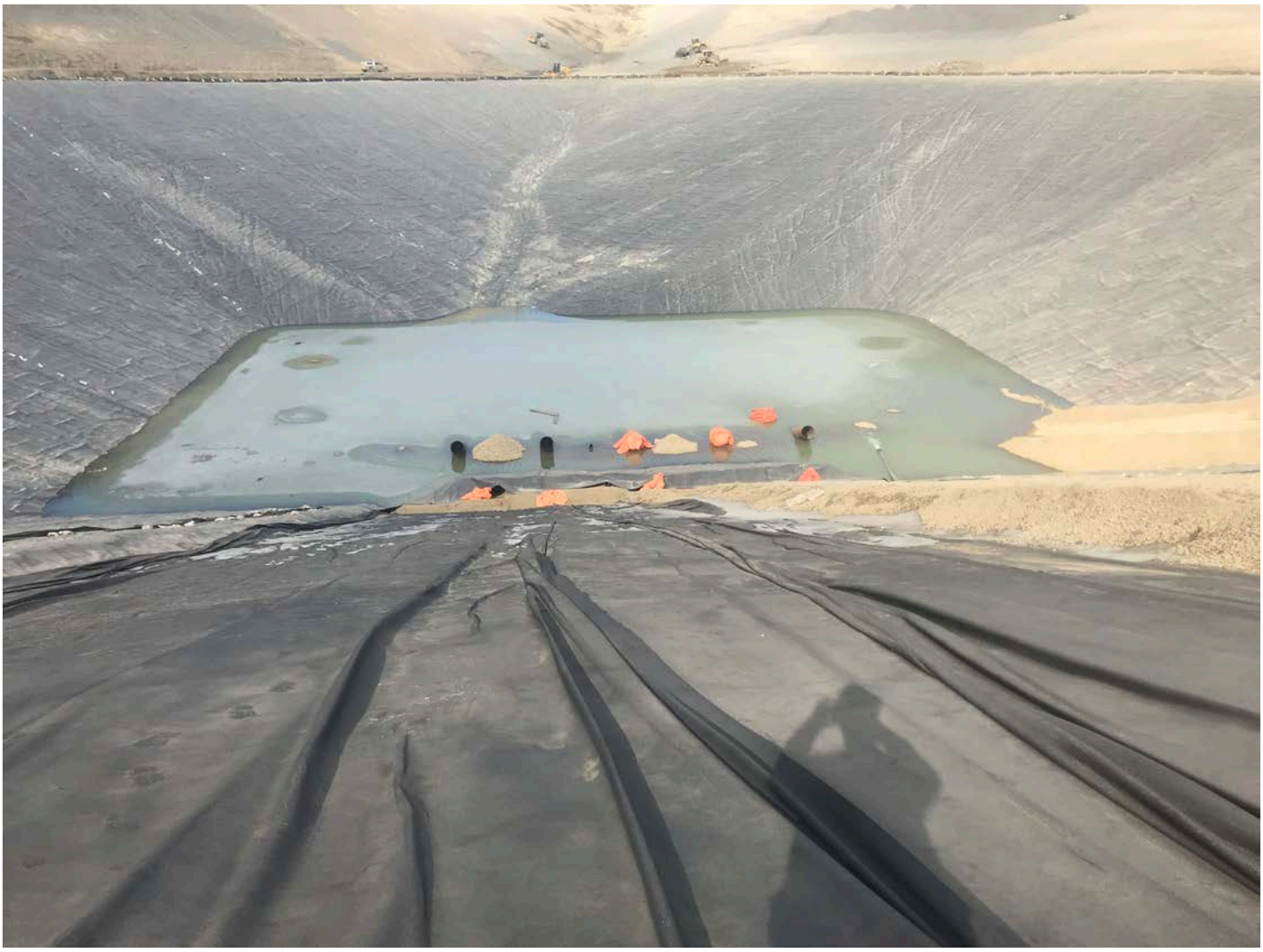


Photo 5: Sump being filled for liner leak test.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 12, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, light snow 8ºC to 1ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain (***Photo 1***).
  - Layfield continued installing liner in the Event Pond. (***Photo 2***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 3***). Rockfill was used in portions to fill areas. Rockfill was placed in lifts less than 0.9m thick and compaction met the method spec for the fill. Liner bedding sand was also spread around the center drainage which was also compacted per specifications. Temperatures over the past several days have been warmer and areas near the center valley have appeared wetter as ice in the bedrock melts.
  - Work installing the monitoring wells continued. Midnight Sun drilled two wells. A detailed daily report was provided by Robin Bruce (BGC) to Steve Wilbur (Victoria Gold).
  - At JDS's request, BGC, Victoria Gold Engineering, and JDS visited an area near pit road switchback 5 to perform preliminary evaluation for its use as a source of ODF. BGC delivered a summary of observations to JDS in field memorandum FM-12.
  - JDS continued pumping water into the PLS sump for the liner leak test. (***Photo 4***)
  - Water was gauged in the LDRS instrument casing. Water levels in the PLS provided by JDS and LDRS measured by BGC are provided below.

Date	PLS Water Elevation (m)	LDRS Water Elevation (m)
4-10-19	915.9	916.6
4-11-19	916.6	916.9
4-12-19	917.2	917.3

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Spillway underdrain construction.



Photo 2: Liner installation at the Event Pond.



Photo 3: Reject sand spread and packed over west Phase 1 Heap Pad slope.



Photo 4: Rockfill spread and compacted on the east side of the Phase 1 Heap Pad area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 13, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 7°C to -4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain (***Photo 1***). Material excavated from the underdrain is being used as grading fill at the HL Pad. The material meets the Technical Specification requirements for grading fill. Pelly removed ice sheets that built up over the winter prior to hauling the material to the HL pad.
  - Layfield continued installing liner in the Event Pond. (***Photo 2***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 3***). Rockfill was used in portions to fill areas. Rockfill was placed in lifts less than 0.9m thick and compaction met the method spec for the fill. Liner bedding sand was also spread around the center drainage which was also compacted per specifications.
  - Temperatures over the past several days have been warmer and areas near the center valley have appeared wetter as ice in the bedrock melts at the HL pad (***Photo 4***). Ice was delineated in this area in 2018. Thaw unstable ice rich soil was removed and thaw stable ice rick bedrock was left in place in this area per the Foundation Improvement Plan requirements. Seeps observed now are coming from upper, weathered bedrock layers and appear in the day when it is warm and stop at night. This is likely temporary flow due to ice melting and not groundwater. Pelly and BGC discussed how to deal with this area. Options included waiting until a couple days before liner is placed here, digging out soft material, then replacing it with dry material (rockfill, site grading fill, structural fill, or liner bedding material) to give a dense dry surface to place liner on. If JDS and Pelly would like to prep this area more in advance removing the affected area now then replacing it with drain rock and covering it with a dry fill material would also be acceptable. Details were discussed in the field.
  - Work installing the monitoring wells continued. Midnight Sun drilled two wells. A detailed daily report was provided by Robin Bruce (BGC) to Steve Wilbur (Victoria Gold).
  - Tetra Tech collected a sample of the ODF test runs produced from crushed granodiorite and metasediment rock. The samples will be run for moisture and gradation. The following preliminary observations were made at the test piles:
    - The material produced from granodiorite made a cleaner drain material. Material was hard. (***Photo 5***)
    - The material produced from the metasediments made a dirtier drain rock with more sand. Material was also hard. (***Photo 6***)
  - JDS completed pumping water into the PLS sump for the liner test. (***Photo 7***)
  - Water was gauged in the LDRS instrument casing. Water levels in the PLS provided by JDS and LDRS measured by BGC are provided below.

Date	PLS Water Elevation (m)	LDRS Water Elevation (m)
4-10-19	915.9	916.6
4-11-19	916.6	916.9
4-12-19	917.2	917.3
4-13-19	918.0 (per gauge lines in pond)	917.8

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
- Engineering:
  - None

QA/QC Results

- QA/QC:

- Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
- Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.

- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Spillway underdrain construction.



Photo 2: Liner installation at the Event Pond.



Photo 3: Reject sand spread and packed over west Phase 1 Heap Pad slope.

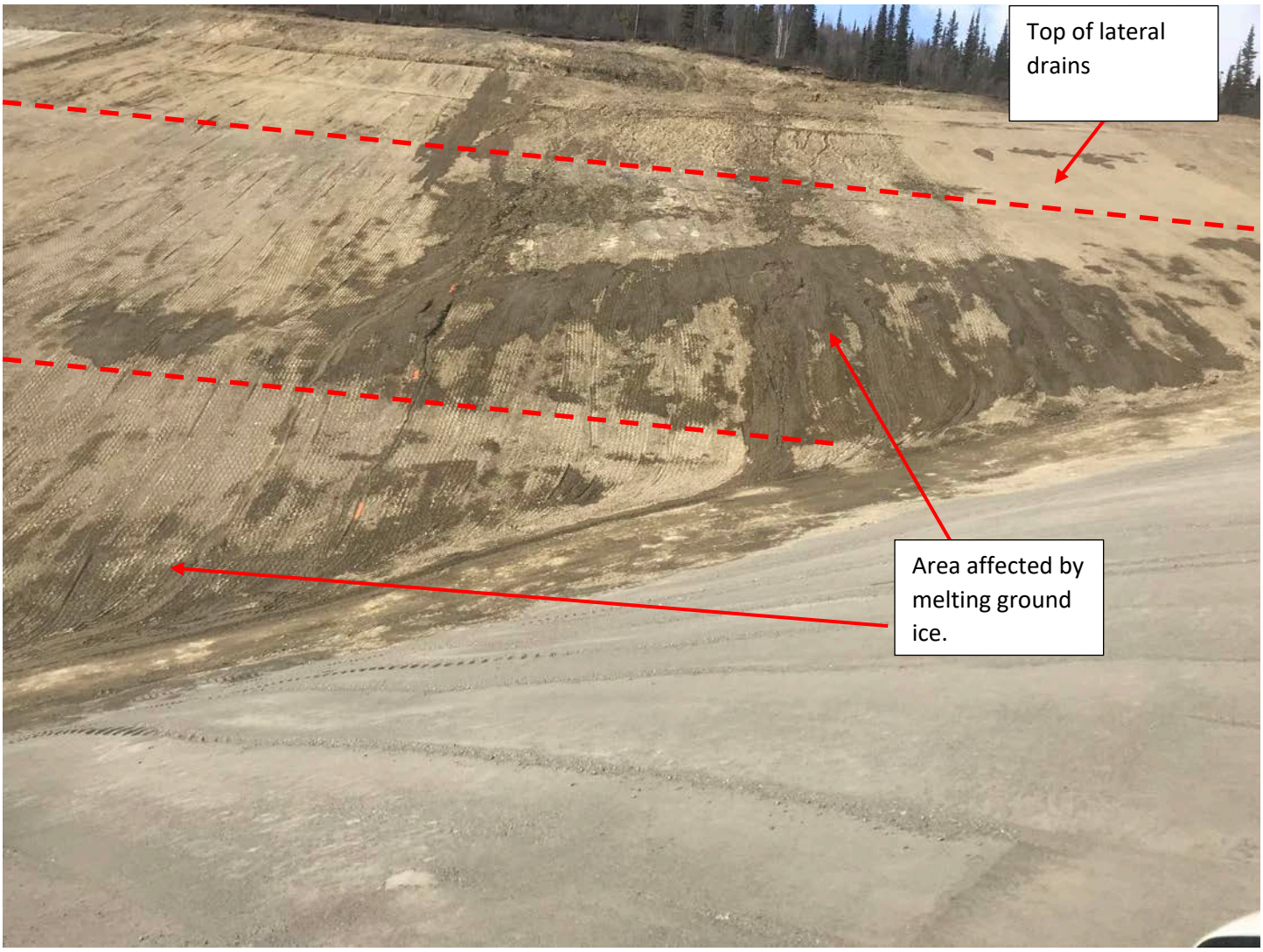


Photo 4: Wet area in the HL pad center valley.



Photo 5: ODF test run produced from granodiorite source.



Photo 6: ODF produced from predominantly metasediment source.



Photo 7: PLS pond filled to approximately 918m.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 14, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 8ºC to -3ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HL Pad.
  - Layfield continued installing liner in the Event Pond. (***Photo 1***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 2***). Rockfill was used in portions to fill areas.
  - Work installing the monitoring wells continued. Midnight Sun drilled one well. A detailed daily report was provided by Robin Bruce (BGC) to Steve Wilbur (Victoria Gold).
  - JDS began dewatering the LDRS sump. Water was gauged in the LDRS instrument casing during pumping. Once water levels in the LDRS are below the PLS sump liner the leak test will begin.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
  - Ice in bedrock that was delineated in the HL Phase I area in 2018 is melting and wetting the subgrade surface in some isolated, small areas. Pelly and JDS plan on deal with these areas before liner placement to ensure the liner is placed on a dense, dry surface.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Event Pond liner placement.



Photo 2: Phase 1 HL pad shaping.

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 15, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 9ºC to -4ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HL Pad.
  - Layfield continued installing liner in the Event Pond. (***Photo 1***)
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 2***). Rockfill was used in portions to fill areas.
  - Work installing the monitoring wells continued. A detailed daily report was provided by Robin Bruce (BGC) to Steve Wilbur (Victoria Gold).
  - JDS continued dewatering the LDRS sump. Water was gauged in the LDRS instrument casing during pumping. Once water levels in the LDRS are below the PLS sump liner the leak test will begin. A technical summary and discussion of observations is being provided to JDS.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
  - Ice in bedrock that was delineated in the HL Phase I area in 2018 is melting and wetting the subgrade surface in some isolated, small areas. Pelly and JDS plan on deal with these areas before liner placement to ensure the liner is placed on a dense, dry surface.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: Event Pond liner placement.



Photo 2: Phase 1 HL pad shaping.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 17, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Partly Cloudy 9ºC to -4ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HL Pad.
  - Layfield continued installing liner in the Event Pond.
  - Pelly continued work shaping and placing sand at the Phase I heap pad area. (***Photo 1***). Rockfill was used in portions to fill areas.
  - Work installing the monitoring wells is complete and the drill (Midnight Sun) demobilized. A detailed daily report was provided by Robin Bruce (BGC) to Steve Wilbur (Victoria Gold). Robin will air lift the installed wells over the next few days.
  - Snowmelt runoff is flowing onto the 990 bench in several places, most notably at Station 4+30. Pelly has a temporary sump for pumping the water to the underdrains. As the snowmelt will continue from the slope, BGC has recommended in RFI-BGC-034 that finger drain is extended to the nearest lateral to drain this water from the bench.
  - JDS continued dewatering the LDRS sump (***Photo 2***). Water was gauged in the LDRS instrument casing during pumping. Once water levels in the LDRS are below the PLS sump liner the leak test will begin. BGC recommended use of tracer dye as a possible method for leak location. JDS has ordered the dye (16 gallons red and 16 gallons green). BGC will develop a detailed procedure for dye testing. BGC has also talked to Leak Location Services (LLSI) about possible electrical methods for locating the leak under the ODF. LLSI will be providing a quote for a leak location survey for our consideration.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
  - Ice in bedrock that was delineated in the HL Phase I area in 2018 is melting and wetting the subgrade surface in some isolated, small areas. Pelly and JDS plan on deal with these areas before liner placement to ensure the liner is placed on a dense, dry surface.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.
BGC-RFI-034	Finger Drain on 990 Bench	Closed.

Safety Issues: None this shift.



Photo 1: HLF pad liner preparation.



Photo 2: HLF in-heap pond.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 18, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Overcast, Snow 7°C to -4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HL Pad.
  - Layfield continued installing liner in the Event Pond (***Photo 1***).
  - Pelly suspended work shaping and placing sand at the Phase I heap pad area due to snow.
  - JDS started dewatering the LDRS sump with the PLS pond at 917m to test and isolating the apparent leak in the liner (***Photo 2***). A flow gage will be used to meter the flow and a level-logger transducer is installed in the LDRS pipe to measure changes in head levels.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
  - Ice in bedrock that was delineated in the HL Phase I area in 2018 is melting and wetting the subgrade surface in some isolated, small areas. Pelly and JDS plan on deal with these areas before liner placement to ensure the liner is placed on a dense, dry surface.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.
BGC-RFI-034	Finger Drain on 990 Bench	Closed.
BGC-RFI-035	Event Pond Riser Pipes	Closed.

Safety Issues: None this shift.



Photo 1: Event pond.



Photo 2: HLF in-heap pond.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 19, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Overcast, Snow 8ºC to -1ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work shaping and placing sand at the Phase I heap pad area for liner preparation (***Photo 1***).
  - Pelly excavated and shaped the spillway and its underdrain. Material excavated from the underdrain is being used as grading fill at the HLF.
  - Layfield continued installing liner in the Event Pond (***Photo 2***).
  - JDS started pumping down the PLS pond from 917m to 915.5m to test and isolate the apparent leak in the liner. JDS found several holes and a cut in the liner at about 916.5m (***Photo 3***).
  - BGC provided guidance for path forward to complete the liner leak test. The general plan involves pumping the PLS pond down to top of ODF gravel (about 915.5m) to allow patching the holes and another visual inspection of the liner. The pond will then be raised back to 918m to re-test for liner leaks.

- Observations and Recommendations (Open/Ongoing):
  - BGC has helped field fit the spillway underdrain outlet with Pelly so that it will drain away from the Event Pond and infiltrate into the ground. The outlet was angled to also drain away from the waste pile located directly west of the Event Pond. However, JDS should also confirm that the outlet and general drain design meets their requirements for drainage away from the waste pile to ensure water discharge does not affect the stability of that structure.
  - Ice in bedrock that was delineated in the HL Phase I area in 2018 is melting and wetting the subgrade surface in some isolated, small areas. Pelly and JDS plan on deal with these areas before liner placement to ensure the liner is placed on a dense, dry surface.

- Engineering:
  - BGC prepared a revised design for the HLF underdrain transition to the monitoring vault (BGC-RFI-036).

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner in the event pond.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-033	Event Pond underdrain winter protection.	Open. Awaiting comment from JDS.
BGC-RFI-034	Finger Drain on 990 Bench	Closed.
BGC-RFI-035	Event Pond Riser Pipes	Closed.
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Open. Awaiting comment from JDS.

Safety Issues: None this shift.



Photo 1: HLF Liner Preparation.



Photo 2: Event pond.



Photo 3: Cut and holes in HLF in-heap pond liner

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 20, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 4°C to -3°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly started placing gravel and inclined riser pipes in the Event Pond LDRS sump. (***Photo 1***).
  - Layfield continued installing liner in the Event Pond. (***Photo 2***).
  - Pelly continued installing the HLF spillway seep drain.
  - Pelly continued work shaping the Phase 1 heap pad area and preparing surface for liner installation.
  - JDS lowered the PLS pond level from 916.4m to 915.4m. Another hole was found (***Photo 3***) in the liner at about elevation 915.5m. The LDRS sump will now be pumped down again in preparation of a leak test. Layfield will be directed to patch the holes and perform detailed visual inspection and seam re-test (channel pressure) on seams in the lower in-heap pond. A final leak re-test will be performed at PLS pond elevation 918m once the holes are repaired.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF in-heap pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Open.

Safety Issues: None this shift.



Photo 1: Event pond LDRS sump.



Photo 2: Liner deployment at the event pond.



Photo 3: Hole in PLS liner at about 915.5m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 21, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Mostly Sunny 5°C to -2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued installing the HLF spillway seep drain (***Photo 1***).
  - Layfield continued installing liner in the Event Pond.
  - Pelly continued work shaping the Phase 1 heap pad area and preparing surface for liner installation.
  - JDS lowered the PLS pond level to 915.2m (***Photo 2***). The damaged liner at elevation 915.5m and 916.5 was patched by Layfield (***Photos 3 and 4***) in the liner at about elevation 915.5m. The LDRS sump head elevation was measured by transducer and was steady with the PLS pond level at 915.2m. The LDRS will be pumped down further in preparation for the liner leak test at PLS pond level 918.0m.
  - BGC discussed the emergency spillway re-design with Pelly. A field review revealed a few opportunities to optimize the installation of the lower portion of the spillway. BGC will work with Pelly to field fit the lower spillway while meeting the design intent.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Closed.

Safety Issues: None this shift.



Photo 1: HLF Spillway Seep Drain.



Photo 2: HLF In-Heap PLS Pond Sump.



Photo 3: Liner Repair at Elevation 916.5m in PLS Pond.



Photo 4: Liner Repair at Elevation 915.5m in PLS Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 22, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 7°C to 1°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield continued installing liner in the Event Pond.
  - Pelly continued work shaping the Phase 1 heap pad area and preparing surface for liner installation. Several small areas of ice rich material was removed from the subgrade (***Photos 1 and 2***).
  - JDS cleaned the installed liner surface in the PLS sump between elevations 915m and 918m to allow detailed inspection (***Photo 3***). No additional holes were found and a few deep scratches/dents were repaired. A leak test was performed by BGC at pond elevation 915m and passed. JDS started re-filling the PLS sump to 918m in preparation of the final liner leak test.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
  - BGC discussed the emergency spillway re-design with Pelly. A field review revealed a few opportunities to optimize the installation of the lower portion of the spillway. BGC will work with Pelly to field fit the lower spillway while meeting the design intent.
  -
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Closed.

Safety Issues: None this shift.



Photo 1: HLF Subgrade Preparation.



Photo 2: Ice Rich Soil Removed from HLF Subgrade.



Photo 3: Cleaning liner in PLS sump for inspection.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 23, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Snow 0ºC to -2ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield suspended liner work in the Event Pond due to snow (***Photo 1***).
  - Pelly continued work shaping the Phase 1 heap pad area and preparing subgrade and surface for liner installation. Rock fill from the ADR borrow is being placed and compacted as grading fill.
  - Pelly continued excavation of the main spillway.
  - Pelly worked on preparations for excavation of the emergency spillway. Organic material at the base of the spillway outlet was removed (***Photo 2***).
  - JDS continued re-filling the PLS sump to 918m in preparation of the final liner leak test.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
  - BGC discussed the emergency spillway re-design with Pelly. A field review revealed a few opportunities to optimize the installation of the lower portion of the spillway. BGC will work with Pelly to field fit the lower spillway while meeting the design intent.
  -
- Engineering:
  - None

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Closed.

Safety Issues: None this shift.



Photo 1: Event Pond looking West from crest.



Photo 3: Emergency Spillway (looking down from Event Pond crest).

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 24, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Partly Cloudy 6°C to -5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield resumed liner work in the Event Pond (***Photo 1***). Water is being pumped from the sump to allow placement of the geocomposite and top liner in the sump and northwest corner of the pond.
  - Pelly suspended work shaping the Phase 1 heap pad area and preparing subgrade and surface for liner installation due to snow and wet conditions.
  - Pelly continued excavation of the main spillway (***Photo 2***).
  - JDS continued re-filling the PLS sump to 918m in preparation of the final liner leak test (***Photo 3***).

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
  - BGC discussed the emergency spillway re-design with Pelly. A field review revealed a few opportunities to optimize the installation of the lower portion of the spillway. BGC will work with Pelly to field fit the lower spillway while meeting the design intent.

- Engineering:
  - BGC has been discussing the ODF sources with Victoria geologist Helena Kuikka. Several source areas with fairly competent rock conditions from the pre-production pit benches have been tested and approved. Given the variable geologic conditions, BGC is proposing a field testing procedure with correlation of field parameters (such as ISRM hardness) to lab results to allow pre-approval of source areas for ODF production without the need for specialized off-site lab testing. A field memo will be prepared to document the procedure.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Closed.

Safety Issues: None this shift.



Photo 1: Event Pond looking Southeast from crest.



Photo 2: Main Spillway (looking uphill to east).



Photo 3: HLF in-heap (PLS) pond sump with water level at 916.7m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 25, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 1°C to -11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield continued liner work in the Event Pond (***Photo 1***). Water is being pumped from the sump to allow placement of the geocomposite and top liner in the sump and northwest corner of the pond.
  - Pelly suspended work shaping the Phase 1 heap pad area and preparing subgrade and surface for liner installation due to snow and wet conditions. A finger drain was installed from the 990 bench down to the uppermost lateral drain (***Photos 2 and 3***).
  - Pelly continued excavation of the main spillway.
  - JDS continued re-filling the PLS sump to 918m in preparation of the final liner leak test. Pond elevation was 917.3m at 11:00 am.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
  - BGC discussed the emergency spillway re-design with Pelly. Pelly provided a proposed re-design of the lower portion of the spillway for BGC review.

- Engineering:
  - BGC has been discussing the ODF sources with Victoria geologist Helena Kuikka. Several source areas with fairly competent rock conditions from the pre-production pit benches have been tested and approved. Given the variable geologic conditions, BGC is proposing a field testing procedure with correlation of field parameters (such as ISRM hardness) to lab results to allow pre-approval of source areas for ODF production without the need for specialized off-site lab testing. A field memo will be prepared to document the procedure.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status
BGC-RFI-036	HLF Underdrain Transition to Monitoring Vault	Closed.

Safety Issues: None this shift.



Photo 1: Event Pond looking Southeast from crest.



Photo 2: Finger drain installation below 990 bench at HLF.



Photo 3: Finger drain installation below 990 bench at HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 26, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy -2°C to -13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield continued liner work in the Event Pond (***Photo 1***). The inclined riser pipes were booted to the liner at the crest of the pond.
  - Pelly resumed work shaping the Phase 1 heap pad area and preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway (**Photo 2**).
  - JDS continued re-filling the PLS sump to 918m in preparation of the final liner leak test. Pond elevation was 918.0 at 2:30pm. An initial reading for the leak test was taken by BGC.

- Observations and Recommendations (Open/Ongoing):
  - BGC is providing data reports and guidance related to the ongoing HLF PLS pond liner leak test via emails to the team. A field memo will be prepared to document the leak test once complete.
  - BGC discussed the emergency spillway re-design with Pelly. Pelly provided a proposed re-design of the lower portion of the spillway for BGC review.

- Engineering:
  - BGC has been discussing the ODF sources with Victoria geologist Helena Kuikka. Several source areas with fairly competent rock conditions from the pre-production pit benches have been tested and approved. Given the variable geologic conditions, BGC is proposing a field testing procedure with correlation of field parameters (such as ISRM hardness) to lab results to allow pre-approval of source areas for ODF production without the need for specialized off-site lab testing. A field memo will be prepared to document the procedure.
  - JDS, Pelly and BGC discussed the need for an ODF loadout pad at the southeastern corner of the HLF. A concept plan was developed to place ODF against the existing (eastern dam groin) to allow sufficient room for a working stockpile and loadout area. The PLS header pipe alignment would need to be slightly modified to accommodate this. JDS will develop a grading plan for BGC to review.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Event Pond looking east from crest.



Photo 2: Main spillway looking east.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 27, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Sunny 10°C to -2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield continued liner work in the Event Pond (***Photo 1***). The rub sheet was installed below the spillway.
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation (***Photo 2***).
  - Pelly continued excavation of the main spillway (**Photo 3**).
  - A small wet area below the spillway on the slope between the spillway bench and the event pond was walked with Pelly to discuss repair options (***Photo 4***). Frozen material was not found and the depth of wet material was less than 0.5m. Pelly plans to excavate to firm ground and replace with compacted rock fill.
  - Growth medium material was being spread across the HLF embankment face with dozers (***Photo 5***).
  - The final liner leak test for the HLF in-heap pond elevation at pond elevation 918.0 was completed. The 24-hour test passed.
  - JDS began pumping water from the PLS pond to the Event pond to prepare for the leak test.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  - JDS, Pelly and BGC discussed the need for an ODF loadout pad at the southeastern corner of the HLF. A concept plan was developed to place ODF against the existing (eastern dam groin) to allow sufficient room for a working stockpile and loadout area. The PLS header pipe alignment would need to be slightly modified to accommodate this. JDS will develop a grading plan for BGC to review.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Event Pond looking south from crest.



Photo 2: Phase 1 pad liner subgrade preparation.



Photo 3: Main spillway looking west.



Photo 4: Wet spot on slope below spillway bench.



Photo 5: Placement of growth medium on HLF embankment face.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 28, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Sunny 4°C to -10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Layfield completed liner work in the Event Pond.
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway.
  - A small wet area below the spillway on the slope between the spillway bench was excavated to firm dry ground (***Photo 1***). Frozen material was not found. Pelly plans replace with compacted rock fill.
  - Growth medium material was spread across the HLF embankment face with dozers (***Photo 2***).
  - JDS continued pumping water from the PLS pond to the Event pond to prepare for the leak test.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  - JDS, Pelly and BGC discussed the need for an ODF loadout pad at the southeastern corner of the HLF. A concept plan was developed to place ODF against the existing (eastern dam groin) to allow sufficient room for a working stockpile and loadout area. The PLS header pipe alignment would need to be slightly modified to accommodate this. JDS will develop a grading plan for BGC to review.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Excavation of unsuitable material on slope below spillway bench.



Photo 2: Growth medium spread on HLF embankment face.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 29, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Sunny 15ºC to -5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway.
  - Pelly began installing PLS pipework in the HLF sump (***Photo 1***).
  - Layfield started preparing for liner work in the Phase 1 pad area. Layfield stress tested liner seams in the in-heap pond area (***Photo 2***).
  - JDS continued pumping water from the PLS pond to the Event pond to prepare for the leak test.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  - JDS, Pelly and BGC discussed the need for an ODF loadout pad at the southeastern corner of the HLF. A concept plan was developed to place ODF against the existing (eastern dam groin) to allow sufficient room for a working stockpile and loadout area. The PLS header pipe alignment would need to be slightly modified to accommodate this. JDS will develop a grading plan for BGC to review.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Installation of PLS pipework in HLF sump.



Photo 2: Stress testing seams in HLF in-heap pond area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	April 30, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Sunny 15ºC to -5ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway.
  - Pelly began continued PLS pipework in the HLF sump (***Photo 1***).
  - Layfield started liner work in the Phase 1 pad area (***Photos 2 and 3***).
  - JDS completed pumping water from the PLS pond to the Event pond to prepare for the leak test. The pond elevation is 882.48m.
  - BGC installed a Geokon vibrating wire piezometer in the Event Pond LDRS to monitor the leak test. An initial reading was taken at 09:30.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  -

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Installation of PLS pipework in HLF sump.



Photo 2: Liner subgrade preparation and GCL and geomembrane placement at Phase 1 pad.

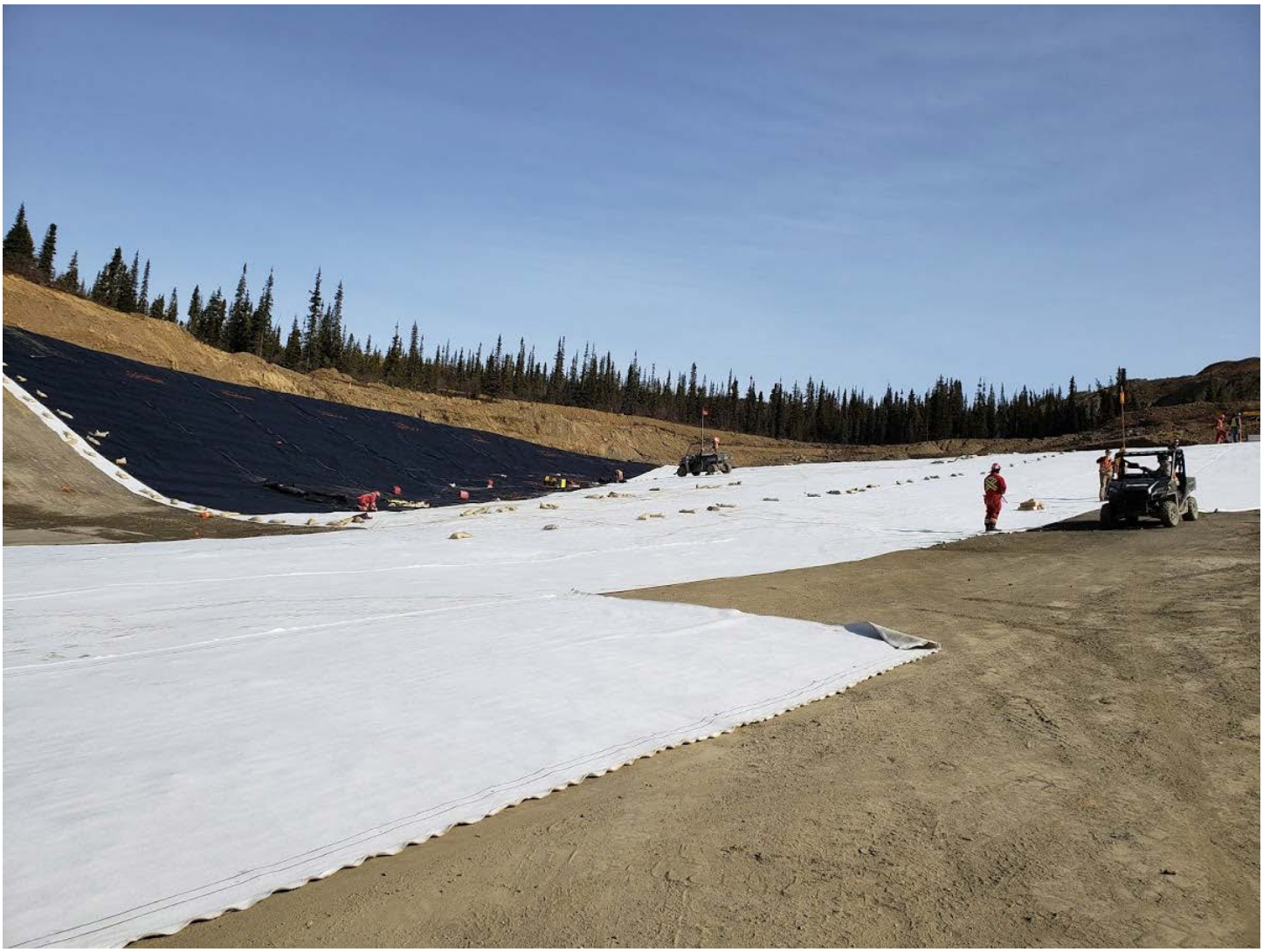


Photo 3: GCL and geomembrane placement at Phase 1 pad.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 1, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Sunny 15°C to -5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway.
  - Pelly continued PLS pipework in the HLF sump.
  - Layfield continued liner work in the Phase 1 pad area.
  - Troy left site.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  -

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 2, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny 8°C to -2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation.
  - Pelly continued excavation of the main spillway.
  - Pelly continued PLS pipework in the HLF sump.
  - Layfield continued liner work in the Phase 1 pad area.
  - Roy Morlan arrived on site.

- Observations and Recommendations (Open/Ongoing):

- Engineering:
  -

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 3, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny 5°C to -2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation. (***Photo 1***)
  - Pelly continued excavation of the main spillway and the Event Pond emergency spillway (***Photo 2***).
  - Pelly continued PLS pipework in the HLF sump. (***Photo 3***) Pelly also placed ODF in the sump. ODF was placed at a minimum 0.3m thickness using a small bobcat. Material was dumped from above by the bobcat and not pushed to ensure that the liner was not damaged. Pelly also used a spotter during placement. (***Photo 4***)
  - Layfield continued liner work in the Phase 1 pad area. (***Photo 5***)
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond. (***Photo 6***). Currently the discharge is not in a lined ditch, however, surface drainage appears to be away from the Event Pond fill and the waste pile and has minimal flow so it is not likely to cause issues in the short term. Since BGC did not design or oversee the waste pile construction JDS should verify that this discharge will not be an issue with the waste pile.

- Observations and Recommendations (Open/Ongoing):
  - None

- Engineering:
  - BGC is developing a field procedure memo for inspecting the ODF's durability.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Subgrade preparation in the Phase 1 heap pad area.



Photo 2: HLF spillway excavation.

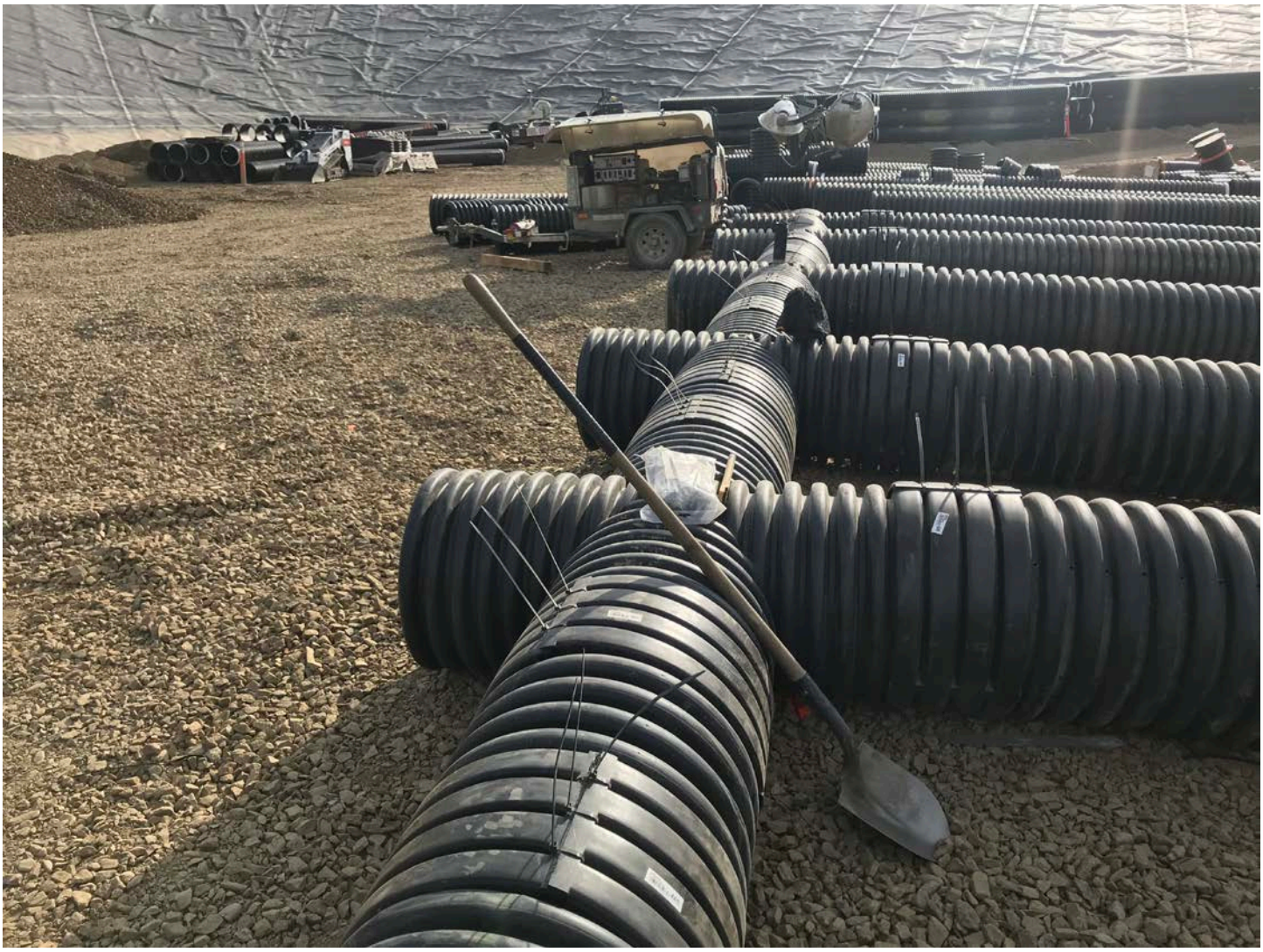


Photo 3: PLS pipework grid construction.



Photo 4: ODF placement in the PLS sump.



Photo 5: Liner placement in the Phase 1a heap pad.



Photo 6: Spillway seepage discharge.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 4, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Sunny 8°C to -1°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued work in the Phase 1 heap pad area preparing subgrade and surface for liner installation. (***Photo 1***) Touchup is needed in two approved areas of subgrade where traffic has caused rutting and exposure of jagged surfaces. (***Photo 2***)
  - Pelly continued excavation of the main spillway and the Event Pond emergency spillway (***Photo 3***). BGC and Pelly discussed installing a drain along the heap leach spillway to deal with water accumulation. (***Photo 4***)
  - Pelly continued PLS pipework in the HLF sump. (***Photo 5***)
  - Layfield continued liner work in the Phase 1 pad area. (***Photo 5***)

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond. Currently the discharge is not in a lined ditch, however, surface drainage appears to be away from the Event Pond fill and the waste pile and has minimal flow so it is not likely to cause issues in the short term. Since BGC did not design or oversee the waste pile construction JDS should verify that this discharge will not be an issue with the waste pile.

- Engineering:
  - BGC is developing a field procedure memo for inspecting the ODF's durability.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Subgrade preparation in the Phase 1 heap pad area.

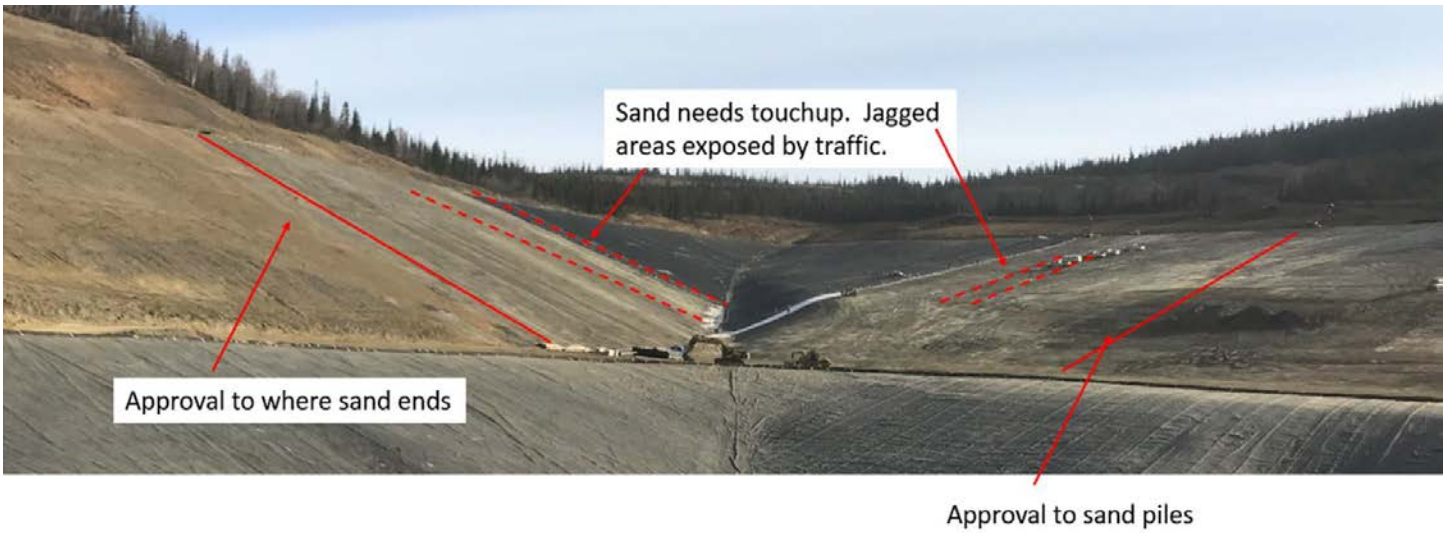


Photo 2: Ares where touch-up is needed



Photo 3: Excavation of the emergency spillway.



Photo 4: Portion of the seep not captured by existing underdrain.



Photo 5: Pipework and liner installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 5, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Snow 8ºC to 0ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - No prepping of the Phase 1 heap pad subgrade was completed today due to snow.
  - The spillway drain was extended about 4m to capture a new seep. (***Photos 1 and 2***)
  - Pelly continued excavation of the emergency spillway (***Photo 3***).
  - Pelly continued PLS pipework in the HLF sump. (***Photo 4***)
  - No liner was placed today due to snow.
  - Excavation to uncover the embankment underdrains continued. (***Photo 5***)
  - Field memo FM-014 was delivered to JDS and discusses a field procedure to track durability ODF produced from the pit.
  - BGC and JDS discussed procuring additional 1" threaded PVC pipe to make installation of the Pad Cell piezometers easier.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond. Currently the discharge is not in a lined ditch, however, surface drainage appears to be away from the Event Pond fill and the waste pile and has minimal flow so it is not likely to cause issues in the short term. Since BGC did not design or oversee the waste pile construction JDS should verify that this discharge will not be an issue with the waste pile.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad areas in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Subgrade preparation in the Phase 1 heap pad area.



Photo 2: Drain fill placement.



Photo 3: Excavation at the emergency spillway.



Photo 4: PLS piping installation.



Photo 5: Underdrain excavation at the toe of the embankment.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 6, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear, snow melt 14°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - No prepping of the Phase 1 heap pad subgrade was completed today due to snow melt.
  - Pelly continued excavation of the emergency spillway.
  - Pelly continued PLS pipework in the HLF sump. (***Photo 1***). Pelly also pumped snow melt water from the PLS sump work area.
  - No liner was placed today due to snow melt.
  - Excavation to uncover the embankment underdrains and to prepare the monitoring vault subgrade continued. Underdrain pipe outlets were exposed. No water was flowing from the closure pipe. Water was flowing from the west most underdrain pipe (connected to the west lateral and some finger drains) and from the east most pipe (connected to artesian source under the embankment). (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for construction of the Event Pond and Phase 1 heap pad fills in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Piping installation at the PLS.



Photo 2: Uncovered underdrains.

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 7, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear, snow melt 19°C to 1°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Prepping of the Phase 1 heap pad subgrade continued (***Photo 1***)
  - Pelly continued construction of the emergency spillway. (***Photo 2***)
  - Pelly continued PLS pipework in the HLF sump. (***Photo 3 and 4***).
  - Liner placement continued. (***Photo 5***) Areas where GCL was exposed and hydrated will covered with an additional layer of GCL. (***Photo 6***)
  - Work is progressing into an area of the Phase 1 heap pad on the east where subgrade is undulating. Undulating subgrade can cause void space under the liner if the liner is not buried before weather cools and the liner tightens. This can result in separation of seems or rips once a load is placed on the liner. The following suggestions have been made by BGC, Tetra Tech, and Layfield:
    - Undulations should be filled in create a flat surface to place liner on.
    - If liner is placed on undulating surfaces then it should be buried before weather cools and the liner tightens.
  - Excavation of for the monitoring vault foundation continued. (***Photo 7***) To densify the foundation for the vault JDS and Pelly plan to over excavate the subgrade, compact the subgrade using a min 6 ton compactor, then place about 1m of fill (either as a 1m lift or in 0.5m lifts depending on the compactor available).
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Pelly touching up areas on the west side of the Phase 1 heap pad.



Photo 2: Construction of the emergency spillway.



Photo 3: Piping in the PLS Sump.



Photo 4: Flanges have the proper amount of ODF between them and the liner.



Photo 5: Liner placement.



Photo 6: Hydrated GCL.



Photo 7: Monitoring vault excavation.

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 8, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear, PM Rain 20ºC to 3ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Prepping of the Phase 1 heap pad subgrade continued.
  - Pelly continued construction of the emergency spillway.
  - Pelly continued PLS pipework in the HLF sump. (***Photo 1***).
  - Pelly began adding ODF to east impoundment groin. The material was pushed in 1.5m thick lifts. Eventually this built up area may be used to transport heavy traffic. (***Photo 2***)
  - Liner placement continued. (***Photo 1***) After discussions with Troy, areas previously identified as hydrated by snow melt should be tested to determine if the internal structure of the GCL is stable or the GCL should be removed. After discussions with JDS and Layfield it was determined that the GCL will be removed.
  - Pelly filled in some undulating surfaces on the east side. Pelly will continue filling in undulating surfaces tomorrow.
  - Excavation of for the monitoring vault foundation continued. To densify the foundation for the vault JDS and Pelly plan to over excavate the subgrade, compact the subgrade using a min 6 ton compactor, then place about 1m of fill (either as a 1m lift or in 0.5m lifts depending on the compactor available).
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: PLS piping and liner installation above 940m.



Photo 2: ODF placement at HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 9, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear, AM Rain 17°C to 2°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Prepping of the Phase 1 heap pad subgrade continued.
  - Pelly completed PLS pipework in the HLF sump. (***Photo 1***). Backfill of pipework will begin tomorrow.
  - Pelly continued adding ODF to east impoundment groin. (***Photo 2***)
  - Liner placement continued. (***Photo 3***) A portion of GCL was left exposed to rain and had spotty areas of hydration. (***Photo 4***). Layfield removed the affected areas.
  - Excavation for the monitoring vault foundation continued. (***Photo 5***).
  - Pelly began excavating the anchor trench for the concrete cloth at the HL spillway (***Photo 6***)
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Completed PLS piping installation.



Photo 2: ODF placement at HLF.



Photo 3: Line placement.



Photo 4: Small spots along the bottom ¼ of the liner placed were hydrated. This area was replaced by dry material.



Photo 5: Monitoring vault foundation excavation.



Photo 6: Anchor trench excavation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 10, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, PM Rain 19°C to 7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Prepping of the Phase 1 heap pad subgrade continued. BGC approved the entire east side of the Phase 1 heap pad. There are small areas of touchup needed near the top and bottom where heavy equipment has dug down into the slope and pulled up large rocks. (***Photo 1***)
  - Backfill the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 2***).
  - Liner placement continued. (***Photo 1***).
  - An area of GCL in the center valley that was left exposed during snow and rain events was hydrated several days back. This area was removed today. The affected area was removed to dry GCL or GCL that was not fully hydrated. This work was observed by Tetra Tech and BGC to ensure all affected areas were removed. (***Photo 3 through 6***)
  - Excavation for the monitoring vault foundation continued.
  - Pelly continued excavating the anchor trench for the concrete cloth at the HL spillway
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.

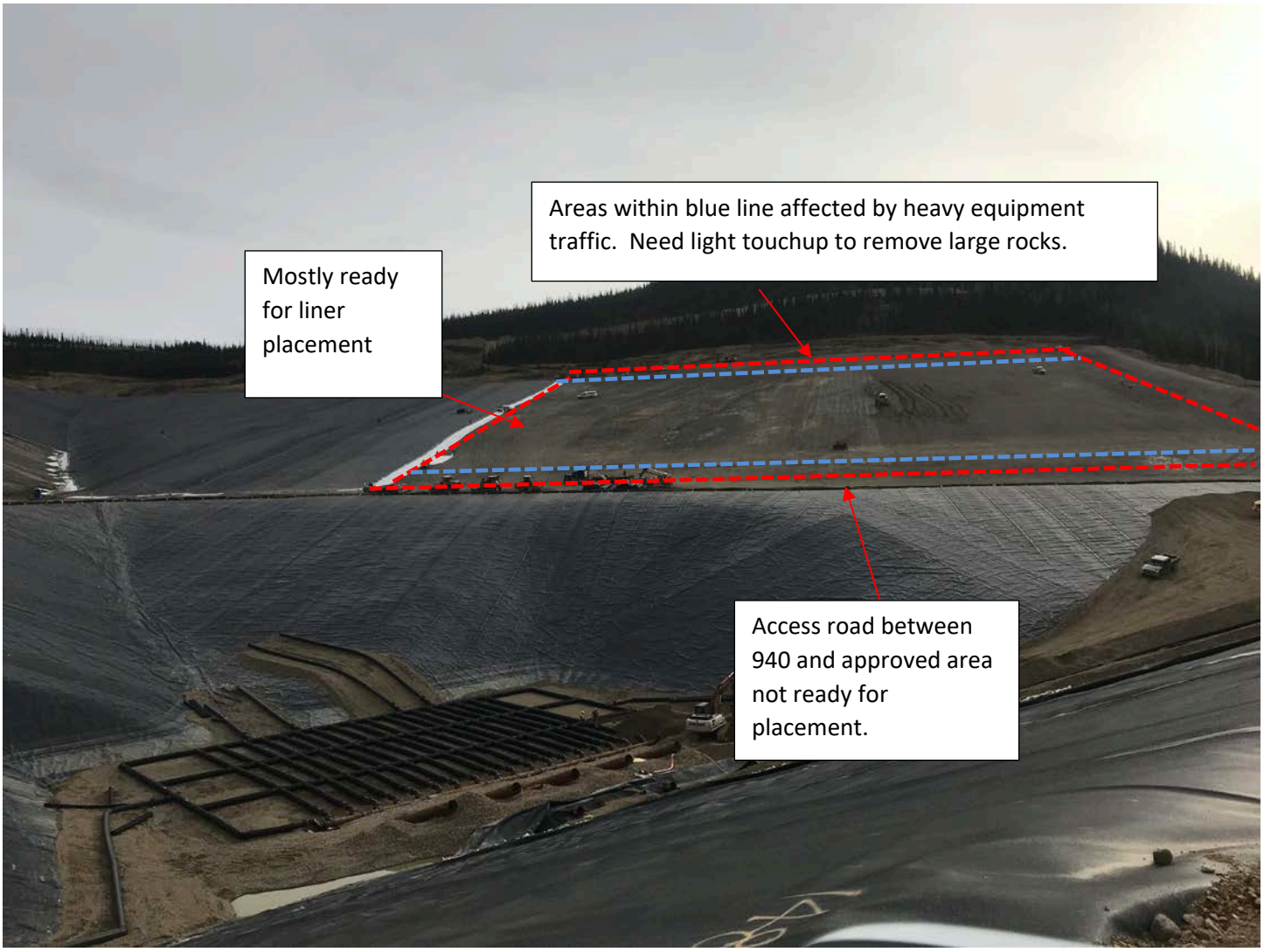


Photo 1: Completed PLS piping installation.



Photo 2: ODF placement in the PLS sump.



Photo 3: Removal of GCL Liner.



Photo 4: Removal of GCL under the HDPE liner that as affected by hydration.



Photo 5: Photo of hydrated GCL removed. Could be peeled some by hand with difficulty. Clay extruded when compressed. Slick cloth surface.

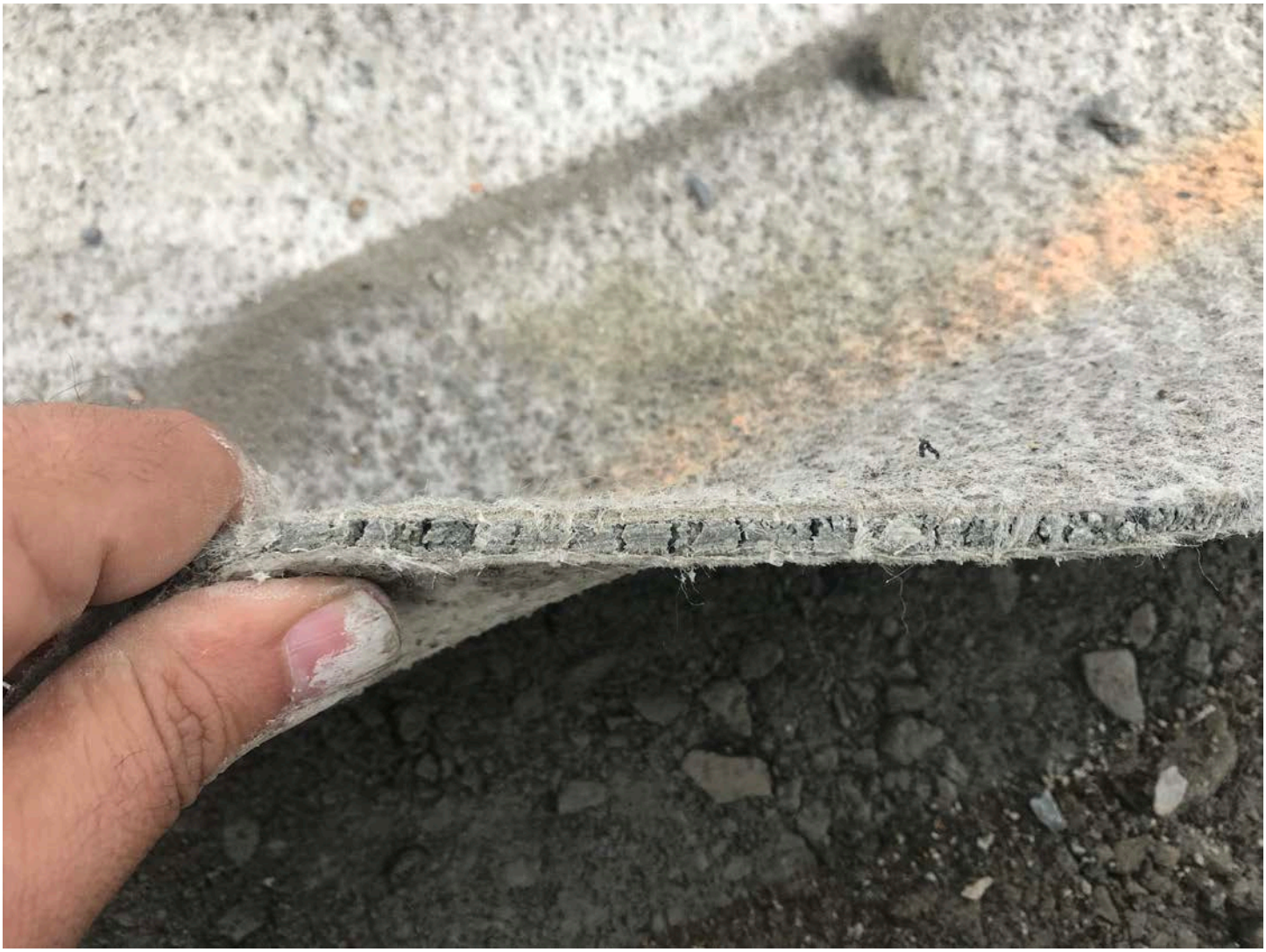


Photo 6: Photo GCL left in place. Could not be peeled. Clay would not extrude from between layers.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 11, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, AM Rain 14°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***).
  - Liner placement continued during the second half of the day. Due overnight rain liner was not placed in the AM. (***Photo 2***).
  - Monitoring vault foundation preparation continued.
  - Layfield tightened the liner at the spillway outlet to allow for installation of the concrete cloth. (***Photo 3***)
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement in PLS sump.



Photo 2: Liner placement.



Photo 3: Layfied prepping the liner for concrete cloth placement.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 12, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, AM Rain 13°C to 0°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***).
  - Liner placement continued. (***Photo 1***).
  - Monitoring vault foundation preparation continued. (***Photo 2***)
  - Concrete cloth installation began at the in-heap spillway. (***Photo 3***)
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement in PLS sump and liner placement above 940m.



Photo 2: Monitoring vault pad was completed today.



Photo 3: Concrete cloth installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 13, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 18°C to -1°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***).
  - Liner placement continued. (***Photo 1***).
  - The HL east perimeter road extension began. QC on road compaction is being performed by Pelly is BGC observed that construction is being done per the developed method spec for rockfill placement. (***Photo 2***)
  - Monitoring vault was placed. Extension of the underdrain pipes and construction of the confinement berm will be completed late May early June. (***Photo 3***)
  - Concrete cloth installation continued. After discussions with the manufacture the use of CC8 concrete cloth in the spillway was approved with some modifications to the anchoring. (***Photo 4***)
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement in PLS sump and liner placement above 940m.



Photo 2: Perimeter road extension.



Photo 3: Monitoring vault in place.



Photo 4: Concrete cloth installation and hydration.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 14, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 20°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***).
  - A small section of PLS was damaged during ODF placement. This section was excavated by Pelly and replaced. (***Photo 2***)
  - Liner placement continued. (***Photo 3***).
  - The HL east perimeter road extension began. QC on road compaction is being performed by Pelly is BGC observed that construction is being done per the developed method spec for rockfill placement.
  - Concrete cloth installation continued. (***Photo 4***).
  - A damaged area of the liner was observed in the Event Pond. This likely happened to the recent rains. The area was inspected and the damage marked. Layfield will repair the damage. Tetra Tech will provide an inspection summary. After repairs are complete BGC, JDS, Layfield, and Tetra Tech will perform a final inspection. JDS plans to install a larger berm below the slope to prevent further rockfill. (***Photo 5***)
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech will provide QC monitoring and reporting for the production of ODF, once that resumes.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement in the PLS sump.



Photo 2: Section of pipe that was excavated and replaced in the PLS sump.



Photo 3: Liner placement in Phase 1 heap area.



Photo 4: Concrete cloth installation.



Photo 5: Concrete cloth installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 15, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 19°C to 5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***). Placement of some of 100mm pipes does not conform with the design. 100mm pipes should have 1m parallel run at a max of 0.5m distance from the 250mm pipes (***Figure 1***). Many pipes were placed today without that parallel. (***Photo 2***) The should be corrected before being buried. Buried pipes to date met the design criteria.
  - Liner placement continued. (***Photo 4***).
  - The HL east perimeter road continued. QC on road compaction is being performed by Pelly is BGC observed that construction is being done per the developed method spec for rockfill placement. (***Photo 5***)
  - Concrete cloth installation continued. (***Photo 6***).
  - Layfield repaired damaged liner in the Event Pond but did not test it. Layfield said testing would be completed tomorrow. JDS began filling the pond. BGC recommended in an email and verbally that filling stop to allow testing to be completed. The pond testing should be completed and a final walkthrough performed by BGC, Tetra Tech, and JDS for approval. If patches are not tested because they are underwater Tetra Tech and BGC cannot provide acceptance for the repairs. (***Photo 7***)
  - Other items:
    - We were planning on mounting the instrument transmitter and receiver boxes today, however, this did not happen. We should schedule a time to have this done soon to allow us to collect readings from the Event Pond LDRS VW.
    - We will eventually need mounting posts for the VWs at the crest and pad cell.
    - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
    - The embankment crest road was widened using uncompacted fill. This will eventually need to be reshaped or completed as a more permanent solution.
    - Planning for water control above 990m (between the liner and the interceptor ditch) should be completed this year to get ahead of issues from freshet in 2020.
- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech is providing QC monitoring and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - ODF production resumed. BGC and Tetra Tech visited the production. Source material was consistent with what was tested during the test run (silicified metasediments and intrusive). Results from BGC's durability QA testing is included in ***ODF QA Results 01*** (attached).
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement in the PLS sump.

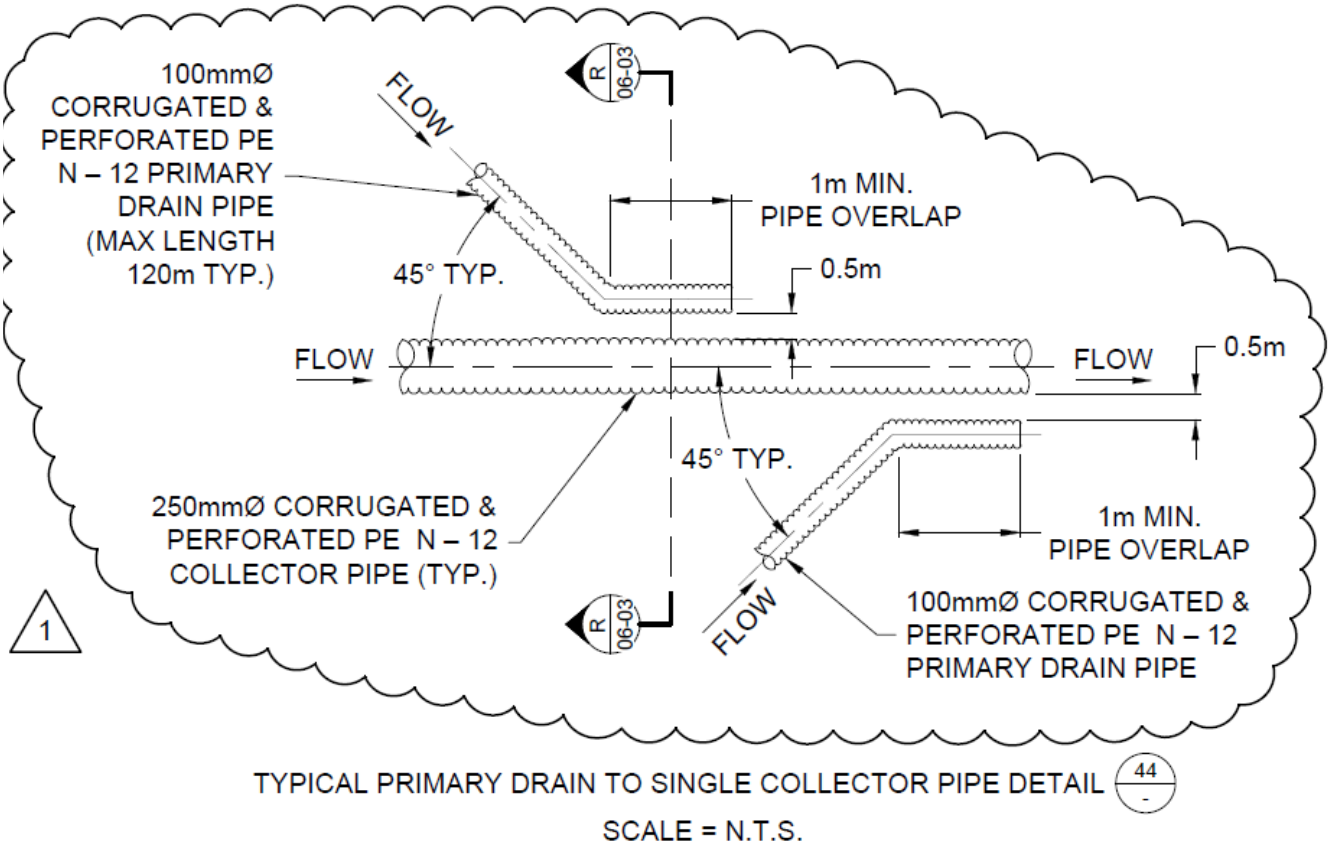


Figure 1: Section of pipe that was excavated and replaced in the PLS sump.

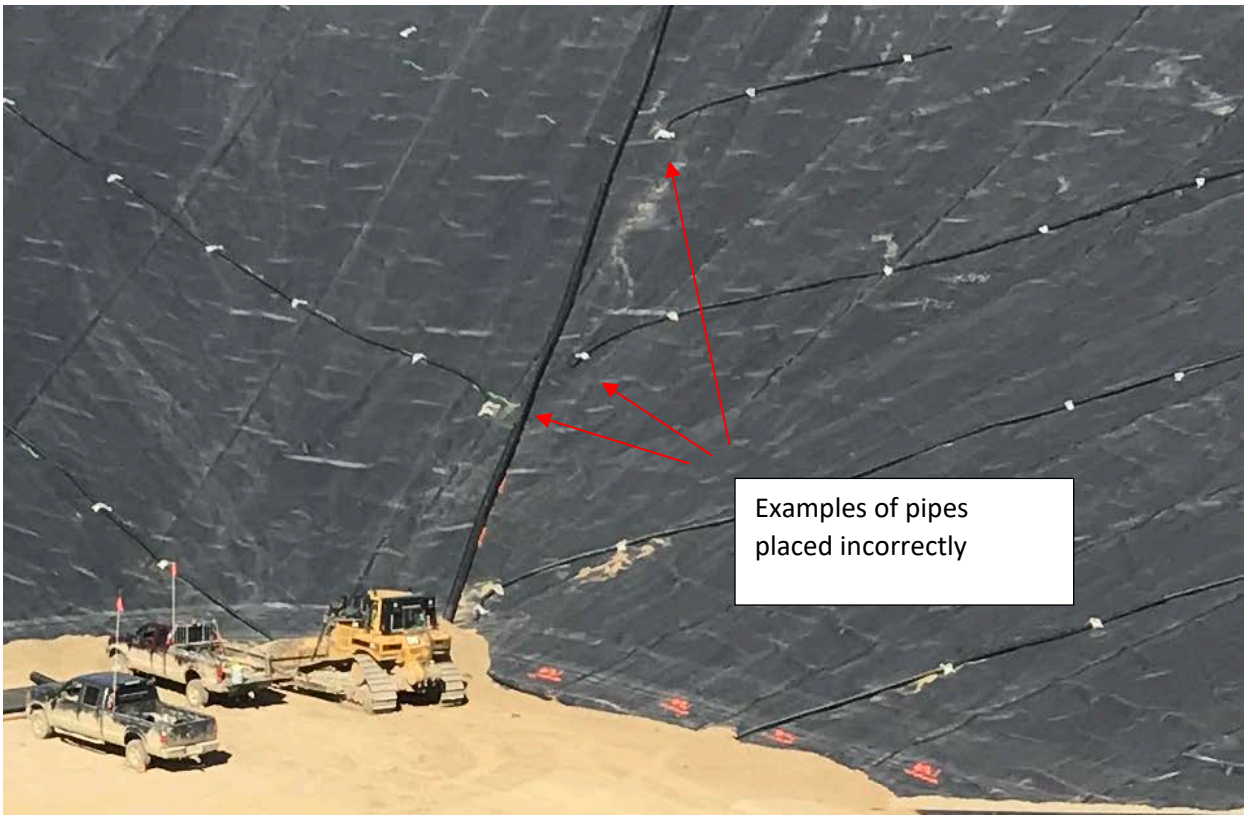


Photo 3: Liner placement in Phase 1 heap area.



Photo 4: Liner placement.



Photo 5: Perimeter road construction.



Photo 6: Spillway liner construction.



Photo 7: Event pond filling.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date:**	May 15, 2019
Construction:	JDS Mining	**Inspection Number:**	SA119
BGC Personnel:	Roy Morlan	**Typical for ODF:**	Yes

ODF Production QA Summary and Observations

Source Location

Blast	Centroid of Grade Block Sent for ODF			
	Easting	Northing	Elevation	Field Type
1285-01	460254.279	7099399.548	1290.288	4 oxidized meta sediments

Waste Reported by Crusher Supervisor
Approximately 40% waste.
Typical Waste from 2018 ODF Production: Approximately 40%

Description
Observations from processed ODF. Silicified granodiorite and meta sediments, hard, strong.

Weathering Index

	W1 – Fresh	W2 – Slightly Weathered	W3 – Moderately Weathered	W4 – Highly Weathered	W5 – Decomposed or Completely	W6 – Residual Soil
Typical From 2018 ODF Production	X	X				
SA119		X				

Strength Index

	R0 – Extremely Weak	R1 – Very Weak	R2 – Weak	R3 – Moderately Strong	R4 - Strong	R5 – Very Strong	R6 – Extremely Strong
Typical From 2018 ODF Production				X	X	X	
SA119					X		

Hardness Index

	H1 – Extremely Hard	H2 – Very Hard	H3 – Hard	H4 – Moderately Hard	H5 – Moderately Soft	H6 – Soft	H7 – Very Soft
Typical From 2018 ODF Production			X	X			
SA119			X				

Slaking Observations
A sample for preliminary slaking evaluation was collected and submerged in water for 48 hours. If breakdown is obvious or if the material properties change significantly (ie can be scratched much easier, can be broken much easier, ect) then results will be reported in a separate report and a true laboratory slake test may be requested.

Based on general observations (rock type and composition, bedding characteristics, weathering, and cementation) the material is not likely susceptible to slaking.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 16, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 18°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump and east groin with ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1***). Some piping still needs proper placement. (***Photo 2***)
  - Liner placement continued. (***Photo 3***).
  - The HL east perimeter road continued. QC on road compaction is being performed by Pelly is BGC observed that construction is being done per the developed method spec for rockfill placement.
  - Concrete cloth installation continued. (***Photo 4***).
  - Layfield testing Event Pond patches. All areas tested passed. Three patches at the bottom of the pond could not be tested because water pumped into the pond has covered them. These patches should be tested for Tetra Tech QA and BGC acceptance. Tetra Tech, Layfield, and BGC performed a walk through inspection of the liner after testing and after a protection berm was built on the north side of the event pond. No additional damage was observed. Tetra Tech will write a summary of the inspection. JDS continues filling the pond. (***Photo 5***)
  - Jagged rocks that have rolled into the Event Pond should be removed. This is most critical for any rocks that are on a the side slope (***Photo 6***)

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We were planning on mounting the instrument transmitter and receiver boxes today, however, this did not happen. We should schedule a time to have this done soon to allow us to collect readings from the Event Pond LDRS VW.
  - We will eventually need mounting posts for the VWs at the crest and pad cell.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech is providing QC monitoring and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the production. Source material was consistent with what was tested during the test run (silicified metasediments and intrusive, ***Photo 7 through 9***). Tetra Tech reported 3.2% fines. Results from BGC's durability QA testing is included in ***ODF QA Results 01*** (attached).
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement in the PLS sump.



Photo 2: Pining on the east side of the PLS that needs to be aligned properly.



Photo 3: Liner placement.



Photo 4: HL Spillway construction.



Photo 5: Event pond liner repairs.



Photo 6: Large, jagged rocks should be removed from the liner. This rock is located halfway up the northeast slope.



Photo 7: Typical metasediment observed in todays run.



Photo 8: Typical granodiorite observed in todays run.



Photo 9: ODF stockpile.

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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date:**	May 16, 2019
Construction:	JDS Mining	**Inspection Number:**	SA120
BGC Personnel:	Roy Morlan	**Typical for ODF:**	Yes

ODF Production QA Summary and Observations

Source Location

Blast	Centroid of Grade Block Sent for ODF			
	Easting	Northing	Elevation	Field Type
1285-01	460254.279	7099399.548	1290.288	4 oxidized meta sediments

Waste Reported by Crusher Supervisor
Approximately 40% waste.
Typical Waste from 2018 ODF Production: Approximately 40%

Description
Observations from processed ODF. Silicified granodiorite and meta sediments, hard, strong. Some softer metasediments present, likely due to the loader digging into the natural ground at the site. However, majority of material is from the blast source.

Weathering Index

	W1 – Fresh	W2 – Slightly Weathered	W3 – Moderately Weathered	W4 – Highly Weathered	W5 – Decomposed or Completely	W6 – Residual Soil
Typical From 2018 ODF Production	X	X				
SA119		X				

Strength Index

	R0 – Extremely Weak	R1 – Very Weak	R2 – Weak	R3 – Moderately Strong	R4 - Strong	R5 – Very Strong	R6 – Extremely Strong
Typical From 2018 ODF Production				X	X	X	
SA119				X	X		

Hardness Index

	H1 – Extremely Hard	H2 – Very Hard	H3 – Hard	H4 – Moderately Hard	H5 – Moderately Soft	H6 – Soft	H7 – Very Soft
Typical From 2018 ODF Production			X	X			
SA119			X				

Slaking Observations
A sample for preliminary slaking evaluation was collected and submerged in water for 48 hours. If breakdown is obvious or if the material properties change significantly (ie can be scratched much easier, can be broken much easier, ect) then results will be reported in a separate report and a true laboratory slake test may be requested.

Based on general observations (rock type and composition, bedding characteristics, weathering, and cementation) the material is not likely susceptible to slaking.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 17, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 17°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of the PLS sump ODF and extension of the header pipe on the east side of the PLS continued (***Photos 1)***. BGC, Pelly, and JDS discussed methods for the wiggle wagons to place material on slopes covered with 1m of ODF. Trucks should only move back or forwards on the slope. If they stop for any reason they should dump their load before moving again. If the tires spin they should stop and dump their load. They should only move parallel to the slope.
  - Liner placement continued. (***Photo 2***).
  - HL East perimeter road was inspected by BGC and Tetra Tech. The subgrade was mostly ready for liner placement with small patches to be addressed. Layfield was digging the anchor trench today. (***Photo 3***)
  - Concrete cloth installation continued. (***Photo 4***). The subgrade below the spillway was prepared for concrete cloth. (***Photo 5***)
  - Jagged rocks were removed from the Event Pond.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly provided QC monitoring and reporting for fill placement in their daily report.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech is providing QC monitoring and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the production. Source material was consistent with what was tested during the test run. Due to mechanical issues no ODF was produced. No QA or QC samples were collected.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement in the PLS sump.



Photo 2: Liner placement.



Photo 3: Perimeter road liner subgrade prep.



Photo 4: Concrete cloth installation.



Photo 5: Work to prepare culvert to concrete cloth transition.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 18, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy, some rain 13°C to 5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe continued (***Photos 1***).
  - Liner was placed on the east side of the Phase 1 pad at the perimeter road. (***Photo 2***). Work was slower than normal because of rain and because liner could not be rolled down from the perimeter road.
  - Concrete cloth installation continued. The concrete cloth was placed under the spillway culverts per the design. (***Photo 3***).
  - Titan stated that they would be collecting a destruct sample as part of their QC, which would be shipped to England for testing. To date no destruct sample collection or tracking has been presented. Titan should provide a schedule for QC testing or clarify if a destruct will be collected, when, and how it will be tracked so there are no QC gaps in the construction record.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - BGC, Pelly, and JDS discussed methods for the wiggle wagons to place material on slopes covered with 1m of ODF. Trucks should only move back or forwards on the slope (***Photo 4***). If they stop for any reason they should dump their load before moving again. If the tires spin they should stop and dump their load. They should only move parallel to the slope (***Photo 4***). Pelly to date has been conforming with this and there have been no issues.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QC monitoring and reporting for construction of the liner installations.
  - Tetra Tech is providing QC monitoring and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the production. Source material was consistent with what was tested during the test run.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement below 940m



Photo 2: Liner placement.



Photo 3: Spillway concrete cloth installation.

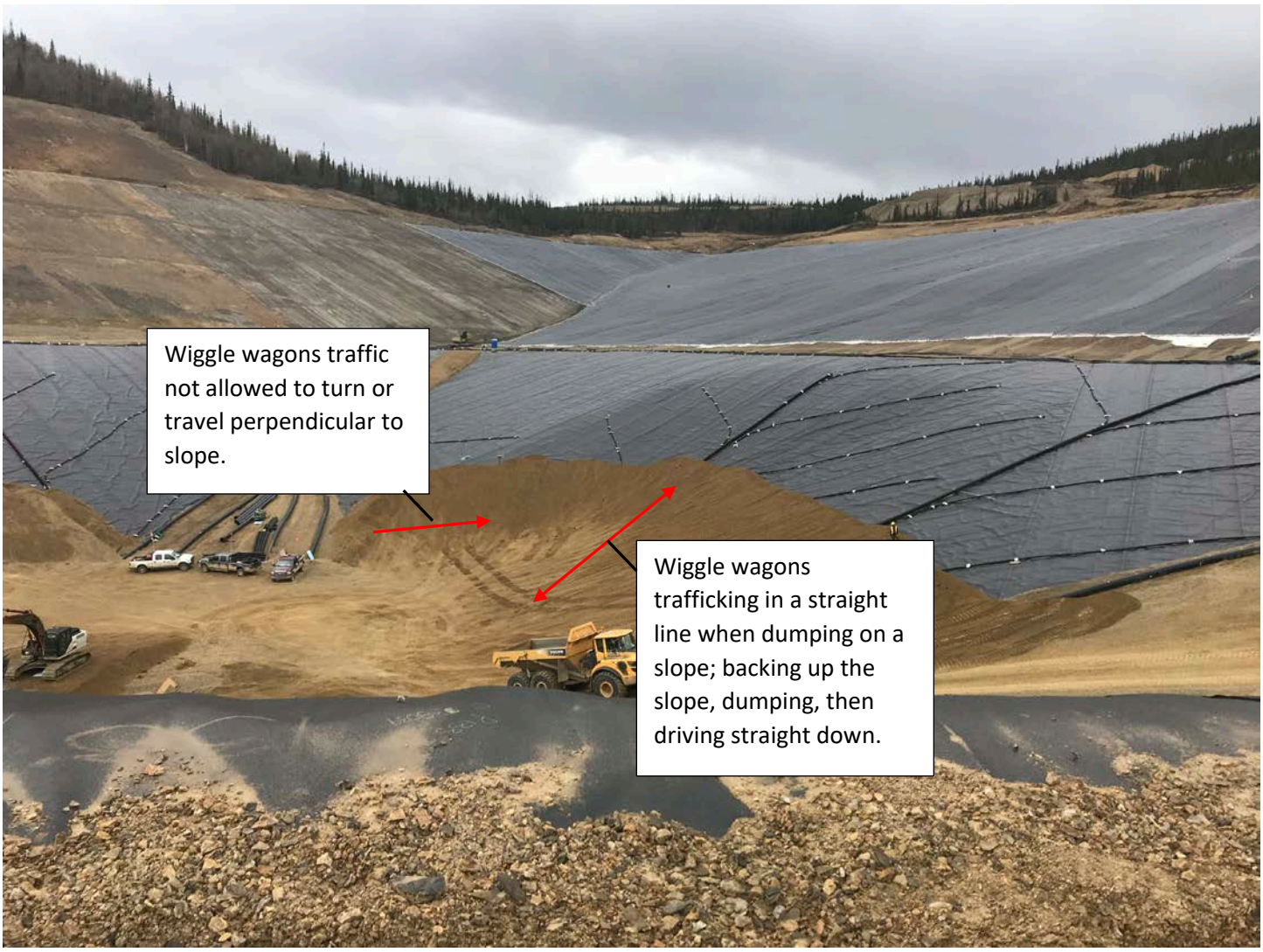


Photo 4: General heavy equipment traffic on the ODF.

BGC ENGINEERING INC.
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Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 19, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 21°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe continued. The crane was moved to the PLS sump to begin installing the LDRS and PLS pipe extensions. (***Photos 1)***. Small punctures were found by Pelly on the west side of the HL below 940. These were marked, repaired, and tested by Layfield. Details from testing are included in Tetra Tech's Daily Report.
  - Liner was placed on the east side of the Phase 1 pad at the perimeter road. (***Photo 2***).
  - Concrete cloth installation continued on the Emergency Spillway. (***Photo 3***).
  - A stand was installed for the Event Pond VW transmitter. (***Photo 4***)
  - The following outstanding items were discussed with JDS and are planned to be resolved in the coming weeks. No formal RFIs have been issued yet.
    - ODF placement plan between elevations 940m and 990m.
    - Updated stormwater management plan to address potential runoff and future freshet from the Phase 1b area.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - BGC, Pelly, and JDS discussed methods for the wiggle wagons to place material on slopes covered with 1m of ODF. Trucks should only move back or forwards on the slope. If they stop for any reason they should dump their load before moving again. If the tires spin they should stop and dump their load. They should only move parallel to the slope. Pelly to date has been conforming with this and there have been no issues.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run. A field screening summary is included in FS-SA122. A gradation test performed on todays run reported 5% fines, which is the upper bound of the allowable fines. Gradation will be tested again tomorrow.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement below 940m



Photo 2: Liner placement.



Photo 3: Spillway concrete cloth installation.



Photo 4: General heavy equipment traffic on the ODF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 20, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 24ºC to 8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe continued. (***Photo 1***).
  - The LDRS pipes were extended up the embankment. (***Photo 2***) The welders dig about 0.3m into ODF to create an area to weld the pipe bottom. They then place welding mats under the work area.
  - Liner was placed on the east side of the Phase 1 pad at the perimeter road. (***Photo 3***).
  - Concrete cloth installation continued on the Emergency Spillway. (***Photo 4***).
  - ODF material at the bottom of the stockpiles were investigated. This material could not be recovered without mixing with high silt from the natural ground below. Pelly should leave a sacrificial layer of about 30cm at the bottom of the piles so ODF is not contaminated with the natural ground.
  - BGC and Pelly discussed completion of the berm at the end of the embankment underdrains. Work in this area is expected to begin at the end of the week. (***Photo 5***) Water running through the underdrain blanket mostly exfiltrates before reaching the outlet. However, once the subgrade is exposed we may have to field fit a means for the flow underneath the geomembrane to reach the exfiltration structure.
  - Sealant was left off a small section of the overlapping panels to allow this flow to seep into the spillway and pipe underneath the concrete cloth. The flow is very minor (<0.1 L/min) and not consistent. This area should be monitored. If flow is consistently observed we may consider extending the spillway underdrain to cover this area. (***Photo 6***)

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - The following outstanding items were discussed with JDS and are planned to be resolved in the coming weeks. No formal RFIs have been issued yet.
    - ODF placement plan between elevations 940m and 990m.
    - Updated stormwater management plan to address potential runoff and future freshet from the Phase 1b area.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run. A field screening summary is included in FS-SA123. A gradation test performed on todays run reported approximately 2% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement below 940m



Photo 2: Liner placement.



Photo 3: Liner installation near the east perimeter road.



Photo 4: Concrete cloth installation at the Emergency Spillway.

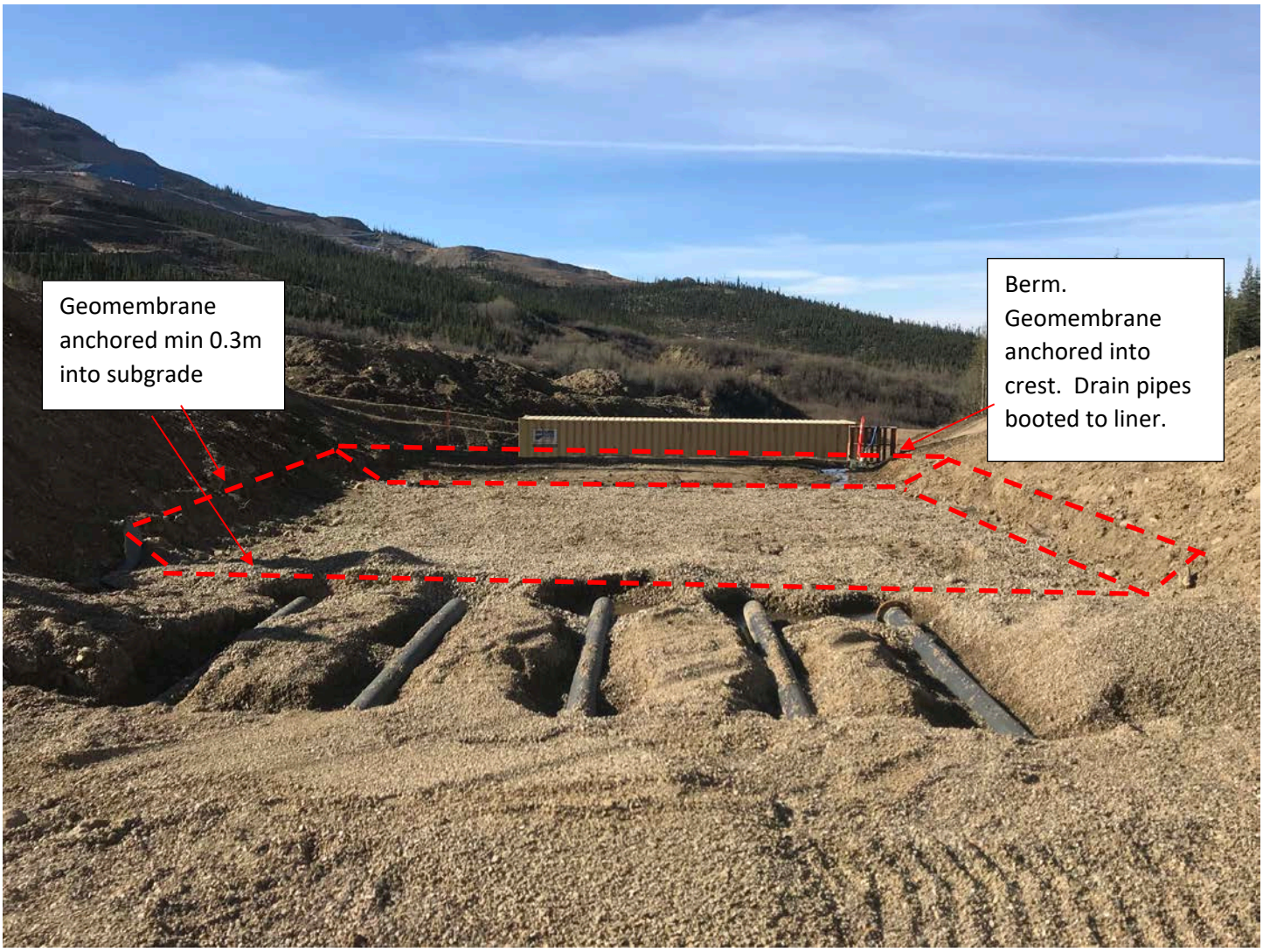


Photo 5: Concrete cloth installation at the Emergency Spillway.



Photo 6: Seep in the in-heap spillway.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 21, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 24°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe continued. (***Photo 1***).
  - The LDRS pipes were extended up the embankment. (***Photo 2***)
  - Liner was placed on the east side of the Phase 1 pad at the perimeter road. (***Photo 3***).
  - Concrete cloth installation continued on the Emergency Spillway.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - The following outstanding items were discussed with JDS and are planned to be resolved in the coming weeks. No formal RFIs have been issued yet.
    - ODF placement plan between elevations 940m and 990m.
    - Updated stormwater management plan to address potential runoff and future freshet from the Phase 1b area.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - BGC and Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run. A field screening summary is included in FS-SA124. A gradation test was not ready for this daily report, however, visually the sample appeared to be low in fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF and piping placement below 940m



Photo 2: LDRS pipe placement.



Photo 3: Liner installation near the east perimeter road.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 25, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear 23°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes were extended up the embankment and ODF placement over the pipes continued. (***Photos 1 and 2***)
  - Liner was placed on the west side of the Phase 1 pad above elevation 940m. (***Photo 3***).
  - Spillway concrete cloth installation is now complete (***Photos 4 and 5***).

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the VW wire completion on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - Titan Enviro is providing QC for concrete cloth placement in their daily reports.
  - Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run. A gradation test was completed and indicated less than 1% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: LDRS pipe placement on HLF embankment



Photo 2: LDRS pipe placement.



Photo 3: Liner installation on west HLF.



Photo 4: Completed spillway between HLF and Event Pond.



Photo 5: Completed spillway below Event Pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 26, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear 23°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes were covered with ODF using tracked skid steers. (***Photo 1***)
  - Liner was placed on the west side of the Phase 1 pad above elevation 940m. (***Photos 2 and 3***).
  - An exfiltration sump was being constructed for the event pond underdrain outlet (***Photo 4***). The pipe will be covered for frost protection.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC and Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run (see FS-SA125 durability field test report). A gradation test was completed and indicated less than 1% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Covering LDRS pipe with ODF on HLF embankment



Photo 2: Liner installation on west HLF.



Photo 3: Liner installation on west HLF.



Photo 4: Event Pond underdrain outlet exfiltration sump construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 27, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear 22°C to 14°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes were covered with ODF using tracked skid steers (***Photo 1***).
  - Concrete Jersey blocks were being place on the HLF embankment upstream crest (***Photo 2***).
  - Liner was placed on the east side of the Phase 1 pad above elevation 940m. (***Photo 3***).
  - ODF production was intermittent today with testing of the conveyor system for delivery to the HLF.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC and Tetra Tech visited the ODF crusher. Production was interrupted for conveyor testing. Samples not taken today.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Covering LDRS pipe with ODF on HLF embankment



Photo 2: Jersey blocks on HLF embankment.



Photo 3: Liner installation on East HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 28, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 16ºC to 8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes were covered with ODF using tracked skid steers (***Photo 1***).
  - Liner was placed on the east side of the Phase 1 pad above elevation 940m. Liner subgrade preparation was underway on the west HLF (***Photo 2***).
  - The 30cm thick ODF cushion layer between the liner and the PLS header pipes was partially washed out from rainfall runoff (***Photo 3***). No damage to the liner was observed.
  - The connection of the solid HDPE PLS header pipes to the corrugated perforated pipes was proposed to be a coupler with screws and zip ties (***Photo 4***). The connection will also be wrapped with Mar Mac coupler with steel compression bands per discussions with Pelly and JDS.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is proving QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC and Tetra Tech visited the ODF production. Source material was consistent with what was tested during the test run (see FS-SA126 durability field test report). A gradation test was completed and indicated less than 1% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Covering LDRS pipe with ODF on HLF embankment



Photo 2: Liner subgrade preparation on west HLF.



Photo 3: ODF cushion layer partially washed out.



Photo 4: PLS header pipe connection to perforated pipes.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 29, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 16ºC to 8ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes were covered with ODF using tracked skid steers (***Photo 1***).
  - Liner was placed on the west side of the Phase 1 pad above elevation 940m (***Photos 2 and 3***).
  - Solution pipework from the ADR plant was being installed in the lined slot trench at the western limit of the HLF (***Photo 4***).
  - Foundation preparation of the HLF western perimeter berm/road was underway (***Photo 4***).

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - ODF production was intermittent today. ODF source pile from the mine has not changed from yesterday.
  - A gradation test was completed and indicated less than 2% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Covering LDRS pipe with ODF on HLF embankment



Photo 2: Liner installation at West HLF



Photo 3: Liner installation at West HLF



Photo 4: HLF solution pipework placed in lined trench.



Photo 5: Foundation preparation West perimeter berm construction.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 30, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Clear 14ºC to 7ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Backfill of ODF below 940m and extension of the header pipe was suspended due to lack of ODF.
  - The LDRS pipes are covered with ODF and nearly ready for top liner installation by Layfield (***Photo 1***).
  - Liner was placed on the west side of the Phase 1 pad above elevation 940m (***Photo 2***).
  - For safety reasons, BGC will now sample ODF source material at the ODF dump above the Neway crushing plant instead of the lower feed pile next to the crusher (***Photo 3***). Durability QA testing and control will be based on samples from the piles most recently delivered by the Mine to the ODF dump area.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC sampled the ODF dump feed pile above Neway crusher. A summary report is provided as FS-SA127. The material being delivered by the mine is becoming more oxidized but is still considered acceptable in terms of durability.
  - A gradation test was completed and indicated about 4% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Covering LDRS pipe with ODF on HLF embankment



Photo 2: Liner installation at West HLF



Photo 3: ODF dump pile feeding the Neway crushing plant.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	May 31, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy, Rain 10ºC to 6ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - Placement of ODF below 940m was suspended due to lack of ODF.
  - The LDRS pipes are covered with ODF and ready for top liner installation by Layfield.
  - Pelly continued extending the PLS header pipes (***Photo 1***). Headers are butt-fused and connected to corrugated collector pipe with split couplers and screws (***Photo 2***), then wrapped with Mar Mac coupler with steel compression bands (***Photo 3***).
  - Liner installation was suspended due to rain.
  - A sump was excavated south of the monitoring vault for construction of an exfiltration sump for the 12-inch outfall pipe (***Photo 4***). The excavation was in colluvium (sandy gravel with some cobbles) to 3 m depth where black clayey silt was encountered. The sump was filled with water to observe percolation rate.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.
  - Stormwater management planning was discussed with JDS and Pelly to address potential runoff and future freshet from the Phase 1b area including protection of the underdrain headers. The plan presented by Pelly is reasonable and will be implemented with BGC providing guidance, as needed.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC sampled the ODF dump feed pile above Neway crusher. A summary report is provided as FS-SA127. The material being delivered by the mine is becoming more oxidized but is still considered acceptable in terms of durability.
  - A gradation test was completed and indicated about 4% fines.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.

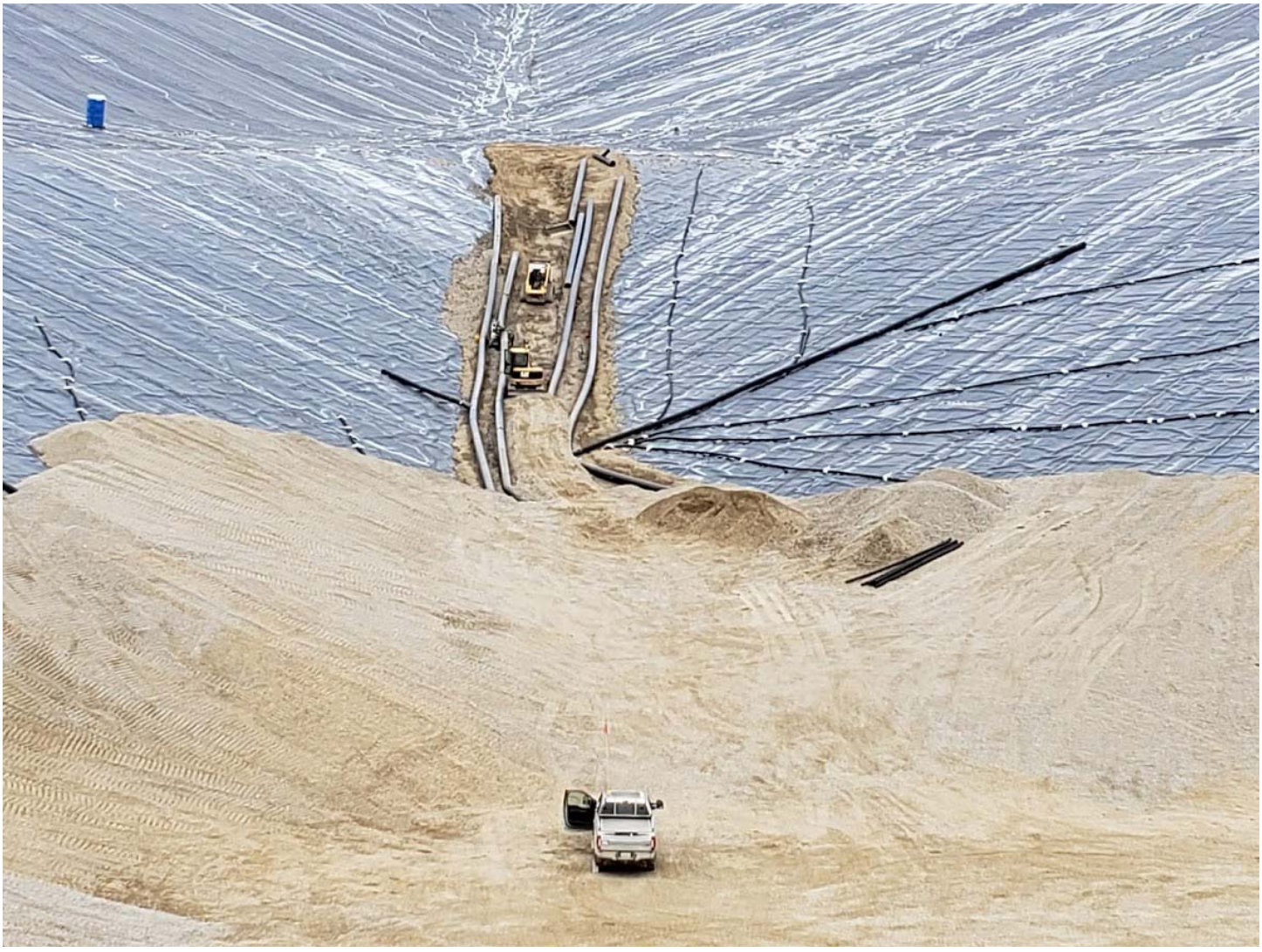


Photo 1: Extending PLS header pipes.



Photo 2: Connection of PLS headers to collector pipes with split coupler and screws.



Photo 3: Securing split couplers with Mar Mac coupler



Photo 4: Sump excavated south of monitoring vault.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 1, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy, Rain 16ºC to 6ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor delivered ODF intermittently to the HLF. A loader was spreading the ODF to form the loadout pad.
  - Runoff from rain washed out a portion of the PLS header pipe ODF cushion layer (***Photo 1***) and water ponded in the PLS sump.
  - A pump was installed to pump ponded rainwater from the PLS sump to the Event Pond (***Photo 2***).
  - Liner installation was suspended due to rain.
  - Winterization of the upper limit of the HLF underdrain headers was started by Pelly (***Photo 3***). The header trench was shaped and any mud was cleaned out of the trench. BGC discussed the plan with Pelly. The pipes will be buried in a geotextile wrapped layer of gravel and backfill. A sediment control berm will be constructed upstream of the pipes and covered with geotextile and riprap.
  - One of the pipe boots at the Event Pond has separated from thermal expansion of the HDPE pipe (***Photo 4***). BGC has suggested the boots be secured with Mar Mac couplers.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running intermittently today, sample for durability and gradation not collected.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Partial washout of the ODF cushion layer under PLS header pipes.



Photo 2: Water pumped from PLS sump to Event Pond.



Photo 3: Upper limit of the HLF underdrain headers.



Photo 4: Event Pond pipe boots.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 2, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 16°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor delivered ODF consistently to the HLF. A loader was spreading the ODF to form the loadout pad (***Photo 1***).
  - Liner installation resumed at west HLF (***Photo 2***).
  - Winterization of the upper limit of the HLF underdrain headers was completed by Pelly (***Photo 3***). A sediment berm was constructed upstream of the headers and the pipes were covered for frost and erosion protection. One header pipe was stubbed up with a 90 degree elbow to allow access for pumping water into. All pipes were capped.
  - The Geokon barometer was temporarily installed at the southwest corner of the Event Pond embankment. A permanent installation will be completed with assistance from JDS site services.
  - Piezometer readings from the Event Pond LDRS sump indicate the sump should be pumped out. This will need to be done periodically when the pond has water in it.

- Observations and Recommendations (Open/Ongoing):
  - Seepage at the Event Pond spillway is being diverted west, away from the Event Pond fills. This outlet should be completed as a lined ditch this year.
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running intermittently today, sample for durability and gradation not collected.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF delivered by overland conveyor and spread by loader.



Photo 2: Liner installation at west HLF.



Photo 3: Upper limit of the HLF underdrain headers.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 3, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 18°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor did not deliver ODF to the HLF. An excavator was loading 40-ton trucks for the stockpile at end of conveyor for placement of ODF on the pad and spreading with dozer (***Photo 1***).
  - Liner installation detailing work continued at west HLF.
  - The HLF spillway seepage underdrain pipe was located and excavated to prepare for construction of a lined ditch to the ultimate outfall (***Photo 2***). The pipe and gravel drain are not currently flowing. Once the lined ditch is completed, the crest area should be shaped to grade toward the ditch in this area to promote surface water drainage.
  - The exfiltration sump near the monitoring vault was deepened past the silt layer into alluvial material in attempt to increase percolation (***Photo 3***). The hole was partially filled with water to observe the infiltration rate.
  - The event pond inclined riser pipe boots were secured with Mar Mac couplers (***Photo 4***).
  - A pump was installed in the event pond LDRS riser pipe to evacuate the sump (***Photo 5***).
  - The HLF east underdrain downstream outlet has been left uncovered to allow observation of flow through the spring (***Photo 6***). Little to no flow has been observed. It is recommended that the outlet be covered with drainage rock/gravel to protect from frost in case flow begins in future.

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running today, samples for durability and gradation were collected. Gradation test by Tetra Tech indicated about 6% fines which is above the specified 5%. JDS and Neway were notified.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF spread on pad with dozer.



Photo 2: HLF spillway underdrain.



Photo 3: Exfiltration sump test hole near monitoring vault.



Photo 4: Event Pond riser pipes.



Photo 5: Event Pond riser pipes.



Photo 6: HLF east underdrain outlet.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 4, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Troy Meyer	**Weather:**	Cloudy 22°C to 4°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor did not deliver ODF to the HLF today. An excavator was loading 40-ton trucks for the stockpile at end of conveyor for placement of ODF on the pad and spreading with dozer.
  - Layfield installed geocomposite and 80-mil on the HLF embankment over the LDRS area (***Photo 1***).
  - The HLF spillway seepage underdrain pipe was extended with a lined ditch at the Event Pond NW corner (***Photos 2 and 3***). Grading fill was placed and compacted to promote drainage (***Photo 4***). JDS
  - The exfiltration sump near the monitoring vault was deepened past the silt layer into alluvial material in attempt to increase percolation (***Photo 3***). The hole was partially filled with water to observe the infiltration rate.
  - The event pond inclined riser pipe boots were secured with Mar Mac couplers (***Photo 4***).

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Some patches on the Event Pond bottom were inundated with water before testing could be completed. These patches should be tested once water can be removed from the pond.
  - ODF placement and initial ore stacking plans were discussed with JDS and Pelly. JDS provided a spreadsheet with assumptions, production rates, equipment, and target date ranges. This will be used for planning purposes.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running today, samples for durability and gradation were collected. Gradation test by Tetra Tech indicated about 9% fines which is above the specified 5%. JDS and Neway were notified.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Liner installation at the HLF embankment.



Photo 2: Spillway underdrain extension.



Photo 3: Spillway underdrain extension.



Photo 4: Grading fill placement at the Event Pond NW corner.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 5, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer	**Weather:**	Cloudy 19°C to 5°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC shift change. Troy Meyer left site. Roy Morlan arrived on site.
  - The overland conveyor did not deliver ODF to the HLF. No ODF was placed today.
  - Liner installation continued at the HLF.

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - The east embankment underdrain outlet is currently exposed to observe seepage over the summer. It is recommended that it be covered with drainage rock/gravel to protect from frost before the winter.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running today, samples for durability and gradation were collected.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 6, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 19°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor did not deliver ODF to the HLF. No ODF was placed today.
  - Liner installation continued at the HLF. Installation was intermittent due to rain. (***Photo 1***)
  - Water levels in the exfiltration sump were monitored by JDS. Seepage out of the sump was slower than needed. JDS has stated that the exfiltration sump will be backfilled in the near future. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - The east embankment underdrain outlet is currently exposed to observe seepage over the summer. It is recommended that it be covered with drainage rock/gravel to protect from frost before the winter.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - The Neway crusher was running today, samples for durability and gradation were collected. Material was being screened twice after a run of high fines was observed in QC testing yesterday. Reported fines were below 2%.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Liner installation at the HLF.



Photo 2: Exfiltration sump at monitoring vault.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 7, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 20°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor deliver ODF to the HLF and Pelly resumed ODF placement (***Photo 1***)
  - Liner installation continued at the HLF. (***Photo 2***)
  - An area of the 940 anchor trench was saturated from rain and settled. Liner has been placed over this area but it has not been welded. The liner will be pulled up in this area and anchor trench refilled and recompacted. (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - No ODF produced yesterday.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Pelly loading ODF from the conveyor.



Photo 2: Liner installation at the HLF.



Photo 3: Anchor trench settlement in an area where the trench was saturated due to rain.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 8, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 21°C to 9°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - The overland conveyor deliver ODF to the HLF and Pelly resumed ODF placement (***Photo 1***)
  - Liner installation continued at the HLF. (***Photo 2***)
  - The saturated anchor trench at the 940 was uncovered. Additional material was added to the anchor trench and the trench was recompacted. The liner was placed back over the anchor trench. (***Photo 3***)
  - A perimeter berm was constructed between the liner above 940 and the ADR pipe trench. It was constructed with structural fill and packed in approximately 10 to 15cm lifts. (***Photo 4***)
  - Settlement was observed in the PLS pipes changing their angle and the amount of ODF fill between the pipes and the upstream liner. A minimum of 1m of ODF will be placed along the upstream embankment slope. However, a trench will be cut into the upper ½ (approximately) of the ODF fill to sit the west most pipe. (***Photo 5***)
  - Silt has collected on the ODF surface in the PLS sump due to runoff from multiple rain events. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF. (***Photo 6***)
  - The anchor trench at the crest was backfilled by Ewing. The anchor trench was not compacted. JDS plans to compact this with a hand tamper.
  - JDS and Layfield reviewed how they will access the area around the spillway culverts to install the liner boots. They will provide a method for installing this boot to BGC and if it changes the portion of the invert already built we will review it to ensure it meets design intent.
  - JDS will construct the additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Observations and Recommendations (Open/Ongoing):
  - We will eventually need to modify the vibrating wire piezometer installation on the HLF crest. The current cap does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - No ODF produced yesterday.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement at the heap leach.



Photo 2: Liner installation at the HLF.



Photo 3: Portion of the 940 anchor trench uncovered for inspection. Additional material was added and the trench was recompacted the covered again.



Photo 4: Perimeter berm constructed prevent flow from the HL to the ADR pipe trench. The berm will also serve to anchor the liner.

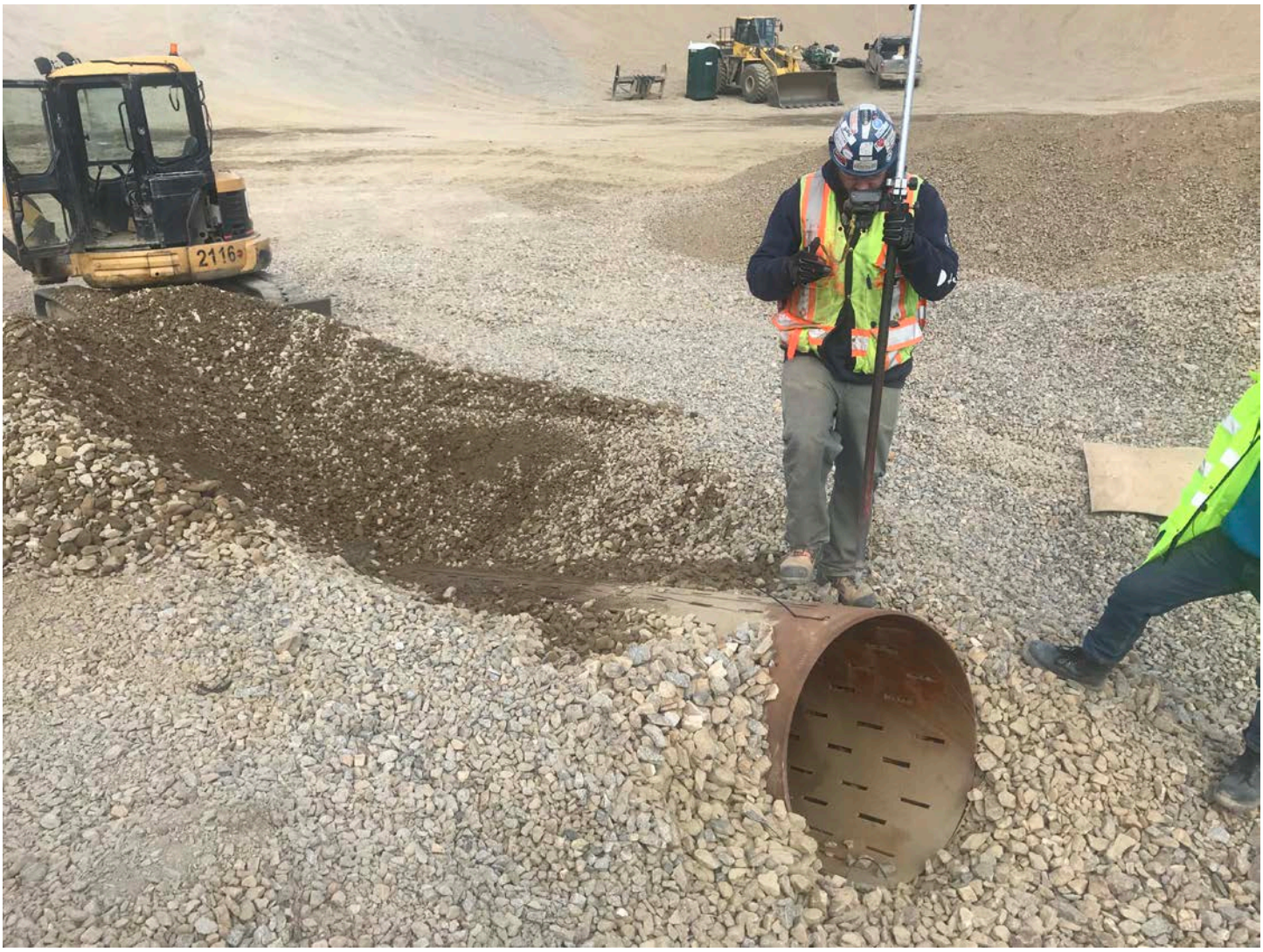


Photo 5: Measuring PLS elevation change and angle.



Photo 6: Silt contaminated ODF in the PLS sump.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 9, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 19°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF placement continued for part of the day. (***Photo 1***)
  - Liner installation continued at the HLF. Liner installation was suspended late in the day due to concerns of falling rocks from the perimeter berm construction. (***Photo 2***)
  - Construction of the west perimeter berm continued. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - ODF production resumed late in the day. Tetra Tech collected a sample of the material being produced.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement at the heap leach.



Photo 2: Liner installation and wester perimeter berm construction at the HLF.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 10, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 21°C to 7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF placement continued today. (***Photo 1***)
  - Layfield and Ewing worked on prepping the liner boot for the spillway culverts. (***Photo 2***)
  - Construction of the west perimeter berm continued. (***Photo 3***)
  - The event pond sump was pumped out. (***Photo 4***)
  - Geotextile rub sheet was placed on embankment crest over the liner in preparation for the crane that will place the steel PLS pipes.
  - Nuway resumed its crushing operation.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC reviewed the material being produced by Nuway for strength characteristics.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement at the heap leach.



Photo 2: ODF was removed from around the culverts to allow space to apply the liner boot.



Photo 3: Construction of the west perimeter berm.



Photo 4: Pumping the LDRS sump at the event pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 11, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 20°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF placement continued today. (***Photo 1***)
  - The crane was setup to place the steel PLS pipes. (***Photo 2***)
  - Layfield worked on prepping the liner boot for the spillway culverts. No liner was placed.
  - Construction of the west perimeter berm continued. (***Photo 3***)
  - After the event pond sump was evacuated the pump was allowed to continue running to gauge recharge. Readings collected today:
    - 0.38 L/sec @ 0915.
    - 0.32 L/sec @ 1435.

    Readings will continue tomorrow until the flow stabilizes.
  - Eshemuta provided settlement data for all the PLS pipes
    - Settlement projected at pipe bottom:
    - Drill Casing Δ Horizontal = 0.039m Δ Vertical = -0.241m Δ Angle = 0.1400˚
    - Pipe 1 (west-most) Δ Horizontal = 0.018m Δ Vertical = -0.132m Δ Angle = 0.6883˚
    - Pipe 2 Δ Horizontal = 0.018m Δ Vertical = -0.105m Δ Angle = 0.2875˚
    - Pipe #3 Δ Horizontal = 0.070m Δ Vertical = -0.328m Δ Angle = -0.4111˚
    - Pipe #4 Δ Horizontal = 0.077m Δ Vertical = -0.282m Δ Angle = -1.0235˚
    - Pipe 5 (east-most) Δ Horizontal = 0.053m Δ Vertical = -0.127m Δ Angle = 0.1188˚
  - A sample was collected on the PLS bottom ODF surface. The gradation results reported 15% fines at the surface and 4.3% fines at 15cm below the surface. 15cm of ODF in the PLS sump bottom should be scraped off and wasted prior to placement of ore.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC reviewed the material being produced by Nuway for strength characteristics.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement at the heap leach.



Photo 2: Crane setting up on the embankment.



Photo 3: Construction of the west perimeter berm.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 12, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 20°C to 8°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Heavy Rains were experienced overnight. The PLS sump was pumped in the morning. (***Photo 1***)
  - Pelly tested driving a rubber tread skid steer on the liner with 2 layers of geotextile as rubsheets. They will use this method to extend the header pipes above 940m. The test was successful. No damage was observed on the liner after the test. (***Photo 2 and 3***)
  - ODF placement continued today. (***Photo 4***)
  - Pelly shaped the upstream embankment slope for PLS pipe placement. (***Photo 5***)
  - Layfield continued working on prepping and installing liner boots at the spillway. No liner was placed on the heap leach slopes.
  - Construction of the west perimeter berm was completed.
  - After the event pond sump was evacuated the pump was allowed to continue running to gauge recharge. Readings collected today:
    - 0.38 L/sec @ 0915.
    - 0.32 L/sec @ 1435.
    - 0.25 L/sec @ 0809
    - 0.06 L/sec @ 1411

    Recharge rate at 2:11pm was approximately 5,000 L/day, below the level 1 alert level.
  - Nuway crushed material for part of the day. They were down part of the day for repairs.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - No durability testing was performed today.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: PLS sump in the morning.



Photo 2: Testing skid steer on the liner with 2 layers of geotextile as a rub sheet.



Photo 3: Testing skid steer on the liner with 2 layers of geotextile as a rub sheet.



Photo 4: ODF placement.



Photo 5: Pelly shaping upstream embankment face.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 13, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 22°C to 6°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Pelly continued extending the header pipes above 940m. (***Photo 1***)
  - ODF placement continued for part of the day today. Due to issues with the conveyor ODF placement was suspended the second half of the day and Pelly was moved off the HL construction to another part of the mine. (***Photo 2***)
  - Priority Steel welded the PLS pipe casings. (***Photo 3***)
  - Layfield completed the fabrication of a second boot. (***Photo 4***). Layfield also resumed placing liner. (***Photo 5***)
  - BGC, Tetra Tech, and Layfield inspected the lined area on the west side below the western perimeter berm construction. Several rocks were observed falling into this lined area during construction of the west perimeter berm. We marked several deep dents for repair. No holes were found. (***Photo 6***)
  - The anchor trench was dug at the west perimeter berm.
  - Layfield was concerned that the liner would not hold properly during installation without a well compacted anchor trench. A plate tamper should be made available to immediately fill and compact the anchor trenches per the technical specifications. If the anchoring is not sufficient at the new perimeter berm angle the anchoring may need to be modified. (***Photo 7***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - Durability observations were made on ODF sample SA146.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Header pipe extension.



Photo 2: Pelly placing and spreading ODF on the western slope.



Photo 3: Steel PLS casing installation.



Photo 4: Two boots placed over the spillway invert.



Photo 5: Liner installation.



Photo 6: Dents identified and marked for repair on the western portion of the liner near the spillway invert.



Photo 7: Rough image of how the final panels on the west side of the HLF will be laid out. If anchoring is insufficient an alternate anchoring configuration will need to be assessed.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 14, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Cloudy 23°C to 7°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF placement continued today. (***Photo 1***)
  - Priority Steel welded the PLS pipe casings. (***Photo 2***)
  - Layfield continued placing liner.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement.



Photo 2: PLS pipe installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 15, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Some Rain 22°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF placement continued today. (***Photo 1***)
  - Priority Steel welded the PLS pipe casings. (***Photo 2***)
  - Layfield completed liner placement on the west side (***Photo 3***). Layfield also continued installation of the spillway culvert boots. (***Photo 4***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
  - BGC inspected the ODF being produced for durability.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement.



Photo 2: PLS pipe installation.



Photo 3: Liner placed on the west side of the HLF.



Photo 4: 4th boot placed around the spillway culverts. Once all boots are in the they will be welded to the culverts.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 16, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Rain 18°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Some ODF placement was performed today. However, consistent rains slowed work. (***Photo 1***)
  - Priority Steel welded the PLS pipe casings.
  - Due to rain no liner was placed today. Layfield will switch to night shift tomorrow to allow them to finish liner installation near the conveyor. Dust generated by the conveyor while it is running causes issues with the liner welding.
  - BGC, JDS, and Pelly discussed the transition between the underdrains and the monitoring vault. Pipes were fused for this connection and Pelly began working on the anchor trenches. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement.

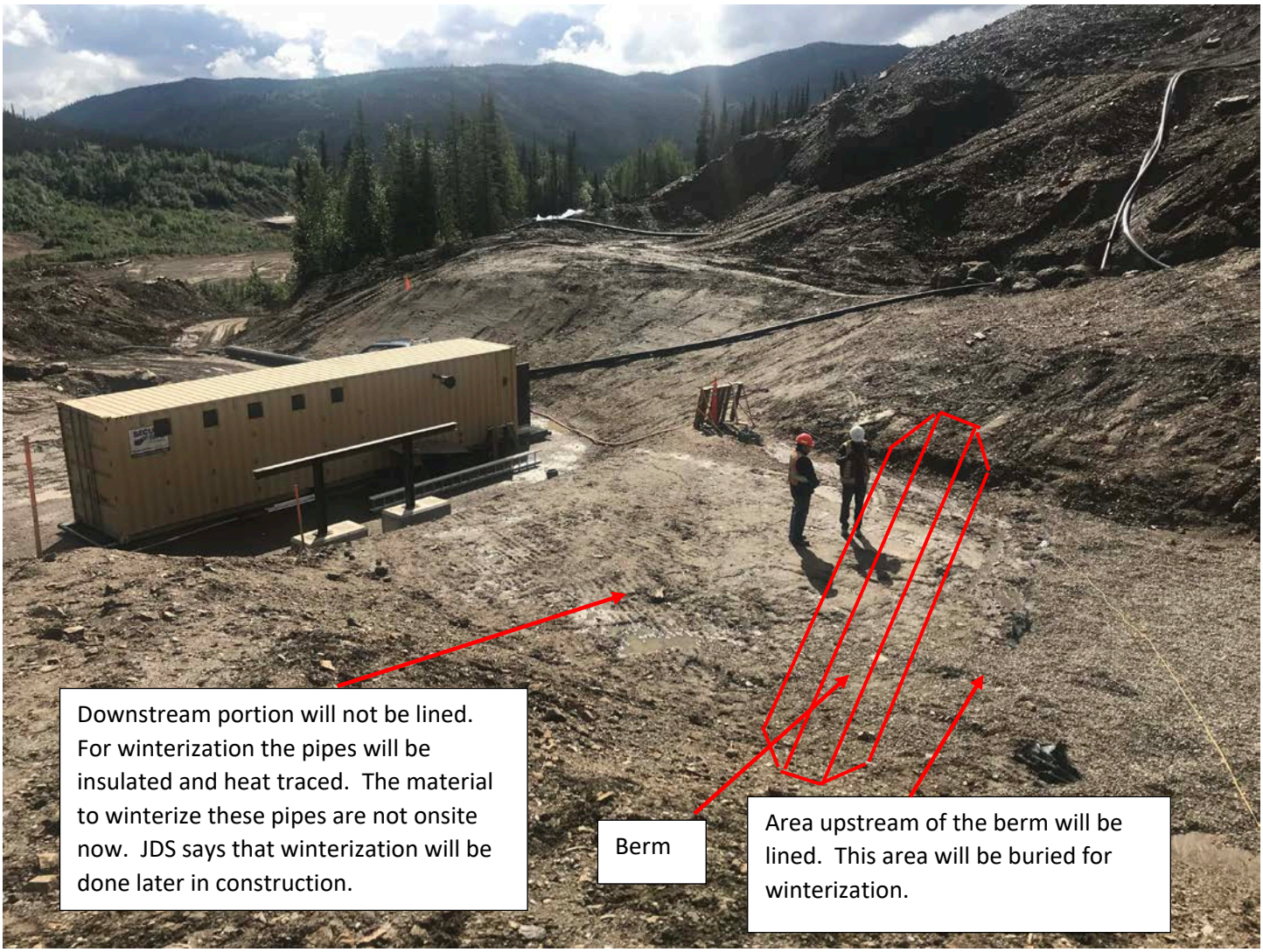


Photo 2: PLS pipe installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 17, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Some rain in PM 21°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - Some ODF placement was performed today. However, conveyor issues slowed work. (***Photo 1***).
  - Layfield switch to night shift. Liner was placed on the east gap of the Phase 1A area. (***Photo 2***) Layfield also completed the patches to the liner upstream of the spillway where falling rocks caused damage during the perimeter berm construction.
  - Priority Steel welded the PLS pipe casings. (***Photo 3***)
  - Pelly continued constructing the underdrain tie in to the monitoring vault.
  - There have been issues with data acquisition from the instruments installed at the HLF. After discussions with Underhill it is possible that the radio signals and/or electrical field from their transmitter mounted on the roof of the office with the HLF instrument supervisor may be disrupting the signal. JDS will disconnect the supervisor tomorrow and we will test a different location on the roof.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement.



Photo 2: Eastern portion of the Phase 1A with only a small liver of HDPE liner remaining.



Photo 3: PLS pipe installation.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 18, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 22°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***).
  - Layfield completed the liner across the Phase 1A area. The remaining work includes welding the culvert boots, completing the tie in to 940m on the west side, completing the Emergency Spillway invert flap, and lining the underdrain monitoring vault transition. There is also an area on the east side at the conveyor that needs liner but is buried. JDS has stated that this may be completed at a different time.
  - Priority Steel continued extending the PLS pipe casings. (***Photo 2***)
  - Pelly continued constructing the underdrain tie in to the monitoring vault. (***Photo 3, 4, 5***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF being spread towards the spillway culverts.



Photo 2: Steel PLS casing extension.



Photo 3: Underdrain / Monitoring vault tie in construction.



Photo 4: Discharge pipe from the monitoring vault to Dublin Gulch.



Photo 5: Installation of pipe and rip-rap at final discharge point to Dublin Gulch.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 19, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/ Terry Mandziak	**Weather:**	Clear 24°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today.
  - Layfield installed the boots at the spillway culverts.
  - Pelly worked on modifications to the containment berm at the crest.
  - Pelly continued constructing the underdrain tie in to the monitoring vault. (***Photo 1***)
  - Terry Mandziak with BGC arrived on site.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF being spread towards the spillway culverts.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 20, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Clear 26°C to 11°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today.
  - Layfield did not work today.
  - Pelly worked on modifications to the containment berm at the crest.
  - Pelly continued constructing the underdrain tie in to the monitoring vault.
  - Troy Meyer arrived on site.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Samples results from a segregated pile of ODF that was suspected to be high in fines reported fines ranging between 8 and 10%. This material will be rescreened to remove the fines. The total material to be rescreened is approximately 500 m3. Tetra Tech will have to provide QC testing of the material to verify it meets design spec prior to its delivery to the HL.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: In-heap pond.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 21, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Clear 27°C to 13°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***)
  - Layfield completed the liner shingle on the Emergency Spillway. (***Photo 2***) Layfield also worked on miscellaneous wrap up items requested by BGC for the final walkthrough of the area above 940m. Specifically, marking patches and patching smaller damages and defects that had been missed.
  - Pelly worked on modifications to the containment berm at the crest.
  - Pelly continued constructing the underdrain tie in to the monitoring vault. (***Photo 3***)
  - Nuway rescreened the stockpiled ODF material that previously tested high in fines.
  - BGC witnessed one of the haul trucks slipping on an area of the in-heap pond that only had 1m of ODF cover. This area will need to be uncovered and inspected. We have made plans to uncover this area tomorrow. Pelly will also delineate the areas within the in-heap pond that have 1.5m of cover to provide guidance for the haul truck traffic.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted prior to scarifying and placement of ODF.
  - Anchor trenches should be compacted on the crest and along the 990 perimeters.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: In-heap pond.



Photo 2: Shingle placed over emergency spillway.



Photo 3: Underdrain tie in.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 22, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Clear 25°C to 14°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***) Pelly delineated the areas where haul trucks are allowed to turn using spray paint and cones.
  - Layfield continued working on miscellaneous wrap up items requested by BGC for the final walkthrough of the area above 940m. Specifically, marking patches and patching smaller damages and defects that had been missed.
  - Pelly worked on modifications to the containment berm at the crest.
  - Pelly continued constructing the underdrain tie in to the monitoring vault. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - All anchor trenches have been compacted with the exception of a small portion of the west perimeter berm near 940m.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF. One sample reported higher than normal fines (7%). Nuway was informed and corrected the problem.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement in the in-heap pond.

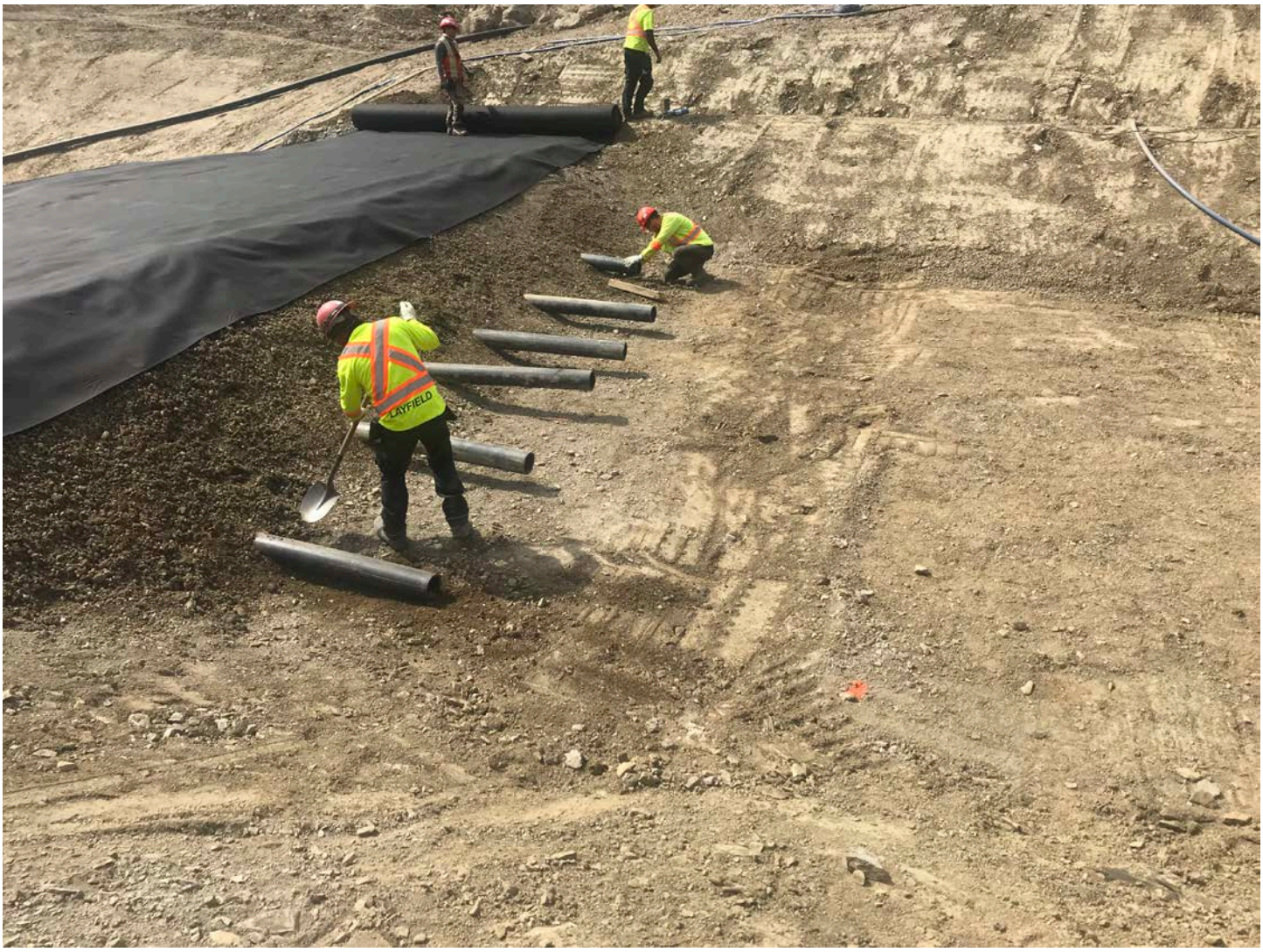


Photo 2: Layfield preparing to place geotextile and liner at the underdrain/monitoring vault tie in.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 23, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Clear 26°C to 15°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today.
  - JDS connected the piping from the ADR trench. (***Photo 1***)
  - Layfield continued working on miscellaneous wrap up items requested by BGC for the final walkthrough of the area above 940m. Specifically, marking patches and patching smaller damages and defects that had been missed. Layfield also placed liner at the embankment underdrain/ monitoring vault tie in. (***Photo 2***)
  - Pelly worked on modifications to the containment berm at the crest.
  - BGC (Troy and Terry) and Scott Dimitroff (Tetra Tech) began training one of Tetra Tech's jr. field techs on the oversight of the ODF placement.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - All anchor trenches have been compacted with the exception of a small portion of the west perimeter berm near 940m.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: Pipe extension at the ADR pipe trench.



Photo 2: Underdrain/ Monitoring vault tie in.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 24, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Clear 26°C to 14°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***)
  - A walkthrough of the area above 940m was completed. Some minor items were marked for Layfield to address. Once completed BGC and Tetra Tech will confirm and give final approval.
  - Pelly worked on modifications to the containment berm at the crest.
  - Pelly worked on the underdrain / monitoring vault tie in. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.



Photo 2: Underdrain/ Monitoring vault tie in.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 25, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer/Terry Mandziak	**Weather:**	Hazy 24ºC to 14ºC

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today.
  - An area where a wiggle wagon was observed driving and slipping on an area of ODF less than 1m thick was uncovered and inspected for damage. No damage was found. (***Photo 1***).
  - Layfield installed liner at the containment area at the crest. (***Photo 2***). T
  - Pelly worked on the underdrain / monitoring vault tie in. (***Photo 3***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.



Photo 2: Layfield installing liner at the containment pad on the crest.



Photo 3: Drain/ monitoring vault tie in.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 26, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer	**Weather:**	Clear 23°C to 12°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***)
  - Layfield completed liner at the containment area at the crest. T
  - Pelly covered the underdrain / monitoring vault tie in.
  - Three test pits in the Phase 1B area were excavated. Additional test pits will be excavated tomorrow. (***Photo 2***)

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.



Photo 2: Test pit excavation in the Phase 1B area.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 27, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan/Troy Meyer	**Weather:**	Clear 25°C to 10°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***)
  - Pelly covered the containment pad at the crest with ODF today (***Photo 2***).
  - Three additional test pits were excavated. A hydraulic hose broke on the Ewing excavator which leaked about 80L of hydraulic fluid onto the ground. A spill kit was immediately deployed by Ewing. JDS and Victoria Gold Environmental were notified. Victoria Gold Environmental visited the site and provided Ewing with instructions on how to clean up. After the machine was repaired later the same day Ewing used it to fill several super sacks with contaminated soil.
  - BGC completed the Phase 1B final design test pit program after 6 test pits. These test pits were excavated to confirm depth to bedrock, colluvium strata, and the presence of ice rich soil. These test pits will be used in conjunction with historic test pits excavated. No frozen ground or ice rick soil was encountered. BGC also mapped the road cuts at 990m, 1025m, and 1050m today. (***Photo 3***)
  - Troy Meyer sent an email to JDS discussing issues with and recomendations for the cracking along a road downstream of the Event Pond's south toe.
  - Troy Meyer left site.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.



Photo 2: Pelly covering the containment pad on the crest with ODF.



Photo 3: Test pit excavation in the wooded area near the center of the Phase 1B pad at approximate elevation 1025m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 28, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 24°C to 15°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - ODF was placed today. (***Photo 1***)
  - BGC redeployed the instruments at the event pond. The instruments were initially deployed with the receiving supervisor node at the camp on the roof of the office. Interference from the various signals at camp created a lot of interference and in the end resulted in the connection being lost. The supervisor node was moved to the event pond. The barometer's node and event pond vibrating wire node were deployed and setup. The remaining vibrating wires at the pad cell and embankment crest cannot be setup until eartherworks to prep these areas is complete.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Project Name:	Eagle Gold Construction Support	**Project No.:**	0792023
Client:	Victoria Gold	**Date and Shift:**	June 29, 2019 Day Shift
Construction:	JDS Mining, Pelly	**Location:**	45km N of Mayo, Canada
BGC Personnel:	Roy Morlan	**Weather:**	Clear 28°C to 16°C

Observations and Recommendations

- Observations and Recommendations (Today):
  - BGC delivered a demobe memo to JDS and Victoria Gold. The memo details issues and recommendations for items that are pending and will be addressed while BGC is off-site. Specifically, installation of the remaining instruments, cracking and potential slope failure downstream of the event ponds south toe, marking underdrain outflows, erosion of the slope north of the event pond its potential impact on the in-heap pond spillway, scarification and removal of fines from the in-heap pond.
  - ODF was placed today. (***Photo 1***)
  - Pelly filled the conduit used for the high voltage line above the spillway culverts with spray foam. Pelly said a cap would be placed over the second conduit or a sheet of 80mil liner would wrapped around it and affixed with multiple compression rings. This was not complete before BGC demobed.
  - Stands to mount the instrument transmitter nodes were constructed but not put in place prior to BGC demobing. BGC discussed deployment instructions with Tetra Tech. The instruments will be deployed by Tetra Tech after the standpipe piezometer on the crest are extended, the pad cell is ready for instrument installation, and the node stands are in place.
  - Roy Morlan demobed from site.

- Observations and Recommendations (Open/Ongoing):
  - The current cap for the crest instruments does not allow for wiring to run from the hole to a post without water infiltration. There was discussion of extending the PVC to complete this as a stickup. This should happen before operation begins.
  - Silt has collected on the ODF surface in the PLS sump due to runoff and pulverization from heavy traffic. BGC recommends that the surface of ODF be skimmed off and wasted and scarified.
  - JDS will construct additional instrument transmitter mounting posts so BGC can complete setting up the instrument network.

- Engineering:
  - None.

QA/QC Results

- QA/QC:
  - Pelly is providing QC monitoring and reporting for fill placement in their daily report when needed.
  - Tetra Tech provided QA monitoring and reporting for construction of the liner installations. Layfield is providing QC. Both are being reported by Tetra Tech in daily reports.
  - Tetra Tech is providing QC monitoring (gradation testing) and reporting for the production of ODF.
- BGC Recommendations:
  - None.

Communications (no follow up required):

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Personnel	Description
None	

Open Inspection Instructions (II)/Non-Conformance Reports (NCR)/Request for Information (RFI):

ID	Description	Status

Safety Issues: None this shift.



Photo 1: ODF placement below 940m.

Pelly Daily Reports

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 5, 2018	**Weather:** overcast (-15°C,-24°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Health and Safety Bulletins

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	72

Location and Equipment	Summary of Activities
4130.03/4130.05 Event Pond a. CAT 349 Excavator b. EX1200 Excavator c. LB490 Excavator d. CAT D10 Dozer x3 e. CAT 773 f. CAT 16G Grader	-Load and haul event pond unsuitable to waste dump -Slope event pond area -Road maintenance
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. 40t ADT x3 d. CAT D10 Dozer e. CAT D11 Dozer f. CAT D9 Dozer g. Packer	-Load, haul, and place unsuitable material to ADR waste dump -Load, haul, and place ADR quarry to HLF fill -Doze HLF cut material -Pelly QC: • Material 7 used from ADR Quarry • 0.9m lift • 3 passes with 9-tonne packer

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 5, 2018	**Weather:** overcast (-15°C,-24°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	176	Unsuitable	HLF	ADR Waste
4110.1.09	773	38	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT	31	Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	77	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	773	15	Unsuitable	Event Pond	Event Pond Waste
	40t ADT	3	Material 7	ADR Quarry	Pelly Yard
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Photos:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 5, 2018	**Weather:** overcast (-15°C,-24°C)	**Prepared By: Shipeng Zheng**



Photo 1: Removing Ice-rich material from HLF



Photo 2: Excavating event pond area – above spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 6, 2018	**Weather:** overcast (-10°C, -20°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-How to take instructions -Positive immediate intervention

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	74

Location and Equipment	Summary of Activities
4130.03/4130.05 Event Pond a. CAT 349 Excavator b. EX1200 Excavator c. LB490 Excavator d. CAT D10 Dozer x2 e. 40t ADT x4	-Load and haul event pond unsuitable to waste dump -Slope event pond area
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 x2 d. CAT D10 Dozer x3 e. CAT D11 Dozer f. Packer	-Load, haul, and place unsuitable material to ADR waste dump -Load, haul, and place ADR quarry to HLF fill -Doze HLF cut material -Pelly QC: • Material 7 used from ADR Quarry • 0.9m lift • 3 passes with 9-tonne packer • No visible ice in the material • Material is well-graded • Visual estimated minimum 20% of material greater than 12”

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 6, 2018	**Weather:** overcast (-10°C, -20°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	4	Unsuitable	HLF	ADR Waste
4110.1.09	773	111	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT	1	Material 7	ADR Quarry	HLF
4110.1.08	773	12	Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	257	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	773		Unsuitable	Event Pond	Event Pond Waste
	40t ADT	2	Material 7	ADR Quarry	Pelly Yard
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Photos:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 6, 2018	**Weather:** overcast (-10°C, -20°C)	**Prepared By: Shipeng Zheng**



Photo 1: Shaping HLF



Photo 2: Establishing HLF header underdrain trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 6, 2018	**Weather:** overcast (-10°C, -20°C)	**Prepared By: Shipeng Zheng**



Photo 3: Shaping Event Pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 7, 2018	**Weather:** overcast (-3°C, -10°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Equipment Visibility -Internet usage

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	69

Location and Equipment	Summary of Activities
4130.03/4130.05 Event Pond a. CAT 349 Excavator b. EX1200 Excavator c. LB490 Excavator d. CAT D10 Dozer x2 e. CAT D11 Dozer f. 40t ADT x3	-Load and haul event pond unsuitable to waste dump -Slope event pond area
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 x1.5 d. 40t ADT x2 e. CAT D10 Dozer x3 f. CAT D6 Dozer g. Packer	-Load, haul, and place unsuitable material to ADR waste dump -Load, haul, and place ADR quarry to HLF fill -Doze HLF cut material -Pelly QC: • Material 7 used from ADR Quarry • 0.9m lift • 3 passes with 9-tonne packer • No visible ice in the material • Material is well-graded • Visual estimated minimum 20% of material greater than 12” • Loose dumped material temperature ranges -3C to -0.5C

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 7, 2018	**Weather:** overcast (-3°C, -10°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	54	Unsuitable	HLF	ADR Waste
4110.1.09	773	56	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT	43	Material 7	ADR Quarry	HLF
4110.1.08	773	48	Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	65	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	109	Unsuitable	Event Pond	Event Pond Waste
	40t ADT		Material 7	ADR Quarry	Pelly Yard
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Photos:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 7, 2018	**Weather:** overcast (-3°C, -10°C)	**Prepared By: Shipeng Zheng**



Photo 1: Establishing HLF header underdrain trench



Photo 3: Shaping Event Pond

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** overcast (-2°C, -8°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Safety Sunday: Discrimination

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	70

Location and Equipment	Summary of Activities
4130.03/4130.05 Event Pond a. CAT 349 Excavator b. CAT 365 Excavator c. LB490 Excavator d. LB 250 Excavator e. CAT D10 Dozer x2 f. CAT D11 Dozer g. 40t ADT x2	-Load and haul event pond unsuitable to waste dump -Slope event pond area
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator x2 b. CAT 773 c. 40t ADT x4 d. CAT D10 Dozer x3 e. CAT D6 Dozer f. Packer	-Load, haul, and place unsuitable material to ADR waste dump -Load, haul, and place ADR quarry to HLF fill -Doze HLF cut material -Pelly QC: • Material 7 used from ADR Quarry • 0.9m lift • 3 passes with 9-tonne packer • No visible ice in the material • Material is well-graded • Visual estimated minimum 20% of material greater than 12” and greater than 75% quartz rich rock • Loose dumped material temperature ranges -1.0C to 3.8C

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** overcast (-2°C, -8°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	52	Unsuitable	HLF	ADR Waste
4110.1.09	773	71	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT	113	Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	78	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	13	Unsuitable	Event Pond	Event Pond Waste
4110.1.08	40t ADT	4	Material 7	ADR Quarry	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Photos:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** overcast (-2°C, -8°C)	**Prepared By: Shipeng Zheng**



Photo 1: Establishing HLF header underdrain trench



Photo 3: Shaping Event Pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** snow (-8°C, 2°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Good effective communications -Inspection review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	70

Location and Equipment	Summary of Activities
4130.03/4130.05 Event Pond a. CAT 349 Excavator b. CAT 365 Excavator c. LB490 Excavator d. LB 250 Excavator e. CAT D10 Dozer f. CAT D11 Dozer g. CAT D6 Dozer h. 40t ADT x5	-Load and haul event pond unsuitable to waste dump -Slope event pond area
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 773 c. 40t ADT d. LB250 Excavator e. LB490 Excavator f. CAT D10 Dozer x3 g. CAT D9 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** snow (-8°C, 2°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	32	Unsuitable	HLF	ADR Waste
4110.1.09	773	47	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	74	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	278	Unsuitable	Event Pond	Event Pond Waste
2150.03/2150.05	40t ADT		Material 7	ADR Quarry	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 8, 2018	**Weather:** snow (-8°C, 2°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo1: Shaping Event Pond

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 10, 2018	**Weather: snow** (-14°C, 2°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Spill pad review -Walkarounds review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	71

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07 Event Pond a. CAT 349 Excavator b. CAT 365 Excavator c. LB490 Excavator d. HIT EX1200 Excavator e. CAT D10 Dozer x2 f. CAT D6 Dozer g. 40t ADT x4.5	-Load and haul event pond unsuitable to waste dump -Slope event pond area -Excavating EP underdrain
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 773 X2 c. CAT D10 Dozer x3 d. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 10, 2018	**Weather: snow** (-14°C, 2°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.09	773	135	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	382	Unsuitable	Event Pond	Event Pond Waste
2150.03/2150.05	40t ADT		Material 7	ADR Quarry	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 10, 2018	**Weather: snow** (-14°C, 2°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Underdrain

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 11, 2018	**Weather: snow** (-15°C, -1°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-JHA

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	73

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07 Event Pond a. LB250 Excavator b. LB490 Excavator c. HIT EX1200 Excavator d. CAT D10 Dozer x1.5 e. CAT D6 Dozer f. 40t ADT x4	-Load and haul event pond unsuitable to waste dump -Slope event pond area -Excavating/Installing EP underdrain
4110.1.09/4110.1.08 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 X2 d. 40t ADT e. CAT D10 Dozer x3.5 f. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 11, 2018	**Weather: snow** (-15°C, -1°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	44	Unsuitable	HLF	ADR Waste
4110.1.09	773	171	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	219	Unsuitable	Event Pond	Event Pond Waste
4130.07	40t ADT	6	20mm Agg.	Nuway	Event Pond UD
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Dec 11, 2018	**Weather: snow** (-15°C, -1°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 12, 2018	**Weather: snow** (-20°C, -13°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Recycling -Proper garbage disposal -Alcohol and drug policy

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	72

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.13 Event Pond a. LB250 Excavator b. LB490 Excavator c. CAT 349 Excavator d. HIT EX1200 Excavator e. CAT D10 Dozer x1.5 f. CAT D6 Dozer g. 40t ADT x3	-Load and haul event pond unsuitable to waste dump -Slope event pond area -Excavating/Installing EP underdrain -Excavating/Installing Finger drains
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 X2 d. CAT D10 Dozer x3 e. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material -Clearing Interceptor Ditch

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 12, 2018	**Weather: snow** (-20°C, -13°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.09	773	174	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	162	Unsuitable	Event Pond	Event Pond Waste
4130.07	40t ADT	8	20mm Agg.	Nuway	Event Pond UD
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 12, 2018	**Weather: snow** (-20°C, -13°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Underdrain

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 13, 2018	**Weather: overcast** (-25°C, -15°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Icy weather conditions -Complacency

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	60

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.13 Event Pond a. LB250 Excavator b. LB245 Excavator c. LB490 Excavator d. CAT 349 Excavator e. HIT EX1200 Excavator f. CAT D9 Dozer g. CAT D6 Dozer h. 40t ADT x2	-Load and haul event pond unsuitable to waste dump -Slope event pond area -Excavating/Installing EP underdrain -Excavating/Installing Finger drains
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 Truck d. CAT 777 Truck x2 e. CAT D10 Dozer x3 f. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material -Clearing Interceptor Ditch
TBD Ditch B a. CAT 349 Excavator	-Excavating Ditch B

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 13, 2018	**Weather: overcast** (-25°C, -15°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777	143	Unsuitable	HLF	ADR Waste
4110.1.09	773	5	Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	79	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	75	Unsuitable	Event Pond	Event Pond Waste
4130.07	40t ADT		20mm Agg.	Nuway	Event Pond UD
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Dec 13, 2018	Excavating Ditch B

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Dec 13, 2018	**Weather: overcast** (-25°C, -15°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Finger Drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 13, 2018	**Weather: overcast** (-25°C, -15°C)	**Prepared By: Shipeng Zheng**



Photo 3: Excavating Event Pond Underdrain Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 14, 2018	**Weather: overcast** (-28°C, -20°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Cold Weather Exposure Limits

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	59

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.35 Event Pond a. LB245 Excavator b. LB490 Excavator c. CAT D10 Dozer d. CAT D6 Dozer e. CAT 992 Loader f. 40t ADT x3	-Excavating/Installing EP underdrain -Excavating/Installing Finger drains
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 777 Truck x2 c. CAT D10 Dozer x2 d. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material -Clearing Interceptor Ditch
9000.36 Ditch B a. CAT 349 Excavator	-Excavating Ditch B

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 14, 2018	**Weather: overcast** (-28°C, -20°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777	120	Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	56	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT	26	Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT	10	20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT	22	Material 2	Nuway	Event Pond UD
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Dec 14, 2018	**Weather: overcast** (-28°C, -20°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Under/Finger Drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 15, 2018	**Weather: overcast** (-28°C, -6°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Safety Sunday: Equipment tricks and fails

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	57

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.35 Event Pond a. LB245 Excavator b. LB490 Excavator c. HIT EX1200 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT D6 Dozer g. CAT 992 Loader h. 40t ADT x2	-Excavating/Installing EP underdrain -Excavating/Installing Finger drains
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. LB245 Excavator d. CAT 777 Truck x2 e. CAT D10 Dozer x2 f. CAT D11 Dozer	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material
9000.36 Ditch B a. CAT 349 Excavator b. CAT 992 Loader c. 40t ADT	-Excavating Ditch B -Install geotextile cloth and riprap

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 15, 2018	**Weather: overcast** (-28°C, -6°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777	85	Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	70	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	52	Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT	19	20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT	10	Material 2	Nuway	Event Pond UD
9000.36	40t ADT	13	Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Dec 15, 2018	**Weather: overcast** (-28°C, -6°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: Excavating Event Pond Under/Finger Drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 15, 2018	**Weather: overcast** (-28°C, -6°C)	**Prepared By: Shipeng Zheng**



Photo 3: Installation of the Event Pond Underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 15, 2018	**Weather: overcast** (-28°C, -6°C)	**Prepared By: Shipeng Zheng**



Photo 4: Installation of the Ditch B

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 16, 2018	**Weather: flurries** (-10°C, -6°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Radio etiquette -Grinder Safety

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	57

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.35 Event Pond a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT D6 Dozer g. CAT 992 Loader h. 40t ADT x2	-Excavating/Installing EP underdrain -Excavating/Installing Finger drains -Removing Unsuitable material from Event Pond
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 777 Truck x2 d. CAT D10 Dozer x3	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material
9000.36 Ditch B a. CAT 349 Excavator b. CAT 992 Loader c. 40t ADT x2	-Excavating Ditch B -Install geotextile cloth and riprap

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 16, 2018	**Weather: flurries** (-10°C, -6°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777	50	Unsuitable	HLF	ADR Waste
4110.1.09	773	64	Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	47	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	71	Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT	3	20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT	24	Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Dec 16, 2018	**Weather: flurries** (-10°C, -6°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Photo 2: CAT D11 Ripping Finger Drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 16, 2018	**Weather: flurries** (-10°C, -6°C)	**Prepared By: Shipeng Zheng**



Photo 3: Installation of the Event Pond Finger Drain Ditch



Photo 4: Riprap placement on the Ditch B

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Dec 17, 2018	**Weather: overcast** (-12°C, -3°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Equipment Cleanup -Focus on Task -Work Area Congestion

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	56

Location and Equipment	Summary of Activities
4130.03/4130.05/4130.07/9000.35 Event Pond a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. KOM 430 Loader e. CAT D10 Dozer f. CAT D11 Dozer g. CAT D6 Dozer h. 40t ADT x2	-Excavating/Installing EP underdrain -Excavating/Installing Finger drains -Removing Unsuitable material from Event Pond
4110.1.09/4110.1.08/4110.2.01 HLF/ADR Quarry a. HIT EX1200 Excavator b. CAT 365 Excavator c. CAT 773 Truck x2 d. 40t ADT x2 e. CAT D10 Dozer x3	-Load, haul, and place unsuitable material to ADR waste dump -Doze HLF cut material
9000.36 Ditch B a. CAT 349 Excavator b. CAT 992 Loader	-Excavating Ditch B -Install geotextile cloth and riprap

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 17, 2018	**Weather: overcast** (-12°C, -3°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773	78	Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	47	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT	49	Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT	10	20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT	2	Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 17, 2018	**Weather: overcast** (-12°C, -3°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Shaping



Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Dec 17, 2018	**Weather: overcast** (-12°C, -3°C)	**Prepared By: Shipeng Zheng**

Photo 2: Installation of Finger Drain



Photo 3: Installation of the Event Pond Underdrain



Photo 4: Riprap placement on the Ditch B

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 07, 2019	**Weather: overcast** (-26°C, -34°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Orientation

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	43

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. HIT EX1200 Excavator b. LB250 Excavator c. LB245 Excavator d. CAT D6 Dozer x2 e. CAT D10 Dozer f. CAT 349 Excavator g. LB490 Excavator	-Clearing snow -Excavating Lateral drains -Stripping the Interceptor ditch -Shaping surface
Victoria Gold Pit Access Road a. CAT D10 Dozer x3	-Stripping the access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 07, 2019	**Weather: overcast** (-26°C, -34°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 07, 2019	**Weather: overcast** (-26°C, -34°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF clearing snow and excavating lateral drains



Photo 2: Stripping at the Pit Access Road

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 08, 2019	**Weather: overcast** (-31°C, -37°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Stop and Take 5 -Thinking before you take action

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	43

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer x2 d. CAT D10 Dozer e. CAT 349 Excavator f. LB490 Excavator g. 40t ADT x2	-Excavating Lateral drains -Stripping the Interceptor ditch -Shaping surface -Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer	-Stripping the access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 08, 2019	**Weather: overcast** (-31°C, -37°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	10	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 08, 2019	**Weather: overcast** (-31°C, -37°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF excavating lateral drains and unsuitable waste removal



Photo 2: Stripping at the Pit Access Road

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 09, 2019	**Weather: overcast** (-33°C, -40°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Fire Alarm awareness

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer x2 d. CAT D10 Dozer e. CAT 349 Excavator f. LB490 Excavator g. 40t ADT	-Excavating Lateral drains -Stripping the Interceptor ditch -Shaping surface -Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer	-Stripping the access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 09, 2019	**Weather: overcast** (-33°C, -40°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	9	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 09, 2019	**Weather: overcast** (-33°C, -40°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF excavating lateral drains and unsuitable waste removal



Photo 2: Stripping at the Pit Access Road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 10, 2019	**Weather: overcast** (-24°C, -29°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Cold Weather

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. CAT 349 Excavator f. LB490 Excavator	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch --Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer	-Stripping the access road -Cut to Fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 10, 2019	**Weather: overcast** (-24°C, -29°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 10, 2019	**Weather: overcast** (-24°C, -29°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF excavating lateral drains and unsuitable waste removal



Photo 2: Dozing at the Pit Access Road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 10, 2019	**Weather: overcast** (-24°C, -29°C)	**Prepared By: Shipeng Zheng**



Photo 3: Stripping at the Interceptor Ditch looking East



Photo 3: Stripping at the Interceptor Ditch looking Wast

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 11, 2019	**Weather: overcast** (-19°C, -25°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-PPE -Complete all paperwork

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. LB490 Excavator h. 40t ADT x2	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch --Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 11, 2019	**Weather: overcast** (-19°C, -25°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	36	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 11, 2019	**Weather: overcast** (-19°C, -25°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF West lateral drain



Photo 2: HLF East lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 11, 2019	**Weather: overcast** (-19°C, -25°C)	**Prepared By: Shipeng Zheng**



Photo 3: Dozing at the Pit Access Road



Photo 4: Stripping at the Interceptor Ditch looking Wast

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 12, 2019	**Weather: overcast** (-19°C, -23°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Equipment walkarounds -WHMIS

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer d. CAT D10 Dozer x2 e. CAT D11 Dozer f. CAT 349 Excavator g. LB490 Excavator h. 40t ADT x2	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch --Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 12, 2019	**Weather: overcast** (-19°C, -23°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	30	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
9000.36	40t ADT		Riprap	Eagle Pup	Ditch B
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 12, 2019	**Weather: overcast** (-19°C, -23°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF West lateral drain



Photo 3: Dozing at the Pit Access Road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 12, 2019	**Weather: overcast** (-19°C, -23°C)	**Prepared By: Shipeng Zheng**



Photo 4: Dozing at the Interceptor Ditch looking West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 13, 2019	**Weather: overcast** (-14°C, -21°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Communication -Team Work

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. LB490 Excavator h. 40t ADT x3 i. 992 Loader	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch -Stockpile Riprap for Interceptor ditch -Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator d. CAT 16G Grader	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 13, 2019	**Weather: overcast** (-14°C, -21°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
4110.2.03	40t ADT	43	Riprap	Eagle Pup	Interceptor Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Jan 13, 2019	**Weather: overcast** (-14°C, -21°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Lateral Drains



Photo 2: Dozing at the Pit Access Road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 13, 2019	**Weather: overcast** (-14°C, -21°C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Interceptor Ditch looking East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 14, 2019	**Weather: overcast** (-12°C, -18°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Four points of safety awareness -Line of fire -slips, trips, and falls

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. LB490 Excavator g. 40t ADT x3 h. 992 Loader i. 16G Grader	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch -Stockpile Riprap for Interceptor ditch -Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 14, 2019	**Weather: overcast** (-12°C, -18°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
4110.2.03	40t ADT	76	Riprap	Eagle Pup	Interceptor Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 14, 2019	**Weather: overcast** (-12°C, -18°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 2: Dozing at the Pit Access Road 1st switchback



Photo 3: HLF Interceptor Ditch looking East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 15, 2019	**Weather: light snow** (-12°C, -16°C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Spill Response -Slipper road conditions

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.01 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. LB490 Excavator g. 40t ADT x3 h. 992 Loader	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch -Stockpile Riprap for Interceptor ditch -Remove unsuitable from HLF to ADR
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 15, 2019	**Weather: light snow** (-12°C, -16°C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	777		Unsuitable	HLF	ADR Waste
4110.1.09	773		Unsuitable	HLF	ADR Waste
4110.1.09	40t ADT	23	Unsuitable	HLF	ADR Waste
4110.1.08	40t ADT		Material 7	ADR Quarry	HLF
4110.1.08	773		Material 7	ADR Quarry	HLF
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	ADR Waste
4130.03/4130.05	40t ADT		Unsuitable	Event Pond	Event Pond Waste
4130.07/9000.35	40t ADT		20mm Agg.	Nuway	Event Pond UD
4130.07/9000.35	40t ADT		Material 2	Nuway	Event Pond UD
4110.2.03	40t ADT	11	Riprap	Eagle Pup	Interceptor Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 15, 2019	**Weather: light snow** (-12°C, -16°C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: Dozing at the Pit Access Road 1st switchback



Photo 2: HLF Interceptor Ditch looking West

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 16, 2019	**Weather:** snow (-8°C, -10°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Safety achievements; No LTA's 750,000 hrs -Snow and slippery conditions

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/4110.5.04/4110.2.02 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. LB490 Excavator	-Excavating Lateral drains -Stripping/Excavating the Interceptor ditch
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 16, 2019	**Weather:** snow (-8°C, -10°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Jan 16, 2019	**Weather:** snow (-8°C, -10°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Dozing HLF Interceptor Ditch looking East



Photo 2: Thawing HLF underdrain header pipes and drain fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 17, 2019	**Weather:** snow/overcast (-8°C, -10°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Spill response -Waste segregation -Camp protocol

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.04/4110.2.02 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. LB490 Excavator g. CAT 992 Loader h. 40t ADT	-Excavating Lateral drains -Load/haul drain fill -Stripping/Excavating the Interceptor ditch
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 17, 2019	**Weather:** snow/overcast (-8°C, -10°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	23	Unsuitable	HLF	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Eagle SP	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 17, 2019	**Weather:** snow/overcast (-8°C, -10°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Excavating HLF interceptor ditch



Photo 2: Excavated 0+465 west lateral drain trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 18, 2019	**Weather:** snow/overcast (-10°C, -16°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-PPE -Chock Blocks -Speed -Communication

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.04/4110.2.02 HLF a. LB250 Excavator b. LB245 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. LB490 Excavator h. CAT 992 Loader i. 40t ADT	-Excavating Lateral drains -Load/haul drain fill to laterals -Place geotextile, drain fill, and piping in lateral drain 0+465 west -Stripping/Excavating the Interceptor ditch
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 18, 2019	**Weather:** snow/overcast (-10°C, -16°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT		Unsuitable	HLF	ADR Waste
4110.5.04	40t ADT	10	Drain fill	Eagle SP	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 18, 2019	**Weather:** snow/overcast (-10°C, -16°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: 0+465 West Lateral drain



Photo 2: Pit access road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 19, 2019	**Weather:** snow/overcast (-16°C, -19°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Knowing where other workers are; working in tight areas

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.08/4110.5.04/4110.2.02/4110.2.03 HLF a. LB245 Excavator b. HIT EX1200 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. CAT 330 Excavator g. LB490 Excavator h. CAT 992 Loader i. 40t ADT x2	-Excavating Lateral drain trench -Load, haul, and place sand fill above lateral drain -Load, haul, place and compact rockfill -Place geotextile, drain fill, and piping in lateral drain 0+465 west -Stripping/Excavating the Interceptor ditch -Place geotextile and rip rap in interceptor ditch -Sort rock fill at ADR quarry -Pelly QC: • Material 7 used from ADR Quarry • 0.7m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock • Loose dumped material temperature ranged from 2.4C to 3.5C
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Dozing EP road area
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping the access road area -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 19, 2019	**Weather:** snow/overcast (-16°C, -19°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity
January 19, 2019	4110.5.04	12 oz non woven geotextile	75 rolls

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08	40t ADT	7	Rock Fill	ADR Quarry	HLF Fill
4110.5.04	40t ADT	9	Drain fill	Eagle SP	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 19, 2019	**Weather:** snow/overcast (-16°C, -19°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1:Placing geotextile in interceptor ditch



Photo 2: Placing sand fill above 0+465 west lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 20, 2019	**Weather:** overcast (-18°C, -20°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Spill kits and field kits

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.08/4110.5.04/4110.2.02/4110.2.03 HLF a. LB245 Excavator b. HIT EX1200 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. CAT 330 Excavator g. LB490 Excavator h. 40t ADT i. CAT 68B Packer	-Excavating lateral drain trench -Load, haul, place and compact rockfill -Stripping/excavating the interceptor ditch -Place rip rap in interceptor ditch -Pelly QC: • Material 7 used from ADR Quarry • 0.7m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% of material >12”; little to no weak phyllite rock • Loose dumped material temperature ranged from -6C to -7C
9000.37 Event Pond Access Road a. CAT D10 Dozer b. LB 490 Excavator	-EP to Dublin road construction
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 20, 2019	**Weather:** overcast (-18°C, -20°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08	40t ADT	29	Rock Fill	ADR Quarry	HLF Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 20, 2019	**Weather:** overcast (-18°C, -20°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Placing riprap in interceptor ditch



Photo 2: Excavating 0+660 east lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 21, 2019	**Weather:** overcast (-17°C, -23°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Call points -Working with other contractors

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.04/4110.2.02/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. CAT 330 Excavator h. 40t ADT x2	-Excavating lateral drain trench -Excavate HLF unsuitable to UD trench -Stripping/excavating the interceptor ditch -Place rip rap in interceptor ditch
TBD Ice Management a. LB245 Excavator b. CAT D6 Dozer	-Remove ice from event pond spillway
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 21, 2019	**Weather:** overcast (-17°C, -23°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	16	Unsuitable	HLF	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Jan 21, 2019	Ice Management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 21, 2019	**Weather:** overcast (-17°C, -23°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Excavating unsuitable material from HLF underdrain trench



Photo 2: Pit access road 2nd switchback

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 22, 2019	**Weather:** clear (-25°C, -26°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Haul trucks and foot traffic awareness -Working together

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09/4110.5.04/4110.2.02/4110.2.03 HLF a. LB250 Excavator b. LB490 Excavator c. CAT D10 Dozer x2 d. CAT D11 Dozer e. CAT 349 Excavator f. CAT 330 Excavator g. 40t ADT x2	-Excavating lateral drain trench -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch
TBD Ice Management a. LB245 Excavator	-Remove ice from event pond spillway
9000.37 Event Pond Access Road a. CAT D10 Dozer	-Road construction
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 22, 2019	**Weather:** clear (-25°C, -26°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	43	Unsuitable	HLF	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Jan 21, 2019	Ice Management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 22, 2019	**Weather:** clear (-25°C, -26°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Excavating unsuitable material from HLF underdrain trench



Photo 2: Pit access road cut and fill above 2nd switchback

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 23, 2019	**Weather:** clear/overcast (-17°C, -26°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Sunlife benefits

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.04/4110.2.02/4110.2.03 HLF a. LB250 Excavator b. LB490 Excavator c. CAT D10 Dozer d. CAT D11 Dozer e. CAT 349 Excavator f. CAT 330 Excavator g. 40t ADT	-Excavating lateral drain trench -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch
TBD Ice Management a. KOM 430 Loader	-Remove ice from event pond spillway
9000.37 Event Pond Access Road a. CAT D10 Dozer b. LB 490 Excavator	-Road construction
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 23, 2019	**Weather:** clear/overcast (-17°C, -26°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	10	Unsuitable	HLF	ADR Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Jan 21, 2019	Ice Management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 23, 2019	**Weather:** clear/overcast (-17°C, -26°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Excavating HLF underdrain trench



Photo 2: Pit access road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 24, 2019	**Weather:** overcast (-13°C, -16°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-wheel chocks -physical fitness levels and health monitoring

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03HLF a. LB250 Excavator b. LB490 Excavator c. CAT D10 Dozer x2 d. CAT D11 Dozer e. CAT 349 Excavator f. CAT 330 Excavator	-Excavating lateral drain trench -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch
TBD Ice Management a. KOM 430 Loader b. LB 245 Excavator c. 40t ADT	-Remove ice from event pond spillway
9000.37 Event Pond Access Road a. CAT D11 Dozer	-Road construction
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 24, 2019	**Weather:** overcast (-13°C, -16°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity
Jan 24, 2019	7200.03	Demobilize Komatsu 380 Loader	1

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD4	40t ADT	21	ICE	Event Pond Ditch	Event Pond Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Jan 21, 2019	Ice Management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 24, 2019	**Weather:** overcast (-13°C, -16°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: HLF interceptor ditch



Photo 2: Excavating 0+660 east lateral drain

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 25, 2019	**Weather:** snow/clear (-3°C, -10°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Operating equipment on steep and slippery slopes

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03HLF a. LB250 Excavator b. LB490 Excavator c. CAT D9 Dozer d. CAT D10 Dozer x2 e. CAT D11 Dozer f. CAT 349 Excavator g. CAT 330 Excavator	-Excavating lateral drain trench -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch
TBD Ice Management a. LB 245 Excavator b. 40t ADT	-Remove ice from event pond spillway
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 365 Excavator d. CAT 16G Grader	-Stripping pit access road -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 25, 2019	**Weather:** snow/clear (-3°C, -10°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD4	40t ADT	27	ICE	Event Pond Ditch	Event Pond Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown
Jan 21, 2019	Ice Management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 25, 2019	**Weather:** snow/clear (-3°C, -10°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Excavating 0+660 and 0+730 east lateral drains



Photo 2: Excavating underdrain header trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 26, 2019	**Weather:** clear (-13°C, -15°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Mining and the environment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03HLF a. LB250 Excavator b. LB245 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. CAT 330 Excavator	-Excavating lateral drain trench -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch
TBD Ice Management a. LB 245 Excavator b. 40t ADT	-Remove ice from event pond spillway
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 26, 2019	**Weather:** clear (-13°C, -15°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.38	40t ADT	14	ICE	Event Pond Ditch	Event Pond Waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 26, 2019	**Weather:** clear (-13°C, -15°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Dozing cut for HLF interceptor ditch



Photo 2: Excavating 0+730 east lateral drain trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 27, 2019	**Weather:** clear (-13°C, -20°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-5 point cards and walk arounds

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB250 Excavator b. LB245 Excavator c. LB490 Excavator d. KOM 430 Loader e. CAT D9 Dozer f. CAT D10 Dozer g. CAT D11 Dozer h. CAT 349 Excavator i. 40t ADT x2	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer	-Clearing
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Jan 27, 2019	**Weather:** clear (-13°C, -20°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT	5	Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	7	Drain fill	Nuway	HLF Lateral Drain
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 27, 2019	**Weather:** clear (-13°C, -20°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: 0+530 east lateral drain



Photo 2: Placing rip rap into interceptor ditch

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 29, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-New 30-day work permit -Reviewed Freezing the Scene

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB250 Excavator b. LB245 Excavator c. LB490 Excavator d. KOM 430 Loader e. CAT D10 Dozer f. CAT 349 Excavator g. CAT 330 Excavator h. 40t ADT x2	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer	-Clearing/stripping -Road clearing
9000.37 Event Pond Access Road a. CAT D10 Dozer b. 40t ADT c. KOM 430 Loader	-Load, Haul, Place common fill for the Event Pond Access Road
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 29, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT	2	Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	6	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF Lateral Drain
9000.37	40t ADT	27	Common	EP Pond Dump	EP Access Road
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 30, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Cold weather exposure limits -Positive community events

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB490 Excavator c. KOM 430 Loader d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. 40t ADT	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer	-Clearing/stripping -Road clearing
9000.37 Event Pond Access Road b. CAT D10 Dozer	-Dozing to fill
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator d. HIT EX1200 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 30, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	2	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	3	Rockfill	ADR Quarry	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 31, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Report Incidents immediately -Reviewed Code 1 incident

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. KOM 430 Loader e. CAT D10 Dozer f. CAT D11 Dozer g. CAT 349 Excavator h. 40t ADT	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer	-Clearing/stripping -Road clearing
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator d. HIT EX1200 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Jan 31, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT	3	Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	5	Rockfill	ADR Quarry	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd. Eagle Gold Project Daily Report**	
Date: Feb 01, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Inspections, Investigations, and Corrective Actions

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. KOM 430 Loader e. CAT D10 Dozer f. CAT D11 Dozer g. CAT 330 Excavator h. CAT 349 Excavator i. 40t ADT x2	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap
9000.40 Mine Access Borrow Pit a. CAT D11 Dozer	-Clearing/stripping -Road clearing
9000.37 Event Pond Access Road b. CAT D11 Dozer	-Dozing to fill
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator d. HIT EX1200 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 01, 2019	**Weather:**	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT	15	Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	1	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	1	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	7	Rockfill	ADR Quarry	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-World Cancer Day

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT 992 Loader e. CAT D10 Dozer f. CAT D11 Dozer g. CAT 349 Excavator h. 40t ADT	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+0240)
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT 777 Truck c. CAT 365 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
Victoria Gold Pit Access Road a. CAT D10 Dozer x2 b. CAT D11 Dozer c. CAT 16 Grader	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF Lateral Drain
9000.40	777	17	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: Lateral Drain Installation at 660 East

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**



Photo 2: End Cap for the Lateral Drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**



Photo 3: Interceptor Ditch – Placing Riprap

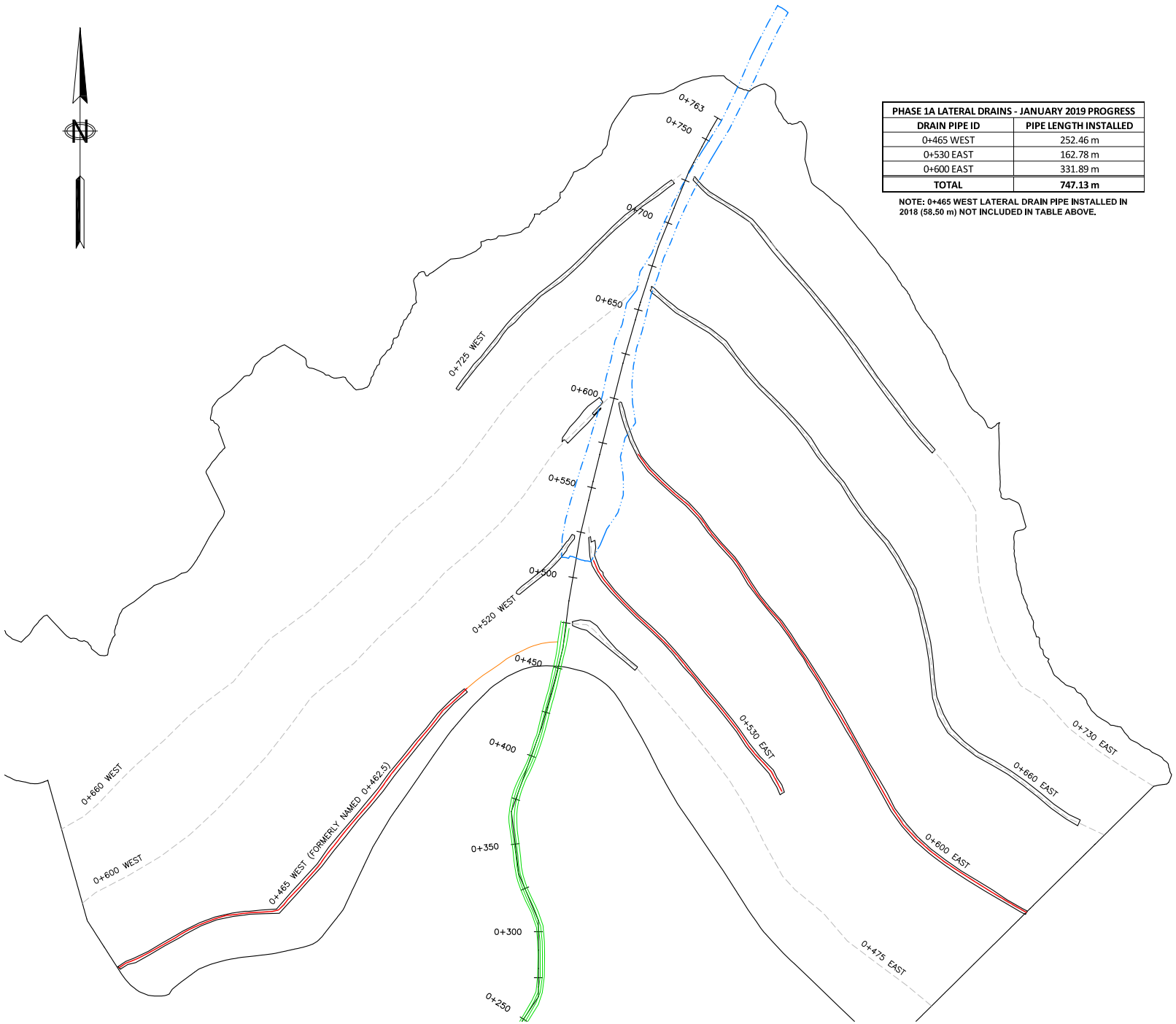


Photo 4: Interceptor Ditch – Excavating the Interceptor toward the East end

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 02, 2019	**Weather:** clear (-24 C, -38 C)	**Prepared By: Shipeng Zheng**



Photo 5: Victoria Pit Access Road – near 3rd switchback



PHASE 1A LATERAL DRAINS - JANUARY 2019 PROGRESS	
DRAIN PIPE ID	PIPE LENGTH INSTALLED
0+465 WEST	252.46 m
0+530 EAST	162.78 m
0+600 EAST	331.89 m
TOTAL	747.13 m

NOTE: 0+465 WEST LATERAL DRAIN PIPE INSTALLED IN 2018 (58.50 m) NOT INCLUDED IN TABLE ABOVE.

REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. HLF LATERAL DRAIN PIPES INSTALLED AND ACCOUNTED FOR WITH THIS PROGRESS SHOWN IN RED.
2. HLF DESIGN LATERAL DRAIN PIPE CENTERLINES SHOWN IS DASHED GRAY.
3. HLF LATERAL DRAIN EXCAVATION SURFACE BOUNDARIES OUTLINED IN BLACK.
4. HLF UNDERDRAIN PIPING EXCAVATION OUTLINED IN BLUE.
5. EXISTING UNDERDRAIN PIPES INSTALLED IN 2018 SHOWN IN GREEN.
6. AS-BUILT SURVEYS EXECUTED BETWEEN JANUARY 8 AND FEBRUARY 1, 2019.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/02/02	CB	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PHASE 1A LATERAL DRAINS INSTALLATION PROGRESS

DRAWING SCALE: H 1:3000

DATE:	19/02/02	DWG No:	184110-030
SURVEYED:	TEAM	CHECKED:	
DRAWN:	CB	APPROVED:	

DRAWING FILE: 190131 HLF LATERAL DRAINS MASTER PROGRESS.PDF

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Feb 03, 2019	**Weather:** clear (-26 C, -33 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-JDS Incident Review: Loading Haul Truck

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. KOM 430 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+0245)
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT 777 Truck c. HIT EX1200 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 365 Excavator	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 03, 2019	**Weather:** clear (-26 C, -33 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	7	Structural Fill	ADR Quarry	HLF Lateral
9000.40	777	45	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 03, 2019	**Weather:** clear (-26 C, -33 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: Lateral Drain Installation at 660 East



Photo 2: Excavating the Lateral trench at 730 East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 03, 2019	**Weather:** clear (-26 C, -33 C)	**Prepared By: Shipeng Zheng**



Photo 3: Interceptor Ditch – Placing Riprap



Photo 4: Interceptor Ditch – Excavating the Interceptor toward the East end

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 03, 2019	**Weather:** clear (-26 C, -33 C)	**Prepared By: Shipeng Zheng**



Photo 5: Victoria Pit Access Road – near 3rd switchback

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 04, 2019	**Weather:** clear (-25 C, -29 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Boot Audit

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. KOM 430 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+270)
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT 777 Truck c. HIT EX1200 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 04, 2019	**Weather:** clear (-25 C, -29 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	2	Structural Fill	ADR Quarry	HLF Lateral
9000.40	777	57	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway
Jan 14, 2019	Waiting on redesign for HLF PLS piping

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 04, 2019	**Weather:** clear (-25 C, -29 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: Lateral Drain Installation at 660 East



Photo 2: Interceptor Ditch – Placing Riprap

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 04, 2019	**Weather:** clear (-25 C, -29 C)	**Prepared By: Shipeng Zheng**



Photo 3: Interceptor Ditch – Excavating the Interceptor toward the East end



Photo 4: Victoria Pit Access Road – near 3rd switchback

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 05, 2019	**Weather:** clear (-24 C, -28 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Environmental Inspection -JDS Bulletin -Focus Task on Hand

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. KOM 430 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+270)
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT 777 Truck c. HIT EX1200 Excavator d. CAT 365 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
9000.38 Event Pond Ice Removal e. LB250 Excavator	-Ice removal
Victoria Gold Pit Access Road a. CAT D10 Dozer b. CAT D11 Dozer	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 05, 2019	**Weather:** clear (-24 C, -28 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	5	Structural Fill	ADR Quarry	HLF Lateral
9000.40	777	58	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 05, 2019	**Weather:** clear (-24 C, -28 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: Lateral Drain Installation at 660 East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 05, 2019	**Weather:** clear (-24 C, -28 C)	**Prepared By: Shipeng Zheng**



Photo 2: Interceptor Ditch – Excavating the Interceptor toward the East end

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 05, 2019	**Weather:** clear (-24 C, -28 C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Header Underdrain Trench – installing geotextile warp

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 06, 2019	**Weather:** clear (-20 C, -27 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Reviewed Pelly incident -Environmental Awareness -Housekeeping etiquette

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	42

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. KOM 430 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+310) -Install HLF Header Underdrain pipes
9000.40 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 777 Truck d. HIT EX1200 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
Victoria Gold Pit Access Road a. CAT D10 Dozer	-Stripping pit access road -Road construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 06, 2019	**Weather:** clear (-20 C, -27 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	7	Structural Fill	ADR Quarry	HLF Lateral
9000.40	777	65	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Dec 2, 2018	Waiting on redesign for Event Pond Emergency Spillway

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 06, 2019	**Weather:** clear (-20 C, -27 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Pipes installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 06, 2019	**Weather:** clear (-20 C, -27 C)	**Prepared By: Shipeng Zheng**



Photo 2: HLF 475 East Lateral Tee

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 06, 2019	**Weather:** clear (-20 C, -27 C)	**Prepared By: Shipeng Zheng**



Photo 3: Pit Access Road – 3rd switchback

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 07, 2019	**Weather:** clear (-21 C, -26 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Parking Equipment; implements down, wheel chocks, lights up, parking distance -Boot audit for crew change

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. KOM 430 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+310) -Install HLF Header Underdrain pipes
9000.39 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 777 Truck d. HIT EX1200 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)
9000.38 Mine Access Borrow Pit a. LB250 Excavator	-Ice removal

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 07, 2019	**Weather:** clear (-21 C, -26 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	2	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	1	Structural Fill	ADR Quarry	HLF Lateral
9000.39	777	62	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 07, 2019	**Weather:** clear (-21 C, -26 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Pipes installation



Photo 2: HLF Interceptor Ditch Excavation Completed

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 07, 2019	**Weather:** clear (-21 C, -26 C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 07, 2019	**Weather:** clear (-21 C, -26 C)	**Prepared By: Shipeng Zheng**



Photo 4: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Equipment Walkarounds -Five-Point Safety Card -Visibility

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. CAT 992 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+360) -Install HLF Header Underdrain pipes Pelly QC: • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock • Loose dumped material temperature ranged from 1.5C to 3.0C
9000.39 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 777 Truck d. HIT EX1200 Excavator	-Load, Haul, Place Common fill to Nuway (ROM)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	6	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	14	Rock Fill	ADR Quarry	HLF Lateral
9000.39	777	58	Common	Pit Borrow	Nuway ROM
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Area – Shaping to Liner Surface



Photo 2: HLF Header Underdrain Area – Compacting Rock Fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Interceptor Ditch Rip Rap Placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**



Photo 4: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 08, 2019	**Weather:** clear (-19 C, -12 C)	**Prepared By: Shipeng Zheng**



Photo 5: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Safety Sunday: Return to Work Program

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT D10 Dozer e. CAT D11 Dozer f. CAT 349 Excavator g. CAT 992 Loader h. 40t ADT i. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Stripping/excavating the interceptor ditch -Place rip rap (Completed from West to Stn 0+720) -Install HLF Header Underdrain pipes
9000.39 Mine Access Borrow Pit a. CAT D10 Dozer b. CAT D11 Dozer c. CAT 777 Truck d. HIT EX1200 Excavator e. CAT 16 Grader	-Load, Haul, Place Common fill to Nuway (ROM)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	2	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	1	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	4	Rock Fill	ADR Quarry	HLF Lateral
9000.39	777	61	Common	Pit Borrow	Nuway ROM
4110.2.03	40ADT	4	Rip Rap	Nuway	HLF Int. Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**



Photo 2: HLF Interceptor Ditch – Looking East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Interceptor Ditch – Riprap Placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**



Photo 4: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 09, 2019	**Weather:** clear (-18 C, -9 C)	**Prepared By: Shipeng Zheng**



Photo 5: HLF 730 East Lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Excavator/Haul Truck SOP revisions; incident follow up

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. CAT 349 Excavator d. CAT 992 Loader e. 40t ADT f. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Completed construction of the interceptor ditch -Install HLF Header Underdrain pipes • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12"; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.0C to 2.5C
4130.03/09/9000.38 Event Pond a. CAT 349 Excavator b. LB490 Excavator c. CAT 300 Excavator d. CAT D6 Dozer e. 40t ADT x2 f. Packer	-Spillway ice removal -Excavating emergency spillway -Place and compact spillway fill • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**

	• Material is well graded • Visual estimate of minimum 20% or material >12"; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.0C to 2.5C

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	6	Rock Fill	ADR Quarry	HLF Lateral
4130.09	40t ADT	38	Rock Fill	ADR Quarry	EP Spillway Fill
4110.2.03	40ADT	1	Rip Rap	Nuway	HLF Int. Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**



Photo 2: HLF Lateral drain excavation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Interceptor Ditch – Riprap Placement Completed

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 10, 2019	**Weather:** clear (- 25C, - 10C)	**Prepared By: Shipeng Zheng**



Photo 4: EP Spillway Fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**

Health and Safety

Pelly Toolbox Topic:	-Company Rules; -Road closure for power lines -Alcohol in camp

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09/4110.5.03/4110.5.04/4110.2.03 HLF a. LB245 Excavator b. LB250 Excavator c. CAT 992 Loader d. 40t ADT e. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Load/haul/place/compact reject sand -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Install HLF Header Underdrain pipes • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12"; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.5C to 2.7C
4130.03/09/9000.38 Event Pond a. CAT 349 Excavator b. LB490 Excavator c. CAT 330 Excavator d. CAT D6 Dozer e. 40t ADT x2 f. Packer	-Spillway ice removal -Excavating emergency spillway -Place and compact spillway fill • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**

	• Visual estimate of minimum 20% or material >12"; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.5C to 2.7C
9000.39 Borrow Pit a. CAT D10 Dozer b. CAT 16 Grader	-Clean up and access for Nuway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	7	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	15	Rock Fill	ADR Quarry	HLF Lateral
4130.09	40t ADT	42	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**

Photos:



Photo 1: HLF Header Underdrain Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**



Photo 2: HLF Lateral Drain Installation – 730 East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**



Photo 3: HLF Lateral Drain Installation– 520 West

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**



Photo 4: EP Spillway Fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 11, 2019	**Weather:** clear (- 25C, - 8C)	**Prepared By: Shipeng Zheng**



Photo 5: EP Emergency Spillway Excavation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 12, 2019	**Weather:** snow/overcast (-15°C, -20°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Employees responsibilities -Camp internet

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB245 Excavator b. LB250 Excavator c. CAT 349 Excavator d. CAT 330 Excavator e. CAT 992 Loader f. KOM 380 Loader g. 40t ADT x2 h. Packer i. CAT 16G Grader	-Excavating lateral drain trench -Load/haul/place drain fill into lateral drain -Install 100 mm ADS pipe -Excavate HLF unsuitable and UD trench -Install HLF Header Underdrain pipes • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.5C to 2.7C
4130.09 Event Pond a. LB490 Excavator b. CAT D6 Dozer c. 40t ADT x2 d. Packer	-Place and compact spillway fill • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock Loose dumped material temperature ranged from 1.5C to 2.7C

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 12, 2019	**Weather:** snow/overcast (-15°C, -20°C)	**Prepared By:** Dean Serelo

9000.39 Borrow Pit a. CAT D10 Dozer	-Clean up and access for Nuway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Lateral Drain
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	29	Rock Fill	ADR Quarry	HLF Lateral
4130.09	40t ADT	51	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 12, 2019	**Weather:** snow/overcast (-15°C, -20°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: HLF header and 0+530 east lateral underdrain installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 12, 2019	**Weather:** snow/overcast (-15°C, -20°C)	**Prepared By:** Dean Serelo



Photo 2: HLF 0+475 east lateral drain excavation



Photo 3: Event pond spillway fill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 13, 2019	**Weather:** clear (-17°C, -22°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Review of Code 1 and spill response

Recent Incidents/Spills	
Date	Incident/Spill
Feb 13, 2019	Hydraulic fluid spill from dozer

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB245 Excavator b. LB250 Excavator c. LB490 Excavator d. CAT 349 Excavator e. CAT 330 Excavator f. CAT 992 Loader g. 40t ADT x3 h. Packer i. CAT 16G Grader	-Excavating lateral drain trench -Load/haul/place drain fill into UD header trench -Clean snow HLF underdrain trench -Load/haul/place and compact rockfill HLF • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock • Loose dumped material temperature ranged from -4C to 1.6C
4130.09 Event Pond a. LB490 Excavator b. CAT D6 Dozer c. 40t ADT x2 d. Packer	-Load/haul/place and compact spillway fill • Material 7 used from ADR Quarry • 0.5m-0.9m lift maximum • Minimum 3 passes completed with 9-tonne vibratory packer • No visible ice in the material; low moisture • Material is well graded • Visual estimate of minimum 20% or material >12”; very little to no weak phyllite rock • Loose dumped material temperature ranged from -4C to 1.6C

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 13, 2019	**Weather:** clear (-17°C, -22°C)	**Prepared By:** Dean Serelo

9000.39 Borrow Pit a. CAT D10 Dozer	-Rip and push rock for Nuway crushing

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity
Feb 13, 2019	7200.03	Hitachi EX1200 Excavator	1
Feb 13, 2019	7200.03	John Deere 40t Wiggle Wagon	1

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF Underdrain
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	42	Rock Fill	ADR Quarry	HLF Lateral Drain
4130.09	40t ADT	46	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Feb 13, 2019	Operations standby for code 1 called on site

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 13, 2019	**Weather:** clear (-17°C, -22°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Place and compact rockfill for HLF shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 13, 2019	**Weather:** clear (-17°C, -22°C)	**Prepared By:** Dean Serelo



Photo 2: Place geotextile and drain fill in underdrain header pipe trench



Photo 3: Place and compact rockfill at event pond spillway

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Feb 14, 2019	**Weather:** clear (-15°C, -29°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Review haul truck and excavator SOP's

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB245 Excavator b. CAT 330 Excavator c. Packer d. CAT 16G Grader	-Excavating lateral drain trench -Load/haul/place drain fill into UD header trench -Place and fuse underdrain header piping -Install lateral drain geotextile, drain fill, 100mm ADS pipe
4130.09 Event Pond a. LB490 Excavator b. CAT D10 Dozer c. CAT D6 Dozer d. 40t ADT x2 e. Packer	-Load/haul/place and compact spillway fill -See QC observations and procedures
9000.39 ADR Quarry a. CAT D10 Dozer **9000.38 EP Ice Management** a. LB490 Excavator b. CAT 16G Grader	-Rip and push rock for Nuway crushing -Excavate ice and maintain road along EP spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 14, 2019	**Weather:** clear (-15°C, -29°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT		Drain fill	Nuway	HLF Underdrain
4110.5.04	40t ADT		Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT		Rock Fill	ADR Quarry	HLF Lateral Drain
4130.09	40t ADT	23	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

Event Pond spillway – Material 7 rockfill is being placed and compacted in the construction of the event pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with a D6 dozer. The material is being spread immediately after being dumped to a survey controlled thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. There is little wait time incurred between placing and compaction due to the small surface area of the lift size. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; temperature reading 0 to 1.6 deg C (photo 1)
- Loose dumped material temperature ranged from -3.6 to -4.5 deg C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 14, 2019	**Weather:** clear (-15°C, -29°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: ADR Quarry rockfill source (11:20 am)



Photo 2: Dumped rockfill at event pond spillway (3:00 pm)

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 14, 2019	**Weather:** clear (-15°C, -29°C)	**Prepared By:** Dean Serelo



Photo 3: 0+475 east lateral drain



Photo 4: Underdrain header piping fusing and installation

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Feb 15, 2019	**Weather:** clear (-17°C, -29°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Northern Safety Network courses -Site radios and the emergency channel -Smoking in designated areas and proper disposal

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT 330 Excavator e. CAT 992 Loader f. 40t ADT g. Packer	-Excavating lateral drain trench -Load/haul/place drain fill into UD header trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand
4130.09 Event Pond a. LB 490 Excavator b. CAT D6 Dozer c. 40t ADT x2 d. Packer	-Load/haul/place and compact spillway fill -See QC observations and procedures
9000.39 ADR Quarry a. CAT D10 Dozer	-Rip and push rock for Nuway crushing

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity
Feb 15, 2019	7200.03	Demob CAT 349 Excavator	1

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 15, 2019	**Weather:** clear (-17°C, -29°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.03	40t ADT		Unsuitable	HLF UD Trench	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF Underdrain
4110.5.04	40t ADT	1	Reject Sand	Nuway	HLF Lateral Drain
4110.1.09	40t ADT	9	Rock Fill	ADR Quarry	HLF Lateral Drain
4130.09	40t ADT	40	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

Event Pond spillway – Material 7 rockfill is being placed and compacted in the construction of the event pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with a D6 dozer. The material is being spread immediately after being dumped to a survey controlled thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. There is little wait time incurred between placing and compaction due to the small surface area of the lift size. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; temperature reading 0 to 1.6 deg C (photo 1)
- Loose dumped material temperature ranged from 0.2 to 1.6 deg C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 15, 2019	**Weather:** clear (-17°C, -29°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: ADR Quarry rockfill source (12:15 pm)



Photo 2: Dumped rockfill at event pond spillway (11:45 am)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 15, 2019	**Weather:** clear (-17°C, -29°C)	**Prepared By:** Dean Serelo



Photo 3: 0+475 east lateral drain



Photo 4: Excavating 0+475 east lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 16, 2019	**Weather:** clear (-16°C, -28°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Responsibilities in health and safety

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 992 Loader e. 40t ADT f. Packer	-Excavating lateral drain trench -Load/haul/place drain fill, reject sand, and rock fill into UD header trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand
4130.09 Event Pond a. LB 490 Excavator b. CAT D6 Dozer c. 40t ADT x2 d. Packer	-Load/haul/place and compact spillway fill -See QC observations and procedures
9000.38 EP Ice Management a. LB 490 Excavator b. CAT D6 Dozer c. 40t ADT x2	-Load/haul/dump ice from event pond spillway ditch to event pond waste dump
9000.39 ADR Borrow a. CAT D10 Dozer	-Rip and push blast rock for Nuway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 16, 2019	**Weather:** clear (-16°C, -28°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.38	40t ADT	56	Ice	Event Pond Spillway	ADR Waste
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	3	Rock Fill	ADR Quarry	HLF
4130.09	40t ADT	19	Rock Fill	ADR Quarry	EP Spillway Fill
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

Event Pond spillway – Material 7 rockfill is being placed and compacted in the construction of the event pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with a D6 dozer. The material is being spread immediately after being dumped to a survey controlled thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. There is little wait time incurred between placing and compaction due to the small surface area of the lift size. Material is not being left uncompacted for extended periods of time. Spillway fill completed at ~9:30am.

- Material 7 sourced from ADR Quarry
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 16, 2019	**Weather:** clear (-16°C, -28°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Compacting Event Pond spillway fill



Photo 2: Placing drain fill 0+475 east lateral drain

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Feb 16, 2019	**Weather:** clear (-16°C, -28°C)	**Prepared By:** Dean Serelo



Photo 3: Placing reject sand above 0+475 east lateral drain



Photo 4: Placing drain fill above pipes in underdrain header

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 17, 2019	**Weather:** clear/light snow (-15°C, -25°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Equipment walkarounds and 5 point cards -Offensive clothing not acceptable in camp -Employee interaction and work area assessment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 992 Loader e. KOM 430 Loader f. 40t ADT g. Packer	-Install header drain geotextile and HDPE pipe -Load/haul/place drain fill, reject sand, and rock fill into UD header trench -See QC observations and procedures -Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand
9000.38 EP Ice Management a. LB 490 Excavator b. CAT D6 Dozer c. 40t ADT x2	-Load/haul/dump ice from event pond spillway ditch to event pond waste dump
9000.39 ADR Borrow a. CAT D10 Dozer	-Rip and push blast rock for Nuway
1000.01 Pit Access Road a. CAT 992 Loader	-Place crush on road for shovel
TBD Event Pond Bench a. CAT 365 Excavator b. CAT 330 Excavator	-Widen liner deployment bench along Event Pond slope

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 17, 2019	**Weather:** clear/light snow (-15°C, -25°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.38	40t ADT	91	Ice	Event Pond Spillway	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	4	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

Event Pond spillway – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. There is little wait time incurred between placing and compaction due to the small surface area of the lift size. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source range between 0.6 to 3.5 deg C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock
- Loose dumped material before placement temperature range between -1.4 to 0.5 deg C (photo 1)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 17, 2019	**Weather:** clear/light snow (-15°C, -25°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature at source (left; 12:45pm); Loose dumped rockfill at HLF (right;8:40am)



Photo 2: Event Pond ice management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 17, 2019	**Weather:** clear/light snow (-15°C, -25°C)	**Prepared By:** Dean Serelo



Photo 3: Placing geotextile, drain fill, and HDPE piping in HLF header trench



Photo 4: Placing geotextile, drain fill, and 100 mm ADS pipe in 0+475 east lateral

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 18, 2019	**Weather:** overcast/snow (-11°C, -18°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Training and equipment signoffs -Traffic management

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	34

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 992 Loader e. CAT D10 Dozer f. 40t ADT g. Packer h. CAT 16G Grader	-Install header drain geotextile and HDPE pipe -Load/haul/place drain fill, reject sand, and rock fill into UD header trench -See QC observations and procedures -Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Rip and push ADR quarry
9000.38 EP Ice Management **9000.42 EP Bench Widening** **9000.41 ADR to EMB Access** a. LB 490 Excavator b. CAT 365 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. CAT D6 Dozer f. 40t ADT x2	-Load/haul/dump ice from event pond spillway ditch to event pond waste dump -Load/haul/dump waste from event pond bench widening -Load/haul/dump waste from ADR access to ADR waste -Rip and push road cut ADR to Emb access

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 18, 2019	**Weather:** overcast/snow (-11°C, -18°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.38	40t ADT	22	Ice	Event Pond Spillway	EP Waste
9000.42	40t ADT	29	Waste	Event Pond	ADR Waste
4110.1.09	40t ADT	22	Unsuitable	HLF	ADR Waste
4110.5.04	40t ADT	5	Drain fill	Nuway	HLF
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	3	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. There is little wait time incurred between placing and compaction due to the small surface area of the lift size. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 0.4 deg C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock
- Loose dumped material before placement temperature 1.4 deg C (photo 1)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 18, 2019	**Weather:** overcast/snow (-11°C, -18°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature at placement (left; 1:35pm); Loose dumped rockfill at HLF (right;1:30pm)



Photo 2: Temperature at source (left; 1:45pm); ADR blast rock (right; 1:45pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 18, 2019	**Weather:** overcast/snow (-11°C, -18°C)	**Prepared By:** Dean Serelo



Photo 3: Placing geotextile, drain fill, and HDPE piping in HLF header trench



Photo 4: Event pond bench widening and waste removal

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Feb 19, 2019	**Weather:** clear (-11°C, -13°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-New employees -Crew change -Positive community events

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT 330 Excavator e. KOM 430 Loader f. 40t ADT x2 g. Packer h. CAT 16G Grader	-Load/haul/place drain fill, reject sand, and rock fill into UD header trench -See QC observations and procedures -Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand
9000.42 EP Bench Widening **9000.41 ADR to EMB Access** a. LB 490 Excavator b. CAT 365 Excavator c. CAT D10 Dozer x2 d. CAT D6 Dozer e. 40t ADT x2	-Excavate event pond liner deployment bench widening -Load/haul/dump waste from ADR access to ADR waste -Rip and push road cut ADR to Emb access

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 19, 2019	**Weather:** clear (-11°C, -13°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.32	40t ADT	1	Waste	Event Pond	EP Waste
9000.41	40t ADT	9	Waste	ADR to Emb Road	ADR Waste
4110.5.04	40t ADT	8	Drain fill	Nuway	HLF
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	8	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 1.0 deg C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock
- Loose dumped material before placement temperature 0.6 deg C (photo 2)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 19, 2019	**Weather:** clear (-11°C, -13°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature at rockfill source (11:15am)



Photo 2: Temperature at source (left; 1:45pm); ADR blast rock (right; 1:45pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 19, 2019	**Weather:** clear (-11°C, -13°C)	**Prepared By:** Dean Serelo



Photo 3: Dozing ADR to Embankment road



Photo 4: 0+475 East lateral drain construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 20, 2019	**Weather:** clear/overcast (-10°C,-19°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Inspection review -Housekeeping

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 245 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT 330 Excavator e. CAT D10 Dozer f. KOM 430 Loader g. 40t ADT h. Packer i. CAT 16G Grader	-Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rockfill above lateral drain -See QC observations and procedures
9000.42 EP Bench Widening **9000.41 ADR to EMB Access** a. LB 250 Excavator b. CAT 365 Excavator c. CAT D10 Dozer d. 40t ADT x2	-Excavate event pond liner deployment bench widening -Load/haul/dump waste from ADR access to ADR waste -Rip and push road cut ADR to Emb access
9000.38 Snow/Ice Management a. KOM 430 Loader	-Snow removal at ADR pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 20, 2019	**Weather:** clear/overcast (-10°C,-19°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	5	Unsuitable	HLF	ADR Waste
9000.42	40t ADT	1	Waste	Event Pond	ADR Waste
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	3	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 0.4 deg C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock
- Loose dumped material before placement temperature 0.2 deg C (photo 2)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 20, 2019	**Weather:** clear/overcast (-10°C,-19°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature at rockfill source (10:30am)



Photo 2: Temperature of loose dumped rockfill (10:45am)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 20, 2019	**Weather:** clear/overcast (-10°C,-19°C)	**Prepared By:** Dean Serelo



Photo 3: 0+730 east lateral drain construction



Photo 4: Event pond bench widening

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 21, 2019	**Weather:** clear (-10°C,-23°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-5point review -Dublin road traffic

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 250 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. KOM 430 Loader f. 40t ADT g. Packer h. CAT 16G Grader	-Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rockfill above lateral drain -See QC observations and procedures
9000.42 EP Bench Widening **9000.41 ADR to EMB Access** a. CAT 365 Excavator b. CAT D10 Dozer	-Excavate event pond liner deployment bench widening -Load/haul/dump waste from ADR access to ADR waste -Rip and push road cut ADR to Emb access
TBD Snow/Ice Management a. CAT D6 Dozer	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 21, 2019	**Weather:** clear (-10°C,-23°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	5	Unsuitable	HLF	ADR Waste
9000.42	40t ADT	9	Waste	Event Pond	ADR Ramp
4110.5.04	40t ADT	5	Drain fill	Nuway	HLF
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	2	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 0.4 deg C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 21, 2019	**Weather:** clear (-10°C,-23°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (2:00pm)



Photo 2: 0+730 east lateral drain construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 22, 2019	**Weather:** sunny (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Walkarounds

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF a. LB 250 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. KOM 430 Loader f. CAT 992 Loader g. 40t ADT h. Packer	-Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rockfill above lateral drain -Install underdrain geotextile, drain fill, fuse 6" PE pipe, and reject sand -See QC observations and procedures
9000.42 EP Bench Widening **9000.41 ADR to EMB Access** a. CAT 365 Excavator b. CAT D10 Dozer c. 40t ADT	-Excavate event pond liner deployment bench widening -Load/haul/dump waste from EP to ADR waste and Emb access
TBD HLF Snow Removal **9000.38 Snow/Ice Management** a. CAT D6 Dozer b. CAT D10 Dozer	-Snow removal at HLF -Rip lower interceptor ditch crossing

Equipment/Materials Delivery:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 22, 2019	**Weather:** sunny (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	3	Unsuitable	HLF	ADR Waste
9000.42	40t ADT	29	Waste	Event Pond	ADR Ramp
4110.5.04	40t ADT	4	Drain fill	Nuway	HLF
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	9	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source ranged from -0.4 to 0.6 deg C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 22, 2019	**Weather:** sunny (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Photos:





Photo 1: Temperature at rockfill source (10:45am)



Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 22, 2019	**Weather:** sunny (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Photo 2: Placing drain fill in HLF header trench



Photo 3: Placing sand (material 2) in 0+475 East lateral drain

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Feb 23, 2019	**Weather:** sunny/cloudy (-15°C,-30°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-First aid incident review -Proper tool selection and inspection

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04/4110.09 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. CAT 992 Loader f. 40t ADT g. Packer	-Excavating lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rockfill above lateral drain -Install underdrain geotextile, drain fill, fuse 6" PE pipe, and reject sand -See QC observations and procedures -Shaping west HLF slope
9000.42 EP Bench Widening **9000.41 ADR to EMB Access** a. CAT 365 Excavator b. CAT D10 Dozer c. 40t ADT	-Excavate event pond liner deployment bench widening -Load/haul/dump waste from EP to Emb access
TBD HLF Snow Removal a. CAT D6 Dozer b. CAT 365 Excavator c. 40t ADT x2	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 23, 2019	**Weather:** sunny/cloudy (-15°C,-30°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD	40t ADT	11	Snow	HLF	Snow Dump
9000.42	40t ADT	21	Waste	Event Pond	ADR Ramp
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF
4110.5.04	40t ADT	1	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	4	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 0.6^{o} C (photo 1)
- Loose dumped material temperature during placement: -3.4^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 23, 2019	**Weather:** sunny/cloudy (-15°C,-30°C)	**Prepared By:** Yuheng Fei

Photos:




Photo 1: Temperature at rock fill source (11:30am)




Photo 2: Temperature of rock fill at time of placement (11:50am)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 23, 2019	**Weather:** sunny/cloudy (-15°C,-30°C)	**Prepared By:** Yuheng Fei

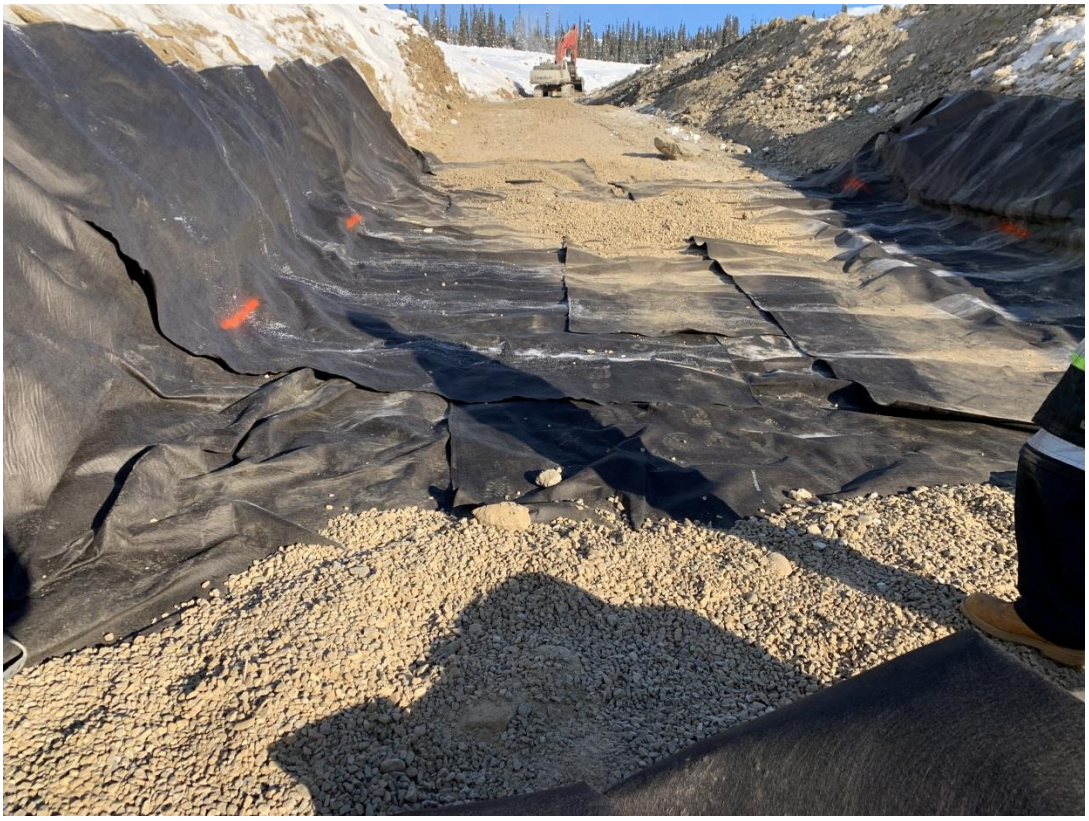


Photo 3: Installation of geotextile and drain fill in underdrain trench



Photo 4: Ripping west lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 24, 2019	**Weather:** clear (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Interactive; hypothetical situations

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	32

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04/4110.09 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer x2 e. KOM 430 Loader f. 40t ADT x2 g. Packer	-Excavating lateral drain trench -Underdrain header pipes installed up to 0+650 -Load/haul/place and compact rockfill above underdrain -Install underdrain geotextile, drain fill, fuse 6” PE pipe, and reject sand -See QC observations and procedures -Shaping west HLF slope -Shaping 990 bench on east side
TBD HLF Snow Removal a. CAT D6 Dozer b. CAT 365 Excavator c. 40t ADT x2	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 24, 2019	**Weather:** clear (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD	40t ADT	29	Snow	HLF	Snow Dump
4110.5.04	40t ADT	10	Drain fill	Nuway	HLF
4110.5.04	40t ADT	6	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	5	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.4^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 24, 2019	**Weather:** clear (-12°C,-24°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rock fill source (12:00 pm)


Photo 2: Installation of reject sand over covered underdrains

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 24, 2019	**Weather:** clear (-12°C,-24°C)	**Prepared By:** Yuheng Fei



Photo 3: Shaping elev 990m bench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 25, 2019	**Weather:** cloudy/sunny (-12°C,-25°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Spill review -Housekeeping

Recent Incidents/Spills	
Date	Incident/Spill
Feb 25 2019	Hydraulic oil from dozer, approx. 30L of oil contaminating 49 gallons of gravel

Manpower and Equipment

Total Number of Workers:	34

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04/4110.09 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. KOM 430 Loader f. 40t ADT x3 g. Packer	-Underdrain rock fill installed up to 0+645 -Load/haul/place and compact rock fill above underdrain -Install underdrain geotextile, drain fill, fuse 6" PE pipe, and reject sand -See QC observations and procedures -Shaping west HLF slope -Shaping 990 bench on east side
TBD HLF Snow Removal a. CAT D10 Dozer b. CAT D6 Dozer c. CAT 365 Excavator d. LB 490 Excavator e. 40t ADT x2	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 25, 2019	**Weather:** cloudy/sunny (-12°C,-25°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD	40t ADT	45	Snow	HLF	Snow Dump
4110.5.04	40t ADT	3	Drain fill	Nuway	HLF
4110.5.04	40t ADT	7	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	12	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 0.6^{o} C (photo 1)
- Temperature of fill immediately after placement: 1.8 – 2.4 ^{o}C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 25, 2019	**Weather:** cloudy/sunny (-12°C,-25°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rock fill source (12:30 pm)



Photo 2: Temperature of rock fill after placement (3:45 pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 25, 2019	**Weather:** cloudy/sunny (-12°C,-25°C)	**Prepared By:** Yuheng Fei



Photo 3: 990m bench progress

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 26, 2019	**Weather:** sunny (-7°C,-20°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Ground work audit form

Recent Incidents/Spills	
Date	Incident/Spill
Feb 25 2019	Hydraulic oil from dozer, approx. 30L of oil contaminating 49 gallons of gravel

Manpower and Equipment

Total Number of Workers:	34

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04/4110.09 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT 365 Excavator e. CAT D6 Dozer f. CAT D10 Dozer g. KOM 430 Loader h. 40t ADT x3 i. Packer	-Underdrain rock fill installed up to 0+645 -Install underdrain geotextile, drain fill, fuse 6" PE pipe, and reject sand -Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF slope
TBD HLF Snow Removal a. CAT D10 Dozer x2 b. CAT D6 Dozer c. CAT 365 Excavator d. LB 490 Excavator e. 40t ADT x3	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 26, 2019	**Weather:** sunny (-7°C,-20°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD	40t ADT	32	Snow	HLF	Snow Dump
4110.5.04	40t ADT	8	Drain fill	Nuway	HLF
4110.5.04	40t ADT	10	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	7	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 1.9 – 2.6 ^{o}C (photo 1)
- Temperature of fill after placement: 3.6 – 4.8 ^{o}C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 26, 2019	**Weather:** sunny (-7°C,-20°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rock fill source (12:30 pm)



Photo 2: Temperature of rock fill after placement above lateral drain (4:00 pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 26, 2019	**Weather:** sunny (-7°C,-20°C)	**Prepared By:** Yuheng Fei



Photo 3: Placement of reject sand over underdrains

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 27, 2019	**Weather:** sunny (-5°C,-20°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-30 day work permit

Recent Incidents/Spills	
Date	Incident/Spill
Feb 25 2019	Hydraulic oil from dozer, approx. 30L of oil contaminating 49 gallons of gravel

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04/4110.1.09 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 365 Excavator d. CAT D10 Dozer x2 e. KOM 430 Loader f. 40t ADT x3 g. Packer	- Install underdrain geotextile, drain fill (0+750), fuse 6" PE pipe (0+750), reject sand (0+710), and rock fill (0+645) -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF west slope
TBD HLF Snow Removal a. CAT D10 Dozer b. CAT 365 Excavator c. 40t ADT x3	-Snow removal at HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 27, 2019	**Weather:** sunny (-5°C,-20°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
TBD	40t ADT	13	Snow	HLF	Snow Dump
4110.5.04	40t ADT	8	Drain fill	Nuway	HLF
4110.5.04	40t ADT	9	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	5	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.2 – 3.2 ^{o} C (photo 1)
- Temperature of fill after placement: 3.0 – 5.2 ^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 27, 2019	**Weather:** sunny (-5°C,-20°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rock fill source (11:15 am)



Photo 2: Temperature of rock fill during placement above lateral drain (4:00 pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 27, 2019	**Weather:** sunny (-5°C,-20°C)	**Prepared By:** Yuheng Fei



Photo 3: Excavating final stretch of underdrain trench



Photo 4: Shaping HLF east side

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 28, 2019	**Weather:** sunny (-6°C -14°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Radio communication -Water consumption in camp

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44 HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT 365 Excavator e. CAT D6 Dozer f. KOM 430 Loader g. 40t ADT x2 h. Packer	- Completed installation of underdrain geotextile, drain fill, 6" PE pipe -Underdrain reject sand at 0+750 and rock fill at 0+675 -Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF west slope -Creating lower access road into HLF east from Dublin
9000.43 HLF Snow Removal a. CAT D6 Dozer b. CAT D10 Dozer c. CAT 365 Excavator d. 40t ADT x2	-Snow removal at HLF
TBD ADR Quarry Drill/Blast a. Terex Drill	-Drill 980-05 blast holes

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 28, 2019	**Weather:** sunny (-6°C -14°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	28	Snow	HLF	Snow Dump
9000.44	40t ADT	53	Waste	HLF East	Lower Access Rd
4110.5.04	40t ADT	12	Drain fill	Nuway	HLF
4110.5.04	40t ADT	11	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	14	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Oct 6, 2018	Additional dozer ripping and feeding at event pond slopes
Oct 11, 2018	All trucking activities shutdown due to icy road conditions, the grader was unable to work due to ADR road incident shutdown

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 5.0 – 10.2 ^{o} C (photo 1)
- Temperature of fill after placement: 2.9 – 4.2 ^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 28, 2019	**Weather:** sunny (-6°C -14°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rock fill source (2:00 pm)



Photo 2: Temperature of rock fill during placement above lateral drain (3:00 pm)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Feb 28, 2019	**Weather:** sunny (-6°C -14°C)	**Prepared By:** Yuheng Fei



Photo 3: Drilling holes at ADR quarry

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 01, 2019	**Weather:** clear (-7°C -16°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Inspection Review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT 365 Excavator e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x2 i. Packer j. Grader	- Completed installation of underdrain geotextile, drain fill, 6" PE pipe -Underdrain reject sand at 0+783 and rock fill at 0+760 -Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -HLF Southeast switchback road
9000.43 HLF Snow Removal a. CAT D10 Dozer b. LB490 Excavator c. 40t ADT x2	-Snow removal at HLF
9000.42 EP Bench Widening a. CAT D10 Dozer	-EP bench widening
TBD ADR Quarry Drill/Blast a. Terex Drill	-Drill 980-05 holes

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 01, 2019	**Weather:** clear (-7°C -16°C)	**Prepared By:** Shipeng Zheng

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	36	Snow	HLF East	Snow Dump
9000.43	40t ADT	54	Unsuitable	HLF East	Unsuitable Dump
9000.28	40t ADT	41	Waste	HLF East	HLF East Switchback
4110.5.04	40t ADT	2	Drain fill	Nuway	HLF
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	56	Rock Fill	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 8.6 – 14 ^{o} C (photo 1)
- Temperature of fill after placement: 2.2 – 4.2 ^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 01, 2019	**Weather:** clear (-7°C -16°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Temperature at rock fill source (14:00)



Photo 2: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 01, 2019	**Weather:** clear (-7°C -16°C)	**Prepared By:** Shipeng Zheng



Photo 3: Temperature of rock fill during placement above lateral drain (14:15)


Photo 4: Event Pond Bench Widening

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 01, 2019	**Weather:** clear (-7°C -16°C)	**Prepared By:** Shipeng Zheng



Photo 5: Trenching HLF West Laterals

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Mar 02, 2019	**Weather:** clear (-6°C -20°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Safety Sunday: Beware of Surrounding

Recent Incidents/Spills	
Date	Incident/Spill
Mar 2, 2019	-Property Damage – Fuel truck in contact with drill mast

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x4 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope
9000.42 EP Bench Widening a. CAT 375 Excavator b. 40t ADT	-EP bench widening
2150.09 ADR Quarry Drill/Blast a. Terex Drill	-Drill 980-05 holes

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 02, 2019	**Weather:** clear (-6°C -20°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.44	40t ADT	80	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	59	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	5	Drain fill	Nuway	HLF
4110.5.04	40t ADT	4	Reject Sand	Nuway	HLF
4110.1.09	40t ADT	24	Rock Fill	ADR Quarry	HLF
9000.42	40t ADT	8	Waste	EP Bench Cut	EP Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 7.6 – 8.4 ^{o} C (photo 1)
- Temperature of fill after placement: 1.2 – 3.4 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture
- Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 02, 2019	**Weather:** clear (-6°C -20°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Temperature at rock fill source (14:15)


Photo 2: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 02, 2019	**Weather:** clear (-6°C -20°C)	**Prepared By:** Shipeng Zheng



Photo 3: Temperature of rock fill during placement above HLF East Shaping (14:30)


Photo 4: Trenching HLF West Laterals

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 03, 2019	**Weather:** clear (-8°C -22°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Blasting Procedure Review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x4 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope -Placed HLF embankment safety berm
9000.42 EP Bench Widening a. CAT 375 Excavator b. 40t ADT	-EP bench widening

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 03, 2019	**Weather:** clear (-8°C -22°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.44	40t ADT	75	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	9	Waste	HLF East	HLF Emb Berm
9000.44	40t ADT	66	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	5	Drain fill	Nuway	HLF
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF
9000.42	40t ADT	9	Waste	EP Bench Cut	EP Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.2 – 5.0 ^{o} C (photo 1)
- Temperature of fill after placement: 0.2 – 2.2 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 03, 2019	**Weather:** clear (-8°C -22°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Temperature at rock fill source (14:15)



Photo 2: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 03, 2019	**Weather:** clear (-8°C -22°C)	**Prepared By:** Shipeng Zheng



Photo 3: HLF East – Drum packer compacting



Photo 4: Temperature of rock fill during placement above HLF East Shaping (14:30)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 03, 2019	**Weather:** clear (-8°C -22°C)	**Prepared By:** Shipeng Zheng



Photo 5: Trenching HLF West Laterals

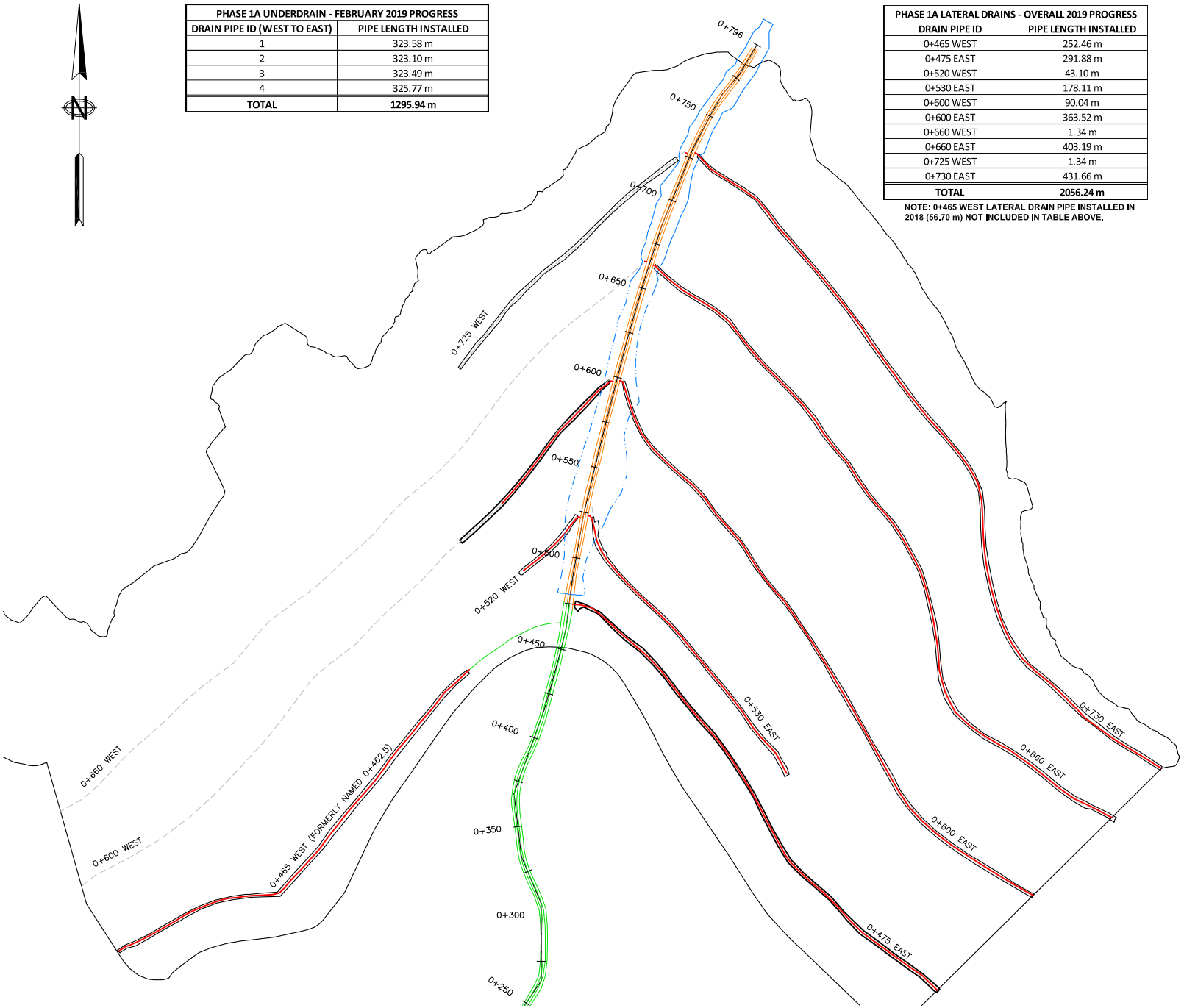


Photo 6: Event Pond Bench Widening

PHASE 1A UNDERDRAIN - FEBRUARY 2019 PROGRESS	
DRAIN PIPE ID (WEST TO EAST)	PIPE LENGTH INSTALLED
1	323.58 m
2	323.10 m
3	323.49 m
4	325.77 m
TOTAL	1295.94 m

PHASE 1A LATERAL DRAINS - OVERALL 2019 PROGRESS	
DRAIN PIPE ID	PIPE LENGTH INSTALLED
0+465 WEST	252.46 m
0+475 EAST	291.88 m
0+520 WEST	43.10 m
0+530 EAST	178.11 m
0+600 WEST	90.04 m
0+600 EAST	363.52 m
0+660 WEST	1.34 m
0+660 EAST	403.19 m
0+725 WEST	1.34 m
0+730 EAST	431.66 m
TOTAL	2056.24 m

NOTE: 0+465 WEST LATERAL DRAIN PIPE INSTALLED IN 2018 (56.70 m) NOT INCLUDED IN TABLE ABOVE.



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
1	190220 HLF LATERAL DRAINS PROGRESS MASTER ASB.dwg

DRAWING NOTES:

1. HLF LATERAL DRAIN PIPES INSTALLED AND ACCOUNTED FOR WITH THIS PROGRESS SHOWN IN RED.
2. HLF DESIGN LATERAL DRAIN PIPE CENTERLINES SHOWN IN DASHED GRAY.
3. HLF LATERAL DRAIN EXCAVATION SURFACE BOUNDARIES OUTLINED IN BLACK.
4. HLF UNDERDRAIN PIPING EXCAVATION OUTLINED IN BLUE.
5. UNDERDRAIN PIPES INSTALLED IN 2019 SHOWN IN ORANGE.
6. UNDERDRAIN AND LATERAL PIPES INSTALLED IN 2018 SHOWN IN GREEN.
7. AS-BUILT SURVEYS EXECUTED BETWEEN JANUARY 8 AND FEBRUARY 28, 2019.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
2.0	19/03/02	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PHASE 1A UNDERDRAIN / LATERAL DRAINS INSTALLATION PROGRESS

DRAWING SCALE: H 1:3000

DATE:	19/03/03	DWG No:	184110-033
SURVEYED:	TEAM	CHECKED:	
DRAWN:	CB CM	APPROVED:	

DRAWING FILE: 190228 HLF LATERALS & UNDERDRAIN PROGRESS MASTER ASB.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 04, 2019	**Weather:** clear (-7°C -23°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Five-point card review -Safety prizes

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x4 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope -Placed HLF embankment safety berm

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 04, 2019	**Weather:** clear (-7°C -23°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.44	40t ADT	114	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	6	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT		Drain Fill	Nuway	HLF
4110.5.04	40t ADT		Reject Sand	Nuway	HLF
9000.28	40t ADT	43	Rock Fill	ADR Quarry	HLE South Switchback
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 3.4 – 6.6 ^{o} C (photo 1)
- Temperature of fill after placement: 0.2 – 2.2 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 04, 2019	**Weather:** clear (-7°C -23°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Temperature at rock fill source (13:00)



Photo 2: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 04, 2019	**Weather:** clear (-7°C -23°C)	**Prepared By:** Shipeng Zheng



Photo 3: HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 05, 2019	**Weather:** clear (-5°C -21°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Isolation policy

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	42

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x4 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope -Rip Electric line ditch
VG Rental a. CATD10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 05, 2019	**Weather:** clear (-5°C -21°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	29	Snow	HLF East	Snow Dump
9000.44	40t ADT	96	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	39	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	3	Drain Fill	Nuway	HLF
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 3.8 – 4.4 ^{o} C (photo 1)
- Temperature of fill after placement: 0.4 – 1.2 ^{o} C (photo 4)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 05, 2019	**Weather:** clear (-5°C -21°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Temperature at rock fill source (13:00)



Photo 2: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 05, 2019	**Weather:** clear (-5°C -21°C)	**Prepared By:** Shipeng Zheng



Photo 3: HLF East



Photo 4: Temperature at HLF shaping loose fill (13:15)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 06, 2019	**Weather:** clear (-4°C -23°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Corrective Action: First Aid -Reporting any injuries immediately to supervisor

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x3 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope
9000.38 Event Pond a. LB250 Excavator	-Removed ice from Event Pond ditch
VG Rental a. CATD10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 06, 2019	**Weather:** clear (-4°C -23°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	49	Snow	HLF East	Snow Dump
9000.44	40t ADT	50	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	70	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	2	Rock Fill	ADR Quarry	HLF
4110.5.04	40t ADT	1	Drain Fill	Nuway	HLF
4110.5.04	40t ADT	1	Reject Sand	Nuway	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 3.4 – 8.0 ^{o} C (photo 1)
- Temperature of fill after placement: 1.0 – 3.8 ^{o} C (photo 4)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 06, 2019	**Weather:** clear (-4°C -23°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: HLF West Lateral



Photo 2: Temperature at Rockfill Source (14:00)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 06, 2019	**Weather:** clear (-4°C -23°C)	**Prepared By:** Shipeng Zheng



Photo 2: Shaping HLF East



Photo 4: Temperature at HLF shaping loose fill (14:15)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 06, 2019	**Weather:** clear (-4°C -23°C)	**Prepared By:** Shipeng Zheng



Photo 5: Ice Removal at Event Pond Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 07, 2019	**Weather:** clear (-4°C -19°C)	**Prepared By:** Shipeng Zheng

Health and Safety

Pelly Toolbox Topic:	-Five-point safety card -Traffic Management Plan

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	41

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. CAT 992 Loader h. 40t ADT x4 i. Packer j. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope
VG Rental a. CATD10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 07, 2019	**Weather:** clear (-4°C -19°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	32	Snow	HLF East	Snow Dump
9000.44	40t ADT	60	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	27	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	28	Rock Fill	ADR Quarry	HLF Lateral
4110.5.04	40t ADT	10	Drain Fill	Nuway	HLF Lateral
4110.5.04	40t ADT	6	Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 3.8 – 5.0 ^{o} C (photo 1)
- Temperature of fill after placement: 2.6 – 3.4 ^{o} C (photo 4)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 07, 2019	**Weather:** clear (-4°C -19°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: HLF West Lateral at 730 West



Photo 2: HLF West Lateral at 600 West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 07, 2019	**Weather:** clear (-4°C -19°C)	**Prepared By:** Shipeng Zheng



Photo 3: Temperature at Rockfill Source (15:00)


Photo 4: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 07, 2019	**Weather:** clear (-4°C -19°C)	**Prepared By:** Shipeng Zheng



Photo 5: Temperature at HLF shaping loose fill (15:15)

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Mar 08, 2019	**Weather:** clear (-8°C -17°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Check in/out times -Safety notice from Chris Copley

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. 40t ADT x4 h. Packer	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill above lateral drains -See QC observations and procedures -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Sloping HLF West slope
9000.45 EP a. LB 490 Excavator	-Event pond snow removal
VG Rental b. CATD10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 08, 2019	**Weather:** clear (-8°C -17°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	6	Snow	HLF East	Snow Dump
9000.44	40t ADT	122	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	37	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	0	Rock Fill	ADR Quarry	HLF Lateral
4110.5.04	40t ADT	3	Drain Fill	Nuway	HLF Lateral
4110.5.04	40t ADT	7	Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 6.8 – 7.4 ^{o} C (photo 1)
- Temperature of fill after placement: 2.6 – 4.4 ^{o} C (photo 4)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 08, 2019	**Weather:** clear (-8°C -17°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at Rockfill source (15:00)



Photo 2: HLF West Lateral at 660 West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 08, 2019	**Weather:** clear (-8°C -17°C)	**Prepared By:** Yuheng Fei



Photo 3: Temperature of loose fill at HLF shaping (15:15)


Photo 4: Shaping HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 09, 2019	**Weather:** clear (-4°C -16°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Fatigue management

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. LB 245 Excavator b. LB 250 Excavator c. KOM 430 Loader d. CAT D6 Dozer e. CAT D10 Dozer f. 40t ADT x4 g. Packer	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -See QC observations and procedures -Load/haul/place and compact rock fill for HLF East slope -Shaping HLF East slope -Removal unsuitable on the HLF East slope
9000.45 EP a. CAT D6 Dozer	-Event pond snow removal
VG Rental b. CATD10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 09, 2019	**Weather:** clear (-4°C -16°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	25	Snow	HLF East	Snow Dump
9000.44	40t ADT	29	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	53	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT		Rock Fill	ADR Quarry	HLF Lateral
4110.5.04	40t ADT	5	Drain Fill	Nuway	HLF Lateral
4110.5.04	40t ADT	3	Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 10.0 – 11.0 ^{o} C (photo 1)
- Temperature of fill after placement: 3.2 – 4.6 ^{o} C (photo 4)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 09, 2019	**Weather:** clear (-4°C -16°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at Rockfill source (14:30)



Photo 2: HLF East shaping progress

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 09, 2019	**Weather:** clear (-4°C -16°C)	**Prepared By:** Yuheng Fei



Photo 3: Temperature of loose fill at HLF shaping (14:15)


Photo 4: Clearing snow at Event Pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 10, 2019	**Weather:** overcast/snow (-3°C -9°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Health and Safety policy review -Snowy/slippery conditions

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. HIT EX1200 Excavator b. LB 490 Excavator c. LB 250 Excavator d. LB 245 Excavator e. CAT 330 Excavator f. CAT 375 Excavator g. KOM 430 Loader h. CAT D6 Dozer i. CAT D10 Dozer j. 40t ADT x4 k. Packer l. Grader	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -See QC observations and procedures -Load/haul/place and compact rock fill for HLF East slope -Shaping HLF East slope -Removal unsuitable on the HLF East slope -Load/haul/place and compact rock fill in lower underdrain trench
9000.45 EP a. CAT D6 Dozer	-Event pond snow removal
VG Rental b. CATD10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 10, 2019	**Weather:** overcast/snow (-3°C -9°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT		Snow	HLF East	Snow Dump
9000.44	40t ADT		Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	136	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	12	Rock Fill	ADR Quarry	HLF Underdrain
4110.5.04	40t ADT		Drain Fill	Nuway	HLF Lateral
4110.5.04	40t ADT		Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.2 – 5.4 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 10, 2019	**Weather:** overcast/snow (-3°C -9°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (13:45)



Photo 2: Rockfill source – ADR Quarry

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 10, 2019	**Weather:** overcast/snow (-3°C -9°C)	**Prepared By:** Yuheng Fei



Photo 3: Event Pond snow clearing progress



Photo 4: HLF East slope looking east from underdrain trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 11, 2019	**Weather:** overcast (-2°C -10°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Review of recent incident -Assessing hazards before performing any task

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.03/4110.5.04 HLF **4110.1.09/9000.44/9000.28** a. HIT EX1200 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. 40t ADT x3 h. Packer	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill for HLF East slope -See QC observations and procedures -Shaping HLF East slope -Removal of unsuitable material on the HLF East slope
9000.45 EP a. CAT D6 Dozer b. LB 490 Excavator c. 40t ADT x3	-Event pond snow removal
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area
Nuway ADR a. CAT D10 Dozer	-Push blast material to be crushed

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 11, 2019	**Weather:** overcast (-2°C -10°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT	63	Snow	Event Pond	Snow Dump
9000.44	40t ADT	22	Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	53	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	5	Drain Fill	Nuway	HLF Lateral
4110.5.04	40t ADT	2	Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 1.2 – 1.6 ^{o} C (photo 1)
- Temperature of fill after placement: 2.0 – 3.8 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 11, 2019	**Weather:** overcast (-2°C -10°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (12:45)



Photo 2: Lateral drain trenching progress

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 11, 2019	**Weather:** overcast (-2°C -10°C)	**Prepared By:** Yuheng Fei



Photo 3: Rockfill temperature after placement on HLF (1:15)



Photo 4: HLF East slope shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 12, 2019	**Weather:** sunny (2°C, -8°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Occupational Health and Safety review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.04/4110.1.09/9000.44 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. LB 245 Excavator d. LB 490 Excavator e. CAT 330 Excavator f. KOM 430 Loader g. CAT D6 Dozer h. 40t ADT x2 i. Packer	-Excavate lateral drain trench -Install lateral drain geotextile, drain fill, 100mm ADS pipe, and reject sand -Load/haul/place and compact rock fill for HLF East slope -See QC observations and procedures -Shaping HLF East slope -Removal of unsuitable material on the HLF East slope
9000.45 EP a. CAT D6 Dozer b. LB 490 Excavator c. 40t ADT x2	-Event pond snow removal
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area
Nuway ADR a. CAT D10 Dozer	-Push blast material to be crushed

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 12, 2019	**Weather:** sunny (2°C, -8°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT	77	Snow	Event Pond	Snow Dump
9000.44	40t ADT		Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	66	Rock Fill	ADR Quarry	HLF East Shaping
4110.5.04	40t ADT	20	Drain Fill	ADR Quarry	HLF Lateral
4110.5.04	40t ADT	5	Reject Sand	Nuway	HLF Lateral
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 7.0 – 9.2 ^{o} C (photo 1)
- Temperature of fill after placement: 3.0 – 4.0 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 12, 2019	**Weather:** sunny (2°C, -8°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (13:15)



Photo 2: Lateral drain completion (looking from end)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 12, 2019	**Weather:** sunny (2°C, -8°C)	**Prepared By:** Yuheng Fei



Photo 3: Rockfill temperature after placement on HLF (13:45)



Photo 4: HLF East slope shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 13, 2019	**Weather:** sunny (2°C, -17°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Camp isolation policy

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.04/4110.1.09/9000.44 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. 40t ADT x4 h. Packer	-Load/haul/place and compact rock fill for HLF East slope and overtop completed west lateral drains -See QC observations and procedures -Shaping HLF slopes -Removal of unsuitable material on the HLF East slope -Create temporary access road on HLF West slope
9000.38/9000.45 EP a. CAT D6 Dozer b. LB 250 Excavator c. LB 490 Excavator d. 40t ADT	-Event pond snow removal -Spillway ice management
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area
Nuway ADR a. CAT D10 Dozer	-Push blast material to be crushed

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 13, 2019	**Weather:** sunny (2°C, -17°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT		Snow	Event Pond	Snow Dump
9000.44	40t ADT		Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT	139	Rock Fill	ADR Quarry	HLF East Shaping
9000.38	40t ADT	23	Ice	EP Spillway	Snow Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 6.6 – 8.0 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 13, 2019	**Weather:** sunny (2°C, -17°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (13:15)



Photo 2: HLF West temporary access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 13, 2019	**Weather:** sunny (2°C, -17°C)	**Prepared By:** Yuheng Fei



Photo 3: HLF East shaping (looking south)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 14, 2019	**Weather:** overcast (4°C, -6°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-First aid, corrective action immediately not later -Caution around highwalls during freeze/thaw

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.04/4110.1.09/9000.44 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT D6 Dozer e. 40t ADT x4 f. Packer	-Load/haul/place and compact rock fill for HLF west slope and overtop completed west lateral drains -See QC observations and procedures -Widen 990 bench on west side
4130.03/9000.38/9000.45 EP a. CAT D6 Dozer b. LB 250 Excavator c. LB 490 Excavator d. 40t ADT x2	-Event pond snow removal -Shaping pond bottom -Load out stockpiled spillway ice
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 14, 2019	**Weather:** overcast (4°C, -6°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT		Snow	Event Pond	Snow Dump
9000.44	40t ADT		Unsuitable	HLF East	Unsuitable Dump
9000.44	40t ADT		Rock Fill	ADR Quarry	HLF East Slope
4110.1.09	40t ADT	109	Rock Fill	ADR Quarry	HLF West Slope
9000.38	40t ADT	26	Ice	EP Spillway	Snow Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.0 – 2.6 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 14, 2019	**Weather:** overcast (4°C, -6°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (13:15)


Photo 2: Rockfill placed and compacted above lateral drain benches

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 14, 2019	**Weather:** overcast (4°C, -6°C)	**Prepared By:** Yuheng Fei



Photo 3: Placing rockfill for HLF west shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 15, 2019	**Weather:** sunny (5°C, -15°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Housekeeping -Blast notification (Eagle Pit, Monday)

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.5.04/4110.1.09/9000.44 HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. CAT 330 Excavator e. CAT D6 Dozer f. 40t ADT x4 g. Packer h. Grader	-Load/haul/place and compact rock fill for HLF slope and overtop completed west lateral drains -Shape HLF east slope -See QC observations and procedures -Widen 990 bench on west side -Snow removal at 940 liner perimeter
4130.03/9000.38/9000.45 EP a. CAT D6 Dozer b. CAT 330 Excavator c. LB 250 Excavator d. LB 490 Excavator e. 40t ADT x2	-Shaping pond bottom, load and haul out cut material -Load out stockpiled spillway ice
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 15, 2019	**Weather:** sunny (5°C, -15°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT		Snow	Event Pond	Snow Dump
9000.44	40t ADT	6	Rock Fill	ADR Quarry	HLF East Slope
4110.1.08	40t ADT	116	Rock Fill	ADR Quarry	HLF West Slope
9000.38	40t ADT	23	Ice	EP Spillway	Snow Dump
4130.03	40t ADT	26	Waste	Event Pond	Event Pond Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 8.0 – 10.2 º C (photo 1)
- Temperature of fill after placement: 7.0 – 10.8 º C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 15, 2019	**Weather:** sunny (5°C, -15°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (13:00)



Photo 2: Shaping HLF East near underdrain trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 15, 2019	**Weather:** sunny (5°C, -15°C)	**Prepared By:** Yuheng Fei



Photo 3: Placing rockfill for HLF west shaping (13:15)


Photo 4: Shaping Event Pond bottom

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 16, 2019	**Weather:** overcast (1°C, -10°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Return to Work policy

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.5.04/4110.1.09/9000.44 HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. CAT 330 Excavator e. CAT D6 Dozer x2 f. 40t ADT x4 g. Packer	-Load/haul/place and compact rock fill for HLF slope and overtop completed west lateral drains -HLF east snow removal -Widen 990 bench on west side -Snow removal at 940 liner perimeter
4130.03/9000.38/9000.45 EP a. CAT D6 Dozer b. CAT 330 Excavator c. LB 250 Excavator d. LB 490 Excavator e. 40t ADT x2	-Shaping pond bottom, load and haul out cut material -Load out stockpiled spillway ice
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 16, 2019	**Weather:** overcast (1°C, -10°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.45	40t ADT		Snow	Event Pond	Snow Dump
2150.03	40t ADT	9	Oversize	ADR Quarry	ADR Quarry
4110.1.08	40t ADT	125	Rock Fill	ADR Quarry	HLF West Slope
9000.38	40t ADT	6	Ice	EP Spillway	Snow Dump
4130.03	40t ADT	16	Waste	Event Pond	Event Pond Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 4, 2019	ADR Drill and Blast

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 2.0 – 2.6 ^{o} C (photo 1)
- Temperature of fill after placement: 1.6 – 2.0 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 16, 2019	**Weather:** overcast (1°C, -10°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (14:00)



Photo 2: Filling lateral drain benches

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 16, 2019	**Weather:** overcast (1°C, -10°C)	**Prepared By:** Yuheng Fei



Photo 3: Temperature after placement on west lateral bench (14:30)



Photo 4: Shaping Event Pond bottom

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 17, 2019	**Weather:** partly cloudy (5°C, -2°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Muddy roads

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.1.08/9000.43/9000.44 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT D6 Dozer x2 e. 40t ADT x4 f. Packer g. Grader	-Load/haul/place and compact rock fill for HLF slope and overtop completed west lateral drains -Shaping HLF east slope -HLF east snow removal -Widen west 990 bench -Pushing snow off downstream embankment face
4130.03 EP a. CAT D6 Dozer b. CAT 330 Excavator c. LB 250 Excavator d. LB 490 Excavator e. 40t ADT x2	-Shaping pond bottom, load and haul out cut material
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 17, 2019	**Weather:** partly cloudy (5°C, -2°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	25	Snow	HLF East	Snow Dump
2150.03	40t ADT	1	Oversize	ADR Quarry	ADR Quarry
4110.1.08	40t ADT	67	Rock Fill	ADR Quarry	HLF West Slope
9000.44	40t ADT	72	Rock Fill	ADR Quarry	HLF East Slope
4130.03	40t ADT	18	Waste	Event Pond	Event Pond Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 4.0 – 4.6 ^{o} C (photo 1)
- Temperature of fill after placement: 1.0 – 2.0 ^{o} C (photo 3)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 17, 2019	**Weather:** partly cloudy (5°C, -2°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature at rockfill source (14:00)



Photo 2: Shaping HLF east slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 17, 2019	**Weather:** partly cloudy (5°C, -2°C)	**Prepared By:** Yuheng Fei



Photo 3: Temperature after placement on HLF east slope (14:15)



Photo 4: Event Pond shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 18, 2019	**Weather:** overcast (8°C, 4°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Sleep and fatigue management

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.08/9000.43/9000.44 HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. CAT 330 Excavator e. CAT D6 Dozer x2 f. 40t ADT x4 g. Packer h. Grader	-Load/haul/place and compact rock fill for HLF slope and overtop completed west lateral drains -Shaping HLF east slope -HLF east snow removal -Widen west 990 bench -Clean up underdrain trench area by 940 -Pushing organic material downstream embankment face
4130.03 EP a. CAT D6 Dozer b. CAT 330 Excavator c. LB 250 Excavator d. LB 490 Excavator e. HIT EX1200 Excavator f. 40t ADT x2 g. Packer h. Grader	-Shaping pond bottom, load and haul out cut material -Load and haul sand into stockpiles
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 18, 2019	**Weather:** overcast (8°C, 4°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.43	40t ADT	28	Snow	HLF East	Snow Dump
2150.03	40t ADT	1	Oversize	ADR Quarry	ADR Quarry
4110.1.08	40t ADT	32	Rock Fill	ADR Quarry	HLF West Slope
9000.44	40t ADT	95	Rock Fill	ADR Quarry	HLF East Slope
4130.03	40t ADT	8	Sand	ADR Quarry	Event Pond
4130.03	40t ADT	9	Waste	Event Pond	Event Pond Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature after placement: 2.2 – 2.6 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 18, 2019	**Weather:** overcast (8°C, 4°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature after placement on HLF east slope (13:00)



Photo 2: Filling and shaping HLF east slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 18, 2019	**Weather:** overcast (8°C, 4°C)	**Prepared By:** Yuheng Fei



Photo 3: Event Pond shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 19, 2019	**Weather:** partly cloudy (8°C, 4°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-Knowing where buttons for emergencies are and procedures in equipment -Avoiding line of fire

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.08/9000.43/9000.44/TBD HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. CAT 330 Excavator d. CAT D6 Dozer e. 40t ADT x4 f. Packer	-Load, haul, place, and compact rock fill for HLF slope and overtop completed west lateral drains -Shaping HLF east slope -Widen west 990 bench -Clean up underdrain trench area by 940 -Pushing organic material downstream embankment face
4130.03 EP a. CAT D6 Dozer x2 b. KOM 430 Loader c. HIT EX1200 Excavator d. 40t ADT x4 e. Packer	-Load, haul, place, and spread sand for liner surface prep -Load and haul sand into stockpiles
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 19, 2019	**Weather:** partly cloudy (8°C, 4°C)	**Prepared By:** Yuheng Fei

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08	40t ADT	10	Rock Fill	ADR Quarry	HLF West Slope
9000.44	40t ADT	75	Rock Fill	ADR Quarry	HLF East Slope
4130.03	40t ADT	94	Sand	ADR Quarry	Event Pond
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature after placement: 6.6 – 9.4 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 19, 2019	**Weather:** partly cloudy (8°C, 4°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Temperature before compaction for lateral fill (13:30)



Photo 2: Preparing Event Pond surface for liner

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 20, 2019	**Weather:** overcast (10°C, 3°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Incident review -Flying Airnorth in/out of Mayo

Recent Incidents/Spills	
Date	Incident/Spill
March 20, 2019	Broken window in CAT Packer

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/2150.03/9000.44 TBD2 HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. LB 490 Excavator e. CAT 330 Excavator f. CAT D6 Dozer g. 40t ADT x2 h. Packer	-Load, haul, place, and compact rock fill for HLF slope and overtop completed west lateral drains -Shaping HLF east slope -Widen west 990 bench -Pushing organic material downstream embankment face
4130.10 Event Pond a. CAT D10 Dozer b. LB 490 Excavator c. KOM 430 Loader d. KOM 250 Loader e. Packer x2	-Load, haul, place, and spread sand for liner surface prep -Event Pond water management
VG Rental a. CAT D10 Dozer	-Dozing 90-day storage area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 20, 2019	**Weather:** overcast (10°C, 3°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08/2150.03	40t ADT	68	Rock Fill	ADR Quarry	HLF West Slope
2150.03	40t ADT	3	Oversize	ADR Quarry	ADR Quarry
9000.44	40t ADT		Rock Fill	ADR Quarry	HLF East Slope
4130.10	40t ADT		Sand	ADR Quarry	Event Pond
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature after placement: 1.6 ^{o} C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 20, 2019	**Weather:** overcast (10°C, 3°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature before compaction for lateral fill (11:10)



Photo 2: Placing sand on event pond slopes for liner preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 20, 2019	**Weather:** overcast (10°C, 3°C)	**Prepared By:** Dean Serelo



Photo 3: Placing and compacting rockfill over west lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 21, 2019	**Weather:** clear (13°C, 4°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Traffic management plan -Incident review -Work area water management and road conditions

Recent Incidents/Spills	
Date	Incident/Spill
March 20, 2019	Broken window in CAT Packer
March 21, 2019	Fuel truck oil pan contacts rock

Manpower and Equipment

Total Number of Workers:	40

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/2150.03/9000.43 9000.44/TBD2 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT D10 Dozer e. CAT D6 Dozer f. 40t ADT x3 g. Packer	-Load, haul, place, and compact rock fill for HLF slope and overtop completed west lateral drains -Pushing organic material downstream embankment face
4130.10/4130.11 Event Pond a. LB 245 Excavator b. LB 250 Excavator c. KOM 430 Loader d. KOM 380 Loader e. Packer x2	-Load, haul, place, and spread sand for liner surface prep -Event Pond water management -Excavate finger drain for pipe modification -Water management
VG Rental a. CAT D10 Dozer	-Main pit access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 21, 2019	**Weather:** clear (13°C, 4°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	65	Unsuitable	HLF West	HLF Dump
4110.1.08/2150.03	40t ADT	60	Rock Fill	ADR Quarry	HLF West Slope
2150.03	40t ADT	7	Waste	ADR Quarry	ADR Quarry/Access
4130.10	40t ADT	5	Unsuitable	Event Pond	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 1.8 to 9.0 º C (photo 1)
- Material 7 placed above HLF lateral drains; Temperature at placement 2.0 º C
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: Mar 21, 2019	**Weather:** clear (13°C, 4°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Temperature of rockfill at ADR source (13:47)

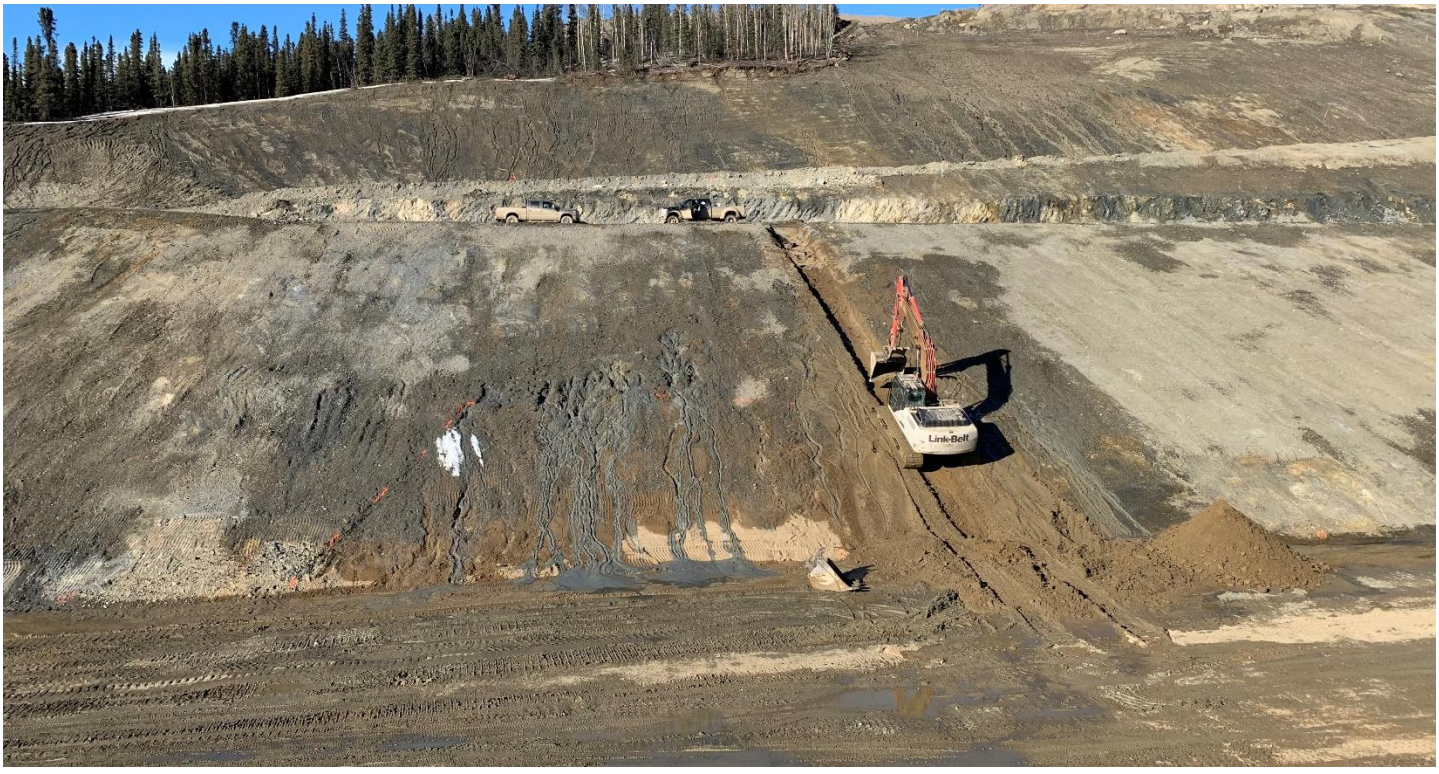


Photo 2: Excavating Event pond finger drain for modification and pipe install

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 21, 2019	**Weather:** clear (13°C, 4°C)	**Prepared By:** Dean Serelo



Photo 3: Placing and rolling sand for event pond liner surface preparation



Photo 4: Placing and compacting rockfill above west HLF lateral drain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 22, 2019	**Weather:** clear/overcast (8°C, 2°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Berms and travel ways -5 point cards -VG blast today

Recent Incidents/Spills	
Date	Incident/Spill
March 20, 2019	Broken window in CAT Packer
March 21, 2019	Fuel truck oil pan contacts rock

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/2150.03/9000.43 TBD2 HLF a. HIT EX1200 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT D10 Dozer e. CAT D6 Dozer f. 40t ADT x3 g. Packer	-Load, haul, place, and compact rock fill for HLF slope and overtop completed west lateral drains -Pushing organic material downstream embankment face -Re-construct interceptor ditch directly above 990 bench
4130.10/4130.11 Event Pond a. LB 245 Excavator b. LB 250 Excavator c. KOM 250 Loader d. Packer x2	-Place, spread, and roll sand for liner surface prep -Construct water catchment berm below event pond seeps -Event Pond water management -Berm spillway/access road to event pond
VG Rental a. CAT D10 Dozer	-Main pit access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 22, 2019	**Weather:** clear/overcast (8°C, 2°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08/2150.03	40t ADT	68	Rock Fill	ADR Quarry	HLF West Slope
4130.11	40t ADT	21	Unsuitable	Event Pond Access	HLF Dump
4130.11	40t ADT	15	Rock Fill	ADR Quarry	EP Access Road
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source: 1.5 to 2.0 º C
- Material 7 placed above HLF lateral drains; Temperature at placement 2.0 º C
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 22, 2019	**Weather:** clear/overcast (8°C, 2°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Placing sand for liner surface preparation at Event Pond



Photo 2: Placing and compact rockfill over completed lateral drain 0+600 west

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 23, 2019	**Weather:** clear/overcast (10°C, 2°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Job hazard assessment -Risk tolerance

Recent Incidents/Spills	
Date	Incident/Spill
March 21, 2019	Worker drives over boardwalk; damages boards

Manpower and Equipment

Total Number of Workers:	38

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/2150.03/9000.43 9000.44 TBD2 HLF a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. LB 490 Excavator e. CAT D10 Dozer x2 f. CAT D6 Dozer g. 40t ADT x3 h. Packer	-Load, haul, place, and compact rock fill for HLF east slope and overtop completed west lateral drains -Load, haul, and dump unsuitable waste material from HLF -Pushing organic material downstream embankment face -Construct sumps, ditching and pump system for HLF water control -Excavate/clean exfiltration ditch -Load, haul, and place rockfill for road repairs
4130.10/4130.11 Event Pond a. LB 245 Excavator b. LB 250 Excavator3 c. CAT 330 Excavator d. 40t ADT x3 e. KOM 250 Loader f. Packer	-Place, spread, and roll sand for liner surface prep -Load, haul, and dump saturated material from event pond slope and floor -Excavate drain in north east corner of event pond
VG Rental a. CAT D10 Dozer	-Main pit access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 23, 2019	**Weather:** clear/overcast (10°C, 2°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.44	40t ADT	31	Rock Fill	ADR Quarry	HLF East Slope
4110.1.09	40t ADT	19	Unsuitable	HLF West	HLF Dump
4130.11	40t ADT	20	Unsuitable	Event Pond	HLF Dump
4130.11	40t ADT	5	Rock Fill	ADR Quarry	EP Access Road
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF header trench, lateral trenches and shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed above HLF lateral drains; Temperature at placement 1.2 º C
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 23, 2019	**Weather:** clear/overcast (10°C, 2°C)	**Prepared By:** Dean Serelo

Photos:





Photo 1: Placing sand for liner surface preparation at Event Pond



Photo 2: Exposing Event Pond north finger drain and removal of unsuitables

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 24, 2019	**Weather:** snow/overcast (3°C, -2°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-Isolation and sickness in camp -Reporting incidents and incident review

Recent Incidents/Spills	
Date	Incident/Spill
March 21, 2019	Worker drives over boardwalk; damages boards

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09/2150.03/9000.43 **9000.44 TBD2 HLF** a. HIT EX1200 Excavator b. LB 245 Excavator c. LB 250 Excavator d. LB 490 Excavator e. CAT D10 Dozer x2 f. CAT D6 Dozer g. 40t ADT x3 h. Packer	-Load, haul, place, and compact rock fill for HLF east slope (photo 1) -Load, haul, and dump unsuitable waste from HLF east -Load, haul, and dump unsuitable waste material from HLF -Pushing organic material downstream embankment face -Construct sumps, ditching and pump system for HLF water control -Construct silt barrier along 940 bench (photo 2)
4130.10/4130.11 Event Pond a. LB 245 Excavator b. CAT 330 Excavator c. KOM 250 Loader d. Packer	-Place, spread, and roll sand for liner surface prep -Excavate drain in north east corner of event pond -Expose frozen underdrain system (photo 3)
VG Rental a. CAT D10 Dozer	-Main pit access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 24, 2019	**Weather:** snow/overcast (3°C, -2°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.44	40t ADT	12	Rock Fill	ADR Quarry	HLF East Slope
9000.44	40t ADT	1	Unsuitable	HLF East	HLF Dump
4110.1.09	40t ADT	52	Unsuitable	HLF West	HLF Dump
9000.43	40t ADT	3	Drain Fill	Nuway	HLF Silt Barrier
4130.11	40t ADT		Rock Fill	ADR Quarry	EP Access Road
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed on east HLF slope; Temperature at placement 3.0 º C (photo 1)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 24, 2019	**Weather:** snow/overcast (3°C, -2°C)	**Prepared By:** Dean Serelo

Photos:





Photo 1: Placing and compacting rockfill on east HLF slope (10:30)



Photo 2: Constructing sediment barrier at 940 crest

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 24, 2019	**Weather:** snow/overcast (3°C, -2°C)	**Prepared By:** Dean Serelo



Photo 3: Exposing event pond underdrain system at discharge inlet

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 25, 2019	**Weather:** clear/overcast (5°C, -3°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-SOP's and SWP's -5 point card review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/2150.03/4110.1.08/9000.43 9000.44 TBD2 HLF a. HIT EX1200 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D10 Dozer f. CAT D6 Dozer x2 g. 40t ADT x3 h. Packer	-Load, haul, place, and compact rock fill for HLF shaping (photo 2) -Load, haul, and dump unsuitable waste from HLF -Load, haul, and dump unsuitable waste from HLF east -Pushing organic material downstream embankment face -Construct silt barrier along 940 bench -Doze overbuild and unsuitable waste from west HLF shaping
4130.11 Event Pond a. LB 245 Excavator b. KOM 250 Loader	-Excavate drain in north east corner of event pond -Expose frozen underdrain system (photo 4) -Steam out frozen underdrain piping
VG Rental a. CAT D10 Dozer	-Main pit access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 25, 2019	**Weather:** clear/overcast (5°C, -3°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.03/4110.1.08	40t ADT	28	Rock Fill	ADR Quarry	HLF
4110.1.09	40t ADT	83	Unsuitable	HLF	HLF Dump
9000.43	40t ADT	2	Drain Fill	Nuway	HLF Silt Barrier
4130.11	40t ADT	4	Drain Fill	Nuway	EP Finger Drain
4130.11	40t ADT	3	Rock Fill	ADR Quarry	EP Access Road
4130.11	40t ADT	2	Unsuitable	Event Pond	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 2.0-2.2 ^{o} C (photo 1)
- Material 7 placed in HLF pad shaping; Temperature at placement 5.0 ^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 25, 2019	**Weather:** clear/overcast (5°C, -3°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: ADR Quarry rockfill source (11:11)



Photo 2: Placing rockfill for HLF pad shaping (16:45)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 25, 2019	**Weather:** clear/overcast (5°C, -3°C)	**Prepared By:** Dean Serelo



Photo 3: Event Pond north east drain installation



Photo 4: Exposing frozen Event Pond underdrains

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 26, 2019	**Weather:** clear/overcast (6°C, -3°C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-COR safety audit

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/2150.03/4110.1.08/9000.43 HLF a. HIT EX1200 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. CAT D6 Dozer x2 f. 40t ADT x3 g. Packer	-Load, haul, place, and compact rock fill for HLF shaping (photo 2) -Load, haul, and dump unsuitable waste from HLF -Construct silt barrier along 940 bench -Doze overbuild and unsuitable waste from west HLF shaping (photo 3)
4130.10/4130.11 TBD4 Event Pond a. LB 245 Excavator b. KOM 250 Loader c. CAT D10 Dozer d. CAT 330 Excavator e. 40t ADT	-Excavate drain in north east corner of event pond -Expose, pump, and thaw frozen underdrain system -Place and compact sand for liner preparation -Doze and Excavate Event Pond spillway (photo 4)
2150.09a Drill and Blast ADR a. Terex Drill	-Drill 972-01 blast pattern (photo 1)
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 26, 2019	**Weather:** clear/overcast (6°C, -3°C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.03/4110.1.08	40t ADT	61	Rock Fill	ADR Quarry	HLF
4110.1.09	40t ADT	72	Unsuitable	HLF	HLF Dump
9000.43	40t ADT	1	Drain Fill	Nuway	HLF Silt Barrier
TBD4	40t ADT	5	Rock Fill	ADR	EP Spillway
TBD4	40t ADT	5	Unsuitable	EP Spillway	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 6.8 ^{o} C (photo 1)
- Material 7 placed in HLF pad shaping; Temperature at placement 3.6 ^{o} C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 26, 2019	**Weather:** clear/overcast (6°C, -3°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: ADR Quarry rockfill source (15:25)



Photo 2: Placing rockfill for HLF pad shaping (15:50)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 26, 2019	**Weather:** clear/overcast (6°C, -3°C)	**Prepared By:** Dean Serelo



Photo 3: HLF west shaping



Photo 4: Excavating Event Pond spillway

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: Mar 27, 2019	**Weather:** clear/overcast (°C, °C)	**Prepared By:** Dean Serelo

Health and Safety

Pelly Toolbox Topic:	-COR safety audit

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	39

Location and Equipment	Summary of Activities
4110.1.09/2150.03/4110.1.08/9000.43 HLF a. HIT EX1200 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. CAT D6 Dozer f. 40t ADT x3 g. Packer	-Load, haul, place, and compact rock fill for HLF shaping (photo 2) -Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping (photo 3)
4130.10/4130.11 TBD4 Event Pond a. LB 245 Excavator b. KOM 250 Loader c. CAT 330 Excavator d. 40t ADT	-Excavate drain in north east corner of event pond -Expose, pump, and thaw frozen underdrain system -Place and compact sand for liner preparation -Excavate and haul Event Pond spillway (photo 4)
2150.09a Drill and Blast ADR a. Terex Drill	-Drill 972-01 blast pattern
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 27, 2019	**Weather:** clear/overcast (°C, °C)	**Prepared By:** Dean Serelo

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.03/4110.1.08	40t ADT	24	Rock Fill	ADR Quarry	HLF West
9000.44	40t ADT	2	Rock Fill	ADR Quarry	HLF East
4110.1.09	40t ADT	6	Unsuitable	HLF	HLF Dump
4130.11	40t ADT	12	Unsuitable	Event Pond	HLF Dump
TBD	40t ADT	37	Rock Fill	ADR Quarry	EP Liner Bench Fill
TBD4	40t ADT	20	Unsuitable	EP Spillway	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source 0.8 to 1.0 ^{o}C (photo 1)
- Material 7 placed in HLF pad shaping; Temperature at placement 3.4 ^{o}C (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 27, 2019	**Weather:** clear/overcast (°C, °C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: ADR Quarry rockfill source (9:53)



Photo 2: Placing rockfill for HLF pad shaping (10:03)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 27, 2019	**Weather:** clear/overcast (°C, °C)	**Prepared By:** Dean Serelo



Photo 3: HLF west shaping



Photo 4: Excavating Event Pond spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 28, 2019	**Weather:** sunny/cloudy (7°C, -3°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-External audit review -No alcohol at Mayo airport

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09/2150.03/4110.1.08 HLF a. LB 490 Excavator b. CAT D10 Dozer c. CAT D6 Dozer x2 d. 40t ADT x2	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping
4130.10/4130.11 TBD4 Event Pond a. LB 245 Excavator b. HIT EX1200 Excavator c. KOM 250 Loader d. CAT 330 Excavator e. 40t ADT	-Expose, pump, and thaw frozen underdrain system -Place and compact rockfill for liner anchor trench on NE bench -Doze and Excavate Event Pond spillway
2150.09a Drill and Blast ADR a. Terex Drill	-Drill 972-01 blast pattern
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 28, 2019	**Weather:** sunny/cloudy (7°C, -3°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.03/4110.1.08	40t ADT		Rock Fill	ADR Quarry	HLF
4110.1.09	40t ADT	26	Unsuitable	HLF West	HLF Dump
9000.42	40t ADT	8	Rock Fill	ADR	EP Bench
TBD4	40t ADT		Unsuitable	EP Spillway	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source
- Material 7 placed in HLF pad shaping; Temperature at placement
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 28, 2019	**Weather:** sunny/cloudy (7°C, -3°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Thawing underdrain system



Photo 2: Successfully thawed underdrain system (discharge pipe at bottom of photo)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 28, 2019	**Weather:** sunny/cloudy (7°C, -3°C)	**Prepared By:** Yuheng Fei



Photo 3: HLF west shaping



Photo 4: Excavating Event Pond spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 29, 2019	**Weather:** partly cloudy (8°C, 0°C)	**Prepared By:** Yuheng Fei

Health and Safety

Pelly Toolbox Topic:	-External audit questions review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08 **HLF** a. LB 490 Excavator b. CAT D10 Dozer c. CAT D6 Dozer x2 d. 40t ADT x2	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping
4130.10/4130.11 TBD4 Event Pond a. LB 245 Excavator b. KOM 250 Loader c. Packer	-Compact spillway excavation near HLF -Place sand for liner preparation
2150.09a Drill and Blast ADR a.	-Load holes and blast in the evening
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 29, 2019	**Weather:** partly cloudy (8°C, 0°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.08	40t ADT	2	Rock Fill	ADR Quarry	HLF
4110.1.09	40t ADT	77	Unsuitable	HLF West	HLF Dump
9000.42	40t ADT		Rock Fill	ADR	EP Bench
TBD4	40t ADT		Unsuitable	EP Spillway	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source
- Material 7 placed in HLF pad shaping; Temperature at placement
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 29, 2019	**Weather:** partly cloudy (8°C, 0°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Loading blast holes at ADR Quarry



Photo 2: Event Pond liner preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 29, 2019	**Weather:** partly cloudy (8°C, 0°C)	**Prepared By:** Yuheng Fei



Photo 3: HLF west shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 30, 2019	**Weather:** Clear (11 °C, -5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Special project SWP

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09/4110.1.08/9000.43 HLF a. LB 490 Excavator b. CAT 320 Excavator c. CAT D10 Dozer d. CAT D6 Dozer x2 e. 40t ADT x3 f. KOM 430 Loader	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping -Build silt berm at level 940
4130.10/4130.11 Event Pond a. LB 245 Excavator b. CAT D10 Dozer c. 40t ADT d. Grader e. KOM 250 Loader f. Packer	-Place sand for liner preparation -Grade and compact event pond floor -Excavate blanket drain on north face of event pond
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 30, 2019	**Weather:** Clear (11 °C, -5 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	54	Unsuitable	HLF West	HLF Dump
4130.11	40t ADT	6	Waste	EP	HLF Dump
9000.43	40t ADT	2	Crush	Nuway	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source
- Material 7 placed in HLF pad shaping; Temperature at placement
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 30, 2019	**Weather:** Clear (11 °C, -5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Preparing event pond floor



Photo 2: Excavating blanket drain in north face of event pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 30, 2019	**Weather:** Clear (11 °C, -5 °C)	**Prepared By:** Zean Lang



Photo 3: HLF west shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 31, 2019	**Weather:** Clear (11 °C, -3 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Safety Awareness on radio calling when walking near large equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09/9000.43/9000.44 HLF a. LB 490 Excavator b. CAT 330 Excavator c. CAT D10 Dozer d. CAT D6 Dozer x2 e. 40t ADT x2	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping -Build silt barrier at level 940 -Shaping HLF east near underdrains -Eagle pup to HLF access road
4130.10/4130.11 Event Pond a. LB 250 Excavator b. 40t ADT c. KOM 250 Loader d. Packer	-Place sand for liner preparation -Compact event pond floor -Excavate blanket drain on north face of event pond -Smoothing out slope surface and picking up sharp rocks
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 31, 2019	**Weather:** Clear (11 °C, -3 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	69	Unsuitable	HLF	HLF Dump
4130.11	40t ADT	19	Waste	EP	HLF Dump
4130.11	40t ADT	2	Crush	Nuway	EP
9000.44	40t ADT	6	Rock	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry; Temperature at source
- Material 7 placed in HLF pad shaping; Temperature at placement
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 31, 2019	**Weather:** Clear (11 °C, -3 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping HLF west slope



Photo 2: Shaping HLF east near underdrain trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: Mar 31, 2019	**Weather:** Clear (11 °C, -3 °C)	**Prepared By:** Zean Lang

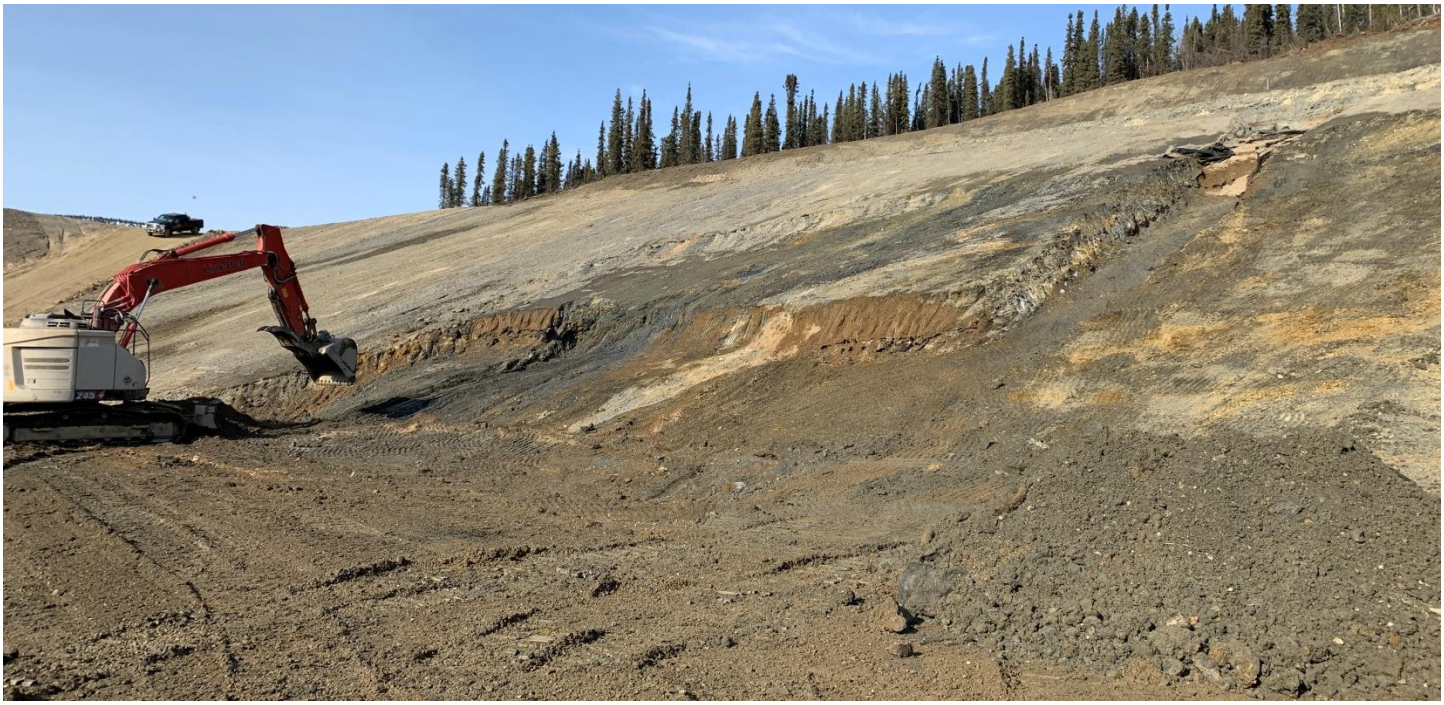


Photo 3: Excavating blanket drain in north face of event pond



Photo 4: Liner preparation at Event Pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 1, 2019	**Weather:** sunny (10 °C, -3 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Discussion on risk assessment -Introduction of the safety auditor -Awareness of beer cans and syringe found on site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09//9000.44 HLF a. LB 490 Excavator b. HIT EX1200 c. CAT D6 Dozer x2 d. 40t ADT x2 e. Packer	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping and underdrain trench -Place and compact rockfill HLF east near underdrain trench
4130.10/4130.11/TBD4 Event Pond a. LB 245 Excavator b. 40t ADT c. KOM 250 Loader	-Place sand for liner preparation -Excavate and install blanket drain on north face of event pond
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 1, 2019	**Weather:** sunny (10 °C, -3 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	16	Unsuitable	HLF	HLF Dump
4130.11	40t ADT	3	Waste	EP	HLF Dump
4130.11	40t ADT	5	Crush	Nuway	EP
9000.44	40t ADT	9	Rockfill	ADR	HLF
4130.11	40t ADT	10	Rockfill	ADR	EP
TBD4	40t ADT	1	Rockfill	ADR	Embankment
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 1, 2019	**Weather:** sunny (10 °C, -3 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping HLF west slope



Photo 2: Shaping HLF east near underdrain trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 1, 2019	**Weather:** sunny (10 °C, -3 °C)	**Prepared By:** Zean Lang



Photo 3: Installation of blanket drain in north face of event pond

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 2, 2019	**Weather:** sunny (-3 °C, -6 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Isolation policy of sick workers in camp

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.1.09 HLF a. LB 490 Excavator b. CAT D6 Dozer x2 c. CAT D10 Dozer d. 40t ADT x2	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping
4130.10/4130.11/TBD4 Event Pond a. LB 245 Excavator b. 40t ADT c. KOM 250 Loader d. Packer	-Place sand for liner preparation over earlier excavated drainage on North slope. -Place sand over sump drainage pipe and compact the area
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 2, 2019	**Weather:** sunny (-3 °C, -6 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	82	Unsuitable	HLF	HLF Dump
4130.11	40t ADT	11	Waste	EP	HLF Dump
4130.11	40t ADT	1	Crush	Nuway	EP
4130.11	40t ADT	1	Rockfill	ADR	EP
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 2, 2019	**Weather:** sunny (-3 °C, -6 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping HLF west slope



Photo 2: Placing sand over drainage area and compaction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 2, 2019	**Weather:** sunny (-3 °C, -6 °C)	**Prepared By:** Zean Lang



Phone 3: Placing and compacting sand over Event Pond discharge pipe at SW corner.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 3, 2019	**Weather:** Windy (-8 °C, 3 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Reminder on occasional unsafe actions

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	37

Location and Equipment	Summary of Activities
4110.1.09 HLF a. LB 490 Excavator b. CAT D6 Dozer x3 c. CAT D10 Dozer d. 40t ADT x2	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping
4130.10/ 4130.12 Event Pond a. LB 245 Excavator b. 40t ADT c. KOM 250 Loader d. KOM 430 Loader e. Packer x2 f. Grader x1	-Place sand for liner preparation -Touch up for slope surface -Excavate for emergency spillway
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 3, 2019	**Weather:** Windy (-8 °C, 3 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	95	Unsuitable	HLF	HLF Dump
4130.11	40t ADT	5	Waste	EP	HLF Dump
4130.11	40t ADT	1	Crush	Nuway	EP
4130.11	40t ADT	6	Sand	ADR	EP
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 3, 2019	**Weather:** Windy (-8 °C, 3 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Waste removal continues on West Slope at HLF



Photo 2: Overview of HLF area. East slope(right),West slope(left)

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 3, 2019	**Weather:** Windy (-8 °C, 3 °C)	**Prepared By:** Zean Lang



Phone 3: Liner preparation for West end at Event Pond

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 4, 2019	**Weather:** Clear (-18 °C, 3 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	-Safety reminder on cleaning windows and mirrors for vehicles

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09 HLF a. LB 490 Excavator b. CAT D6 Dozer x3 c. CAT D10 Dozer d. 40t ADT x3	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping
4130.08/ 4130.10/ 4130.11 Event Pond a. LB 245 Excavator b. 40t ADT c. KOM 430 Loader d. Packer e. Grader	-Load, haul, and dump sand and crush from ADR to EP -Place sand for liner preparation -Place crush for LDRS pipe bedding -Thaw underdrain pipe
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 4, 2019	**Weather:** Clear (-18 °C, 3 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	66	Unsuitable	HLF	HLF Dump
4130.10	40t ADT	5	Sand	ADR	EP
4130.10	40t ADT	15	Rock	ADR	EP
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 4, 2019	**Weather:** Clear (-18 °C, 3 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping HLF west slope



Photo 2: Liner surface preparation for West end in EP

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 4, 2019	**Weather:** Clear (-18 °C, 3 °C)	**Prepared By:** Zean Lang



Phone 3: Placing crush at West slope for pipe bedding in EP

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 5, 2019	**Weather:** Clear (-15 °C, 0 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Review on previous incidents

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09 HLF a. LB 490 Excavator b. HITACHI 1200 Excavator c. CAT D6 Dozer x2 d. CAT D10 Dozer e. 40t ADT x4 f. Packer	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping -Load, haul, and dump sand from ADR to HLF -Compact West slope
4130.08/ 4130.10/ 4130.12/TBD2 Event Pond a. LB 245 Excavator b. CAT 330 Excavator c. CAT 365 Excavator d. 40t ADT e. KOM 430 Loader f. Packer g. Grader	-Doze overbuild for spillway slope -Place crush for LDRS pipe bedding -Place sand for liner preparation -Spread topsoil on downstream face of embankment
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 5, 2019	**Weather:** Clear (-15 °C, 0 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	89	Unsuitable	HLF	HLF Dump
4130.10	40t ADT	4	Sand	ADR	EP
9000.44	40t ADT	30	Sand	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 5, 2019	**Weather:** Clear (-15 °C, 0 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Dozing overbuild into underdrain trench



Photo 2: Loading up overbuild dozed down from West slope in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 5, 2019	**Weather:** Clear (-15 °C, 0 °C)	**Prepared By:** Zean Lang



Photo 3: Liner surface preparations for West end in EP. Eshemuta crews were verifying grade on LDRS pipe ramp



Photo 4: Cutting back spillway slope. For the excavation in lower right corner, a pipe is planned to be placed there for seepage control

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 6, 2019	**Weather:** Light snow/Cloudy (-10 °C, 0 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Review on workplace safety policy

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01 HLF a. LB 490 Excavator b. HITACHI 1200 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. 40t ADT x4 f. Packer	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping -Load, haul, and dump sand from ADR to HLF -Compact West slope
4130.10/4130.12/TBD2/TBD3 Event Pond a. LB 245 Excavator b. CAT 330 Excavator c. CAT D10 Dozer d. CAT D6 Dozer e. 40t ADT f. KOM 430 Loader g. Packer h. Grader	-Cut back overbuild for spillway slope -Place rock-fill for sump shaping -Spread topsoil on downstream face of embankment
VG Rental a. CAT D10 Dozer	-Main pit access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 6, 2019	**Weather:** Light snow/Cloudy (-10 °C, 0 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	63	Unsuitable	HLF	HLF Dump
4130.10	40t ADT	7	Sand	ADR	EP
4110.6.01	40t ADT	127	Sand	ADR	HLF
4130.12	40t ADT	7	Waste	Spillway	EP Dump
TBD 3	40t ADT	5	Rock-fill	ADR	EP
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 6, 2019	**Weather:** Light snow/Cloudy (-10 °C, 0 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Pelly crews continue to remove overbuild from HLF West slope.



Photo 2: Sand is hauled from ADR for liner surface preparation later.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 6, 2019	**Weather:** Light snow/Cloudy (-10 °C, 0 °C)	**Prepared By:** Zean Lang



Photo 3: Rock-fill is placed for new LDRS sump design



Photo 4: Cutting back spillway slope. Emusheta surveyors continue to keep spillway slope in check.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 7, 2019	**Weather:** Cloudy/Snow(-10 °C, +5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Review on incident report procedure

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.09/4110.6.01 HLF a. CAT 330 Excavator b. LB 490 Excavator c. LB 245 Excavator d. HITACHI 1200 Excavator e. CAT D6 Dozer f. 40t ADT x5 g. Packer	-Load, haul, and dump unsuitable waste from HLF -Doze overbuild and unsuitable waste from west HLF shaping -Load, haul, and dump sand from ADR to HLF -Load, haul, and dump sand from rock to HLF -Compact West slope
4130.10/4130.12/TBD2/TBD3 Event Pond a. LB 245 Excavator b. CAT 330 Excavator c. CAT D10 Dozer d. KOM 430 Loader e. Packer	-Cut back overbuild for spillway slope -Touch up for slope shaping on West corner -Spread topsoil on downstream face of embankment

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 7, 2019	**Weather:** Cloudy/Snow(-10 °C, +5 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	86	Unsuitable	HLF	HLF Dump
4110.1.09	40t ADT	3	Rock	ADR	HLF
4110.6.01a	40t ADT	28	Sand	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
Mar 16, 2019	Water seeps into event pond; additional drain systems required
Mar 24, 2019	Event pond underdrain system is frozen and not conveying water

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
Mar 23, 2019	Crusher access road ripping with D11 (TBD3)
Mar 26, 2019	Excavate Event Pond Spillways (TBD4)
Mar 31, 2019	HLF Vault Earthworks (TBD5)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 7, 2019	**Weather:** Cloudy/Snow(-10 °C, +5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Loading away unsuitable on HLF East Slope



Photo 2: Compacting HLF slope for liner surface preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 7, 2019	**Weather:** Cloudy/Snow(-10 °C, +5 °C)	**Prepared By:** Zean Lang



Photo 3: Shaping EP slope



Photo 4: Embankment slope shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 8, 2019	**Weather: Cloudy**(-5 °C, +6 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Reminder on allowed smoking area and use of cigarette butt bin

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	36

Location and Equipment	Summary of Activities
4110.1.04/4110.1.09/4110.6.01/TBD2 HLF a. CAT 330 Excavator b. CAT 365 Excavator c. LB 250 Excavator d. HITACHI 1200 Excavator e. CAT D6 Dozer f. CAT D10 Dozer g. 40t ADT x4 h. Packer x3	-Load, haul, and dump unsuitable waste from HLF -Load, haul, and dump sand and rock from ADR to HLF -Place and compact rockfill for west slope -Shaping between embankment and event pond -Widening embankment driveway
4130.03/4130.10/TBD3 Event Pond a. LB 245 Excavator b. KOM 430 Loader c. 40t ADT x2 d. Packer	-Slope shaping for EP -Liner preparation for LDRS sump -Load, haul, and dump sand from ADR to EP
VG Rental a. Fuel truck	-Fuel up Orica truck

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 8, 2019	**Weather: Cloudy**(-5 °C, +6 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	42	Unsuitable	HLF	HLF Dump
4110.1.09	40t ADT	103	Rock	ADR	HLF
4110.6.01a	40t ADT	3	Sand	ADR	HLF
4130.03	40t ADT	5	Waste	EP	EP Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
Mar 18, 2019	Spreading topsoil on downstream face of embankment (TBD2)
April 3, 2019	Excavation and rockfill placement for event pond LDRS sump redesign (TBD3)
April 8, 2019	Slope shaping along the spillway (TBD4)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 8, 2019	**Weather: Cloudy**(-5 °C, +6 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Dumping rock on HLF West Slope



Photo 2: Widening HLF embankment driveway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 8, 2019	**Weather: Cloudy**(-5 °C, +6 °C)	**Prepared By:** Zean Lang



Photo 3: Packing the banks of LDRS sump in EP



Photo 4: Shaping EP slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 9, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Reminder on the hazards involved with fast driving on site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
4110.1.09 **HLF** a. CAT 330 Excavator b. CAT 365 Excavator c. LB 250 Excavator d. HITACHI 1200 Excavator e. KOM 430 Loader f. CAT D10 Dozer g. CAT D6 Dozer h. 40t ADT x4 i. Packer x2	-Load, haul, and dump unsuitable waste from HLF -Load, haul, and dump rock and crush from ADR to HLF -Place and compact rockfill for west slope -Shaping between embankment and event pond -Widening embankment driveway -Silt berm construction
4130.10/4130.11 **Event Pond** a. LB 245 Excavator b. KOM 430 Loader c. Packer d. Light Plant x2	-Slope shaping for EP -Place sand for liner surface preparation -Pumping for seepage sump in spillway slope -Shaping spillway slope

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 9, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	35	Unsuitable	HLF	ADR Dump
4110.1.09	40t ADT	29	Rock	ADR	HLF
4110.1.09	40t ADT	3	Crush	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 10, 2019	Spillway underdrain needs specification for liner trench location at the end

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 9, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: HLF West slope shaping



Photo 2: Widening HLF embankment driveway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 9, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang



Photo 3: Spillway slope shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 10, 2019	**Weather: Cloudy**(-3 °C, +11 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Reminder on proper wear of PPE

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	32

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01/9000.48 **HLF** a. CAT 330 Excavator b. LB 250 Excavator c. HITACHI 1200 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. CAT D10 Dozer g. 40t ADT x4 h. Packer x2	-Load, haul, and dump unsuitable waste from HLF -Load, haul, and dump rock and crush from ADR to HLF -Place and compact rockfill for west slope -Shaping between embankment and event pond -Widening embankment driveway -Construction for HLF East access road -Liner surface preparation
4130.11 **Event Pond** a. LB 245 Excavator b. CAT D6 Dozer	-Excavating for spillway underdrain

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 10, 2019	**Weather: Cloudy**(-3 °C, +11 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	19	Unsuitable	HLF	ADR Dump
4110.1.09	40t ADT	29	Rock	ADR	HLF
4110.1.09	40t ADT	11	Crush	ADR	HLF
9000.48	40t ADT	72	Rock	ADR	HLF Embankment
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 10, 2019	Spillway underdrain needs specification for liner trench location at the end

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 10, 2019	**Weather: Cloudy**(-3 °C, +11 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: HLF West slope shaping



Photo 2: Constructing HLF East side access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 10, 2019	**Weather: Cloudy**(-3 °C, +11 °C)	**Prepared By:** Zean Lang



Photo 3: Placing sand for liner surface preparation



Photo 4: Shaping spillway slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 11, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Reminder on hazards when working around equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01//9000.48 **HLF** a. LB 250 Excavator b. HITACHI 1200 Excavator c. KOM 430 Loader d. CAT D6 Dozer x2 e. CAT D10 Dozer f. 40t ADT x2 g. Packer x2	-Load, haul, and dump unsuitable waste from HLF -Load, haul, and dump rock from ADR to HLF -Place and compact rockfill for East slope and HLF East side access -Shaping between embankment and event pond -Widening embankment driveway -Liner surface preparation on HLF East
4130.11 **Event Pond** a. LB 245 Excavator	-Excavating for spillway underdrain
2150.06 **ADR** a. LB 250 Excavator b. CAT 330 Excavator c. CAT 365 Excavator d. 40t ADT x3	-Excavating ditch

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 11, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	2	Unsuitable	HLF	ADR Dump
4110.1.09	40t ADT	47	Rock	ADR	HLF
9000.48	40t ADT	4	Rock	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 10, 2019	Spillway underdrain needs specification for liner trench location at the end

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 11, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: HLF East slope shaping



Photo 2: Constructing HLF East side access road

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 11, 2019	**Weather: Cloudy**(-2 °C, +8 °C)	**Prepared By:** Zean Lang



Photo 3: Excavating ADR ditch



Photo 4: Shaping spillway slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 12, 2019	**Weather: Cloud/Low snow**(0 °C, +6 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Reminder on workplace hazards

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01//9000.48 **HLF** a. LB 250 Excavator b. HITACHI 1200 Excavator c. CAT 365 Excavator d. KOM 250 Loader e. CAT 988 Loader f. CAT D6 Dozer x3 g. 40t ADT x3 h. Packer x2	-Load, haul, and dump rock from ADR to HLF -Place and compact rockfill for East slope and HLF East side access -Shaping between embankment and event pond -Liner surface preparation on HLF East and West
4130.11 **Event Pond** a. LB 245 Excavator b. CAT 304 Excavator c. Light Plant x2	-Excavating for spillway underdrain
2150.06 **ADR** a. CAT 330 Excavator b. CAT 365 Excavator c. 40t ADT	-Excavating ditch

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 12, 2019	**Weather: Cloud/Low snow**(0 °C, +6 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.06	40t ADT	39	Unsuitable	ADR	ADR Dump
4110.1.09	40t ADT	8	Rock	ADR Quarry	HLF
9000.48	40t ADT	19	Rock	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 12, 2019	**Weather: Cloud/Low snow**(0 °C, +6 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: HLF East slope shaping



Photo 2: Placing sand on HLF West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 12, 2019	**Weather: Cloud/Low snow**(0 °C, +6 °C)	**Prepared By:** Zean Lang



Photo 3: Excavating ADR ditch



Photo 4: Shaping spillway slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 13, 2019	**Weather: Light Clouds**(-2 °C, +4 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Fire evacuation procedure - Review on importance of seat belt and past incidents

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
9000.44/9000.48/4110.6.01 **HLF** a. KOM 250 Loader b. CAT 988 Loader c. CAT D6 Dozer x3 d. CAT D10 Dozer e. 40t ADT x5 f. Packer x2	-Load, haul, and dump rock from ADR to HLF -Place and compact rockfill for East slope and HLF East side access -Shaping between embankment and event pond -Liner surface preparation on HLF East and West
4130.11 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. 40t ADT d. Light Plant x2	-Excavating for spillway underdrain
2150.06 **ADR** a. CAT 330 Excavator b. CAT 365 Excavator	-Excavating ditch

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 13, 2019	**Weather: Light Clouds**(-2 °C, +4 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.01.09	40t ADT	17	Unsuitable	HLF	ADR Dump
9000.44	40t ADT	82	Rock	ADR Quarry	HLF
9000.48	40t ADT	19	Rock	ADR Quarry	HLF
4130.11	40t ADT	8	Rock	EP Spillway	HLF Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 13, 2019	**Weather: Light Clouds**(-2 °C, +4 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: HLF East slope shaping



Photo 2: Excavating spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 13, 2019	**Weather: Light Clouds**(-2 °C, +4 °C)	**Prepared By:** Zean Lang



Photo 2: Loading away waste from spillway shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 14, 2019	**Weather: Clear**(-4 °C, +7 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Identification and evaluation of workplace hazards - Review on part incidents

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
9000.44/9000.48 **HLF** a. CAT 365 Excavator b. KOM 250 Loader c. CAT 988 Loader d. CAT D6 Dozer x2 e. 40t ADT x2 f. Packer x3	-Load, haul, and dump rock from ADR and EP Spillway to HLF -Place and compact rockfill for East slope and HLF East side access -Shaping between embankment and event pond -Liner surface preparation on HLF East and West
4130.11 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT D10 Dozer e. 40t ADT x2 f. Light Plant x2	-Excavating for spillway underdrain -Load, haul and dump waste to ADR dump
2150.06 **ADR** a. CAT 330 Excavator b. CAT 365 Excavator c. 40t ADT	-Excavating ditch

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 14, 2019	**Weather: Clear**(-4 °C, +7 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.06	40t ADT	6	Unsuitable	ADR	ADR Dump
9000.44/9000.48	40t ADT	54	Rock	ADR Quarry	HLF
4130.11	40t ADT	38	Unsuitable	EP Spillway	ADR Dump
4130.11/9000.44/9000.48	40t ADT	17	Rock	EP Spillway	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 14, 2019	**Weather: Clear**(-4 °C, +7 °C)	**Prepared By:** Zean Lang

Photos:

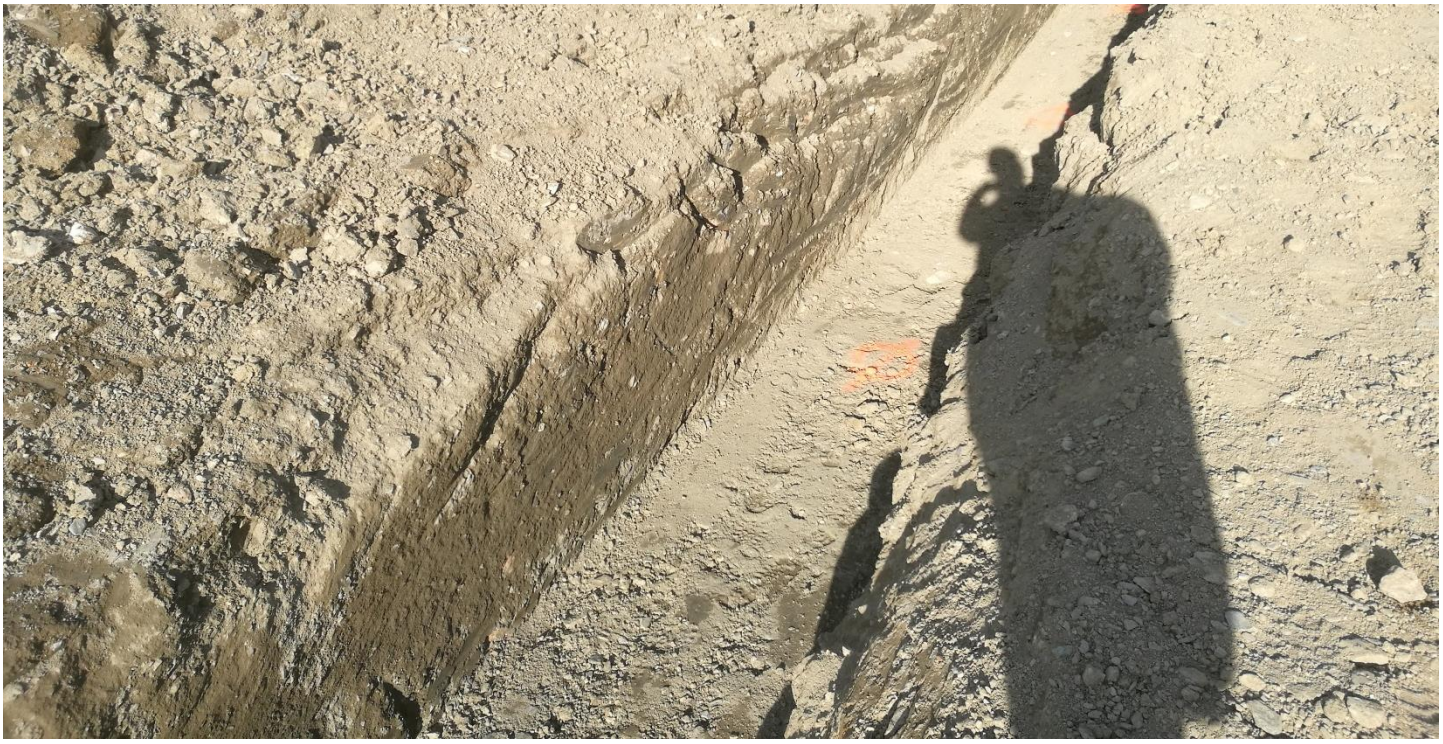


Photo 1: Spillway underdrain trench



Photo 2: Excavating spillway culvert in Event Pond

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 14, 2019	**Weather: Clear**(-4 °C, +7 °C)	**Prepared By:** Zean Lang



Photo 3: Constructing HLF East access road.



Photo 4: Surface preparation in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 14, 2019	**Weather: Clear**(-4 °C, +7 °C)	**Prepared By:** Zean Lang



Photo 5: Water management on the top of HLF West slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 15, 2019	**Weather: Flurries/cloudy**(-8°C, +5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Past incident review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
9000.44/9000.48/4110.1.09 **HLF** a. LB 490 Excavator b. KOM 250 Loader c. CAT 988 Loader d. CAT D6 Dozer x3 e. 40t ADT x2 f. Packer x2	-Load, haul, and dump rock from ADR and EP Spillway to HLF -Place and compact rockfill for East slope and HLF East side access -Shaping between embankment and event pond -Liner surface preparation on HLF East and West -Seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. CAT D10 Dozer d. 40t ADT x2 e. Light Plant x3	-Excavating for spillway underdrain -Load, haul and dump waste to ADR dump -Seepage management
2150.06 **ADR** a. CAT 330 Excavator b. CAT 365 Excavator c. 40t ADT	-Excavating ditch

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 15, 2019	**Weather: Flurries/cloudy**(-8°C, +5 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.06	40t ADT	10	Unsuitable	ADR	ADR Dump
9000.44/9000.48	40t ADT	36	Rock	ADR Quarry	HLF
4130.11	40t ADT	28	Unsuitable	EP Spillway	ADR Dump
4130.11/9000.44/9000.48	40t ADT	30	Rock	EP Spillway	HLF
4110.01.09	40t ADT	18	Unsuitable	HLF	ADR Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 15, 2019	**Weather: Flurries/cloudy**(-8°C, +5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Excavating ADR-HLF trench



Photo 2: Surface preparation for HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 15, 2019	**Weather: Flurries/cloudy**(-8°C, +5 °C)	**Prepared By:** Zean Lang



Photo 3: Loading away unsuitable from HLF West Slope



Photo 4: Water management in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 15, 2019	**Weather: Flurries/cloudy**(-8°C, +5 °C)	**Prepared By:** Zean Lang



Photo 5: Excavating spillway trench



Photo 6: Loading away waste from spillway shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 16, 2019	**Weather: Cloudy**(-6°C, +6 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Check-off list reminder before operating any equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	35

Location and Equipment	Summary of Activities
9000.44/4110.1.09/4110.6.01 **HLF** a. LB 490 Excavator b. CAT 330 Excavator c. KOM 250 Loader d. CAT D6 Dozer x2 e. 40t ADT x4 f. Packer x2 g. Grade x1 h. Light Plant x1	-Load, haul, and dump rock from ADR and EP Spillway to HLF -Load, haul, and dump unsuitable from HLF West to ADR Dump -Place and compact rockfill for East slope -Liner surface preparation on HLF East and West -Shaping on HLF West slope -Seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. CAT 988 Loader d. CAT D10 Dozer e. 40t ADT x2 f. Light Plant x2	-Excavating for spillway underdrain -Load, haul and dump waste to ADR dump -Seepage management -Load, haul, and dump crush from Eagle Pit to Spillway
2150.06 **ADR** a. CAT 330 Excavator b. 40t ADT	-Excavating ditch -load, haul, and dump waste to ADR dump

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 16, 2019	**Weather: Cloudy**(-6°C, +6 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
2150.06	40t ADT	3	Unsuitable	ADR	ADR Dump
4110.1.09	40t ADT	59	Unsuitable	HLF	ADR Dump
4130.11	40t ADT	26	Unsuitable	EP Spillway	ADR Dump
4130.11/9000.44	40t ADT	12	Rock	EP Spillway	HLF
4130.11	40t ADT	2	Crush	Eagle Pit	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 16, 2019	**Weather: Cloudy**(-6°C, +6 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping on HLF East slope



Photo 2: Surface preparation for HLF East

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 16, 2019	**Weather: Cloudy**(-6°C, +6 °C)	**Prepared By:** Zean Lang



Photo 3: Loading away unsuitable from HLF West Slope



Photo 4: Water management on the crest of HLF West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 16, 2019	**Weather: Cloudy**(-6°C, +6 °C)	**Prepared By:** Zean Lang



Photo 5: Shaping on spillway slope



Photo 6: Loading away waste from spillway shaping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 17, 2019	**Weather: Cloudy**(+4°C, +12 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Emotional wellness in workplace

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	33

Location and Equipment	Summary of Activities
9000.44/4110.1.09/4110.6.01 **HLF** a. LB 490 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 304 Excavator e. KOM 430 Loader f. KOM 250 Loader g. CAT D10 Dozer h. CAT D6 Dozer i. 40t ADT x4 j. Packer x2 k. Light Plant x1	-Load, haul, and dump rock from ADR and EP Spillway to HLF -Load, haul, and dump unsuitable from HLF West to ADR Dump -Place and compact rockfill for East slope -Liner surface preparation on HLF East and West -Shaping on HLF West slope -Seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. 40t ADT d. Light Plant x2	-Excavating for spillway underdrain -Load, haul and dump waste to ADR dump -Seepage management -Load, haul, and dump rock from EP spillway to HLF
2150.06 **ADR** a. CAT 330 Excavator b. 40t ADT	-Excavating ditch -Load, haul, and dump waste to ADR dump

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 17, 2019	**Weather: Cloudy**(+4°C, +12 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.1.09	40t ADT	14	Unsuitable	HLF	ADR Dump
4130.11	40t ADT	22	Unsuitable	EP Spillway	ADR Dump
2150.06/9000.44	40t ADT	44	Rock	ADR Quarry	HLF
4130.11/9000.44	40t ADT	10	Rock	EP Spillway	HLF
2150.06	40t ADT	1	Unsuitable	ADR	ADR Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 17, 2019	**Weather: Cloudy**(+4°C, +12 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping on HLF East slope



Photo 2: Shaping for HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 17, 2019	**Weather: Cloudy**(+4°C, +12 °C)	**Prepared By:** Zean Lang



Photo 3: Water management on the crest of HLF West



Photo 4: Touch up for spillway trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Procedure on reporting usage of alcohol and drug on site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	28

Location and Equipment	Summary of Activities
9000.44/4110.1.09/4110.6.01 **HLF** a. LB 490 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 988 Loader e. CAT D6 Dozer x2 f. 40t ADT x2 g. Packer h. Grader i. Light Plant x1	-Load, haul, and dump rock from ADR Quarry to HLF -Place and compact rockfill for pipe bench in the underdrain valley -Shaping on HLF East and West slope -Seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. CAT 988 Loader c. KOM 250 Loader d. 40t ADT x3 e. Light Plant x2	-Seepage management -Load, haul, and dump crush from Eagle Pup to EP Spillway -Instal underdrain pipe for spillway
2150.06 **ADR** a. CAT 330 Excavator b. CAT 988 Loader c. CAT 430 Loader d. 40t ADT	-Surface preparation for HDPE liner -Load, haul, and dump sand from ADR Quarry to ADR

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	14	Crush	Eagle Pup	EP Spillway
4110.1.09	40t ADT	5	Rock	ADR Quarry	HLF
2150.06	40t ADT	5	Sand	ADR Quarry	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping on HLF West slope



Photo 2: Placing sand for HDPE liner surface preparation at ADR trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang



Photo 3: Installing EP Spillway underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Procedure on reporting usage of alcohol and drug on site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	28

Location and Equipment	Summary of Activities
9000.44/4110.1.09/4110.6.01 **HLF** a. LB 250 Excavator b. CAT 330 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x2 f. Packer g. Grader h. Light Plant x1	-Load, haul, and dump rock from ADR Quarry to HLF -Place and compact rockfill for pipe bench in the underdrain valley -Shaping on HLF East and West slope -Seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. CAT 988 Loader c. KOM 250 Loader d. 40t ADT x3 e. Light Plant x2	-Seepage management -Load, haul, and dump crush from Eagle Pup to EP Spillway -Instal underdrain pipe for spillway
2150.06 **ADR** a. CAT 330 Excavator b. CAT 988 Loader c. 40t ADT	-Surface preparation for HDPE liner -Load, haul, and dump sand from ADR Quarry to ADR

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	14	Crush	Eagle Pup	EP Spillway
4110.1.09	40t ADT	5	Rock	ADR Quarry	HLF
2150.06	40t ADT	5	Sand	ADR Quarry	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Shaping on HLF West slope



Photo 2: Placing sand for HDPE liner surface preparation at ADR trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 18, 2019	**Weather: Rain/Snow** (+1°C, +5 °C)	**Prepared By:** Zean Lang



Photo 3: Installing EP Spillway underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 19, 2019	**Weather: Snow** (-1°C, +8 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Wolves showing up around site due to breeding season

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	28

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01a **HLF** a. LB 490 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 988 Loader e. KOM 250 Loader f. CAT D10 Dozer g. 40t ADT x3 h. Packer x1 i. Light Plant x1	-Load, haul, and dump rock from ADR and EP Spillway to HLF -Load, haul, and dump unsuitable from HLF West to ADR Dump -Liner surface preparation on HLF West slope -Liner surface preparation and shaping for HLF East Bench -Installing finger drain on HLF West slope for seepage management
4130.11 **Event Pond** a. LB 245 Excavator b. KOM 430 Loader c. KOM 250 Loader d. 40t ADT e. Packer x1 f. Light Plant x2	-Load, haul, and dump sand and rock from ADR to EP Spillway -Load, haul, and dump crush from Eagle Pup to EP Spillway -Install EP Spillway underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 19, 2019	**Weather: Snow** (-1°C, +8 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.6.01a	40t ADT	4	Rock	ADR	HLF East Bench
4110.6.01a	40t ADT	9	Unsuitable	HLF West	ADR Dump
4110.01.9	40t ADT	23	Unsuitable	HLF	ADR Dump
4110.01.9	40t ADT	2	Rock	ADR	HLF
4130.11	40t ADT	3	Sand	ADR	EP Spillway
4130.11	40t ADT	13	Rock	ADR	EP Spillway
4130.11	40t ADT	1	Crush	Eagle Pup	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 19, 2019	**Weather: Snow** (-1°C, +8 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Liner surface preparation on HLF East bench



Photo 2: Surface preparation in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 19, 2019	**Weather: Snow** (-1°C, +8 °C)	**Prepared By:** Zean Lang



Photo 3: Installing finger drain for HLF West slope seepage control



Photo 4: Installing EP Spillway underdrain

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 21, 2019	**Weather: Cloudy** (-2°C, +5 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Hazards with heavy equipment - Progress of PLS sump testing

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	28

Location and Equipment	Summary of Activities
4110.1.09/4110.6.01a **HLF** a. LB 490 Excavator b. CAT 330 Excavator c. KOM 250 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Packer x1 g. Water pump	-Load, haul, and dump rock from ADR Quarry to HLF -Load, haul, and dump unsuitable from HLF to ADR Dump -Liner surface preparation on HLF West and East slope -Liner surface preparation on 990 Bench -Installing drainage pad for wet areas
4130.11/4130.13 **Event Pond** a. LB 245 Excavator b. CAT 330 Excavator c. CAT D6 Dozer d. 40t ADT x3 e. Packer x1 f. Water pump/Light plant	-Load, haul, and dump rock from ADR to EP Spillway -Load, haul, and dump Unsuitable from EP Spillway to ADR Dump -Installing EP Spillway underdrain -Excavating EP underdrain -Assisting Layfield crews to dewater EP
2150.06 **ADR** a. LB 250 Excavator b. CAT 330 Excavator c. 40t ADT x3 d. CAT D6 Dozer	-Shaping for ADR trench -Load, haul, and dump rock from ADR quarry to ADR trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 21, 2019	**Weather: Cloudy** (-2°C, +5 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	17	Rock	ADR Quarry	EP Spillway
2150.06	40t ADT	9	Rock	ADR Quarry	ADR Trench
4110.6.01a	40t ADT	19	Rock	ADR Quarry	HLF
4110.01.9	40t ADT	16	Unsuitable	HLF	ADR Dump
4130.11	40t ADT	20	Unsuitable	EP Spillway	ADR Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
April 20, 2019	After numerous changes regarding the ADR-HLF trench, the scope of the original contract may be no longer suitable for the effort and alternations involved.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 21, 2019	**Weather: Cloudy** (-2°C, +5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Surface preparation in HLF



Photo 2: Removing wet material from HLF West slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 21, 2019	**Weather: Cloudy** (-2°C, +5 °C)	**Prepared By:** Zean Lang



Photo 3: shaping for ADR trencg



Photo 4: Shaping for EP Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 22, 2019	**Weather: Light Rain** (+1°C, +7 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Review of recent strip-and-fell injury - Unexpected switchover to emergency channel on radio

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	28

Location and Equipment	Summary of Activities
4110.6.01a **HLF** a. LB 490 Excavator b. CAT 988 Loader c. KOM 250 Loader d. CAT D6 Dozer x2 e. CAT D10 Dozer f. 40t ADT x4 g. Packer x1	-Load, haul, and dump rock and sand from ADR Quarry to HLF -Load, haul, and dump unsuitable from HLF to ADR Dump -Liner surface preparation on HLF West and East slope
4130.11/4130.13 **Event Pond** a. CAT 430 Loader b. CAT 988 Loader c. CAT D10 Dozer d. 40t ADT x1 e. Water pump	-Load, haul, and dump crush from Eagle Pup to ADR Ep Spillway -Shaping for EP spillway
2150.06 **ADR** a. LB 245 Excavator b. LB 250 Excavator c. CAT 988 Loader d. CAT 430 Loader e. 40t ADT x1	-Shaping for ADR trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 22, 2019	**Weather: Light Rain** (+1°C, +7 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.6.01a	40t ADT	55	Rock	ADR Quarry	HLF
4110.1.09	40t ADT	52	Unsuitable	HLF	ADR Dump
4130.11	40t ADT	2	Crush	Eagle Pup	EP Spilllway
4110.6.01a	40t ADT	5	Sand	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 17,2019	Seepage on the crest of HLF West Slope persists after days of pumping.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
April 20, 2019	After numerous changes regarding the ADR-HLF trench, the scope of the original contract may be no longer suitable for the effort and alternations involved.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 22, 2019	**Weather: Light Rain** (+1°C, +7 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Preparation for liner surface on HLF



Photo 2: Removing wet material from HLF West slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 22, 2019	**Weather: Light Rain** (+1°C, +7 °C)	**Prepared By:** Zean Lang



Photo 3: Liner surface preparation in ADR trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 23, 2019	**Weather: Heavy snow** (-2°C, 0 °C)	**Prepared By:** Zean Lang

Health and Safety

Pelly Toolbox Topic:	- Flight schedule - Pre-work hazard check - Communication with supervisors and other contractors

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.6.01a **HLF** a. CAT 330 Excavator b. CAT D10 Dozer c. Grader x1 d. Light plant & water pump	-Install drainage pad on HLF West slope -Dewater sump
4130.11 **Event Pond** a. CAT 330 Excavator b. LB 490 Excavator c. LB245 Excavator d. CAT 988 Loader e. KOM 250 Loader f. CAT D10 Dozer g. 40t ADT x3 h. Packer x1	-Excavate spillway -Install spillway underdrain -Sort oversize rock in ADR quarry -Load, haul, dump unsuitable from EP Spillway to ADR Dump -Load, haul, dump rock from ADR Quarry to EP Spillway -Load, haul, dump crush from Eagle pup to EP Spillway
TBD 3 **Emergency Spillway** a. CAT 330 Excavator	-Shaping for emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 23, 2019	**Weather: Heavy snow** (-2°C, 0 °C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	37	Unsuitable	EP Spillway	ADR Dump
4130.11	40t ADT	8	Rock	ADR Quarry	EP Spillway
4130.11	40t ADT	13	Oversize	ADR Quarry	ADR Dump
4130.11	40t ADT	1	Crush	Eagle Pup	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
April 20, 2019	After numerous changes regarding the ADR-HLF trench, the scope of the original contract may be no longer suitable for the effort and alternations involved. (2150.06 temporarily)
April 23, 2019	Earthwork for Emergency Spillway has started. There is not yet clarification for its code. (TBM 3)

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 23, 2019	**Weather: Heavy snow** (-2°C, 0 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Overview of Event Pond



Photo 2: Excavating for Event Pond spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 24, 2019	**Weather:** overcast (-4°C, 5°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	-Personal safety responsibilities

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
4110.6.01a, 2150.08 **HLF** a. LB 250 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D10 Dozer e. 40t ADT x2	-Opening west HLF access -Load, haul, place rockfill for west HLF slope -Sort oversize rock at ADR quarry -Excavate HLF to ADR trench
4130.11 **Event Pond** a. LB 490 Excavator b. LB 245 Excavator c. KOM 250 Loader d. CAT D10 Dozer e. 40t ADT x3 f. Packer	-Excavate spillway -Install spillway underdrain -Load, haul, dump unsuitable from EP Spillway to ADR Dump -Load, haul, dump rock from ADR Quarry to EP Spillway -Load, haul, dump crush from Eagle pup to EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 24, 2019	**Weather:** overcast (-4°C, 5°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	40	Unsuitable	EP Spillway	ADR Dump
4130.11	40t ADT	2	Rockfill	ADR Quarry	EP Spillway
2150.08	40t ADT	4	Rockfill	ADR Quarry	ADR Trench
4110.6.01a	40t ADT	4	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	4	Unsuitable	HLF	ADR Dump
4110.6.01a	40t ADT	2	Sand	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Photos:

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 25, 2019	**Weather:** clear (-4°C, 5°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Reviewed Code 1 Protocol -Reviewed Wolf Around Camp bulletin -Crew Change

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
4110.6.01a/2150.08 **HLF** a. LB 250 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x2	-Finger drain Installation -Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation
4130.11 **Event Pond** a. LB 490 Excavator b. LB 245 Excavator c. KOM 250 Loader d. CAT D6 Dozer e. 40t ADT x2 f. Packer	-Excavate spillway -Install Spillway underdrain

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 25, 2019	**Weather:** clear (-4°C, 5°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	2	Crush	Nuway	EP Spillway
4130.11	40t ADT	7	Rockfill	ADR Quarry	EP Spillway
4110.6.01a	40t ADT	3	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	7	Unsuitable	HLF	ADR Dump
4110.6.01a	40t ADT	1	Sand	ADR Quarry	HLF
4110.6.01a	40t ADT	3	Crush	Nuway	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 25, 2019	**Weather:** clear (-4°C, 5°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1 – HLF Underdrain and Shaping

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 26, 2019	**Weather:** clear (-8°C, 6°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-30-day Work Permit

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.6.01a/2150.08 **HLF** a. LB 490 Excavator b. CAT 988 Loader c. CAT D6 Dozer d. 40t ADT e. Packer	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material
4130.11 **Event Pond** a. LB 250 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x2 f. Packer	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 26, 2019	**Weather:** clear (-8°C, 6°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	1	Sand	ADR Quarry	EP Spillway
4130.11	40t ADT	18	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	12	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT	3	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	20	Unsuitable	HLF	ADR Dump
4110.6.01a	40t ADT	12	Sand	HLF	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 26, 2019	**Weather:** clear (-8°C, 6°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1 – HLF Surface Preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 26, 2019	**Weather:** clear (-8°C, 6°C)	**Prepared By:** Shipeng Zheng



Photo 2 – Event Pond Spillway Construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 27, 2019	**Weather:** clear (-10°C, 6°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Day of Mourning -Review PLS Sump installation SOP

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.6.01a/TDB2 **HLF** a. LB 490 Excavator b. CAT 988 Loader c. CAT D6 Dozer x2 d. 40t ADT x2 e. Packer f. Mini-Hoe g. KO250 Loader	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Organics spreading
4130.11 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x2 e. Packer	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 27, 2019	**Weather:** clear (-10°C, 6°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	1	Sand	ADR Quarry	EP Spillway
4130.11	40t ADT	1	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	24	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT	8	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	6	Unsuitable	HLF	ADR Dump
4110.6.01a	40t ADT	5	Sand	HLF	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 27, 2019	**Weather:** clear (-10°C, 6°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1 – HLF Surface Preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 27, 2019	**Weather:** clear (-10°C, 6°C)	**Prepared By:** Shipeng Zheng



Photo 2 – HLF Embankment Downslope Organics Spreading

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 28, 2019	**Weather:** clear (-6°C, 7°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	- Cleaning Cabs of Equipment - Inspection Review - Inert Waste Bulletin

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.6.01a/TDB2/2150.08 **HLF/9000.48** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer x2 e. 40t ADT x2 f. Packer x2 g. Mini-Hoe h. CAT 330 Excavator i. KO250 Loader	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Organics spreading -Clearing snow off HLF Liner -Constructing CV23 Pad
4130.11 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x2	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 28, 2019	**Weather:** clear (-6°C, 7°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	2	Sand	ADR Quarry	EP Spillway
4130.11	40t ADT	1	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	15	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT	13	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	2	Unsuitable	HLF	ADR Dump
2150.08	40t ADT	8	Sand	HLF	ADR-HLF Trench
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 28, 2019	**Weather:** clear (-6°C, 7°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1 – Event Pond Spill Excavate Unsuitable Material

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 28, 2019	**Weather:** clear (-6°C, 7°C)	**Prepared By:** Shipeng Zheng



Photo 2 – Placement of Bedding layer at the ADR – HLF Trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 29, 2019	**Weather:** clear (-5°C, 15°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Pelly Incident Review and Corrective Actions

Recent Incidents/Spills	
Date	Incident/Spill
Apr 29, 2018	Near Miss – Light Vehicle

Manpower and Equipment:

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.6.01a/TDB2/ /9000.48/9000.46 a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. CAT D10 Dozer f. 40t ADT x3 g. Packer x2 h. KO380 Loader	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Organics spreading -Clearing snow off HLF Liner -Constructing CV23 Pad -Installing BBQ Pipes
4130.11 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 29, 2019	**Weather:** clear (-5°C, 15°C)	**Prepared By:** Shipeng Zheng

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	2	Sand	ADR Quarry	EP Spillway
4130.11	40t ADT	16	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	2	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT	35	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT		Unsuitable	HLF	ADR Dump
9000.46	40t ADT	5	ODF	Eagle Pup	HLF Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 29, 2019	**Weather:** clear (-5°C, 15°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: Pipe Installation

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: April 30, 2019	**Weather:** clear (-2°C, 14°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Focus Task on Hand -Hazard Assessment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	29

Location and Equipment	Summary of Activities
4110.6.01a/TDB2/ **//9000.46** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. CAT D10 Dozer f. 40t ADT x3 g. Packer x2 h. KO380 Loader	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Organics spreading -Installing BBQ Pipes
4130.11 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 30, 2019	**Weather:** clear (-2°C, 14°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	13	Unsuitable	EP Spillway	EP Dump
4130.11	40t ADT	9	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	13	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT		Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT		Unsuitable	HLF	ADR Dump
9000.46	40t ADT	5	ODF	Eagle Pup	HLF Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 30, 2019	**Weather:** clear (-2°C, 14°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: PLS Sump Pipe Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: April 30, 2019	**Weather:** clear (-2°C, 14°C)	**Prepared By:** Shipeng Zheng



Photo 2: Spreading Organics downslope of HLF Embankment


Photo 3: EP Spillway Construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 01, 2019	**Weather:** clear (1°C, 15°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Work Area Congestion -Wheel Chocks -PPE -Dust Control

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	28

Location and Equipment	Summary of Activities
4110.6.01a/TDB2/ **//9000.46** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. CAT D10 Dozer f. 40t ADT x3 g. Packer x2 h. KO380 Loader	-Load, haul, place rockfill/sand for west HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Organics spreading -Installing BBQ Pipes
4130.11 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3	-Excavate spillway -Load, haul, place rockfill for EP Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 01, 2019	**Weather:** clear (1°C, 15°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	1	Sand	ADR Quarry	EP Spillway
4130.11	40t ADT	2	Rockfill	ADR Quarry	EP Spillway
4130.11	40t ADT	18	Unsuitable	EP Spillway	ADR Dump
4110.6.01a	40t ADT		Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT		Unsuitable	HLF	ADR Dump
9000.46	40t ADT		ODF	Eagle Pup	HLF Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 01, 2019	**Weather:** clear (1°C, 15°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1: PLS Sump Pipe Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 01, 2019	**Weather:** clear (1°C, 15°C)	**Prepared By:** Shipeng Zheng



Photo 2: EP Spillway Top Unsuitable Excavation



Photo 3: EP Spillway Construction

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 02, 2019	**Weather:** clear (-6°C, 5°C)	**Prepared By:** Shipeng Zheng

Health and Safety:

Pelly Toolbox Topic:	-Mandatory Seat Belt Policy -No Alcohol at Mayo Airport

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	31

Location and Equipment	Summary of Activities
4110.6.01a//9000.46/ **4110.5.05/9000.48** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x2 f. Packer g. KO380 Loader	-Load, haul, place rockfill/sand for HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Installing BBQ Pipes -Excavate Monitoring Vault Area -Construct HLF East Access
4130.11/4130.14 **Event Pond** a. LB 250 Excavator b. LB 490 Excavator c. Packer	-Excavate spillway -Load, haul, place rockfill for EP Spillway -Excavate Emergency Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 02, 2019	**Weather:** clear (-6°C, 5°C)	**Prepared By:** Shipeng Zheng

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	1	Sand	ADR Quarry	EP Spillway
9000.48	40t ADT	24	Rockfill	ADR Quarry	HLF East Access
4110.6.01a	40t ADT	17	Rockfill	ADR Quarry	HLF
4110.6.01a	40t ADT	2	Unsuitable	HLF	ADR Dump
9000.46	40t ADT	8	ODF	Eagle Pup	HLF Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
April 24, 2019	There are piles of organics were in the way of construction for emergency spillway. There material will need to be moved to ADR Dump. In addition, this area can only be accessed by a one-way lane. Reversing for long distance is time-consuming. Concrete liner crew will be on site on May1st, there may not be enough time.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 02, 2019	**Weather:** clear (-6°C, 5°C)	**Prepared By:** Shipeng Zheng

Photos:



Photo 1 - PLS Sump Pipe Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 02, 2019	**Weather:** clear (-6°C, 5°C)	**Prepared By:** Shipeng Zheng



Photo 2 - EP Spillway Construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 03, 2019	**Weather:** clear (-3°C, 4°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Bear spotted on site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.6.01a//9000.46/ **4110.5.05/9000.48** a. LB 490 Excavator b. CAT 988 Loader c. CAT 992 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Packer g. KO380 Loader	-Load, haul, place rockfill/sand for HLF slope -Liner Surface Preparation -Removal Unsuitable Material -Installing BBQ Pipes -Excavate Monitoring Vault Area -Construct HLF East Access
4130.11/4130.14 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. CAT 992 Loader d. 40t ADT e. Grader	-Excavate spillway -Excavate Emergency Spillway -Load, haul, place crush for Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 03, 2019	**Weather:** clear (-3°C, 4°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	60	Waste	Vault	Eagle Pup
9000.46	40t ADT	6	Crush(ODF)	Eagle Pup	PLS Sump
9000.48	40t ADT	25	Rockfill	ADR Quarry	HLF East Access
4130.11	40t ADT	3	Crush	ADR Quarry	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 03, 2019	**Weather:** clear (-3°C, 4°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 - PLS Sump Pipe Installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 04, 2019	**Weather:** Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Unreported sickness on site - Recent hand injury due to weight mishandling - Recent eye injury due to dust

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.6.01a//9000.46/ **4110.5.05/9000.48** a. LB 250 Excavator b. LB 490 Excavator c. CAT 375 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. 40t ADT x3 g. Packer h. KO380 Loader i. Skid Steer x2 j. Pipe Fuser k. Service Truck	-Liner Surface Preparation -Removal Unsuitable Material -Installing BBQ Pipes -Excavate Monitoring Vault Area -Construct HLF East Access
4130.11/4130.14 **Event Pond** a. LB 245 Excavator b. CAT 375 Excavator c. KOM 250 Loader	-Excavate spillway -Excavate Emergency Spillway -Load, haul, place crush for Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 04, 2019	**Weather:** Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	149	Waste	Vault	Eagle Pup
9000.46	40t ADT	1	ODF	Eagle Pup	PLS Sump
4130.11	40t ADT	3	Crush	ADR Quarry	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 04, 2019	**Weather:** Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Shaping for monitoring vault area



Photo 2 – Shaping for emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 04, 2019	**Weather:** Clear (-3°C, 5°C)	**Prepared By:** Zean Lang



Photo 3 – Overview of PLS sump piping progress in the evening of May 4th.



Photo 4 – Installing primary drainage pipe on PLS sump West

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 05, 2019	**Weather:** Flurries/Cloudy (-3°C, 5°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Risks of driving without safety belt -Awareness of driving over speed limit

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	33

Location and Equipment	Summary of Activities
4110.6.01a//9000.46/ 4110.5.05 a. LB 490 Excavator b. CAT 375 Excavator c. CAT 988 Loader d. KOM 380 Loader e. CAT D6 Dozer x2 f. 40t ADT x3 g. Packer h. Skid Steer x2 i. Pipe Fuser j. Grader	-Liner Surface Preparation -Removal Unsuitable Material -Install BBQ Pipes -Excavate Monitoring Vault Area
4130.11/4130.14 **Event Pond** a. LB 245 Excavator b. LB 250 Excavator c. KOM 380 Loader d. CAT 992 Loader e. Grader	-Excavate spillway -Excavate Emergency Spillway -Load, haul, place crush for Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 05, 2019	**Weather:** Flurries/Cloudy (-3°C, 5°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	72	Waste	Vault	Eagle Pup
9000.46	40t ADT	1	ODF	Eagle Pup	PLS Sump
4130.11	40t ADT	3	Crush	ADR Quarry	EP Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 05, 2019	**Weather:** Flurries/Cloudy (-3°C, 5°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Installing finger drain in EP Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 05, 2019	**Weather:** Flurries/Cloudy (-3°C, 5°C)	**Prepared By:** Zean Lang



Photo 2 – Shaping for emergency spillway



Photo 3 – Overview of PLS sump piping progress in the evening of May 5th.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 06, 2019	**Weather:** Flurries/Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- New Muster Point for Evacuation

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	33

Location and Equipment	Summary of Activities
9000.46/ 4110.5.05/4110.1.9 a. LB 490 Excavator b. CAT 250 Excavator c. CAT 998 Loader d. CAT D6 Dozer x2 e. 40t ADT x3 f. Grader g. Skid Steer x2	-Slope shaping on HLF West slope -Removal Unsuitable Material -Install BBQ Pipes -Excavate Monitoring Vault Area
4130.14 **Event Pond** a. LB 245 Excavator b. CAT 992 Loader c. 40t ADT	-Excavate Emergency Spillway

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 06, 2019	**Weather:** Flurries/Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	49	Waste	Vault	Eagle Pup
9000.46	40t ADT	2	ODF	Eagle Pup	PLS Sump
4130.14	40t ADT	5	Rock	ADR Quarry	Emergency Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews had to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 06, 2019	**Weather:** Flurries/Clear (-3°C, 5°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Shaping for the monitoring vault area; underdrain pipe headings were located.



Photo 2 – Shaping for emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 06, 2019	**Weather:** Flurries/Clear (-3°C, 5°C)	**Prepared By:** Zean Lang



Photo 3 – Overview of PLS sump piping progress in the evening of May 6th.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Precautions when working around the HDPE liner - Safety precaution when working around heavy equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a a. LB 490 Excavator b. LB 250 Excavator c. Minihoe d. CAT 988 Loader e. CAT D6 Dozer x2 f. CAT D10 Dozer g. 40t ADT x3 h. Grader i. Packer j. Skid Steer x2 k. Pipe Fuser Pitbull618	-Removal Unsuitable Material -Install BBQ Pipes -Excavate Monitoring Vault Area -Liner surface preparation
4130.14 **Event Pond** a. LB 245 Excavator b. CAT 988 Loader c. CAT 992 Loader d. KOM 380 Loader e. 40t ADT x2	-Excavate Emergency Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	37	Waste	Vault	Eagle Pup
9000.46	40t ADT	17	ODF	Eagle Pup	PLS Sump
4130.14	40t ADT	5	Rock	ADR Quarry	Emergency Spillway
4130.14	40t ADT	9	Sand	ADR Quarry	Emergency Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews had to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Overview of PLS sump piping progress in the evening of May 7th.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Precautions when working around the HDPE liner - Safety precaution when working around heavy equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a a. LB 490 Excavator b. CAT 250 Excavator c. Minihoe d. CAT 988 Loader e. CAT D6 Dozer x2 f. CAT D10 Dozer g. 40t ADT x3 h. Grader i. Packer j. Skid Steer x2	-Removal Unsuitable Material -Install BBQ Pipes -Excavate Monitoring Vault Area
4130.14 **Event Pond** a. LB 245 Excavator b. CAT 988 Loader c. CAT 992 Loader d. KOM 380 Loader e. 40t ADT x2	-Excavate Emergency Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	37	Waste	Vault	Eagle Pup
9000.46	40t ADT	17	ODF	Eagle Pup	PLS Sump
4130.14	40t ADT	5	Rock	ADR Quarry	Emergency Spillway
4130.14	40t ADT	9	Sand	ADR Quarry	Emergency Spillway
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews had to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 07, 2019	**Weather:** Clear (0°C, +13°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Overview of PLS sump piping progress in the evening of May 7th.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 08, 2019	**Weather:** Cloudy (5°C, +12°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Safety update regarding lightning - Milestone of 1 million hours without time-loss incidents

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	30

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. KOM 250 Loader e. CAT D6 Dozer x2 f. 40t ADT x3 g. Packer h. Skid Steer x2 i. Pipe Fuser PitBull618	- Removal Unsuitable Material - Install BBQ Pipes - Excavate Monitoring Vault Area - Load, haul, place ODF in PLS Sump - Liner surface preparation on HLF East slope
4130.14 **Event Pond** a. LB 250 Excavator	-Shaping for Emergency Spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 08, 2019	**Weather:** Cloudy (5°C, +12°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.5.05	40t ADT	52	Waste	Vault	Eagle Pup
9000.46	40t ADT	74	ODF	Eagle Pup	PLS Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews have to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 08, 2019	**Weather:** Cloudy (5°C, +12°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Overview of PLS sump piping progress in the evening of May 8th.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Safety concerns involved with lightning

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a/ 4110.7.05 a. LB 490 Excavator b. LB 250 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Packer g. Skid Steer x2 h. Pipe Fuser PitBull618	- Removal Unsuitable Material - Install BBQ Pipes - Excavate Monitoring Vault Area - Load, haul, place ODF in PLS Sump - Liner surface preparation on HLF East slope
4130.14 **Event Pond** a. Minihoe	-Shaping for key trench of emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	73	ODF	Eagle Pup	PLS Sump
4110.5.05	40t ADT	53	Waste	Vault	Eagle Pup
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews have to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Placing ODF in PLS sump

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Safety concerns involved with lightning

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a/ 4110.7.05 a. LB 490 Excavator b. LB 250 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Packer g. Skid Steer x2 h. Pipe Fuser PitBull618	- Removal Unsuitable Material - Install BBQ Pipes - Excavate Monitoring Vault Area - Load, haul, place ODF in PLS Sump - Liner surface preparation on HLF East slope
4130.14 **Event Pond** a. Minihoe	-Shaping for key trench of emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	73	Waste	Eagle Pup	PLS Sump
4110.5.05	40t ADT	53	ODF	Vault	Eagle Pup
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews have to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 09, 2019	**Weather:** Clear (2°C, +17°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Placing ODF in PLS sump

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 10, 2019	**Weather:** Cloudy/Rainy(+5°C, +15°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Reminder on incident report procedure in case of incidents

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/4110.6.01a/ 4110.7.01 **HLF** a. LB 490 Excavator b. LB 250 Excavator c. CAT 988 Loader d. KOM 430 Loader e. CAT D6 Dozer f. 40t ADT x3 g. Skid Steer x2 h. Pipe Fuser PitBull618	- Removal of Unsuitable Material - Load, haul, place ODF over and below BBQ piping network -Install PLS header drainage pipe - Excavate monitoring vault area - Liner surface preparation on HLF
4130.14 **Event Pond** a. Minihoe	-Shaping for key trench of emergency spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 10, 2019	**Weather:** Cloudy/Rainy(+5°C, +15°C)	**Prepared By:** Zean Lang

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.6.01a	40t ADT	2	Sand	ADR Quarry	HLF
4110.5.05	40t ADT	19	Waste	Vault	Eagle Pup
9000.46	40t ADT	87	ODF	Eagle Pup	PLS Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 6th,2019	As snow thaws, stream coming downhill is washing away the survey paint. Crews have to wait for surveyors to mark the floor again before proceeding.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill is being placed and compacted in the construction of the HLF liner surface shaping and Event Pond spillway. The rockfill is being sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator or dozer. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF pad shaping
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 10, 2019	**Weather:** Cloudy/Rainy(+5°C, +15°C)	**Prepared By:** Zean Lang

Photos:



Photo 1 – Making sure ODF hugs around the corrugated pipes in BBQ piping network

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 11, 2019	**Weather:** overcast/rain (15°C, 5°C)	**Prepared By:** Dean Serelo

Health and Safety:

Pelly Toolbox Topic:	-Safety COR audit review and recommendations

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.5.05/ 4110.6.01a/4110.7.01 HLF a. LB 490 Excavator b. LB 250 Excavator c. CAT 992 Loader d. CAT 988 Loader e. KOM 430 Loader f. CAT D6 Dozer g. 40t ADT x3 h. Skid Steer x2 i. CAT 68B Packer j. Pipe Fuser 618	- Load, haul, and place ODF on east liner (photo 3) - Load, haul, and place ODF over PLS sump piping network (photo 3) -Install PLS header drainage pipe - Excavate and place rockfill monitoring vault area - Liner surface preparation on HLF - Eagle to HLF road maintenance - Rehandle oversize and waste piles at ADR borrow
4130.11 Event Pond a. CAT 304 Excavator	- Excavate event pond spillway anchor trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 11, 2019	**Weather:** overcast/rain (15°C, 5°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46	40t ADT	50	ODF	Eagle Road	HLF PLS grill
4110.7.05	40t ADT	10	ODF	Eagle Road	HLF east liner cover
4110.7.05	40t ADT	20	ODF	ADR Stockpile	HLF east liner cover
9000.48	40t ADT	6	Rock Fill	ADR Borrow	HLF east access
4110.5.05	40t ADT	1	Rock Fill	ADR Borrow	HLF vault subgrade
4110.5.05	40t ADT	3	Waste	HLF vault area	Eagle waste
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 11, 2019	Heavy rain overnight caused flooding of the PLS sump area; Pumping (responsibility by others) not maintained causing production delay to placement of ODF (photo 1)

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF vault subgrade. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF vault area subgrade (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 11, 2019	**Weather:** overcast/rain (15°C, 5°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: precipitation runoff and pumping disregarded causing delay to placement of ODF over PLS grill



Photo 2: Vault subgrade preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 11, 2019	**Weather:** overcast/rain (15°C, 5°C)	**Prepared By:** Dean Serelo



Photo 3: Placing ODF and PLS header piping



Photo 4: Wrapping geotextile at steel to PE connections within PLS grill piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 12, 2019	**Weather:** clear/overcast/rain (18°C, 5°C)	**Prepared By:** Dean Serelo

Health and Safety:

Pelly Toolbox Topic:	-Review near miss incident (NM-19-001)

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/4110.5.05/9000.48 **4110.6.01a/4110.7.01 HLF** a. LB 490 Excavator b. LB 250 Excavator c. CAT 992 Loader d. CAT 988 Loader e. KOM 430 Loader f. CAT D6 Dozer g. 40t ADT x3 h. Skid Steer x2 i. CAT 68B Packer j. Pipe Fuser 618	- Load, haul, and place ODF on east liner (photo 3) - Load, haul, and place ODF over PLS sump piping network (photo 1) - Install PLS header drainage pipe - Excavate and place rockfill monitoring vault area (photo 2) - Liner surface preparation on HLF - Construct HLF east access road - Water management
4130.11 Event Pond a. CAT 304 Excavator	- Excavate event pond spillway anchor trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 12, 2019	**Weather:** clear/overcast/rain (18°C, 5°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	90	ODF	Eagle Road	HLF
4110.5.05	40t ADT	7	Rock Fill	ADR Borrow	HLF vault subgrade
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF vault subgrade. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF vault area subgrade (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 12, 2019	**Weather:** clear/overcast/rain (18°C, 5°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Placing ODF overtop of PLS grill piping



Photo 2: Vault subgrade preparation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 12, 2019	**Weather:** clear/overcast/rain (18°C, 5°C)	**Prepared By:** Dean Serelo



Photo 3: Placing ODF over top of east liner

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 13, 2019	**Weather:** clear (13°C, 0°C)	**Prepared By:** Dean Serelo

Health and Safety:

Pelly Toolbox Topic:	-Review incident flash PD-19-007 -Stay hydrated

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.7.05 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. CAT 992 Loader d. CAT 988 Loader e. CAT D6 Dozer x2 f. 40t ADT x4 g. Skid Steer x2 h. CAT 68B Packer i. Pipe Fuser 618	- Load, haul, and place ODF on east liner (photo 2) - Load, haul, and place ODF over PLS sump piping network (photo 1) - Install PLS header and collection piping (photo 3) - Load, haul, place and compact rockfill into HLF east access construction - Liner surface preparation on HLF - Water management
4130.11 Event Pond a. CAT 304 Excavator	- Excavate event pond spillway anchor trench

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 13, 2019	**Weather:** clear (13°C, 0°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46	40t ADT	52	ODF	Eagle Road	HLF PLS Grill
4110.7.05	40t ADT	41	ODF	Eagle Road	HLF
4110.5.05	40t ADT	25	Rock Fill	ADR Borrow	HLF East Access
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF east access. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF east access road (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 13, 2019	**Weather:** clear (13°C, 0°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Place ODF over PLS grill



Photo 2: Place and compact rockfill for HLF east access; Place ODF over liner

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 13, 2019	**Weather:** clear (13°C, 0°C)	**Prepared By:** Dean Serelo



Photo 3: Install 250mm and 100mm PLS collection drain piping



Photo 4: Install 450mm and 100mm PLS header and collection drain piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 14, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Health and Safety:

Pelly Toolbox Topic:	-JHA hazard ratings

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	33

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.7.05 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. CAT 992 Loader d. CAT 988 Loader e. CAT D6 Dozer x2 f. 40t ADT x3 g. Skid Steer x2 h. CAT 68B Packer i. Pipe Fuser 618	- Load, haul, and place ODF on east liner - Load, haul, and place ODF over PLS sump piping network (photo 1) - Install PLS header and collection piping (photo 3) - Load, haul, place and compact rockfill into HLF east access construction (photo 2) - Liner surface preparation on HLF - Water management

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 14, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46	40t ADT	47	ODF	Eagle Road	HLF PLS Grill
4110.7.05	40t ADT	5	ODF	Eagle Road	HLF
9000.48	40t ADT	30	Rock Fill	ADR Borrow	HLF East Access
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF east access. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF east access road (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 14, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Placing ODF over PLS piping to 917 elevation



Photo 2: Place and compact rockfill for HLF east access

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 14, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

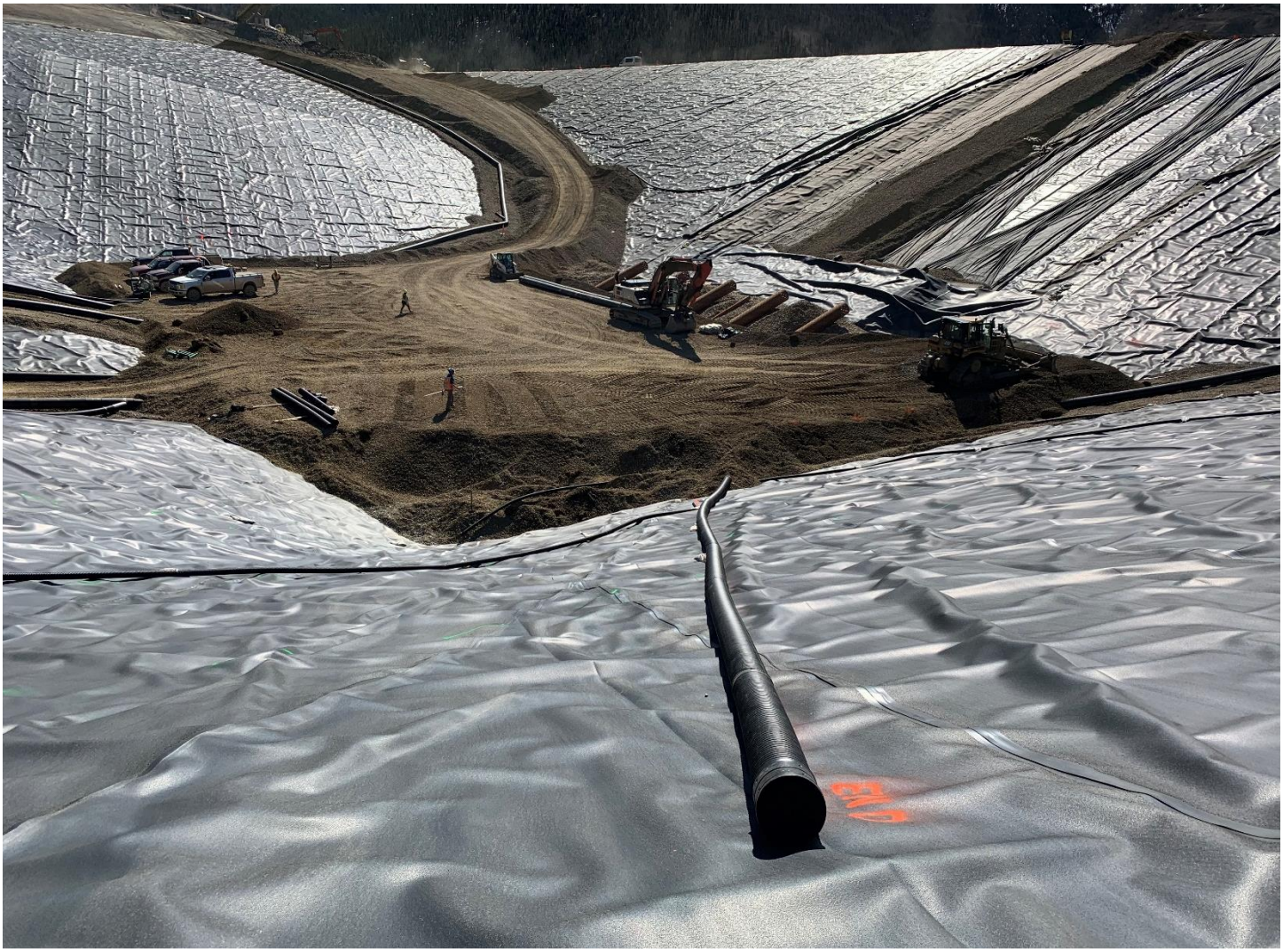


Photo 3: Install 250mm and 100mm PLS collection piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 15, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Health and Safety:

Pelly Toolbox Topic:	-Hand tool audit -Victoria Gold update video

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	34

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.7.05 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. LB 490 Excavator d. CAT 988 Loader e. CAT D6 Dozer x2 f. 40t ADT x3 g. Skid Steer x2 h. CAT 68B Packer i. Pipe Fuser 618	- Load, haul, and place ODF on liner (photo 1) - Load, haul, and place ODF over PLS sump piping network (photo 1) - Install PLS header and collection piping (photo 3) - Load, haul, place and compact rockfill into HLF east access construction (photo 2) - Liner surface preparation on HLF - Water management
4130.11 Event Pond a. CAT 304 Excavator	-Excavate concrete liner anchor trench for emergency spillway

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 15, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	71	ODF	Eagle Road	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF east access. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF east access road (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 15, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo

Photos:



Photo 1: Placing ODF for PLS cover and LDRS bedding



Photo 2: Place and compact rockfill in HLF east access

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 15, 2019	**Weather:** clear (18°C, 3°C)	**Prepared By:** Dean Serelo



Photo 3: PLS collection piping install and ODF cover

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 16, 2019	**Weather:** cloudy/light rain (16°C, 5°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	-Incident review -Conducting proper walkarounds

Recent Incidents/Spills	
Date	Incident/Spill
May 16, 2019	Hydraulic Line Rupture on CAT Skidsteer

Manpower and Equipment:

Total Number of Workers:	34

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.7.05 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. LB 490 Excavator d. CAT 988 Loader e. CAT D6 Dozer x2 f. 40t ADT x3 g. Skid Steer x2 h. CAT 68B Packer i. Pipe Fuser 618	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Load, haul, place and compact rockfill into HLF east access construction

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 16, 2019	**Weather:** cloudy/light rain (16°C, 5°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	41	ODF	Eagle Road	HLF
9000.46	40t ADT	10	5" Gravel	Eagle Road	PLS Sump
4110.6.01a	40t ADT	2	Sand	ADR	HLF
9000.48	40t ADT	1	Waste	HLF	ADR
9000.46	40t ADT	22	Crush	Eagle Road	PLS Sump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF east access. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF east access road (photo 2)
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 16, 2019	**Weather:** cloudy/light rain (16°C, 5°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Placing ODF cover over PLS piping and liner



Photo 2: PLS collection piping installation

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 16, 2019	**Weather:** cloudy/light rain (16°C, 5°C)	**Prepared By:** Yuheng Fei



Photo 3: Clean gravel placement around perforated header pipes

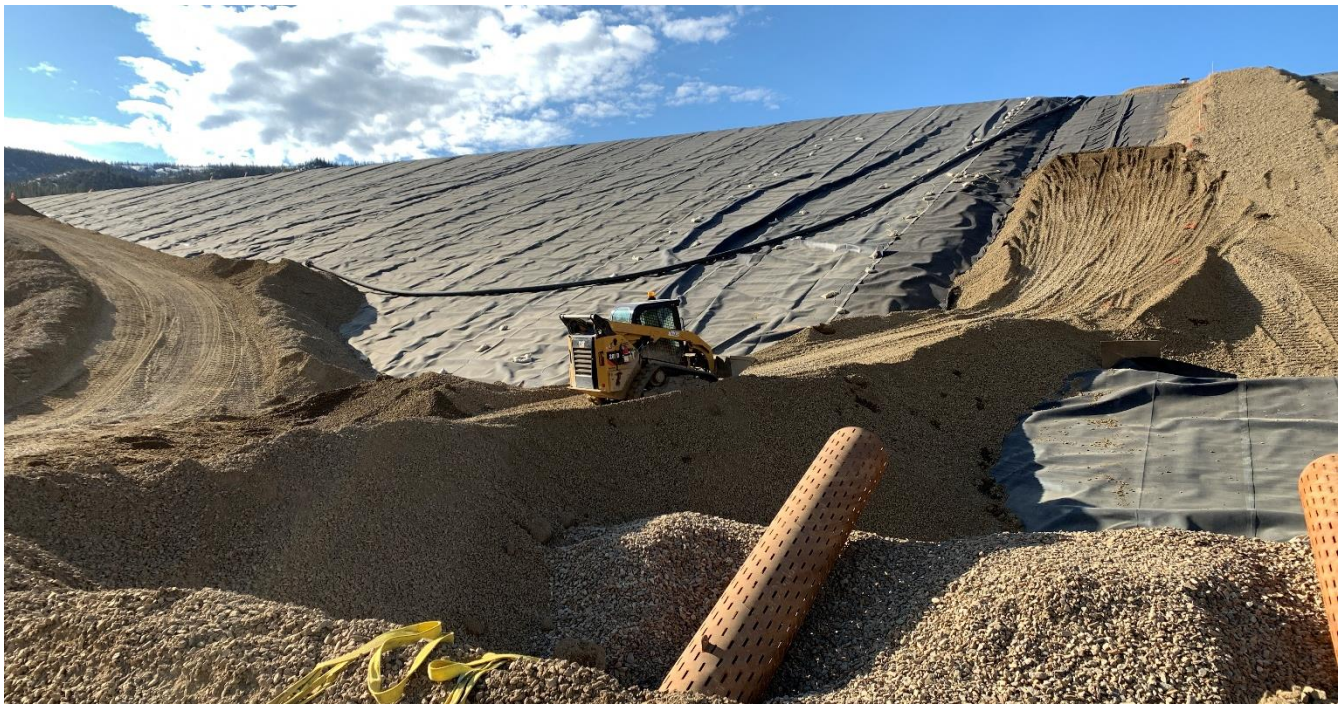


Photo 4: ODF placement for LDRS piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 17, 2019	**Weather:** clear/light rain (15°C, 5°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	-Equipment hours on timecards -Proper storage of compressed gasses

Recent Incidents/Spills	
Date	Incident/Spill
May 17th 2019	Parked D10 Dozer Hydraulic Oil

Manpower and Equipment:

Total Number of Workers:	41

Location and Equipment	Summary of Activities
9000.46/9000.48/4110.7.05 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. LB 490 Excavator d. CAT 988 Loader e. CAT D6 Dozer f. 40t ADT x3 g. Skid Steer x2 h. CAT 68B Packer	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Load, haul, place and compact rockfill into HLF east access construction

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 17, 2019	**Weather:** clear/light rain (15°C, 5°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	81	ODF	Eagle Road	HLF
9000.46	40t ADT	1	5" Gravel	Eagle Road	PLS Sump
4110.6.01a	40t ADT	1	Sand	ADR	HLF
4110.1.09	40t ADT	17	Waste	HLF West	ADR
4110.1.08	40t ADT	27	Rockfill	ADR	HLF West
24,000 Litre	CAT633	1	Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a minimum of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 17, 2019	**Weather:** clear/light rain (15°C, 5°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Placing ODF cover over PLS piping and liner



Photo 2: ODF placement for LDRS piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 17, 2019	**Weather:** clear/light rain (15°C, 5°C)	**Prepared By:** Yuheng Fei



Photo 3: HLF east access liner prep

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 18, 2019	**Weather:** cloudy/rain (8°C, 4°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	-Due diligence -Right to safe work area and to refuse unsafe work

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	40

Location and Equipment	Summary of Activities
9000.46/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 250 Excavator b. LB 245 Excavator c. LB 490 Excavator d. CAT 988 Loader e. CAT 992 Loader f. CAT D6 Dozer g. 40t ADT x3 h. Skid Steer x2 i. TracStar 900HF Pipe Fuser j. CAT 68B Packer	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Construct crane pad near steel pipes - Load, haul, place and compact rockfill into HLF west for shaping
4130.11 Event Pond a. CAT 304 Excavator	-Backfill spillway anchor trench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 18, 2019	**Weather:** cloudy/rain (8°C, 4°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	125	ODF	Eagle Road	HLF
9000.46	40t ADT	1	5" Gravel	Eagle Road	PLS Sump
4110.6.01a	40t ADT		Sand	ADR	HLF
4110.1.09	40t ADT	5	Waste	HLF West	ADR
4110.1.08	40t ADT	3	Rockfill	ADR	HLF West
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 18, 2019	**Weather:** cloudy/rain (8°C, 4°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Placing ODF cover over PLS piping and liner



Photo 2: Fusing of 18” PLS header pipes

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 18, 2019	**Weather:** cloudy/rain (8°C, 4°C)	**Prepared By:** Yuheng Fei



Photo 3: Shaping HLF west slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 19, 2019	**Weather:** clear (14°C, 7°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Dublin switchback call point - Upcoming schedule changes

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	40

Location and Equipment	Summary of Activities
9000.46/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT 988 Loader d. CAT D6 Dozer x2 e. 40t ADT x3 f. Skid Steer x2 g. 900HF/618HF Pipe Fuser h. Packer x2	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Construct crane pad near steel pipes - Load, haul, place and compact rockfill into HLF west for shaping
4130.11 Event Pond a. CAT 304 Excavator b. LB 245 Excavator	-Backfill spillway anchor trench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 19, 2019	**Weather:** clear (14°C, 7°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	88	ODF	Eagle Road	HLF
TBD	40t ADT	6	20mm Crush	Eagle Road	HLF
TBD	40t ADT	7	Waste	HLF	Interceptor Ditch
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
May 19, 2019	Cleanup at end of underdrains. Restore lower interceptor ditch crossing.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: May 19, 2019	**Weather:** clear (14°C, 7°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Placing ODF cover over PLS piping and liner



Photo 2: Holes identified in liner above work area

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 19, 2019	**Weather:** clear (14°C, 7°C)	**Prepared By:** Yuheng Fei



Photo 3: Shaping HLF west slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 20, 2019	**Weather:** sunny (21°C, 7°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Hot weather and heat exposure - Report all incidents including minor ones

Recent Incidents/Spills	
Date	Incident/Spill
May 20, 2019	Skidsteer door window shattered

Manpower and Equipment:

Total Number of Workers:	40

Location and Equipment	Summary of Activities
9000.13/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 490 Excavator b. CAT 988 Loader c. CAT D6 Dozer x2 d. 40t ADT x3 e. Skid Steer x2 f. 900HF/618HF Pipe Fuser g. Kenworth Tractor Trailer h. Packer x2	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Cleanup work in underdrain area above 990 - Electrofuse caps onto underdrain pipe ends - Shaping HLF west
4130.11 Event Pond a. LB 245 Excavator	-Backfill spillway anchor trench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 20, 2019	**Weather:** sunny (21°C, 7°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46/4110.7.05	40t ADT	125	ODF	Eagle Road	HLF
4110.1.09	40t ADT	7	Waste	HLF	Interceptor Dump
24,000 Litre	CAT633	1	Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 20, 2019	**Weather:** sunny (21°C, 7°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Installation of 450mm HDPE pipes



Photo 2: Mylar tape wrapped around 250mm HDPE to ADS connection

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 20, 2019	**Weather:** sunny (21°C, 7°C)	**Prepared By:** Yuheng Fei



Photo 3: End caps electrofused onto end of underdrain pipes

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 21, 2019	**Weather:** sunny (24°C, 8°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Incident review

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	40

Location and Equipment	Summary of Activities
9000.13/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Skid Steer g. 900HF/618HF Pipe Fuser h. Packer	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Backfill liner trench on embankment crest - Cleanup work in underdrain area above 990 - Shaping HLF west

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 21, 2019	**Weather:** sunny (24°C, 8°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	142	ODF	Eagle Road	HLF
24,000 Litre	CAT633	2	Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 21, 2019	**Weather:** sunny (24°C, 8°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: HLF West shaping and ODF placement



Photo 2: Backfilling liner anchor trench

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 22, 2019	**Weather:** cloudy (24°C, 9°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Taking breaks if necessary - Scope of remaining work

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	32

Location and Equipment	Summary of Activities
9000.13/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. LB 490 Excavator b. LB 245 Excavator c. CAT 988 Loader d. CAT D6 Dozer e. 40t ADT x3 f. Skid Steer g. 900HF/618HF Pipe Fuser h. Packer	- Load, haul, and place ODF on liner - Load, haul, and place ODF over PLS sump piping network - Install PLS header and collection piping - Backfill liner trench on embankment crest - Liner prep in the underdrain trench area - Shaping and compacting HLF west

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 22, 2019	**Weather:** cloudy (24°C, 9°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	34	ODF	Eagle Road	HLF
4110.6.01a	40t ADT	4	Sand	ADR	HLF
4110.1.08	40t ADT	3	Rockfill	ADR	HLF
4110.1.09	40t ADT	4	Waste	HLF	ADR
4110.1.08	40t ADT	10	Crush	Eagle Road	HLF
24,000 Litre	CAT633	2	Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 22, 2019	**Weather:** cloudy (24°C, 9°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: HLF West shaping and ODF placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 23, 2019	**Weather:** cloudy (21°C, 7°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Incident review - Best practices for tracked equipment

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	24

Location and Equipment	Summary of Activities
9000.13/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. CAT 375 Excavator b. CAT 330 Excavator c. LB 490 Excavator d. LB 245 Excavator e. CAT D6 Dozer f. 40t ADT x2 g. Skid Steer h. 900HF/618HF Pipe Fuser i. Packer	- Install PLS header and collection piping - Backfill LDRS piping with ODF - HLF west liner surface prep - Shaping and compacting HLF west

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 23, 2019	**Weather:** cloudy (21°C, 7°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	4	ODF	Eagle Road	HLF
4110.6.01a	40t ADT	11	Sand	ADR	HLF
4110.1.08	40t ADT	2	Rockfill	ADR	HLF
4110.1.09	40t ADT	2	Waste	HLF	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 23, 2019	**Weather:** cloudy (21°C, 7°C)	**Prepared By:** Yuheng Fei

Photos:

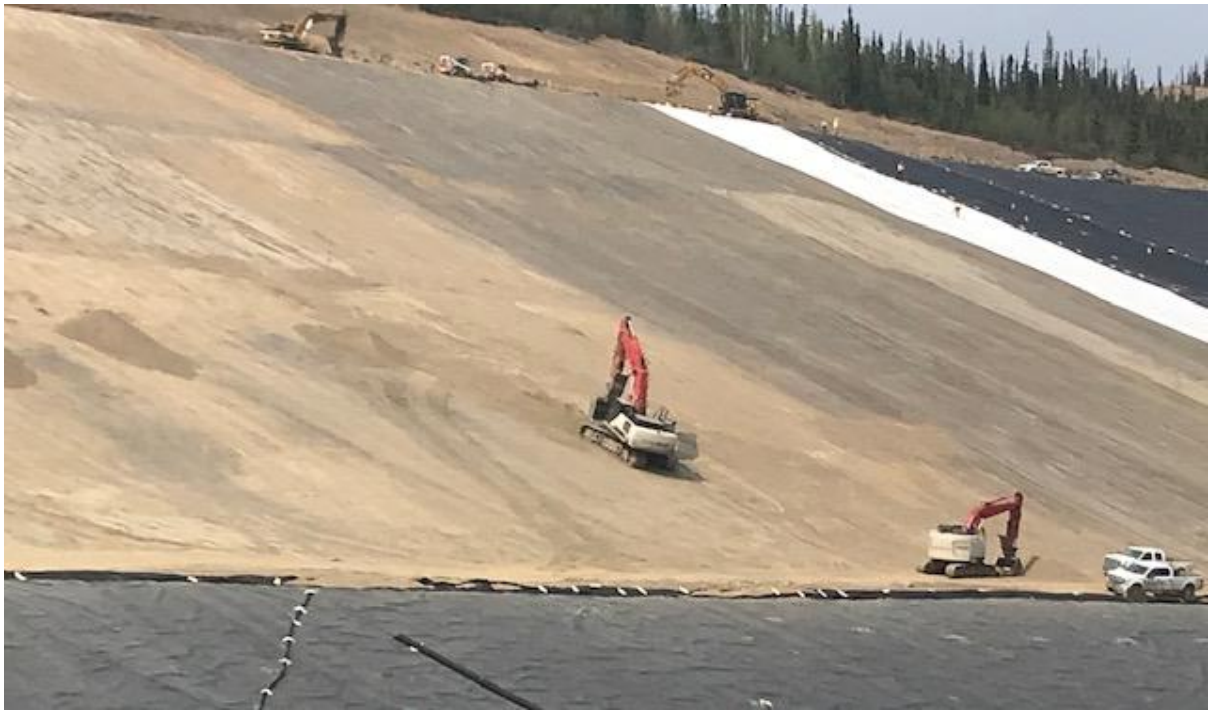


Photo 1: West HLF shaping



Photo 2: LDRS backfill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 24, 2019	**Weather:** sunny (23°C, 6°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Scheduling

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
9000.13/4110.7.05/4110.1.08-09 **4110.6.01a/4110.7.01-02-03 HLF** a. CAT 375 Excavator b. CAT 330 Excavator c. LB 490 Excavator d. LB 245 Excavator e. CAT D6 Dozer f. 40t ADT x2 g. Skid Steer h. 900HF/618HF Pipe Fuser i. Packer	- Install PLS header and collection piping - Backfill LDRS piping with ODF - HLF west liner surface prep - Shaping and compacting HLF west

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 24, 2019	**Weather:** sunny (23°C, 6°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	13	ODF	Eagle Road	HLF
4110.6.01a	40t ADT	10	Sand	ADR	HLF
4110.1.08	40t ADT		Rockfill	ADR	HLF
4110.1.09	40t ADT		Waste	HLF	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 24, 2019	**Weather:** sunny (23°C, 6°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: West HLF shaping and liner surface prep



Photo 2: LDRS backfill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 25, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Positive safety culture discussion - Video

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.1.08-09/4110.6.01a **2150.07a/2150.07b HLF/ADR** a. CAT 375 Excavator b. CAT 330 Excavator c. LB 490 Excavator d. LB 245 Excavator e. 40t ADT f. Skid Steer g. Packer	- Backfill LDRS piping with ODF - HLF west liner surface prep - Fill in sand /ODF in ADR trench - ADR boiler earthworks

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 25, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	15	ODF	Eagle Road	HLF
2150.07b	40t ADT	6	ODF	Eagle Road	ADR Trench
4110.6.01a	40t ADT	11	Sand	ADR	HLF
4110.1.08	40t ADT		Rockfill	ADR	HLF
4110.1.09	40t ADT	1	Waste	HLF	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 25, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Backfill ADR trench



Photo 2: LDRS backfill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 26, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Lightning protocol - Positive community events

Recent Incidents/Spills	
Date	Incident/Spill
May 26, 2019	Coolant spill from excavator on Dublin Road

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.1.08-09/4110.6.01a **2150.07a/2150.07b HLF/ADR** a. LB 245 Excavator b. CAT 988 Loader c. KOM 480 Loader d. 40t ADT e. Skid Steer x2 f. Packer	- Backfill LDRS piping with ODF - HLF west liner surface prep - Construct ODF pad under CV23
4130.14 Event Pond a. CAT 330 Excavator	- Exfiltration sump construction at underdrain outlet

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 26, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	16	ODF	Eagle Road	HLF
4130.14	40t ADT	1	ODF	Eagle Road	Event Pond
4110.6.01a	40t ADT	2	Sand	ADR	HLF
4110.1.08	40t ADT		Rockfill	ADR	HLF
4110.1.09	40t ADT	1	Waste	HLF	ADR
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 26, 2019	**Weather:** sunny (21°C, 5°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Constructing CV23 ODF pad



Photo 2: LDRS backfill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 27, 2019	**Weather:** sunny (25°C, 10°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Completion of daily paperwork

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.1.08-09/4110.6.01a **9000.51 HLF/ADR** a. LB 245 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. CAT 988 Loader e. KOM 430 Loader f. 40t ADT g. Skid Steer x2 h. Packer	- Backfill LDRS piping with ODF - HLF west liner surface prep - Backfill ADR trench with ODF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 27, 2019	**Weather:** sunny (25°C, 10°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	19	ODF	Eagle Road	HLF
9000.51	40t ADT	3	ODF	Eagle Road	ADR
4110.6.01a	40t ADT	2	Sand	ADR	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 27, 2019	**Weather:** sunny (25°C, 10°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Backfill ADR trench



Photo 2: LDRS backfill

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 28, 2019	**Weather:** sunny (20°C, 10°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Always using chock blocks and PPE

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.1.08-09/4110.6.01a **9000.51 HLF/ADR** a. LB 245 Excavator b. LB 490 Excavator c. Water Truck d. CAT 988 Loader e. KOM 430 Loader f. 40t ADT g. Skid Steer x2 h. Packer	- Backfill LDRS piping with ODF - HLF west liner surface prep - Backfill ADR trench with ODF - Dust control

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 28, 2019	**Weather:** sunny (20°C, 10°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	18	ODF	Eagle Road	HLF
9000.51	40t ADT	3	ODF	Eagle Road	ADR
4110.6.01a	40t ADT		Sand	ADR	HLF
24,000 Litre	CAT633	2	Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 28, 2019	**Weather:** sunny (20°C, 10°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: ADR trench shaping



Photo 2: LDRS backfill and HLF West shaping progress

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 29, 2019	**Weather:** Clear/Cloudy (3 °C, 19 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Importance of chock blocks and PPE

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.04.02/ 4110.01.01a/ 9000.51/ 9000.49 **HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT 988 Loader e. KOM 430 Loader f. 40t ADT x2 g. Packer h. Water Truck i. Skid Steer x2 j. 900HF/618HF Pipe Fuser k. Water pumps	- Load, haul, and place ODF over LDRS pipes - Liner surface preparation in HLF West slope - Shaping for ADR boiler pad - Grubbing on West HLF-ADR access road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: May 29, 2019	**Weather:** Clear/Cloudy (3 °C, 19 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.04.02	40t ADT	10	ODF	Eagle Road	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.
May 19, 2019	Cleanup at end of underdrains. Restore lower interceptor ditch crossing.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 29, 2019	**Weather:** Clear/Cloudy (3 °C, 19 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Backfilling over LDRS pipes in HLF Sump



Photo 2: Liner surface preparation in HLF West slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 30, 2019	**Weather: Rain** (7 °C, 14 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Active wild lives around site

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
4110.07.05/4110.7.01-03/ 9000.49/ 9000.50/ 9000.51 **HLF** a. LB 245 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. CAT 988 Loader e. KOM 430 Loader f. 40t ADT g. Packer h. Skid Steer x2 i. 900HF/618HF Pipe Fuser j. Water pumps x3 with light towers x2	- Constructing berms atop of the slope between ADR building and Event Pond. - Placing ODF over LDRS pipes - Stacking platform under conveyor loading point - Constructing HLF West access - Laying out HDPE pipes in PLS sump

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 30, 2019	**Weather: Rain** (7 °C, 14 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.07.05	40t ADT	3	ODF	Eagle Road	HLF
9000.49	40t ADT	2	Waste	HLF	ADR Dump
9000.51	40t ADT	6	Rock	ADR Quarry	ADR Berm
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.
May 19, 2019	Cleanup at end of underdrains. Restore lower interceptor ditch crossing.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: May 30, 2019	**Weather: Rain** (7 °C, 14 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Constructing berm above the slope between Event Pond and ADR building



Photo 2: Liner surface preparation in HLF West slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 31, 2019	**Weather: Rain** (11 °C, 16 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Recent fatality at hydro project in BC - Proper reporting procedure

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
4110.7.01-03/4110.5.05/4010.6.01a/ 9000.50/ 9000.51/9000.13 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 375 Excavator d. KOM 430 Loader e. 40t ADT f. Packer g. Minihoe h. Skid Steer i. 900HF/618HF Pipe Fuser j. Water pumps x3 with light towers x2	- Constructing berms atop of the slope between ADR building and Event Pond. - Stacking platform under conveyor loading point - Liner surface preparation on HLF West slope - Laying out HDPE pipes in PLS sump - Excavating sump at monitoring vault - Drainage control earth work at HLF underdrain

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 31, 2019	**Weather: Rain** (11 °C, 16 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.51	40t ADT	6	Rock	ADR Quarry	ADR Berm
9000.13	40t ADT	8	Rock	ADR Quarry	HLF990
9000.13	40t ADT	6	Sand	Eagle Pup	HLF990
9000.13	40t ADT	2	Crush	Eagle Pup	HLF990
9000.13	40t ADT	7	Waste	HLF990	Eagle Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 31, 2019	**Weather: Rain** (11 °C, 16 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Seepage control work at the HLF underdrain, elevation=990



Photo 2: Sump excavated beside monitoring vault

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: May 31, 2019	**Weather: Rain** (11 °C, 16 °C)	**Prepared By:** Zean Lang



Photo 3: Progress on HLF piping

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 1, 2019	**Weather: Rain** (8.0 °C, 13.1 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Proper reporting procedure

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
9000.50/ 9000.51/9000.13 **HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT 375 Excavator d. KOM 430 Loader e. KOM 380 Loader f. 40t ADT g. Minihoe h. 900HF/618HF Pipe Fuser i. Water pumps x3 with light towers x2	- Excavating ditch at ADR - Stacking platform under conveyor loading point - Drainage control earth work at HLF underdrain - Installing drainage ditch at site dump

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 1, 2019	**Weather: Rain** (8.0 °C, 13.1 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.13	40t ADT	3	Crush	Eagle Pup	Site Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5" crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12"; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 1, 2019	**Weather: Rain** (8.0 °C, 13.1 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Excavating diversion ditch at site dump



Photo 2: Placing drainage pad for winterization over underdrain pipes at HLF 990.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 2, 2019	**Weather: Clear** (8.1 °C, 15.7 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Complacencies, to focus on the task at hand - Notification for blasting

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
9000.50/9000.51/9000.13/ 4110.7.05/4110.7.01-4110.7.03/4110.5.05 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 375 Excavator d. CAT 330 Excavator e. KOM 430 Loader f. 40t ADT x3 g. Minihoe h. Skid Steer i. 900HF/618HF Pipe Fuser j. Water pumps x2 with light towers x2	- Stacking platform under conveyor loading point - Water control earth work at HLF underdrain - Shaping for drainage ditch at site dump - Shaping LDRS pipe bench for liner installation on HLF embankment - Placing ODF over liner in PLS sump - Removing waste from Vault to Eagle Pup

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 2, 2019	**Weather: Clear** (8.1 °C, 15.7 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.13	40t ADT	8	Rock	ADR	HLF990
4110.7.05	40t ADT	13	ODF	Eagle Pup	HLF
4110.5.05	40t ADT	7	Waste	Vault	Eagle Pup
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
May 19, 2019	ODF on Eagle Road almost depleted, overland conveyor commissioning delayed
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 2, 2019	**Weather: Clear** (8.1 °C, 15.7 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Water control earth work at HLF990 underdrain



Photo 2: Stacking platform under conveyor belt loading point.

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 3, 2019	**Weather: Clear** (8.6 °C, 16.7 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- PPE -Housekeeping

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
9000.50/9000.51/4110.6.01a/ 4110.7.05/4110.7.01-4110.7.03/4110.5.05 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. KOM 430 Loader e. CAT D6 Dozer f. 40t ADT g. Packer h. Minihoe i. Skid Steer j. 900HF/618HF Pipe Fuser k. Water pumps with light towers	- Loading ODF from conveyor loading point to PLS Sump - Excavating sump at Monitoring Vault - Liner surface preparation in HLF West - Install collector pipe in PLS sump and place ODF over it. - Backfilling trench at ADR
4130.11 Event Pond a. LB 245 Excavator	-Extend spillway underdrain

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 3, 2019	**Weather: Clear** (8.6 °C, 16.7 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	32	ODF	Conveyor	HLF
4110.5.05	40t ADT	2	Waste	Vault	Eagle Pup
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 3, 2019	**Weather: Clear** (8.6 °C, 16.7 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF piping and ODF placement



Photo 2: Water control earth work at the end of EP in-heal spillway

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 3, 2019	**Weather: Clear** (8.6 °C, 16.7 °C)	**Prepared By:** Zean Lang



Photo 3: Loading ODF from conveyor loading station to PLS sump.

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 4, 2019	**Weather: Clear** (7.3 °C, 18.7 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Change in muster point

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
9000.50/4110.6.01a/ **4110.7.05/4110.7.01-** **4110.7.03/4110.5.05** **HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT 375 Excavator e. KOM 430 Loader f. KOM 380 Loader g. CAT D6 Dozer h. 40t ADT x3 i. Packer j. Minihoe k. Skid Steer l. 900HF/618HF Pipe Fuser m. Water pumps with light towers	- Shaping on CV pad to prepare for arrival of Nuway stacker - Liner surface preparation in HLF West - Install collector pipe in PLS sump and place ODF over it. - Water control at monitoring vault

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 4, 2019	**Weather: Clear** (7.3 °C, 18.7 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.50	40t ADT	6	Rock	ADR	CV Pad
9000.50	40t ADT	3	ODF	Eagle Pup	CV Pad
4110.5.05	40t ADT	1	Crush	Eagle Pup	Monitoring Vault
4110.7.05	40t ADT	21	ODF	Eagle Pup	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 4, 2019	**Weather: Clear** (7.3 °C, 18.7 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Preparing CV pad for arrival of Nuway stacker



Photo 2: Progress of piping and ODF placement at HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 5, 2019	**Weather: Ice pellets** (3.7 °C, 18.8 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Reminder on proper submission of paper work - Leaving site without permission

Recent Incidents/Spills	
Date	Incident/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
9000.50/4110.6.01a/ 4110.7.05/4110.7.01-4110.7.03/4110.5.05 HLF a. LB 490 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. CAT D6 Dozer e. 40t ADT x2 f. Minihoe g. Skid Steer h. 900HF/618HF Pipe Fuser i. Water pumps with light towers	- Construction HLF West berm - Install collector pipe in PLS sump and place ODF over it. - Water control at monitoring vault - Shaping on CV pad to prepare for arrival of Nuway stacker
4130.11 Event Pond a. LB 490 Excavatpr b. LB 245 Excavator **c.** 40t ADT x1	-Spillway underdrain extension

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 5, 2019	**Weather: Ice pellets** (3.7 °C, 18.8 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4130.11	40t ADT	4	Rock	ADR Quarry	EP Spillway
4130.11	40t ADT	3	Crush	Eagle Pup	EP Spillway
4110.6.01a	40t ADT	13	Rock	ADR Quarry	HLF West Berm
4110.6.01a	40t ADT	4	Sand	ADR Quarry	HLF West Berm
4110.6.01a	40t ADT	2	ODF	Eagle Pup	HLF West Berm
4110.7.05	40t ADT	3	ODF	Eagle Pup	PLS Sump
9000.50	40t ADT	1	ODF	Eagle Pup	CV Pad
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: June 5, 2019	**Weather: Ice pellets** (3.7 °C, 18.8 °C)	**Prepared By:** Zean Lang

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Photos:



Photo 1: Installing HLF West berm

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 5, 2019	**Weather: Ice pellets** (3.7 °C, 18.8 °C)	**Prepared By:** Zean Lang



Photo 2: Progress of piping and ODF placement at HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 6, 2019	**Weather: Rain** (9.6 °C, 19.4 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Review on fuel spill yesterday - Review late reporting - Complacencies - Following procedures

Recent Incidents/Spills	
Date	Incidents/Spill
June6/2019	20-Litre-fuel spill at fuel farm

Manpower and Equipment:

Total Number of Workers:	29

Location and Equipment	Summary of Activities
9000.49/9000.50/9000.51/ 4110.7.05/4110.7.01-4110.7.03/4110.5.05 HLF a. LB 490 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. LB 490 Excavator e. CAT D6 Dozer f. 40t ADT x3 g. Packer h. Grader i. Minihoe j. Skid Steer k. 900HF/618HF Pipe Fuser l. Water pumps with light towers	- Construction HLF West berm - Install collector pipe in PLS sump and place ODF over it. - Water control at monitoring vault - Clearing roadway to prepare for trucking from crusher to HLF - Grade ADR pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 6, 2019	**Weather: Rain** (9.6 °C, 19.4 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.49	40t ADT	30	Rock	ADR Quarry	HLF West Berm
9000.49	40t ADT	1	Sand	ADR Quarry	HLF West Berm
9000.49	40t ADT	15	Unsuitable	HLF West Berm	ADR Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 6, 2019	**Weather: Rain** (9.6 °C, 19.4 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF West Berm in late afternoon.



Photo 2: Concentrated flow washing down ODF placed below HLF pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 6, 2019	**Weather: Rain** (9.6 °C, 19.4 °C)	**Prepared By:** Zean Lang



Photo 3: Road work off CV Road to prepare for trucking from crusher to HLF.

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 7, 2019	**Weather: Clear** (5.5 °C, 21.1 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Wearing dirty PPE in camp - Spreading sickness on site - Sunburn

Recent Incidents/Spills	
Date	Incidents/Spill
June6/2019	20-Litre-fuel spill at fuel farm

Manpower and Equipment:

Total Number of Workers:	29

Location and Equipment	Summary of Activities
9000.49/9000.50/9000.51/ 4110.7.05/4110.7.01-4110.7.03/4110.5.05 HLF a. LB 490 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. CAT D6 Dozer e. 40t ADT x3 f. Packer g. Grader h. Minihoe i. Skid Steer j. Water pumps with light towers	- Installing HLF West berm - Correcting header piper displaced caused by rain on June7th,2019 - Backfilling at monitoring vault - Grade ADR pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 7, 2019	**Weather: Clear** (5.5 °C, 21.1 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.49	40t ADT	61	Rock	ADR Quarry	HLF West Berm
9000.51	40t ADT	9	Sand	ADR Quarry	ADR Laydown
4110.7.05	40t ADT	38	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 7, 2019	**Weather: Clear** (5.5 °C, 21.1 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Loading ODF at CV pad



Photo 2: Grading on ADR laydown pad

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 7, 2019	**Weather: Clear** (5.5 °C, 21.1 °C)	**Prepared By:** Zean Lang



Photo 3: Adjusting HDPE pipe displacement after strong flow eroding the pipe pad on June7th2019

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 8, 2019	**Weather: Cloudy** (8.3 °C, 20.9 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Complacency

Recent Incidents/Spills	
Date	Incidents/Spill
June6/2019	20-Litre-fuel spill at fuel farm

Manpower and Equipment:

Total Number of Workers:	29

Location and Equipment	Summary of Activities
9000.49/9000.50/4110.7.05 HLF a. LB 490 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 375 Excavator e. CAT D6 Dozer f. 40t ADT x4 g. Packer h. Minihoe i. Water pumps with light towers	- Installing HLF West berm - Placing ODF over collection pipes in HLF - Exposing buried PLS pipe to investigate on PLS pipe installation plan

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 8, 2019	**Weather: Cloudy** (8.3 °C, 20.9 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.49	40t ADT	41	Rock	ADR Quarry	HLF West Berm
9000.49	40t ADT	1	Sand	ADR Quarry	HLF West Berm
4110.7.05	40t ADT	104	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.
June 8,2019	PLS pipe position deviation from previous survey results, taking extra time for planning on pipe placement.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 8, 2019	**Weather: Cloudy** (8.3 °C, 20.9 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF West Berm.



Photo 2: Progress on ODF placement in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Sunny** (7.8 °C, 19.2 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Slacking off on safety procedures

Recent Incidents/Spills	
Date	Incidents/Spill
June6/2019	20-Litre-fuel spill at fuel farm

Manpower and Equipment:

Total Number of Workers:	29

Location and Equipment	Summary of Activities
9000.49/4110.7.05 **HLF** a. LB 490 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. CAT D6 Dozer x2 e. 40t ADT x4 f. Packer g. Skid steer	- Installing HLF West berm - Placing ODF over collection pipes in HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Sunny** (7.8 °C, 19.2 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.49	40t ADT	52	Rock	ADR Quarry	HLF West Berm
4110.7.05	40t ADT	110	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.
June 9,2019	Conveyor system for Nuway needs repair and the ODF stockpile was depleted around 3pm.

Pending LEM codes:

Date	Activities
Sept 30, 2018	Additional efforts at south event pond toe – excavating ice rich soils, and selective backfill using structural fill and 5” crush rock.

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Sunny** (7.8 °C, 19.2 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF West Berm.



Photo 2: Progress on ODF placement in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Sunny** (7.8 °C, 19.2 °C)	**Prepared By:** Zean Lang



Photo 2: Progress on PLS Pipe Bench ODF placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Minor rain** (5.2 °C, 21.5 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Drugs and alcohol at workplace

Recent Incidents/Spills	
Date	Incidents/Spill
June6/2019	20-Litre-fuel spill at fuel farm

Manpower and Equipment:

Total Number of Workers:	28

Location and Equipment	Summary of Activities
9000.46/9000.49/4110.7.05 HLF a. LB 490 Excavator b. CAT 330 Excavator c. CAT 375 Excavator d. CAT D6 Dozer e. 40t ADT x4 f. Packer g. Skid steer	- Installing HLF West berm - Placing ODF over collection pipes in HLF - Placing ODF on PLS pipe bench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Minor rain** (5.2 °C, 21.5 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.49	40t ADT	38	Rock	ADR Quarry	HLF West Berm
9000.49	40t ADT	15	Sand	ADR Quarry	HLF West Berm
9000.46	40t ADT	4	ODF	CV Pad	PLS Pipe Bench
4110.7.05	40t ADT	75	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays
June 2,2019	Concentrated flow in the PLS valley is washing down ODF placed earlier.

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 9, 2019	**Weather: Minor rain** (5.2 °C, 21.5 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF West Berm.



Photo 2: Progress on ODF placement in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Cloudy (9°C, 18°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Working under CV-002 JHA

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	24

Location and Equipment	**Summary of Activities**
4110.7.05/4110.7.01 HLF **9000.51 ADR** a. LB 490 Excavator b. LB 245 Excavator c. LB 250 Excavator d. CAT 330 Excavator e. CAT D6 Dozer x2 f. 40t ADT x3 g. Skid steer	- Fusing 450mm header pipes - Placing ODF over collection pipes in HLF - Shaping ODF pad on PLS pipe bench - Excavate trench near ADR slope
9000.52 CV-002 a. LB 245 Excavator b. 40t ADT x3	- Load, haul, dump fill from crusher access road to underneath CV-002 - Shape and compact fill to support takeup slab

Equipment/Materials Delivery:

Date	**Bid Item #**	**Description**	**Quantity**

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Cloudy (9°C, 18°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.51	40t ADT	3	Waste	ADR	ADR Waste
4110.7.05	40t ADT	46	ODF	CV Pad	HLF
9000.52	40t ADT	10	Rock	Crusher Access Rd	CV-002
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Cloudy (9°C, 18°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Fusing 450mm pipes



Photo 2: Creating initial truck access towards conveyor

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Sun/Rain (8°C, 23°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Lightning protocol review - Upcoming potential travel changes

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.7.01/9000.46 **9000.51 HLF/ADR** a. LB 250 Excavator b. CAT D6 Dozer c. KOM 430 Loader d. 40t ADT x2 e. Skid steer	- Fusing 450mm header pipes - Placing ODF over collection pipes in HLF - Assist Priority Steel with crane pad - Excavate trench near ADR slope
9000.52 CV-002 a. LB 245 Excavator b. LB 490 Excavator c. 40t ADT x2 d. Packer	- Load, haul, dump fill from crusher access road to underneath CV-002 - Shape and compact fill to support takeup slab

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Sun/Rain (8°C, 23°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.46	40t ADT	2	4”	Eagle Road	HLF
4110.7.05	40t ADT	100	ODF	CV Pad	HLF
9000.52	40t ADT	38	Rock	Crusher Access Rd	CV-002
9000.52	40t ADT	6	Waste	CV-002	90 Day Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 13, 2019	**Weather:** Sun/Rain (8°C, 23°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: ADR trench cut



Photo 2: Loading out unsuitable material under CV-002

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 15, 2019	**Weather:** Sunny (9°C, 23°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Distractions and retaining focus - Distracted driving videos

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.7.01/9000.46 **9000.51 HLF/ADR** a. LB 250 Excavator b. CAT 304 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. KOM 430 Loader f. 40t ADT x2 g. Skid steer	- Fusing 450mm header pipes - Placing ODF over collection pipes in HLF - Construct Priority Steel crane pad at top of embankment - Excavate trench near ADR slope
9000.52 CV-002 a. LB 245 Excavator b. LB 490 Excavator c. 40t ADT x2 d. Packer	- Load, haul, dump fill from crusher access road to underneath CV-002 - Shape and compact fill to support takeup slab

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 15, 2019	**Weather:** Sunny (9°C, 23°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
9000.13	40t ADT	4	4”	Eagle Road	HLF 990
4110.7.05	40t ADT	104	ODF	CV Pad	HLF
9000.52	40t ADT	45	Rock	Crusher Access Rd	CV-002
9000.49	40t ADT	13	ODF	CV-002	Embankment Top
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 15, 2019	**Weather:** Sunny (9°C, 23°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: HLF ODF placement on west side



Photo 2: Constructing CV-002 slab support

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 15, 2019	**Weather:** Sunny (9°C, 23°C)	**Prepared By:** Yuheng Fei



Photo 3: Crane pad construction

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 16, 2019	**Weather:** Rain (7°C, 21°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Machine hours on timecards - Drip trays

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/9000.49 **4110.6.01a/TBD HLF** a. LB 245 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3	- Fusing 6” pipe for vault underdrains - Placing ODF over collection pipes in HLF - Construct Priority Steel crane pad at top of embankment - HLF east shaping and surface prep - Standby as no ODF was being provided by the conveyor
9000.51 ADR a. LB 250 Excavator b. CAT D10 Dozer	- Excavate trench near ADR slope behind building

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 16, 2019	**Weather:** Rain (7°C, 21°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	42	ODF	CV Pad	HLF
9000.49	40t ADT	10	ODF	CV-002	Embankment Top
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 16, 2019	**Weather:** Rain (7°C, 21°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Excavating ADR trench beside slope

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 17, 2019	**Weather:** Cloudy (9°C, 19°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Discovery of Drugs, Alcohol & Paraphernalia SWP - Travel

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/9000.46 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3	- Fusing 6" pipe for vault underdrains - Excavate vault liner anchor trenches and general earthworks - Placing ODF over collection pipes in HLF - Placing 4" crush over bottom of PLS header pipes - Standby as no ODF was being provided by the conveyor
9000.51 ADR a. LB 250 Excavator b. CAT D10 Dozer c. 40t ADT	- Excavate trench near ADR slope behind building - Load and haul out waste from trench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 17, 2019	**Weather:** Cloudy (9°C, 19°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	32	ODF	CV Pad	HLF
9000.51	40t ADT	33	Waste	ADR Pad	ADR Dump
9000.46	40t ADT	21	4”	Eagle Road	HLF PLS Pipes
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 17, 2019	**Weather:** Cloudy (9°C, 19°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Vault liner anchor trenches and surface shaping



Photo 2: 4” crush over PLS header pipes

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 18, 2019	**Weather:** Sunny (10°C, 21°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Victoria Gold update video

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/4110.7.01 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT D6 Dozer d. 40t ADT x3 e. Skid Steer f. CAT 304 Excavator g. KO 430 Loader	- Fuse 450mm pipes over liner - Shape and place riprap at monitoring vault outlet into Dublin creek - Placing ODF over collection pipes in HLF - Standby as no ODF was being provided by the conveyor
9000.51 ADR a. LB 250 Excavator b. CAT 330 Excavator	- Excavate trench near ADR slope behind building

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 18, 2019	**Weather:** Sunny (10°C, 21°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	135	ODF	CV Pad	HLF
9000.51	40t ADT		Waste	ADR Pad	ADR Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	Pelly Construction Ltd. Eagle Gold Project Daily Report	
Date: June 18, 2019	**Weather:** Sunny (10°C, 21°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Monitoring vault outlet



Photo 2: HLF ODF placement progress

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 18, 2019	**Weather:** Sunny (10°C, 21°C)	**Prepared By:** Yuheng Fei



Photo 3: ADR perimeter trench with ADS pipe installed as culvert

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 19, 2019	**Weather:** Clear (9°C, 26°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Community events

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/4110.7.01 HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT 330 Excavator d. CAT D6 Dozer e. 40t ADT x3 f. Skid Steer g. CAT 304 Excavator h. KO 430 Loader	- Fuse 450mm pipes over liner - Shape and place riprap at monitoring vault outlet into Dublin creek - Placing ODF over collection pipes in HLF - Shape vault liner surface and start berm
9000.51 ADR a. LB 250 Excavator b. 40t ADT	- Excavate trench near ADR slope behind building - Load and haul out waste from trench

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 19, 2019	**Weather:** Clear (9°C, 26°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	129	ODF	CV Pad	HLF
9000.51	40t ADT	9	Waste	ADR Pad	ADR Dump
4110.5.05	40t ADT	7	Waste	Vault	Dublin Dump
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 19, 2019	**Weather:** Clear (9°C, 26°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Vault shaping before berm

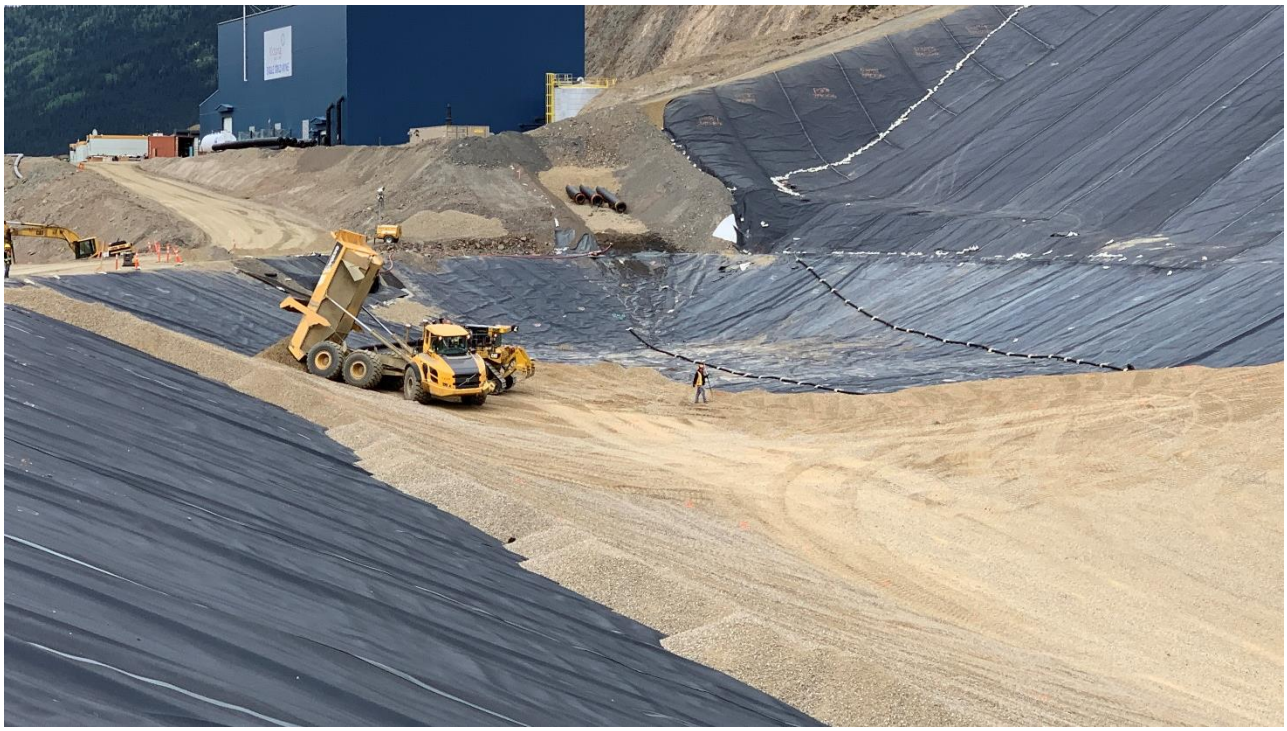


Photo 2: West HLF ODF placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 20, 2019	**Weather:** Sunny (12°C, 25°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- USA powered haulage fatality bulletin

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/4110.7.01 HLF a. LB 245 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT D6 Dozer e. 40t ADT x3 f. KO 430 Loader	- Place ODF over liner and pipes in HLF - Haul excess ODF from old crane pad and shape top of embankment - Fuse monitoring vault underdrain extension pipes - Construct vault berm with rockfill from ADR - Standby

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 20, 2019	**Weather:** Sunny (12°C, 25°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	93	ODF	CV Pad	HLF
4110.5.05	40t ADT	5	Rockfill	ADR	Vault
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 20, 2019	**Weather:** Sunny (12°C, 25°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Construction of vault berm



Photo 2: West HLF ODF placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 21, 2019	**Weather:** Sunny (14°C, 27°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Waste categories - Removing traffic barriers when no longer needed

Recent Incidents/Spills	
Date	Incidents/Spill
June 21, 2019	10L diesel from haul truck in HLF

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/TBD HLF a. LB 245 Excavator b. LB 490 Excavator c. CAT D6 Dozer x2 d. 40t ADT x3 e. KO 430 Loader	- Place ODF over liner and pipes in HLF - Cut road underneath CV-022 - Fuse and place monitoring vault underdrain extension pipes - Construct vault berm with rockfill from ADR
TBD 90 Day a. CAT D10 Dozer	- Push roadway access around 90 day pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 21, 2019	**Weather:** Sunny (14°C, 27°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	127	ODF	CV Pad	HLF
4110.5.05	40t ADT		Rockfill	ADR	Vault
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 21, 2019	**Weather:** Sunny (14°C, 27°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Construction of vault berm and underdrain pipes



Photo 2: Road cut under CV-022

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 22, 2019	**Weather:** Cloudy (12°C, 25°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Alberta spotter video - Whitehorse counselling services

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/TBD HLF a. LB 245 Excavator b. LB 250 Excavator c. LB 490 Excavator d. CAT D6 Dozer x2 e. 40t ADT x3 f. KO 430 Loader	- Place ODF over liner and pipes in HLF - Cut road underneath CV-022 - Place monitoring vault underdrain extension pipes and backfill berm - Remove liner and shape area around steel pipes at top of embankment
TBD 90 Day a. CAT D10 Dozer	- Push roadway access around 90 day pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 22, 2019	**Weather:** Cloudy (12°C, 25°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	101	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022
June 21, 2019	Dozer making roadway access near 90 day

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 22, 2019	**Weather:** Cloudy (12°C, 25°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Realigning perforated pipe connection to be lower than underdrain pipes



Photo 2: ODF placement in HLF

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 23, 2019	**Weather:** Cloudy (11°C, 24°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Dashboard symbols - Dusty conditions

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/TBD HLF a. LB 250 Excavator b. CAT 330 Excavator c. LB 490 Excavator d. CAT D6 Dozer x2 e. 40t ADT x3 f. Skid steer g. Packer	- Place ODF over liner and pipes in HLF - Cut road underneath CV-022 and fix up HLF/Dublin intersection - Assisting Layfield with monitoring vault labour - Remove liner and shape area around steel pipes at top of embankment - Extend embankment pipe berm
TBD 90 Day a. CAT D10 Dozer	- Push roadway access around 90 day pad

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 23, 2019	**Weather:** Cloudy (11°C, 24°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	100	ODF	CV Pad	HLF
9000.46	40t ADT	9	ODF	Embankment	HLF
9000.46	40t ADT	2	Waste	Embankment	Eagle
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022
June 21, 2019	Dozer making roadway access near 90 day

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 23, 2019	**Weather:** Cloudy (11°C, 24°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Shaping top of embankment



Photo 2: Extending pipe berm on embankment

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 24, 2019	**Weather:** Cloudy (12°C, 26°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Proper PPE usage

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/TBD HLF a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 304 Excavator e. CAT D6 Dozer f. 40t ADT x3 g. KOM 430 Loader h. Skid steer i. Packer	- Place ODF over liner and pipes in HLF - Widen and compact road behind CV-022 - Finish vault underdrain pipe connections - Shape top of embankment near steel pipes - Winterize vault outlet pipe

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 24, 2019	**Weather:** Cloudy (12°C, 26°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	116	ODF	CV Pad	HLF
9000.46	40t ADT	6	ODF	Embankment	HLF
TBD	40t ADT	8	Waste	CV22	HLF Dump
4110.5.05	40t ADT	3	Crush	Eagle	Vault Underdrains
4110.5.05	40t ADT	5	Rip rap	Eagle	Vault Outlet
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022
June 21, 2019	Dozer making roadway access near 90 day

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 24, 2019	**Weather:** Cloudy (12°C, 26°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: Underdrain pipe connections into monitoring vault. Closure pipe later electrofused and flanged.



Photo 2: ODF placement on eastern portion of HLF 940 down

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 25, 2019	**Weather:** Smoky (10°C, 19°C)	**Prepared By:** Yuheng Fei

Health and Safety:

Pelly Toolbox Topic:	- Signing walkarounds and 5-point cards

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	27

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/TBD **4110.7.02/4110.7.03 HLF** a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 304 Excavator e. CAT D6 Dozer x2 f. 40t ADT x3 g. KOM 430 Loader h. Skid steer i. Packer	- Place ODF over liner and pipes in HLF - Install 250mm and 100mm ADS pipes in east HLF by stacker - Cover underdrain pipes with crush and geotextile layer on top - Begin winterization of vault underdrain area - Expose liner near bottom of west HLF to check for damage as instructed by BGC

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 25, 2019	**Weather:** Smoky (10°C, 19°C)	**Prepared By:** Yuheng Fei

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	103	ODF	CV Pad	HLF
4110.5.05	40t ADT	18	Fill	Dublin	Vault Underdrains
4110.5.05	40t ADT	13	Crush	Eagle	Vault Underdrains
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022
June 21, 2019	Dozer making roadway access near 90 day

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 25, 2019	**Weather:** Smoky (10°C, 19°C)	**Prepared By:** Yuheng Fei

Photos:



Photo 1: HLF liner exposed in area requested by BGC – no major damage occurred



Photo 2: Place and spread drain fill overtop underdrain pipes at monitoring vault

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 26, 2019	**Weather:** Smoky (11.6 °C, 23.6°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Congested work areas

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/ 4110.7.02/4110.7.03/9000.50 HLF a. LB 245 Excavator b. LB 250 Excavator c. CAT 330 Excavator d. CAT 304 Excavator e. CAT D6 Dozer x2 f. 40t ADT x3 g. Skid steer	- Place ODF over liner and pipes in HLF - Install 250mm and 100mm ADS pipes in HLF - Cover underdrain pipes with crush and geotextile layer on top - Winterization of vault underdrain area - Expose liner near the bottom of CV pad for liner installation - Minor earthwork at top of HLF embankment for liner installation

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 26, 2019	**Weather:** Smoky (11.6 °C, 23.6°C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	129	ODF	CV Pad	HLF
4110.5.05	40t ADT	53	Fill	Dublin	Vault Underdrains
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 26, 2019	**Weather:** Smoky (11.6 °C, 23.6°C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Winterization of underdrains near monitoring vault



Photo 2: Loading ODF at CV Pad

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 27, 2019	**Weather:** Smoky (8.1 °C, 25.6°C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Use of spill tray and spill kits - Completion of daily walk-around procedures

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.5.05/4110.7.05/ **4110.7.01-03/9000.46/** **9000.53/9000.54** **HLF** a. LB 245 Excavator b. LB 250 Excavator c. CAT D6 Dozer d. CAT D10 Dozer e. 40t ADT x3 f. Skid steer g. Grader	- Placed ODF over liner - Moved pipes from the bottom of HLF to Elevation940 - Shaping on stacker pad and exposing liner - Backfilling ODF over PLS pipe cushion on the top of HLF embankment - Road work on 90 Day fine ore haul road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 27, 2019	**Weather:** Smoky (8.1 °C, 25.6°C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	97	ODF	CV Pad	HLF
9000.46	40t ADT	2	ODF	CV Pad	PLS Pipe Cushion
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey-controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 27, 2019	**Weather:** Smoky (8.1 °C, 25.6°C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF piping and ODF placement

	Pelly Construction Ltd. **Eagle Gold Project** **Daily Report**	
Date: June 28, 2019	**Weather:** Clear (14.5 °C, 24.1 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Substance use on site - Reporting procedures

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	25

Location and Equipment	Summary of Activities
4110.7.05/4110.7.01-03/ 9000.46/9000.53/9000.54 HLF a. LB 245 Excavator b. CAT 365 Excavator c. CAT 304 Excavator d. CAT D10 Dozer e. 40t ADT x2 f. Packer g. Skid steer	- Placing ODF over liner - Placing collection pipes - Shaping on stacker pad and exposing liner - Backfilling over PLS pipe cushion - Road work on 90-day fine ore haul road

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 28, 2019	**Weather:** Clear (14.5 °C, 24.1 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	86	ODF	CV Pad	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities
June 21, 2019	Road cut underneath CV-022

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey-controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 28, 2019	**Weather:** Clear (14.5 °C, 24.1 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF piping and ODF placement

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 29, 2019	**Weather:** Clear (15.6 °C, 29.7 °C)	**Prepared By:** Zean Lang

Health and Safety:

Pelly Toolbox Topic:	- Safety introduction on quicklime and cyanide

Recent Incidents/Spills	
Date	Incidents/Spill

Manpower and Equipment:

Total Number of Workers:	26

Location and Equipment	Summary of Activities
4110.7.05/4110.7.01-03/ **9000.50/9000.54/2150.08** **4110.5.05** **HLF** a. LB 245 Excavator b. LB 250 Excavator c. CAT 365 Excavator d. CAT 304 Excavator e. CAT D10 Dozer f. CAT D6 Dozer g. 40t ADT x2 h. Packer i. Skid steer	- Placing ODF over liner - Placing collection pipes - Backfilling on HLF East corner over liner - Installation of concrete pad - Road work on 90-day fine ore haul road - Covering powerline with sand in HLF

Equipment/Materials Delivery:

Date	Bid Item #	Description	Quantity

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 29, 2019	**Weather:** Clear (15.6 °C, 29.7 °C)	**Prepared By:** Zean Lang

Production:

WBS	Unit Type	Loads	Material Type	From Location	Destination
4110.7.05	40t ADT	111	ODF	CV Pad	HLF
2150.08	40t ADT	2	Sand	ADR Quarry	HLF
24,000 Litre	CAT633		Water	Control Pond	Pelly Haul Roads

Open Technical Concerns:

Date	Technical Concerns and Delays

Pending LEM codes:

Date	Activities

Quality Control Observations and Procedures:

HLF – Material 7 rockfill was placed and compacted in the construction of the HLF west liner surface. The rockfill was sourced from the ADR borrow blast rock, hauled to the destination in wiggle wagon haul trucks and spread with an excavator. The material is being spread immediately after being dumped to a survey-controlled max. thickness of 0.9m. Once the material has been spread it is being compacted with a CAT 68B vibratory compactor. Material is not being left uncompacted for extended periods of time.

- Material 7 sourced from ADR Quarry
- Material 7 placed in HLF west
- Minimum 3 passes completed with 9-tonne vibratory packer
- No visible ice in the material; low moisture, Material is well graded
- Visual estimate of minimum 20% of material >12”; very little to no weak phyllite rock

HLF – Material 4 ODF is being placed over liner and PLS piping. Trucks are backing straight up the slopes at a slow and constant speed without turning or stops. The material is then spread with a CAT D6 dozer to a survey controlled minimum thickness of 1m above liner surface. The trucks are being spotted by the dozer operator to ensure the tires do not spin and are aligned properly. A spotter for the dozer is also present to ensure the equipment does not contact the liner and that the underlying PLS piping being buried has the correct alignment:

- 100mm ADS pipes have a minimum 1m section running parallel alongside the 250mm ADS pipes, with a spacing of 0.5m between the two pipes.

Pelly Construction Ltd.	**Pelly Construction Ltd.** **Eagle Gold Project** **Daily Report**	
Date: June 29, 2019	**Weather:** Clear (15.6 °C, 29.7 °C)	**Prepared By:** Zean Lang

Photos:



Photo 1: Progress on HLF West for piping and ODF placement

Tetra Tech Earthworks Daily Reports

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 5, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	Cat D-10 Dozer	9	Placing structural fill at embankment
-	Hitachi 1200 Excavator	8	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	8	Hauling structural fill to embankment
-	Cat 777 Haul Truck	8	Hauling structural fill to embankment
-	Cat 777 Haul Truck	8	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	10	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
-	Link Belt 490 Excavator	0	Removing loose material at embankment

2.0 HEAP LEACH FACILITY

- Continuation of nightshift's lower embankment lift 9A (894.03m design elevation). Compaction started at 06:30 and finished at 07:15. Two passes was observed with sufficient speed and overlap. Loose lift finished at 07:00. Survey confirmed the average elevation to be 893.98 m, which calculates to be a 0.35m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m^3 at 100%. The moisture content was 3.8%, which does not comply with BGC requirements.

- Start of lower embankment lift 10A (894.38m design elevation) started at 07:15. Compaction started at 07:30 and finished at 09:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 08:45. Survey confirmed the average elevation to be 894.27 m, which calculates to be a 0.29m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.5% to 97.6%. The moisture content was 3.5% to 3.8%, which does not comply with BGC requirements.

- Start of lower embankment lift 11A (894.67 m design elevation) started at 09:00. Compaction started at 10:30 and finished at 12:45. Two passes was observed with sufficient speed and overlap. Loose lift finished at 11:15. Survey confirmed the average elevation to be 894.62 m, which calculates to be a 0.35 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.8% to 100%. The moisture content was 3.8% to 5.0%, which does not comply with BGC requirements.

- Start of lower embankment lift 12A (895.02m design elevation). Nightshift to continue.

- Structural fill was coming from the ADR stockpile and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to

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8%, whereas the material from ADR stockpile has a moisture content of 3.5 to 5.0%. Material is slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.

- Approximately 68 777 haul truck loads and 30 wiggle haul truck loads were placed during shift. Assuming 36 m^3 per load for the 777 haul truck, and 16m^3 for the wiggle truck, a total of 2928 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- Embankment access road was temporarily closed to larger haul traffic due to unsafe driving conditions.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift.



Photo 2 - Compaction density test.



Photo 3 - Dayshift progress.



Photo 4 - Dayshift progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 5, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud, light rain
Client:	JDS		High 13°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12	Placing structural fill
	Cat D-6 Dozer	1	Build safety berms on embankment slope
	Hitachi 1200 Shovel	11.5	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	11.5	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 895.38 m started at 19:15. Placement was completed at 21:10. Compaction for this lift began at 19:45 and was completed by 11:00. Compaction and moisture testing as well as surveying was completed by 11:00 using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.0 % to 98.9 %. Moisture content ranged from 4.3 % MC to 5.2 % MC, two of which fell below the targeted BGC method specification requirements.
- Placement of lift elevation 895.77 m started at 21:10. Placement was completed at 3:30 hours. Compaction for this lift began at 23:00 hours and was completed by 04:00. Compaction and moisture testing was completed by 04:30. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.4 % to 99.4 %. Moisture content ranged from 3.9 % MC to 5.2 % MC, three of which fell below the targeted BGC method specification requirements.
- Placement of lift elevation 896.17 m started at 03:40. Placement was incomplete by the end of the shift. Compaction for this lift began at 04:10 will continue during next shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. A larger quantity of oversized cobbles or boulders were noticed in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. This meets the BGC method

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p. 780.451.2121 f. 780.454.5688

specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.

- Compaction was completed using two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory roller. This meets the BGC method specification requirement for structural fill.
- Each lift placed was benched into the existing side slope of the elevation 920 m raised lift. The uncompacted side slopes of the existing ramps to the 920 m raised lift were removed. Loose Type 3 Rock with visible voids present in the sidewall of the excavation was as also removed. This complies with the placement methodologies outlined by BGC.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-1 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 86 loads were placed during shift. Assuming 36 m^3 per load, a total of 3,096 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Lift elevations 895.38 m and 895.77 m received additional compaction along south embankment side slope after disturbance of lift from improving side slope berm.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Benching lift elevation 895.38 m into side slope.



Photo 2: Improving roadway berms and grades.



Photo 3: Typical gradation of structural fill.



Photo 4: Improvements to embankment berms.



Photo 5: Placement of lift 895.77 m and compaction of lift 895.38 and compaction of lift 895.38 m.



Photo 6: Moisture conditioning of structural fill on ADS stockpile.



Photo 7: Removal of oversized rock in lift 895.77 m.



Photo 8: Benching into sidewall of embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 6, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 17°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	Cat D-10 Dozer	10	Placing structural fill at embankment
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	1	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	6	Removing loose material at embankment

2.0 HEAP LEACH FACILITY

- Continuation of nightshift's lower embankment lift 15A (896.17 m design elevation). Compaction started at 06:45 and finished at 09:15. Two passes was observed with sufficient speed and overlap. Loose lift finished at 08:00. Survey confirmed the average elevation to be 896.05 m, which calculates to be a 0.28 m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m^3 at 99%. The moisture content was 3.0% to 4.8%, which does not comply with BGC requirements.

- Start of lower embankment lift 16A (896.45 m design elevation) started at 08:00. Compaction started at 09:30 and finished at 11:00. Two passes was observed with sufficient speed and overlap. Loose lift finished at 10:30. Survey confirmed the average elevation to be 896.40 m, which calculates to be a 0.35 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 96.3% to 100%. The moisture content was 5.1% to 5.4%, which complies with BGC requirements.

- Start of lower embankment lift 17A (897.80 m design elevation) started at 10:30. Compaction started at 12:15 and finished at 15:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 15:00. Survey confirmed the average elevation to be 897.80 m, which calculates to be a 0.40m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.2% to 100%. The moisture content was 4.2% to 5.2%, which does not comply with BGC requirements.

- Start of lower embankment lift 18A (898.20 m design elevation). Nightshift to continue.

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- Structural fill from the ADR stockpile has a moisture content of 4.2 to 5.4%. Material is slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.
- Approximately 81 777 haul truck loads and 3 wiggle haul truck loads were placed during shift. Assuming 36 m^3 per load for the 777 haul truck, and 16 m^3 for the wiggle truck, a total of 2,964 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- Periodic delays due to refilling of the water truck, and resurfacing of the embankment access road with the grader.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift. Lift 15A.



Photo 2 - Benching East abutment for lift 16A.



Photo 3 - Compaction testing.



Photo 4 - Placing and packing lift 17A.



Photo 5 - Packing lift 17A. Starting lift 18A.



Photo 6 - End of dayshift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 6, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Rain
Client:	JDS		High 17°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	9.5	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	9.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	9.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	9.5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	9.5	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 897.16 m started at 19:00. Placement was completed at 20:00. Compaction for this lift began at 19:30 and was completed by 21:45. Compaction and moisture testing as well as surveying was completed by 10:45 using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.6 % to 100.3 %. Moisture content ranged from 3.2 % MC to 4.3 % MC, which is below the targeted BGC method specification requirements.
- Placement of lift elevation 897.56 m started at 20:10. Placement was completed at 3:30 hours. Compaction for this lift began at 22:45 and was completed by 02:45. Compaction and moisture testing was completed by 03:00. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.2 % to 100.5 %. Moisture content ranged from 4.0 % MC to 6.5 % MC, two of which fell below the targeted BGC method specification requirements.
- The next section of ODF trench on the raised lift section of the embankment was completed by 22:40. One small section near the trench required two lifts of structural fill to fill in low spots to tie into the existing raised lift section. Compaction for these small sections were completed by 04:20.
- Placement of lift elevation 902.82 m started at 04:15. Placement was incomplete by the end of the shift. Compaction for this lift began at 05:40 will continue during next shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or

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p. 780.451.2121 f. 780.454.5688

boulders placed were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.

- Compaction was completed using two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory roller. This meets the BGC method specification requirement for structural fill.
- Each lift on the lower section was benched into the existing side slope of the elevation 920 m raised lift. The uncompacted side slopes of the existing ramps to the 920 m raised lift were removed. Loose Type 3 Rock with visible voids present in the sidewall of the excavation was as also removed. This complies with the placement methodologies outlined by BGC.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged approximately 4 to 8 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 61 loads were placed during shift. Assuming 36 m^3 per load, a total of 2,196 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Rainfall prevented the access road to the embankment. Roughly 01:30 hours of haul time were lost due to road improvements. New access from ADR road entering onto embankment built to help facilitate truck hauls.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Benching lift elevation 897.16 m into side slope.



Photo 2: Moisture conditioning of structural fill on ADS stockpile.



Photo 3: Section of ODF Trench completed allowed for contuniuting raised lift placement.



Photo 4: Two lifts of fill placed in low area near ODF Trench (outlined in red).



Photo 5: Placement of lift 895.77 m and compaction of lift 895.38 and compaction of lift 895.38 m.



Photo 6: Moisture conditioning of structural fill on ADS stockpile.



Photo 7: Placement and compaction of raised lift elevation 902.82 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 7, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 17°C
File:	ENG.WARC03235-02.005		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	7	Placing structural fill at embankment
-	Hitachi 1200 Excavator	5	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	5	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	9	Compacting structural fill at embankment
-	Link Belt 490 Excavator	-	Removing loose material at embankment

2.0 HEAP LEACH FACILITY

- Oversaturated areas were found on nightshift's lift #35 during morning inspection. The areas were marked with spray paint and excavated. Roy Morlan (BGC) suggested to proof roll the lift using the CAT D-10 Dozer for further inspection. It was then recommended to remove the lift using the dozer, and blend the oversaturated material with drier material brought by the haul trucks. This took place from 07:00 to 11:30.
- Start #35 (903.22 m design elevation). Two passes was observed with sufficient speed and overlap. Survey confirmed the average elevation to be 903.10 m which calculates to be a 0.28 m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 98.8% and 100%. The moisture content was 4.6% to 6.3%, which complies with BGC requirements.
- Start of lift #36 (903.50 m design elevation). Nightshift to continue.
- Structural fill from the ADR stockpile has a moisture content of 4.6 to 6.3%. Material is slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.
- Approximately 45 CAT 777 haul truck loads were placed during shift. Assuming 36 m^3 per load, a total of 1,620 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- Periodic delays due to refilling of the water truck, and grading of oversaturated surficial material after rainfall.

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift. Lift #35.



Photo 2 - Start of dayshift. Lift #35.



Photo 3 - Areas softened by excess moisture near East abutment.



Photo 4 - Areas softened by excess moisture near East abutment marked out by BGC.



Photo 5 - Moisture check on lift #35.



Photo 6 - Start of lift #35.



Photo 7 - Grading lift #35 after rain.



Photo 8 - Start of lift #36.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 7, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy, rain after 9:30
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	10	Hauling structural fill to embankment
	Cat 777 Haul Truck	10	Hauling structural fill to embankment
	Cat 777 Haul Truck	10	Hauling structural fill to embankment
	Semi-Articulated Haul Truck	4	Blending in Type 3 rock into structural fill
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Water Truck	10	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 903.36 m resumed at 19:20. Placement was completed at 22:20. Compaction for this lift began at 19:00 and was completed by 02:10. Compaction and moisture testing as well as surveying was completed by 02:15 using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.5 % to 100.1 %. Moisture content ranged from 4.6 % MC to 7.9 % MC. One of the five test fell below the targeted BGC method specification requirements and one was higher.
- Placement of lift elevation 903.76 m began at 23:30 and was not completed by the end of shift. Compaction for this lift began at 02:20 and was also incomplete by the end of the day. To prevent rain infiltration into the loose placed lift, Pelly decided to slow down the rate of haul truck placement to allow the Vibratory Compactor to keep up to the dozer. Compaction and moisture testing was conducted throughout placement to monitor lift quality. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.8 % to 97.0 %. Moisture content ranged from 6.0 % MC to 7.7 % MC, which is on the high limit of the targeted BGC method specification requirements.
- Visual assessment of lift 903.36 m and 903.76 m indicated that the excess moisture content was only in the top 10-25 mm of the lift. An additional pass with the CAT CS 78 B Vibratory Compactor was required to achieve compaction in sections exposed to the longest duration of rain while they were loose placed. Approximately 5 to 10 mm of deflection noted during compaction with 13.4 tonne CAT CS 78 B Compactor on the most recent placement of structural fill on lift elevation 903.36 m. This will be addressed during day shift.

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- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading. Moisture conditioning with the water truck was reduced and eventually stopped, once the rain volume to increased and higher moisture contents were identified.
- Type 3 rock was also placed excavated from the Heap Leach area was loaded into semi-articulated haul trucks and placed in the embankment. These loads were spaced out and blended into the structural fill piles as per BGC method specification requirements for the embankment.
- Compaction was primarily completed using two passes (back and forth) of the 13.4 tonne vibratory roller. Some areas that experienced significant rainfall required additional compaction. Sufficient overlap and complete coverage was observed, which meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using laser level and GPS. Survey confirmed that the average surveyed elevation averaged approximately 14 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 51 loads were placed using CAT 777 haul trucks and 2 loads were placed using semi-articulated haul trucks during shift. Assuming 36 m^3 per load with the CAT 777 and 16 m^3 per load with the semi-articulated haul truck, a total of 1,868 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Heavy, prolonged rainfall required that additional attention was given to immediately compact the loose placed material to seal the surface. During shift, the dozer had to stop placement to accommodate the vibratory compactor who fell behind dozer placement. An additional vibratory compactor may be useful to seal the surface immediately behind the dozer. This vibratory compactor may not necessarily require to be over 9 tonnes as it would only be required to achieve surface compaction.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Placement of structural fill for lift elevation 903.36 m.



Photo 2: Type 3 Rock blended into structural fill.



Photo 3: Moisture Conditioning was decreased and eventually stopped as a result of rain.



Photo 4: Additional compaction required to achieve compaction during rain event.



Photo 5: Structural fill above optimum moistire content in top 10-25 mm of lift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	8	Placing structural fill at embankment
-	Hitachi 1200 Excavator	5.5	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	5.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	5.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	5.5	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	8.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	-	Removing loose material at embankment

2.0 HEAP LEACH FACILITY

- Start of lift #37 (903.76 m design elevation). Two passes was observed with sufficient speed and overlap. Survey confirmed the average elevation to be 903.72 m which calculates to be a 0.36 m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m3 ranging from 97.1% and 97.7%. The moisture content was 5.5% to 7.0%, which complies with BGC requirements.
- During inspection, areas of lift #37 (903.76 m) had softened due to excess moisture in the lift. A proof roll was conducted using a CAT CS 78 B Compactor to identify the depth and severity of the water penetration into the lift. After noting significant deflection, Roy Morlan (BGC) suggested that the lift be removed, replaced, and recompacted with drier structural fill. This took place from 13:30 to 15:00.
- Start of lift #38 (904.12 m design elevation) at 17:30. Nightshift to continue.
- Structural fill from the ADR stockpile has a moisture content of 5.5% to 7.0%. Material is slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.

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3.0 DISCUSSION/OTHER

- Embankment access road maintenance took place from 09:00 to 13:00. No CAT 777 haul trucks were allowed down to the embankment during this time.
- CAT D-10 Dozer was replaced at 16:15 due to low engine oil. This resulted in an approximate 00:30 hour delay.
- Large areas of ponding water were pushed off the embankment using the grader at the end of shift to prepare surface for nightshift.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562

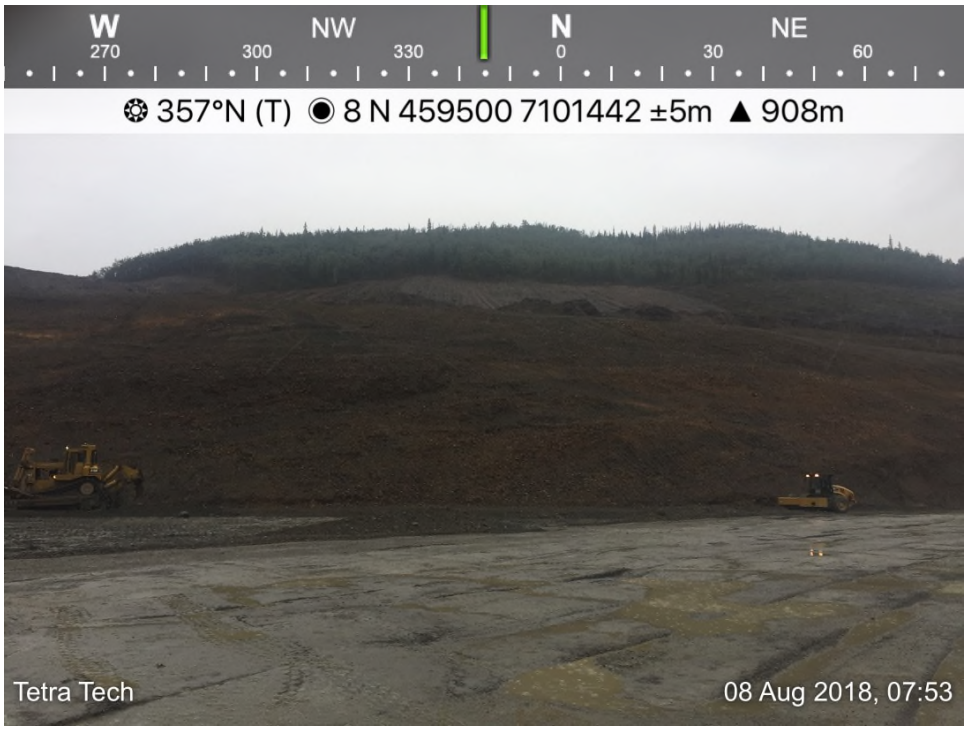


Photo 1 - Start of dayshift. Lift #37.



Photo 2 - Embankment access maintenance.



Photo 3 - Proof rolling lift #37 with CAT CS 78 B Compactor.



Photo 4 - Removing areas softened by excess moisture on lift #37 with CAT D-10 Dozer.



Photo 5 - Removing areas softened by excess moisture on lift #37 with CAT D-10 Dozer.

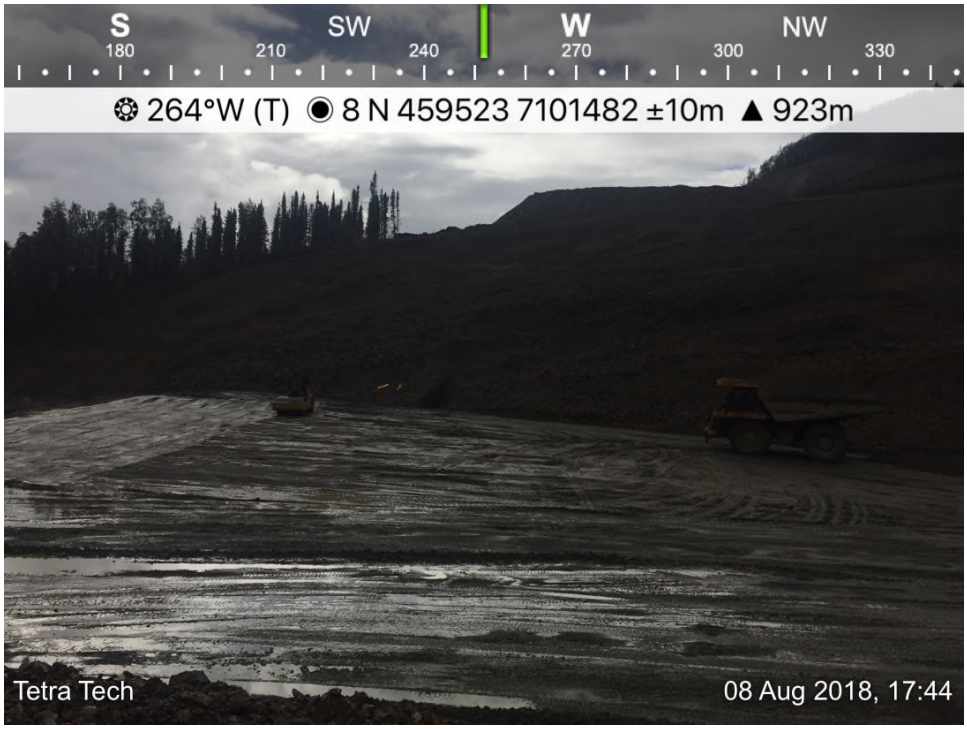


Photo 6 - Packing lift #37. Start of lift #38.

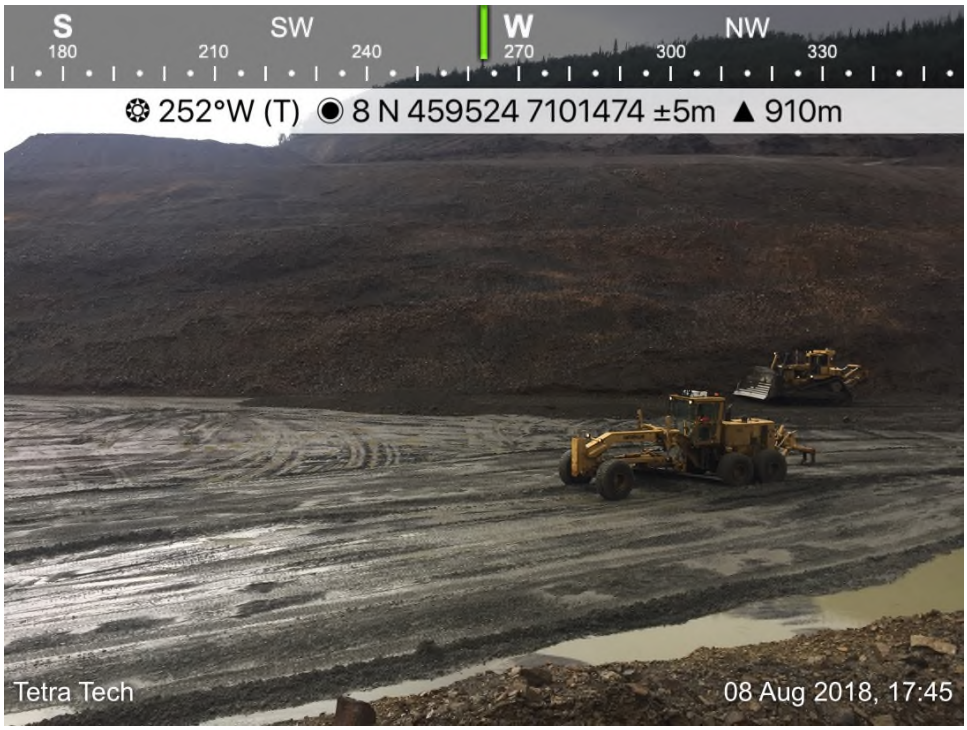


Photo 7 - Grader removing water from lift #37 along East abutment.



Photo 8 - Compaction of structural fill and sand interface north of the embankment.



Photo 9 - Compaction of lift #38 behind CAT D-10 Dozer.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 6°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	8	Loading Structural fill from ADR Stockpile
	CAT 777 Haul Truck	8	Hauling structural fill to embankment
	CAT 777 Haul Truck	8	Hauling structural fill to embankment
	CAT 777 Haul Truck	8	Hauling structural fill to embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT 16G Grader	4	Removing wet soil and standing water
	Water Truck	6	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Prior to placement of structural fill, a grader was used to remove wet, softened material from the previous lift.
- Placement of lift elevation 904.08 m (as built average elevation) resumed at 19:20. Placement was completed at 05:30. Compaction for this lift also began at 19:20 and was incomplete by the end of shift. Load placement was sequenced to allow enough time for the vibratory compactor to seal the surface of placed fill and to have minimum area loose placed after dozing left exposed.
- Compaction and moisture testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 99.0 % to 100.5 %. Moisture content ranged from 3.2 % MC to 3.5 % MC. This is below the targeted BGC method specification requirements and one was higher.
- Compaction was primarily completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. One area exhibited deflection during compaction using the CAT CS 78 B Compactor near the center of the lift. After confirming the deflection using a CAT 16G grader, a test hole was dug using the edge of the grader blade. The test hole identified that the 40-50 cm placed lift did not contain excess moisture. The deflection was mitigated with additional compaction. Sufficient overlap and complete coverage was observed, which meets the BGC method specification requirement for structural fill.

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- The north tie-in of lift elevation 904.08 m with the existing north slope also exhibited excess rutting from surface moisture accumulation during the previous shift. A grader was used to remove the softened wet material and pushed off the lift.
- On the north east corner of the abutment, a third soft spot was noticed at the end of shift. This will be addressed during day shift.
- Placement of lift elevation 904.48 m (design elevation) began at 05:35. Placement was incomplete by the end of shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was slightly coarse, but visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was periodically used to moisture condition the structural fill stockpile prior to loading based on moisture contents of placed material.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 4 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 63 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 2,268 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Embankment road access repairs continued from day shift. This significantly delayed hauling to the embankment throughout the shift.
- Soil softening and water accumulation between the placed structural fill and the bedding sand placed on the north slope drainage trench could be avoided if subsequent lifts were built with positive drainage away from the trench (north to south).

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Placement of structural fill for lift elevation 904.08 m. Note minimum exposure of loose material.



Photo 2: Typical gradation of structural fill.



Photo 3: Compaction in excavagted side wall after key in and lift placement.



Photo 4: Grader used to remove softened soil on previous lift prior to placement.



Photo 5: Rutting observed on west half of lift.



Photo 6: Wet material not found in top 50 cm where rutting observed.



Photo 7: Rutting observed near north tie-in.



Photo 8: Rutting being removed near north tie-in.



Photo 9: Rutting observed near east abuttment.



Photo 10: Moisture conditioning stockpile after rain event subsided.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 9, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	9	Placing structural fill at embankment
-	Hitachi 1200 Excavator	8	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	CAT 777 Haul Truck	8	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	8.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	5	Removing areas softened by excessive moisture

2.0 HEAP LEACH FACILITY

- Areas softened by excessive moisture were identified at 80 to 100 cm below lift elevation 904.43 m along the east abutment during and inspection with BGC. These areas were excavated and replaced with structural fill, which was compacted in two lifts using the CAT CS 78 B Compactor from 07:00 to 10:00
- Areas softened by excess moisture were also identified along the north embankment. This fill was removed using Link Belt 490 Excavator..
- Start of lift #39 (904.43 m design elevation) at 07:00. A notable amount of deflection was observed after witnessing compaction with the CAT CS 78 B Compactor. The Southeast portion of the lift was removed using the CAT D-10 Dozer until minimal deflection was observed as instructed by Roy Morlan (BGC) from 14:00 to 15:30.
- Moisture content testing was conducted using a nuclear densometer to assess the depth of water penetration. Tests were conducted at various depths into the lift ranging from 0 to 300 mm. Test results ranged from 3.1 % to 4.2 % M/C which could indicate that the lift was placed dry of the optimum moisture content of 6.2% as determined from standard proctor.
- Once significant remediation had been complete, BGC decided to continue placing new lifts of structural fill on top of the remaining soft spots on the lift. The remaining soft areas in this lift would be bridged in the upcoming placement of drier, sound structural fill.

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- Structural fill from the ADR stockpile had a moisture content of 7.0% to 8.0%. Material was slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This does not meet the BGC method specification requirement for structural fill for moisture content.
- Nightshift to continue lift #39 (904.46 m design elevation).

3.0 DISCUSSION/OTHER

- Structural fill material brought to the embankment had high moisture content. Elliot (BGC) was assigned to observe the structural fill material being loaded by the excavator.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift. Placing lift #39 (904.48 design elevation).



Photo 2 - Excavating areas softened by excess moisture identified by nightshift.



Photo 3 - Soil profile of remediated area.



Photo 4 - Typical gradation of structural fill brought from ADR stockpile.



Photo 5 - Excavating areas softened by excess moisture identified during nightshift.



Photo 6 - Grader scraping unstable structural fill in the Southwest section of the embankment.



Photo 7 - Excavating areas softened by excess moisture in the North section of the embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 8°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from ADR Stockpile
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Shift change for the Pelly crew.
- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 904.43 m (as built average elevation) resumed at 19:35. Placement was completed at 21:45. Compaction for this lift began at 19:300 and was completed by 23:30. Compaction and moisture testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.1 % to 99.6 %. Moisture content ranged from 3.1 % MC to 5.7 % MC. This is below the targeted BGC method specification requirements for moisture content.
- Compaction was primarily completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of lift elevation 904.83 m (design elevation) began at 22:15. Placement was incomplete by the end of shift. Due to spreading and grading methodology, compaction did not start until 02:00. Compaction for this lift was incomplete by the end of shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material is becoming coarser, but visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was not used to moisture condition the structural fill

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stockpile due to previous rain events. Shovel attempted to blend the wet surface material with the drier core of the stockpile to moisture condition the pile.

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 4 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 69 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 2,484 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of lift 904.83 m (design elevation) was spread using a fanning spread pattern, causing a delay in the vibratory compactor sealing the lift. Future lift placement may benefit from single width straight line placement, which may mitigate rain damage to the loose, uncompacted lift.
- The most recent placement of drier structural fill in lift 904.83 m (design elevation) appeared to help bridge the areas where deflections had been noted in previous lifts.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Placement and compaction of structural fill for lift elevation 904.83 m.



Photo 2: Typical gradation of structural fill.



Photo 3: Spreading/grading pattern of structural fill.



Photo 4: Oversized aggregate removed from lift and pushed to side slope.



Photo 5: Re-grading compacted area that was above lift thickness tolerance.



Photo 6: Compaction of lift 904.83 m. Irregular surface hinders optimial drum/soil contact of compactor.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 10, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Mostly cloudy
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 2°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	10	Placing structural fill at embankment
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	-	Removing areas softened by excessive moisture

2.0 HEAP LEACH FACILITY

- Start of lift #40 (904.83 m design elevation) started at 07:00. Compaction started at 07:00 and finished at 09:00. Two passes was observed with sufficient speed and overlap. Loose lift finished at 08:30. Survey confirmed the average elevation to be 904.86 m, which calculates to be a 0.43 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m3 ranging from 96.4% to 98.2%. The moisture content was 4.5% to 6.4%, which complies with BGC requirements.
- Structural fill from in the overbuilt south side slope of lift #39 used placed in lift #41.
- Start of lift #41 (905.26 m design elevation) started at 08:30. Compaction started at 10:00 and finished at 16:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 16:00. Survey confirmed the average elevation to be 905.26 m, which calculates to be a 0.40 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m3 ranging from 97.3% to 100%. The moisture content was 3.8% to 5.5%, which complies with BGC requirements.
- Structural fill from the ADR stockpile is slightly coarse, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.
- Structural fill from the stockpile north of the embankment is slightly coarse, but still visually appeared to have less than 30% over 19 mm. This meets the BGC method specification requirement for structural fill.
- Nightshift to continue lift #42 (905.66 m design elevation).

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14940 - 123 Avenue
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p. 780.451.2121 f. 780.454.5688

3.0 DISCUSSION/OTHER

- None.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 – Density test on lift #40.



Photo 2 - Excavator loading structural fill from embankment berm to use for lift #41.



Photo 3 - Lift #41 progress.



Photo 4 - Structural fill stockpile near ADR foundation.



Photo 5 - Start of lift #41. End of dayshift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 10, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low 2°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11.5	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from ADR Stockpile
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 905.54 m (as built average elevation) resumed at 19:30. Placement was completed at 02:15. Compaction for this lift began at 19:15 and was completed by 3:45. Compaction and moisture testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.3 % to 97.0 %. Moisture content ranged from 2.9 % MC to 5.3 % MC. This is below the targeted BGC method specification requirements for moisture content.
- Compaction was primarily completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of lift elevation 905.94 m (design elevation) began at 03:15. Placement was incomplete by the end of shift. Compaction for this lift had not begun by the end of shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was coarse, and it is difficult to visually assess if less than 30 % over 19 mm with material smaller under 150 mm particle size near the end of shift. Oversized cobbles or boulders were still present in the stockpile but were removed prior to loading and placement. Any oversized cobbles or boulders placed were removed prior to compaction. The ADR structural fill stockpile A water truck was not used to moisture condition the structural fill stockpile due to previous rain events. Shovel blended wet surface material with the drier core of the stockpile to moisture condition the pile.

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- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 12 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 66 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 2,376 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of both lifts were placed using a fanning spread pattern, causing a delay in the vibratory compactor accessing and sealing the lift. It was discussed with Pelly operators that lift placement may benefit from single width straight line placement, which could mitigate rain damage to the loose, uncompacted lift.
- After starting to place lift 905.96 m, there may only be enough room to place 2-3 more lifts until structural fill placement catches up to drainage trench installation.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Progress of placement of lift 905.54 m at start of shift.



Photo 2: Almost caught up to placement of drainage trench installation.



Photo 3: ADR stockpile is depleting. Note darker color of moist stockpile base.



Photo 4: Lift placement using fan like pattern and grade checks. Note: no compaction after ~40% placed.



Photo 5: Typical gradation of structural fill becoming more coarse.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 11, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy
Client:	JDS		High 13°C
File:	ENG.WARC03235-02.005		Low 3°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	10	Placing structural fill at embankment
-	Hitachi 1200 Excavator	9.5	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Start of lift #43 (905.94 m design elevation) started at 07:00. Loose lift was placed at 11:30. Compaction started at 07:00 and was completed at 12:00. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 95% to 100%. The moisture content was 2.6% to 5.6%. This is below the targeted BGC method specification requirements for moisture content.
- Start of lift #44 (906.33 m design elevation) started at 11:45. Nightshift to continue.
- Structural fill from the ADR West stockpile visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.
- Structural fill from the Material 3 Stockpile 1 visually appeared to have less than 30% over 19 mm. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill. BGC approved use of this material prior to its use.
- Three passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 1 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Test pit conducted by BGC for the Event Pond fill material. It is expected that material will be hauled from this location once approved.

4.0 CLOSURE

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Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562

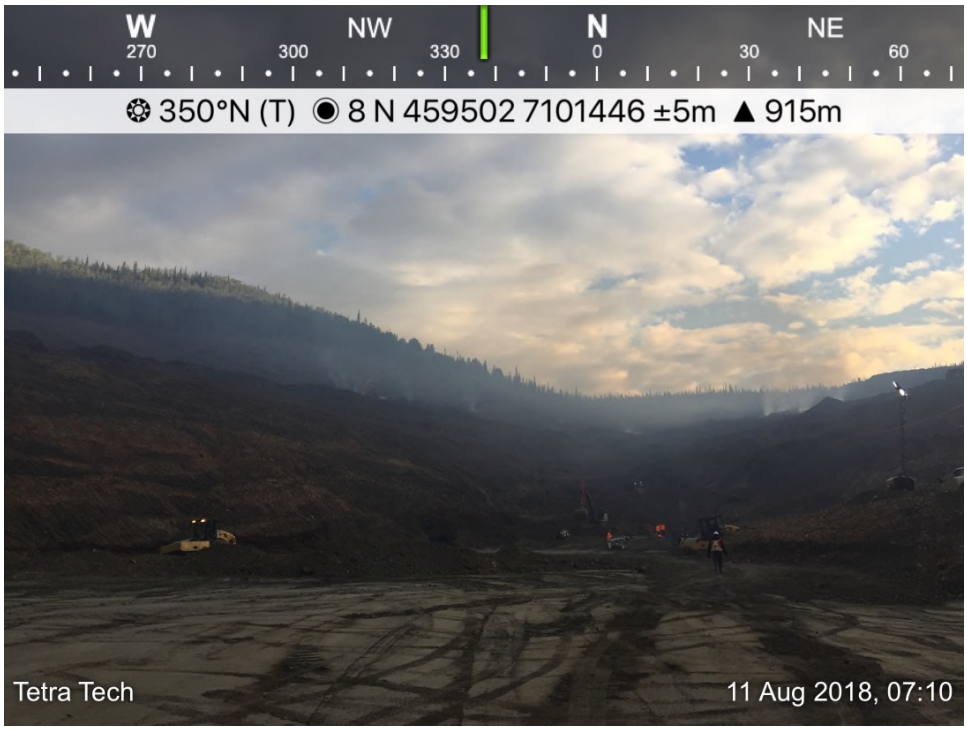


Photo 1 – Start of dayshift.



Photo 2 - Typical gradation from ADR West stockpile.



Photo 3 - Water conditioning at ADR West stockpile.



Photo 4 - Typical gradation of Material 3 Stockpile 1.



Photo 5 - Lift #44 (906.33 m design elevation) progress. End of dayshift.



Photo 6 - Lift #44 (906.33 m design elevation) progress. End of dayshift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 11, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 16°C
File:	ENG.WARC03235-02.005		Low 8°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11.5	Placing structural fill
	Hitachi 1200 Shovel	9.5	Loading Structural fill from Stockpile 1
	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Staking of placed fill along slope at start of shift revealed that lift elevation 906.30 m was overbuilt.
- Placement of lift elevation 906.30 m (as built average elevation) resumed at 19:30. Placement was completed at 22:30. Compaction for this lift began at 19:15 and was completed by 23:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.3 % to 100.1 %. Moisture content ranged from 3.3 % MC to 5.3 % MC. This is below the targeted BGC method specification requirements for moisture content.
- Stockpiled sand and drain rock on north tie in for trench was cleaned from surface prior to completion of placement of structural fill for lift elevation 906.30 m.
- Compaction was completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of lift elevation 906.70 m (design elevation) began at 23:20. Placement was incomplete by the end of shift. Compaction for this lift began at 00:00 and was incomplete by the end of shift.
- Structural fill was pushed on top of the finger drain on north west corner of lift prior to placement of bedding sand. This material was removed by hand until sand was visible. No damage to filter cloth was observed. Contamination of drain rock was not observed.

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- Shovel loaded structural fill from the Material 3 Stockpile 1 which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Trace rootlets were noted in the structural fill, and any load with higher proportions were picked out. The low quantity has previously been approved by BGC. Roots, oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Any roots, oversized cobbles or boulders placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 3 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 90 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 3,240 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of structural fill followed a single width straight line placement methodology, which allowed for very little delay in sealing the fill with vibratory compaction as noted in the smaller time delay between lift compaction.
- Ramp access to the raised lift was improved to provide adequate grading for haul truck access.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Overbuilt side slopes. Note staked location.



Photo 2: Removal of stockpiled bedding sand and drainage rock stockpiles.



Photo 3: Material 3 Stockpile 1.



Photo 4: Removal of roots from placed material.



Photo 5: Typical gradation of structural fill from Material 3 Stockpile 1.



Photo 6: Stuctural fill pushed beside/partially covered finger drain before sand placement.



Photo 7: Drain rock not contaminated.



Photo 8: Filter cloth did not appear damaged.



Photo 10: Drain rock not visually contaminated.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 12, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy
Client:	JDS		High 17°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	10	Placing structural fill at embankment
-	Hitachi 1200 Excavator	9.5	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9.5	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Start of lift #46 (907.07 m design elevation) started at 07:30. Loose lift was placed at 07:30. Compaction started at 09:30 and was completed at 14:00. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.0% to 99.2%. The moisture content was 5.1% to 6.4%. This meets the BGC method specification requirement for structural fill.
- Start of lift #47 (907.44 m design elevation) started at 12:30. Nightshift to continue.
- Structural fill from the Material 3 Stockpile 1 stockpile visually appeared finer, having less than 30% over 19 mm. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill.
- Type 3 bedrock hauled from the north of the embankment beside the underdrains visually appeared slightly coarse, but has less than 30% over 19 mm. The bedrock was blended using the CAT D-10 Dozer with the finer structural fill coming from the Material 3 Stockpile 1 prior to compaction. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill. BGC approved use of this material prior to its use.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 3 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses

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- Approximately 102 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 3,672 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- None.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 – Start of lift #45 (906.7 m average elevation)



Photo 2 - Start of lift #45 (906.7 m average elevation)



Photo 3 - Typical gradation of Type 3 Bedrock hauled from north of the embankment near underdrain.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 12, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11.5	Placing structural fill
	CAT D-6 Dozer	1	Access ramp improvements
	Hitachi 1200 Shovel	9	Loading Structural fill from Stockpile 1
	CAT 777 Haul Truck	9	Hauling structural fill to embankment
	CAT 777 Haul Truck	9	Hauling structural fill to embankment
	CAT 777 Haul Truck	9	Hauling structural fill to embankment
	Semi-Articulated Haul Truck	5	Blending in Type 3 rock into structural fill
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 907.27 m (as built average elevation) resumed at 19:15. Placement was completed at 19:45. Compaction for this lift began at 19:30 and was completed by 21:30. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.8 % to 99.9 %. Moisture content ranged from 5.4 % MC to 6.3 % MC. This meets the targeted BGC method specification requirements for moisture content.
- Staking of placed fill along slope at start of shift revealed that lift elevation 906.30 m was underbuilt approximately 3 meters. Berm was extended out.
- Two small lifts were required to tie into the north end of the embankment. These lifts were placed and compacted in accordance with BGC method specification requirements.
- Two small lifts were also required to tie into the south end of the embankment near the access ramp. These lifts were individually placed and compacted in accordance with BGC method specification requirements.
- Compaction was completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

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- Placement of lift elevation 907.67 m (design elevation) began at 22:15. Placement was incomplete by the end of shift. Compaction for this lift began at 00:15 and was incomplete by the end of shift.
- Bedding sand for the finger drain on north west corner of lift was compacted with a plate tamper. As-built survey to be conducted before placement of successive lifts. To be completed on day shift.
- Shovel loaded structural fill from the Material 3 Stockpile 1 which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Roots, oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders placed were removed prior to compaction.
- Type 3 bedrock was also placed excavated from the Heap Leach area was loaded into semi-articulated haul trucks and placed in the embankment. These loads were spaced out and blended into the structural fill piles as per BGC method specification requirements for the embankment.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 17 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 90 loads were placed using CAT 777 haul trucks and approximately 5 loads with the semi-articulating haul truck during shift. Assuming 36 m^3 per load with the CAT 777 and 16 m^3 with the semi-articulating haul truck, a total of 3,420 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Ramp access to the raised lift was improved to provide adequate grading for haul truck access.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Underbuilt side slopes. Note staked location and edge of berm.



Photo 2: Vibratory plate tamper used to compact bedding sand.



Photo 3: Additional fill required in low areas on north tie in.



Photo 4: Additional fill required for west ramp tie in.



Photo 5: Typical gradation of structural fill from Material 3 Stockpile 1.



Photo 6: Placement of Type 3 Bedrock blended with structural fill.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 13, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 16°C
File:	ENG.WARC03235-02.005		Low 9°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	CAT D-10 Dozer	11	Placing structural fill at embankment
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	CAT 777 Haul Truck	9	Hauling structural fill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continuation of lift #48 (907.67 m design elevation) started at 07:00. Loose lift was placed at 09:00. Compaction started at 07:00 and was completed at 10:00. Compaction and moisture content testing was conducted on nightshift on compacted sections using a nuclear densometer.
- Start of lift #49 (908.08 m design elevation) loose lift started at 09:00. Nightshift to continue.
- Structural fill from the Material 3 Stockpile 1 stockpile visually appeared finer, but still has less than 30% over 19 mm. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation averaged approximately 1 cm above target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses
- Approximately 69 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load, a total of 2,484 m^3 of structural fill was placed on the embankment during nightshift.

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3.0 DISCUSSION/OTHER

- Pelly's lightning management protocol was implemented during afternoon thunder showers from 15:00 to 16:00. All work on the embankment stopped during this time.
- Delays caused by regrading of the embankment ramp using the CAT D-10 Dozer. There were two instances where the CAT 777 Haul Trucks were unable to drive onto the upper embankment pad and had to reverse back down to the lower pad. This was caused by a combination of the steepness of the ramp and heavy rain.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 – Continuation of lift #48 (907.68 m average elevation)



Photo 2 - Lift #49 (908.08 m design elevation) progress.



Photo 3 - Lift #49 (908.08 m design elevation) progress. End of dayshift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 13, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud, Sparse Rain
Client:	JDS		High 13°C
File:	ENG.WARC03235-02.005		Low 8°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	11.5	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile 1
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT 777 Haul Truck	10	Hauling structural fill to embankment
	Volvo Semi-Articulated Haul Truck	10	Hauling structural fill to embankment
	Volvo Semi-Articulated Haul Truck	10	Hauling structural fill to embankment
	Volvo Semi-Articulated Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Volvo SD160 Compactor	11	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 908.02 m (as built average elevation) resumed at 19:15. Placement was completed at 22:30. Compaction for this lift began at 19:30 and was completed by 22:45. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.1 % to 96.4 %. Moisture content ranged from 6.6 % MC to 7.5 % MC. This meets the targeted BGC method specification requirements for moisture content.
- One small lift was required to tie into the north end of the embankment. This lift was placed and compacted in accordance with BGC method specification requirements.
- Compaction was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of lift elevation 908.39 m (as built average elevation) began at 20:10. Placement was completed at 03:10. Compaction for this lift began at 20:30 and was completed by 03:50. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of

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Edmonton, AB T5V 1B4 CANADA
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the standard proctor density of 2272 kg/m^3 ranging from 97.0 % to 98.1 %. Moisture content ranged from 6.4 % MC to 7.7 % MC. This meets the targeted BGC method specification requirements for moisture content.

- Placement of lift elevation 908.79 m (design elevation) began at 03:50. Placement was incomplete by end of shift. Compaction for this lift began at 04:00 and was not complete by the end of shift.
- Shovel loaded structural fill from the Material 3 Stockpile 1 which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders placed were removed prior to compaction.
- Structural fill was also excavated from a stockpile at the Heap Leach Embankment base area was loaded into semi-articulated haul trucks and placed in the embankment. which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 6 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 70 loads were placed using CAT 777 haul trucks and approximately 78 loads with the semi-articulating haul truck during shift. Assuming 36 m^3 per load with the CAT 777 and 16 m^3 with the semi-articulating haul truck, a total of 3,768 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- CAT Dozer D10 and CAT Dozer D6 were both used to place structural fill. D10 was primarily used for initial placement of loads, and the D6 was able to provide placement in tight areas and provide fine grade assistance.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Lift 908.02 m (as built average) at the beginning of shift.



Photo 2: Ponding water and softened soil removed from previous lift prior to placement.



Photo 3: Installation of lift 908.02 m (as built average) utilizing D6 and additional packer.



Photo 4: Embankment access road improvements.



Photo 5: Material 3 Stockpile 1.



Photo 6: : Typical gradation of structural fill from Material 3 Stockpile 1.



Photo 7: Typical gradation of structural fill stockpiled at bottom of embankement.



Photo 8: : Placement of lift elevation 908.79 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 14, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud, Sparse Rain
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 8°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	11.5	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 1
	CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Volvo 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Volvo SD160 Compactor	11	Compacting structural fill at embankment
	Water Truck	0	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 909.15 m (as built average elevation) resumed at 19:15. Placement was completed at 20:20. Compaction for this lift began at 19:15 and was completed by 20:30. This lift was placed and compacted in accordance with BGC method specification requirements.
- One small lift was required to tie into the north end of the embankment. This lift was placed and compacted in accordance with BGC method specification requirements.
- Placement of lift elevation 909.50 m (as built average elevation) began at 20:30. Placement was completed at 03:00. Compaction for this lift began at 20:40 and was completed by 03:30. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.9 % to 99.6 %. Moisture content ranged from 4.9 % MC to 5.4 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content.
- Compaction was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

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- Placement of lift elevation 909.90 m (design elevation) began at 02:50. Placement was incomplete by end of shift. Compaction for this lift began at 03:00 and was not complete by the end of shift.
- Shovel loaded structural fill from the ADR stockpile which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders placed were removed prior to compaction.
- Type 3 bedrock excavated at the Heap Leach Embankment area was loaded into semi-articulated haul trucks and placed in the embankment. which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- East drain trench installation continued for day shift. The trench was excavated 1.0 m into competent bedrock, geo-fabric was placed and overlapped with positive drainage. After placement 0.7 m of drain rock, the trench was wrapped with geo-fabric, and 0.3 m of bedding sand was placed over top. Both top and bottom of trench as well as the top of drainage rock was surveyed by GPS.
- Approximately 105 loads were placed using CAT 777 haul trucks and approximately 60 loads with the semi-articulating haul truck during shift. Assuming 36 m^3 per load with the CAT 777 and 16 m^3 with the semi-articulating haul truck, a total of 4,740 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Overbuilt material from side slope of the embankment was removed with excavator, mixed, and stockpiled. This material is expected to be used on successive lifts.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Structural fill being hauled from the ADR Stockpile.



Photo 2: Placement of lift elevation 909.50 m.



Photo 3: Overbuilt stockpile was removed, mixed and stockpiled.



Photo 4: Typical gradation of structural fill.



Photo 5: Placement of lift elevation 909.90 m.



Photo 6: Excavation of drain trench.



Photo 7: Top and bottom trench surveyed.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 13, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Light Rain Showers
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 1
	3 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Volvo 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Volvo SD160 Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Completed compaction of lift #54 (909.9 m design elevation) which was started on previous shift ended at 12:15. Compaction and moisture content testing was conducted on nightshift on compacted sections using a nuclear densometer.
- Start of lift #55 (910.3 m design elevation) loose lift placement started on nightshift. Placement finished at 18:00. Compaction incomplete by end of shift.
- Started to place material for lift 56 (design 910.7 m) but was incomplete by end of shift.
- Structural fill was hauled from ADR stockpile. Type 3 bedrock was excavated from heap leach pond excavation on north end of embankment and used along with Structural Fill. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses
- Trench activities: Excavated 1.0 m min into bedrock (surveyed), geo fabric properly lapped (min 0.75 m overlap) and upstream over downstream, 0.70 m minimum of drain rock placed (concrete stone) (surveyed) and wrapped

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with geo fabric, Approx. 0.3 m of sand placement (surveyed), compacted with 2 passes of CATS56 Smooth drum with no vibration. Drainage trench was extended to the end of the current embankment excavation limit.

3.0 DISCUSSION/OTHER

- South west access ramp onto embankment is becoming steeper after successive lift placement. Lift placement in this and surrounding areas will extend and tie into the current lift such that loose lift thickness of 50 cm will not be exceeded.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Trench Foundation Excavation



Photo 2 - Lift #55 (910.3 m design elevation) progress.



Photo 3 – Trench geo fabric placement prior to sand cover .

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 15, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Sparse Cloud
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 8°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11.5	Placing structural fill, east embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 1
	3 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	11	Hauling structural fill to embankment
	2 x Volvo 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	7	Compacting structural fill at embankment
	Volvo SD160 Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	4	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Compaction for lift elevation 910.31 m (as built average elevation) resumed at 19:15 and was completed by 12:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.6 % to 97.7 %. Moisture content ranged from 4.5 % MC to 5.2 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content.
- Placement of lift elevation 910.66 m (as built average elevation) began at 19:15. Placement was completed at 23:30. Compaction for this lift began at 19:30 and was completed by 02:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.9 % to 99.6 %. Moisture content ranged from 4.9 % MC to 5.4 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content.
- Placement of lift elevation 911.06 m (design elevation) began at 23:30. Placement was incomplete by end of shift. Compaction for this lift began at 02:45 and was not complete by the end of shift.

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- Compaction for the west embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 and Heap Leach Embankment which has been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Stockpiled overbuilt structural fill off the toe of the embankment was loaded into 40 tonne semi-articulated haul trucks and placed on the new lifts.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Two lifts of structural fill were placed over the drainage trench on the east embankment. These lifts were placed in 40 cm thickness above the bedding sand along the vertical alignment of the trench. The first lift was packed using 3 passes with the CS 68B vibratory compactor. The tested areas on the first lift exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 98.4 % to 99.3 %. Moisture content were approximately 6.7 % MC, which meets the targeted BGC method specification requirements for moisture content. Successive lifts are expected to be completed with the CS 78B.
- Approximately 105 loads were placed using CAT 777 haul trucks and approximately 68 loads with the semi-articulating haul truck during shift. Assuming 36 m^3 per load with the CAT 777, 35 m^3 with the CAT 773 and 16 m^3 with the 40 tonne semi-articulating haul truck, a total of 6,128 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Oversized rock observed in sump trench next to drain pipe. Discussed with Pelly the importance of not damaging the section of exposed pipe. Rock to be removed.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Structural fill being hauled from the ADR Stockpile.



Photo 2: Structural fill being hauled from the Material 3 Stockpile 1.



Photo 3: Structural fill being hauled from embankment slope overbuild.



Photo 4: Typical gradation of structural fill.



Photo 5: Placement of lift elevation 910.66 m.



Photo 6: Placement of lift elevation 911.06 m.



Photo 7: Removal of debris in east embankment prior to structural fill placement.



Photo 8: Surveyed grade of first and second lift of structural fill in east embankment.



Photo 9: Placement of second lift of structural fill on east embankment.



Photo 10: Rock noted in sump trench adjacent to pipe. To be removed.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 16, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Mainly sunny
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile
	3 x CAT 777 Haul Truck	10	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment
	Volvo SD160 Compactor	8	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	12	Compacting structural fill at embankment
	Link Belt 490x4 Excavator	12	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Completed compaction of lift #57 (911.06 m design elevation) which was started on previous shift ended at 12:15. Compaction and moisture content testing was conducted at 9:30 on compacted sections using a nuclear densometer. 2 tests performed and achieved a compaction of 98.0% and 100.0% with 5.2% and 5.1% moisture respectively. Surveyed elevation came in .03 m short, at 911.03 m.
- Start of lift #58 (911.46 m design elevation) loose lift placement started at 7am. Placement finished at 17:45. Testing to be completed by next shift.
- Placed material on ramp onto embankment and lifted the SW corner adjacent to ramp which had fallen well below grade of current lift. Material in corner placed in lifts no bigger than 50 mm.
- Structural fill was hauled from ADR stockpile and stockpile 1. Type 3 bedrock was excavated from heap leach pond excavation on north end of embankment and used along with Structural Fill. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. Oversize boulders and organic material were removed from lift. This meets the BGC method specification requirement for structural fill.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor. This meets the BGC method specification requirement for structural fill.

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- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses
- Trench activities: Excavated 1.0 m min into bedrock (surveyed), geo fabric properly lapped (min 0.75m overlap) and upstream over downstream, 0.70 m minimum of drain rock placed (concrete stone) (surveyed) and wrapped with geo fabric, Approx. 0.3 m of sand placed (surveyed), compacted with 2 passes of CATS56 Smooth drum with no vibration. Trench was excavated, and drainage rock placed with geo fabric to the edge of Dublin gulch road. Sand placement and compaction ongoing from previous shift.
- Structural fill placed over trench on previous shift compacted with CAT CS 68 B Compactor and Volvo SD160 Compactor. Material placed on the bottom of steep incline in order to make grade manageable for CAT 777 Haul Trucks.

3.0 DISCUSSION/OTHER

- South west access ramp, and area of lift adjacent to ramp were too low to fill with 1 lift. After initial placement of material for lift #58 hauling to lift was stopped and area adjacent to ramp focused and brought up in various lifts, not exceeding 50mm to current working elevation. Ramp to the embankment also raised to achieve lower grade for haul trucks.
- Trench excavation did not run into colluvial deposit as expected. Base of trench encountered bedrock throughout construction (to Dublin gulch road). East side of trench had less of a colluvial deposit with bedrock foundation exposed, leading to uneven profile on either side of the trench. Type 3 bedrock material that was pulled away from sides adjacent to trench approved to be used as rock fill on the first couple lifts overtop of the trench.
- Previous nightshift placed material on a 1-1.7 m offset to the previous lift's toe, along the east side of the lift. This was widened to 2m and material removed was placed back onto the next lift.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Lift #58 Initial placement



Photo 2 - Lift #58 Initial placement.



Photo 3 – Lift #58 Initial placement.



Photo 4 – Low SW corner at Lift #58 Initial placement



Photo 5 – Material Placed on ramp to embankment.





Photo 6,7 – Trench excavation and material placement looking North and South

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 16, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11.5	Placing structural fill, east embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 1
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 2
	3 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 x Volvo 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	8	Compacting structural fill at embankment
	Volvo SD160 Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Began placement of structural fill on the lower E half of the embankment. Five correction lifts of 40 cm or less (asbuilt by survey) were placed and compacted. Then lifts of 40 cm placed at 886.86, 887.26, 887.1 and 888.1 were placed.
- Placement of lift elevation 911.81 m began on dayshift. Placement was completed at 00:45. Compaction for this lift was completed by 02:oo. Compaction and moisture content testing was conducted on compacted sections using a nuclear densometer. The tested area exceeded 97 % of the standard proctor density of 2272 kg/m^3 · Moisture content was 4.5 % MC.
- Placement of lift elevation 912.21 m (design elevation) began at 01:15. Placement was incomplete by end of shift. Compaction for this lift began at 02:45 and was not complete by the end of shift.
- Compaction for the west embankment was completed using at least two passes (back and forth) of either 13.4 tonne or the 11 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

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- Compaction for the east embankment was completed using at least two passes (back and forth) o the 9 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 and Material Stockpile 2 which were previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 70 loads were placed using CAT 777 haul trucks and approximately 117 loads with the semi-articulating haul truck during shift. Assuming 36 m^3 per load with the CAT 777 and 16 m^3 with the 40 tonne semi-articulating haul truck, a total of 4,392 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- None

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Structural fill being loaded from the ADR Stockpile # 2.



Photo 2: Compacting structural fill at East lower embankment

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 17, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly sunny
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile
	3 x CAT 777 Haul Truck	10	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	8	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment
	Volvo SD160 Compactor	8	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	12	Compacting structural fill at embankment
	Link Belt 490x4 Excavator	12	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR stockpile and, for the start of the day, stockpile 1. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. Material from stock pile 1 was rejected due to oversize and organic material and material was removed from lift. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was drying out and moisture conditioning was started at approx. 3:00 pm.

- Completed compaction of lift #60 (911.21 m Target elevation) which was started on previous shift and ended at 9:00. Compaction and moisture content testing was conducted at 9:05 on compacted sections using a nuclear densometer. 2 tests performed and achieved a compaction of 98.8% and 100.2% with 5.8% and 4.8% moisture respectively. Surveyed elevation came in .02 m short, at 912.18 m.

- Completed compaction of lift #61 (912.58 m Target elevation) which was started 6:30 am and ended at 3:00. Compaction and moisture content testing was conducted at 2:35 on compacted sections using a nuclear densometer. Test performed and achieved a compaction of 99.1% with 2.8% moisture. Surveyed elevation came in .02 m high, at 912.60 m.

- Started lift #62 (913.00 m design elevation) loose lift placement started at 12:30pm. Placement, compaction and testing to be completed by next shift.

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- Completed compaction of trench lift #6 (888.10 m Target elevation) which was started on previous shift and ended at 6:40. Compaction and moisture content testing was conducted at 9:05 on compacted section using a nuclear densometer. Test performed and achieved a compaction of 97.0% with 5.3% moisture. Surveyed elevation came in .03 m high, at 888.13 m.
- Completed placement and compaction of lift #7 (888.53 m Target elevation) which was started at 6:40am and ended at 11:10 am. Surveyed elevation came in .03 m high, at 888.56 m.
- Completed placement and compaction of lift #8 (888.96 m Target elevation) which was started at 11:10am and ended at 1:00pm. Surveyed elevation came in on target.
- Completed placement and compaction of lift #9 (889.36 m Target elevation) which was started at 1:00pm and ended at 2:40pm. Test performed and achieved a compaction of 101.7% with 3.3% moisture. Surveyed elevation came in .02 m high, at 889.38 m.
- Completed placement and compaction of lift #10 (889.78 m Target elevation) which was started at 2:40pm and ended at 6:00pm. Test performed and achieved a compaction of 101.7% with 3.3% moisture. Surveyed elevation came in .03 m low, at 889.75 m.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Stockpile 1 was contaminated by discard pile with oversize and organics. This was noticed in the morning and some material placed at the trench was removed. The contaminated material was pulled away from the main stock pile.
- Structural fill moisture content was noticed to be low, 2.5-3.0, and moisture conditioning was conducted on the stockpile. Testing after moisture conditioning provided a moisture content of 5.6%.
- No more lifts will be placed at the top of embankment (913.0m) until bottom, where trench constructed, is brought up.
- Excavator working on cleaning up slopes at north side of embankment pump area.
- Lift at 888.96m had low areas where there was up to 0.60 m of fill needed. These areas were filled with a small layer and compacted before the entire lift was placed in order to maintain maximum uncompacted material placement of .50 m.
-

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Lift #61 Lift Placement



Photo 2 - Lift #8 Placement of material in low area.



Photo 3 – Moisture conditioning ADR stockpile.



Photo 4 – Compaction of lift 10, moisture conditioned material.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 17, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 6°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-6 Dozer	9	Placing structural fill
	CAT D-6 Dozer	9.5	Placing structural fill, east embankment
	Hitachi 1200 Shovel	8	Loading Structural fill from Stockpile 1
	3 x CAT 777 Haul Truck	8	Hauling structural fill to embankment
	CAT CS 78 B Compactor	7	Compacting structural fill at embankment
	CAT CS 68 B Compactor	4	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill on the lower E half of the embankment. Lifts 890.15 and 890.55 were placed and compacted. Both lifts were tested for compaction and moisture content. Compaction exceeded 97 % and the moisture for the first lift was 3.9 %. As a result, instructed contractor to moisture condition the stockpile. The second lift had a moisture content of 5.0 %.
- A third lift was placed but was incomplete by end of shift. The west half of the lift (elev. 890.98) was completed and compacted and asbuilt.
- The loose Type 3 material on the East slope was removed by the dozers and pushed on to the existing lifts to be blended in with the structural fill and used for backfill. By end of shift the removal of all loose material on the slope was almost complete.
- Compaction for the east embankment was completed using at least two passes (back and forth) of the 9 tonne or 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Placement of the final lift 913.0 on the west side was half completed at the end of day shift. Some placement occurred on night shift but the lift was still incomplete.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 which was previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 54 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load with the CAT 777, a total of 1,944 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Once contractor began pushing the loose material from the slope, it was decided the entire slope had to be cleared back to OG.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Placing structural fill at east embankment



Photo 2: Moisture conditioning at stockpile



Photo 3: Compacting structural fill at east embankment



Photo 4: Dozers pushing loose material off E slope onto embankment

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 18, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Some Clouds
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	7	Placing structural fill
	CAT D-6 Dozer	5	Placing structural fill
	Hitachi 1200 Shovel	12	Loading Structural fill from Stockpile
	3 x CAT 777 Haul Truck	10	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	8	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	12	Compacting structural fill at embankment
	Link Belt 490x4 Excavator	12	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. Material from stock pile 1 was rejected due to oversize and organic material and material was removed from lift. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock, from east bank of lower trench area used as fill material. Material was mixed with structural fill from ADR.
- Completed compaction of lift #13E-b (890.98 m Target elevation) which was started on previous shift and ended at 8:45am. Lift had been completed in two parts to move excess type 3 rock material from one side to the other during compaction. Discussed in previous nightshift. Compaction and moisture content testing was conducted at 8:50 on compacted section using a nuclear densometer. Test performed and achieved a compaction of 97.5% with 6.3% moisture. Surveyed elevation came in on target.
- Completed compaction of lift #14E (891.38 m Target elevation) which was started 8:45 am and ended at 10:00am. Compaction and moisture content testing was conducted at 8:50am on compacted section using a nuclear densometer. Test performed and achieved a compaction of 98.3% with 4.3% moisture. Surveyed elevation came in .03 m high, at 891.41 m.
- Completed compaction of lift #15E (891.81 m Target elevation) which was started 10:00am and ended at 1:20pm. Compaction and moisture content testing was conducted at 12:45pm on compacted section using a

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nuclear densometer. Test performed and achieved a compaction of 97.0% with 4.3% moisture. Surveyed elevation came in .03 m high, at 891.84 m.

- Completed compaction of lift #16E (892.21 m Target elevation) which was started 1:20am and ended at 4:15pm. Compaction and moisture content testing was conducted at 4:15pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 100.2% with 3.8% moisture. Surveyed elevation came in on target.
- Started placement and compaction of trench lift #17E (892.21 m Target elevation) which was started 4:15pm and to be finished by night.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Structural fill from ADR stockpile was moisture conditioned, result of density testing showed material to be at 3.8 to 4.3. Weather conditions are quickly drying out the material.
- Excavator working on cleaning up slopes at north side of embankment pump area.
- Lift at 892.21 was showing deflection at the toe, SW corner of lift. This area was excavated. Material pulled out was high in moisture and contained organics. Plan to fill in with rock and compact in lifts back to elevation with rest of area.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Lift #14E Lift Placement



Photo 2 - Lift #15E Compaction of material.



Photo 3 – Initial excavation of soft area – SW corner.



Photo 4 – Organic material in excavated soft area – SW corner.



Photo 5 – Final excavation of soft area – SW corner.



Photo 6 – Photo 5 – Final excavation of soft area – SW corner.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 18, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy
Client:	JDS		High 16°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	9	Placing structural fill
	CAT D-6 Dozer	9.5	Placing structural fill, east embankment
	Hitachi 1200 Shovel	8	Loading Structural fill from Stockpile 1
	3 x CAT 777 Haul Truck	8	Hauling structural fill to embankment
	CAT CS 78 B Compactor	7	Compacting structural fill at embankment
	CAT CS 68 B Compactor	4	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill on the lower E half of the embankment. Lift 892.61was completed and compacted. Lifts 892.98 and 893.35 were placed and compacted. Lifts were tested for compaction and moisture content. Compaction exceeded 96 % and the moistures were 4.6 and 4.8 %. The stockpile was being moisture conditioned.
- A fourth lift was placed but was incomplete by end of shift.
- Compaction for the east embankment was completed using at least two passes (back and forth) of the 9 tonne or 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 which was previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0-5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 70 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load with the CAT 777, a total of 2,520 m^3 of structural fill was placed on the embankment during nightshift.

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3.0 DISCUSSION/OTHER

- Water began seeping from the east slope from elev. 915 and was seeping down the ramp onto the grade causing some ponding.
- A soft spot in the embankment toe was excavated and replaced with 900 mm of rockfill. The material was subsequently compacted with four passes of the 13.4 tonne vibratory roller.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Placing rockfill in SW corner of embankment toe



Photo 2: Compacting rockfill at SE corner of embankment toe



Photo 3:Placing structural fill at east embankment



Photo 4: Water seepage from the east slope

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 19, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Some Clouds
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	9	Placing structural fill
	CAT D-6 Dozer	9	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile
	3 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	10	Hauling structural fill to embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	12	Compacting structural fill at embankment
	Link Belt 490x4 Excavator	12	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock, from east bank of lower embankment used as fill material. Material was mixed with structural fill from ADR.
- Completed compaction of lift #21E (893.76 m Target elevation) which was started on previous shift and ended at 9:20am. Compaction and moisture content testing was conducted at 9:40 on compacted section using a nuclear densometer. Test performed and achieved a compaction of 100.5% with 4.7% moisture. Surveyed elevation came in .01 m low, at 893.75 m.
- Completed compaction of lift #22E (894.15 m Target elevation) which was started 9:20 am and ended at 12:30pm. Compaction and moisture content testing was conducted at 12:30am on compacted section using a nuclear densometer. Test performed and achieved a compaction of 100.5% with 6.3% moisture. Surveyed elevation came in .02 m low, at 894.13 m.
- Placement completed, with partial compaction of lift #23E (894.53 m Target elevation) which was started 12:30am and continued ongoing into nightshift. Compaction and moisture content testing was conducted at 5:45pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 99.2% with 4.8% moisture. Survey to be completed on night shift

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- Placement of lift #24E started on top of compacted part of lift #23E to be worked on and surveyed during night shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with Volvo SD160 Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Water infiltration from bedrock, pouring out north of the lift from upper east bank, began at nightshift. Water came from a hose which was not placed in proper drainage. The lift had been packed where water was pooling to slow infiltration of water onto the lift. The top material, and a load of structural fill, was then used to dam off the incoming water. A sump was dug north of the lift and pumped into drainage trench. The material for dam and surface layer which was well above optimum moisture was removed from lift.
- Drainage trench excavated and cleaned out, geo fabric and, in .10 m lift, drainage rock placed. Pipes to be installed on top of rock, covered with additional drainage rock and wrapped with geo fabric.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Lift #21E water pooling at start of shift.



Photo 2 - Lift #21E water pooling at start of shift.



Photo 3 – Lift #21E berm to manage water pooling.



Photo 4 – Lift #21E compaction in progress.



Photo 5 – Lift #22E Material Placement.



Photo 6 - Lift #22E Compaction in progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 19, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 19°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	10.5	Placing structural fill
	CAT D-6 Dozer	10	Placing structural fill, east embankment
	Hitachi 1200 Shovel	9	Loading Structural fill from Stockpile 1
	4 x CAT 777 Haul Truck	9	Hauling structural fill to embankment
	Volvo Compactor	8	Compacting structural fill at embankment
	CAT CS 68 B Compactor	7	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill on the lower E half of the embankment. Lift 894.93 was completed and compacted. Lifts 895.32, 895.75 and 896.16 were placed and compacted. Lifts were tested for compaction and moisture content. Compaction exceeded 96 % and the moistures were 6.0, 5.4 and 4.9 %. The stockpile was being moisture conditioned.
- Lift 896.60 was placed but was incomplete by end of shift.
- Compaction for the east embankment was completed using at least three passes (back and forth) of the 9 tonne or two passes with the 11 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 which was previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately -5 to +5 cm cm of target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 123 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load with the CAT 777, a total of 4,500 m^3 of structural fill was placed on the embankment during nightshift.

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3.0 DISCUSSION/OTHER

- The average elevation for two of the lifts exceeded the target elevation. This meant some areas were close to 10 cm above grade, meaning the 50 cm maximum lift thickness was getting close. Contractor was advised to keep a tighter control on grades and to maintain an average below target to ensure less than 50 cm being placed.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Placing and compacting structural fill at embankment

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 20, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Some Clouds
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	12	Loading Structural fill from Stockpile
	3 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	6	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	8	Compacting structural fill at embankment
	Link Belt 490x4 Excavator	8	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Structural fill from Event Pond also used for the latter half of lift 32. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR.
- Completed compaction of lift #28E (896.60 m Target elevation) which was started on previous shift and ended at 7:20am. Surveyed elevation came in .05 m high, at 896.65 m.
- Completed compaction of lift #29E (897.05 m Target elevation) which was started 7:00am and ended at 9:30pm. Compaction and moisture content testing was conducted at 9:00am on compacted section using a nuclear densometer. Test performed and achieved a compaction of 100.1% with 5.0% moisture. Surveyed elevation came in .02 m high, at 897.07 m.
- Completed compaction of lift #30E (897.47 m Target elevation) which was started 9:00am and ended at 11:30pm. Compaction and moisture content testing was conducted at 11:00am on compacted section using a

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

nuclear densometer. Test performed and achieved a compaction of 99.2% with 4.6% moisture. Surveyed elevation came in .02 m high, at 897.40 m.

- Completed compaction of lift #31E (897.80 m Target elevation) which was started 11:00am and ended at 6:00pm. Compaction and moisture content testing was conducted at 1:00pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 101.2% with 4.1% moisture. Surveyed elevation came in .03 m low, at 897.77 m. Lift #31E extended to lower west side of embankment, which was previously labelled as “A” section. Moving forward “E” sections will rise level across embankment.
- Placement completed with partial compaction of lift #32E (898.17 m Target elevation) which was started 3:30am and continued ongoing into nightshift. Compaction and moisture content testing was conducted at 5:30pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 96.8% with 4.5% moisture. Survey to be completed on night shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed on west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Test strips conducted on material from the Event Pond; density tests from control strip were lower than the structural fill from ADR. When mixing these materials, the higher proctor of 2270 will be used. Material sampled for proctor and sieve testing.
- Test strip on ADR material, with CAT 777 Haul Truck. 1 pass with rock truck achieved necessary compaction. Using CAT 777 Haul Truck to pack material is a viable option. Compactors still required around edges. Tire tracks need to encompass the entire area being packed. Engineer on site can ask for additional compaction as required.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Lift #29E Placement of structural material.



Photo 2 - Lift #30E Placement of structural material.



Photo 3 – Lift #31E Compaction in progress.



Photo 4 – Lift #21E compaction in progress.



Photo 5 – Lift #32E Material Placement for test strip.



Photo 6 - Lift #32E Placement of material from event pond.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 20, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 20°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer	11	Placing structural fill, east embankment
	CAT D-6 Dozer	11	Placing structural fill, east embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from Event Pond
	Hitachi 1200 Shovel	11	Loading Structural fill from Stockpile 1
	5 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Volvo Compactor	6	Compacting structural fill at embankment
	CAT CS 78 B Compactor	8	Compacting structural fill at embankment
	CAT CS 68 B Compactor	7	Compacting structural fill at embankment
	Water Truck	11	Moisture Conditioning ADR stockpile
	Water Truck	11	Moisture Conditioning ADR stockpile

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill on of the embankment. Lift 898.57 was completed and compacted. Lifts 898.95 was placed and compacted. Lifts were tested for compaction and moisture content. Compaction exceeded 96 % and the moistures ranged from 4.2 to 4.9 %. The ADR stockpile was being moisture conditioned.
- Lift 899.34 was placed but was incomplete by end of shift.
- Compaction for the east embankment was completed using at least three passes (back and forth) of the 9 tonne or two passes with the 11 tonne and 13.4 tonne vibratory rollers. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the ADR stockpile, Material 3 Stockpile 1 and the new event pond stockpile which were previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0 to 5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 215 loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load with the CAT 777, a total of 7,400 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- none

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Placing and compacting structural fill at embankment

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 21, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Some Clouds
Client:	JDS		High 20°C
File:	ENG.WARC03235-02.005		Low 9°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 x Volvo SD160 Compactor	11	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	10	Excavating at drainage trench
	Link Belt 490x4 Excavator	10	Excavating fill at event pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as structural fill material.
- Fill from ADR, Event pond and Type 3 bedrock placed together and mixed through the grading process.
- Completed compaction of lift #35E (899.34 m Target elevation) which was started on previous shift and ended at 7:20am. Compaction and moisture content testing was conducted at 7:20am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.9% and 100.3% with moisture of 4.9% and 4.6 respectively. Surveyed elevation came in .01 m high, at 899.35 m.
- Completed compaction of lift #36E (899.75 m Target elevation) which was started 7:00 am and ended at 11:00am. Compaction and moisture content testing was conducted at 9:00am and 10:30am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.7% and 97.6% with moisture of 7.2% and 4.5% respectively. Surveyed elevation came in .06 m Low, at 899.69 m.

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p. 780.451.2121 f. 780.454.5688

- Completed compaction of lift #37E (900.09 m Target elevation) which was started 11:00am and ended at 2:00pm. Compaction and moisture content testing was conducted at 11:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.0% and 98.2% with moisture of 3.8% and 3.7 respectively. Surveyed elevation came in .02 m low, at 900.07 m.
- Completed compaction of lift #38E (900.47 m Target elevation) which was started 11:00am and ended at 6:00pm. Compaction and moisture content testing was conducted at 5:50pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.7% and 99.1% with moisture of 6.2% and 2.5% respectively. To be surveyed at nightshift
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with Volvo SD160 Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed on west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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3.0 DISCUSSION/OTHER

- Some clumps of clay observed present at event pond excavation. These could bring material out of spec.
- Truck distribution was 3 CAT 777 Haul Trucks, and a CAT 773 Haul Truck at the ADR. 2 CAT 777 Haul Trucks and 2 Volvo 40 Tonne Haul Trucks at the Event pond.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Moisture conditioning stock pile.



Photo 2 - Lift #36E placement and compaction.



Photo 3 – Lift #36E Compaction in progress.



Photo 4 – Lift #36E compaction in progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 21, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Cloudy, rain
Client:	JDS		High 20°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer (with GPS)	11	Placing structural fill, east embankment
	CAT D-6 Dozer	11	Placing structural fill, east embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from lower ADR stockpile
	992 loader	11	Loading Structural fill from upper ADR Stockpile 1
	6 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	Volvo Compactor	5	Compacting structural fill at embankment
	CAT CS 78 B Compactor	8	Compacting structural fill at embankment
	CAT CS 68 B Compactor	7	Compacting structural fill at embankment
	Water Truck	8	Moisture Conditioning ADR stockpile
	Water Truck	8	Moisture Conditioning ADR stockpile

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill on of the embankment. Lift 900.87 was completed and compacted. Lift 901.15 was placed and compacted. Lifts were tested for compaction and moisture content. Compaction exceeded 96 % and the moistures ranged from 3.3 to 7.0 %. Both stockpile were being moisture conditioned.
- Lift 901.5 was placed but was incomplete by end of shift.
- Compaction for the east embankment was completed using at least three passes (back and forth) of the 9 tonne or two passes with the 11 tonne and 13.4 tonne vibratory rollers. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from the upper and lower ADR stockpiles which were previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using GPS and laser level. Survey confirmed that the average surveyed elevation averaged approximately 0 to 5 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately xxx loads were placed using CAT 777 haul trucks during shift. Assuming 36 m^3 per load with the CAT 777, a total of xxx m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Some frozen material was encountered at the end of day shift from the event pond. The material was removed and loading from the event pond was stopped.
- Steady rain started at 0400 hrs. Moisture conditioning was stopped and an effort to quickly seal the placed material with the packers was done. Hauling was stopped temporarily until the acces ramp from the ADR was graded.

4.0 CLOSURE

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Tetra Tech Canada Inc.

Scott Dimitroff
Project Technologist
Arctic Group
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Loading structural fill from upper ADR stockpile



Photo 2: New GPS equipped dozer

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 22, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Light Rain
Client:	JDS		High 12°C
File:	ENG.WARC03235-02.005		Low 3°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	10	Excavating at drainage trench
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as structural fill material.
- Completed compaction of lift #40E (901.15 m Target elevation) which was started on previous shift and ended at 6:30am. Surveyed elevation came in .05 m low, at 901.10 m.
- Completed compaction of lift #41E (901.5 m Target elevation) which was started on previous shift and ended at 7:20am. Surveyed elevation came in .05 m Low, at 901.45 m.
- Completed compaction of lift #42E (901.85 m Target elevation) which was started 7:50am and ended at 2:15pm. Compaction and moisture content testing was conducted at 2:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 99.3% and 98.2% with moisture of 3.8% and 4.8% respectively. Surveyed elevation came in .08 m low, at 901.77 m.
- Completed compaction for lift #43E (902.17 m Target elevation) which was started 11:30am and ended at 2:25pm. Surveyed elevation came in .04 m low, at 902.13 m.

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- Placement and compaction ongoing for lift #44E (902.53 m Target elevation) which was started 2:30pm and to be finished during next shift. To be surveyed at nightshift
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in areas with heavy traffic, this BGC method after performing test strip.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 170 loads using CAT 777 Haul Trucks, 37 loads using CAT 773 Haul Trucks and 32 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 7446 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- CAT 777 Haul Truck tire blew on the lift, and work around the truck had to stop until it was repaired. Lifts continued to be placed and when truck was repaired the low areas were brought up in lifts no greater than 50mm.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 22, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly cloudy
Client:	JDS		High 12°C
File:	ENG.WARC03235-02.005		Low 3°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	6	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile 1
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Stockpile 1. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned for part of the day but was stopped at 10pm.
- Completed compaction of lift #44E (902.53 m Target elevation) which was started on previous shift and ended at 11:00pm. Compaction and moisture content testing was conducted at 9:00pm and 11:00 pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.6%, 97.8 and 98.2% with moisture of 3.6%, 8.2 and 4.2% respectively. Surveyed elevation came in .08 m low, at 902.45 m.
- Completed compaction of lift #45E (902.85 m Target elevation) which was started at 10:00pm and ended at 3:30am. Compaction and moisture conten8t testing was conducted at 1:00am and 2:00 am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.5% and 97.0% with moisture of 7.2% on both tests. Surveyed elevation came in .05 m Low, at 902.8 m.
- Placement and compaction of lift #46E (903.2 m Target elevation) ongoing to next shift. Lift was started 2:00am. Compaction and moisture content testing was conducted at 5:45am on compacted section using a nuclear densometer. Test performed and achieved a compaction of 98.7% with moisture of 4.2%. Surveyed elevation to be completed during next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. Minimum one pass with loaded rock truck over high traffic area, this BGC method after performing test strip.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 174 loads using CAT 777 Haul Trucks, 66 loads using CAT 773 Haul Trucks were placed during shift. Assuming 36 m^3, and 22 m^3 per load respectively, a total of 7716 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Moisture conditioning of stock pile was stopped at the end of lift #44E. Testing showed a moisture of 8.2% in areas with moisture conditioning and 4.3% in areas without. On following lifts, testing showed moistures of 7.2%. Material did not show major deflections or pumping as compactors or haul trucks ran on it.

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Compaction of lift #45E.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 23, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Light Rain
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 7°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Link Belt 425x4 Excavator	10	Excavating at drainage trench
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as structural fill material.
- Completed compaction of lift #47W (903.13 m Target elevation) which was started on previous shift and ended at 1:00pm.
- Embankment fill material started being placed at 2:00pm from the Event Pond. Permafrost was observed coming from the Event Pond and one load on east embankment had to be hauled out.
- Structural fill was observed to be getting dry in midafternoon. Pelly Construction began watering stockpile 1 at 3:10pm.
- Completed compaction of lift #48E (903.88 m Target elevation) which was started at 12:00pm and ended at 3:45pm. Surveyed elevation came in .05 m Low, at 903.83 m.
- Placement and compaction ongoing for lift #49E (904.28 m Target elevation) which was started 3:45pm and to be finished during next shift. To be surveyed at nightshift

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p. 780.451.2121 f. 780.454.5688

- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with Volvo SD160 Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 165 loads using CAT 777 Haul Trucks, 55 loads using CAT 773 Haul Trucks and 39 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 7774 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Triple 7 hauling material from the Event Pond was observed to have permafrost in the material. The material was hauled out of east embankment with an excavator.

4.0 CLOSURE

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John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 22, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly cloudy
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	6	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	10	Loading Structural fill from Stockpile 1
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Completed placement and compaction of lift #49E (904.28 m Target elevation) which was started on previous shift and ended at 1:30am. Compaction and moisture content testing was conducted at 10:00pm and 1:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.1%, and 95.8% with moisture of 4.2%, and 6.0% respectively. Surveyed elevation came in .05 m low, at 904.23 m.
- Completed placement, compaction ongoing, for lift #50E (904.68 m Target elevation) which was started at 1:00am and continued into next shift. Compaction and moisture conten8t testing was conducted at 5:15am on compacted section using a nuclear densometer. Test performed and achieved a compaction of 96.7% with moisture of 3.8% on both tests. Surveyed elevation came in .06 m Low, at 904.62 m.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-10 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Approximately 175 loads using CAT 777 Haul Trucks. Assuming 36 m^3 per load, a total of 6300 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Previously dug sump required the edge of lift to be pulled back to remove areas where packers were not able to access. CAT D-10 Dozer used to key into wall and create a manageable edge. Link Belt 425x4 Excavator then used to clean off edge and place excess loose material up onto bank. During this process the area where sump was previously located was noticed to be oversaturated. Material removed, and water started seeping onto lift. Additional ADR structural fill brought in, placed and packed. After 3 hours, water was pooling on surface directly north of replaced material. Additional material removed from lift, dry material placed and compacted.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Cleaning edge on lift #49.



Photo 2 – Removing oversaturated material on lift #49.



Photo 3 – Lift #49E Placing dry ADR material in soft area.



Photo 4 – Lift #49E Compaction of ADR material on soft area.



Photo 5 – Lift #49E leveling cut out of bank for compaction.



Photo 6 – Lift #49E Keyed into, and compacted, East edge .



Photo 7 – Lift #50 Pooling of water, creating soft spot, after compaction of lift.



Photo 8 – Lift #50E Edge, and wet material, removed. Dry material placed and compacted, in soft spot.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 24, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Cloudy, Rain
Client:	JDS		High 11°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as structural fill material.
- Completed compaction of lift #51E & 51W (905.07 m Target elevation) which was started on previous shift and ended at 1:30pm. Compaction and moisture content testing was conducted at 1:05pm and 1:15pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 95.1% and 97.5% with moisture of 7.4% and 4.7% respectively. Surveyed elevation came in .05 m low, at 907.02 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #52E & 52W (905.47 m Target elevation) which was started at 1:30pm and ended at 6:15pm. Compaction and moisture content testing was conducted at 5:05pm and 6:15pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.3% and 100.0% with moisture of 5.3% and 3.0% respectively. Surveyed elevation came in .03 m Low, at 905.44 m.
- Started placement, and compaction for lift #53E (905.83 m Target elevation) which was started at 5:45pm and continued into next shift. Survey to be completed during next shift.

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- Structural fill being hauled from Event Pond was observed to have permafrost at 5:30pm. Excavator was brought over and dug out material with permafrost from embankment.
- ADR road just before ramp into embankment has a large puddle of water. Excavator and grader spent majority of the day blading water off to the side of ADR road.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 184 loads using CAT 777 Haul Trucks, 40 loads using CAT 773 Haul Trucks and 46 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 8240 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- CAT 777 Haul Trucks hauling material from the Event Pond was observed to have permafrost in the material. The material was hauled out of west embankment with an excavator.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 24, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly cloudy/foggy
Client:	JDS		High 10°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-6 Dozer	12	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Event Pond material had higher moisture than ADR. Material was mixed during placement; no moisture conditioning used.
- Completed compaction of lift #52E (905.47 m Target elevation) which was started on previous shift and ended at 7:00pm. Surveyed elevation came in .03 m low, at 905.44 m.
- Completed placement, and compaction for lift #53E (905.89 m Target elevation) which was started at 6:00pm and ended at 12:00pm. Compaction and moisture content testing was conducted at 9:30pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 96.8% with moisture of 7.5%. Surveyed elevation came in .06 m Low, at 904.62 m.
- Completed placement, and compaction for lift #54E (905.89 m Target elevation) which was started at 11:00pm and ended at 6:00am. Compaction and moisture content testing was conducted at 2:30pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 95.7%, and 96.3% with moisture of 5.2% on both lifts. Surveyed elevation came in .06 m Low, at 905.82 m.
- Placement, and compaction started for lift #53E (906.27 m Target elevation) which was started at 5:00am and continued onto next shift. Survey to be completed during next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-10 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 209 loads using CAT 777 Haul Trucks. Assuming 36 m^3 per load, a total of 7524 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Pooling water at the NE corner of lift left surface material over saturated. Oversaturated Material pushed off the lift with CAT D-10 Dozer, leaving a 0.32 cut on the lift. Cut was filled with structural fill and packed with Volvo SD160 Compactor.
- Organics present on east bank, scooped out with Link Belt 425x4 Excavator and removed from area.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498

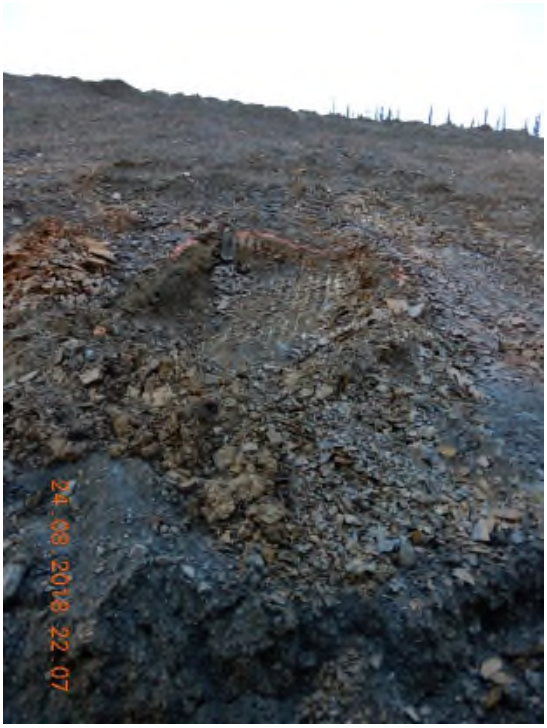


Photo 1 – Waste material with organics removed from east bank.



Photo 2 – Placement and compaction of lift #53.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 25, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Cloudy, Rain
Client:	JDS		High 16°C
File:	ENG.WARC03235-02.005		Low 6°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #54W (906.27 m Target elevation) which was started on previous shift and ended at 7:00am. Compaction and moisture content testing was conducted at 7:45am and compacted sections using a nuclear densometer. Test performed and achieved a compaction of 97.2% with moisture of 5.4%. Surveyed elevation came in .07m Low, at 906.20 m.
- Completed compaction of lift #55E & 55W (906.65 m Target elevation) which was started at 7:00am and ended at 11:00am. Compaction and moisture content testing was conducted at 11:00am and 11:10am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.6% and 100.6% with moisture of 4.9% and 4.0% respectively. Surveyed elevation came in .05m Low, at 906.60 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #56E & 56W (907.05 m Target elevation) which was started at 11:00am and ended at 5:00pm. Compaction and moisture content testing was conducted at 4:00pm and 4:15pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.2% and 97.4% with moisture of 4.0% and 3.9% respectively. Surveyed elevation came in .02m Low, at 907.03 m

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- Structural fill being hauled from Event Pond was observed to have permafrost at 12:50pm. Link-Belt 245 excavator was brought over and dug out material with permafrost from embankment.
- ADR road just before ramp into embankment has a large puddle of water. Excavator and grader spent majority of the day blading water off to the side of ADR road.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 184 loads using CAT 777 Haul Trucks, 40 loads using CAT 773 Haul Trucks and 46 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 10342 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Triple 7 hauling material from the Event Pond was observed to have permafrost in the material. The material was hauled out of east embankment with an excavator.
- ADR road just before embankment ramp has a large puddle in front. Pelly Construction used a Link-Belt 245 Excavator to bail out water to make it safer for heavy vehicles to get onto the embankment.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 23, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 12°C
File:	ENG.WARC03235-02.005		Low 3°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-6 Dozer	12	Placing structural fill
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Completed placement and compaction of lift #57E (907.48 m Target elevation) which was started on previous shift and ended at 9:30pm. Compaction and moisture content testing was conducted at 7:30pm and 9:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 95.6% and 97.3% with moisture of 6.2% and 6.7% respectively. Surveyed elevation came in .02 m low, at 907.46 m.
- Completed placement, and compaction for lift #58E (907.91 m Target elevation) which was started at 8:30am and ended at 5:00am. Compaction and moisture content testing was conducted at 3:00am and 5:45am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.5% and 99.2% with moisture of 4.7% and 4.9%. Surveyed elevation came in .04 m Low, at 907.87 m.
- Started placement, and compaction for lift #59E (908.32 m Target elevation) which was started at 4:00am and continued into next shift. Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.

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- Ongoing grade checks during placement by contractor using CAT D-10 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 219 loads using CAT 777 Haul Trucks. Assuming 36 m^3 per load, a total of 7884 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Two sections of lift 58E, in close proximity to each other, were oversaturated and showing heavy deflection. Material removed with Link Belt 490x4 Excavator, and hauled off the lift. Structural material placed and compacted in lift no greater than 0.50 m.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Cleaning edge on top of lift #57E.



Photo 2 – Cleaning edge on top of lift #57E.



Photo 3 – Lift #57E Compaction in progress.



Photo 4 – Removal of oversaturated material in lift #58E



Photo 5 – Lift #58E Excavation of oversaturated material.



Photo 6 – Lift #58E Excavation of oversaturated material filled, and compacted.



Photo 7 – Lift #50 Pooling of water, creating soft spot, after compaction of lift.



Photo 8 – Lift #50E Edge, and wet material, removed. Dry material placed and compacted, in soft spot.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 26, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sunny
Client:	JDS		High 17°C
File:	ENG.WARC03235-02.005		Low 9°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #59E & 59W (908.32 m Target elevation) which was started on the pervious shift and ended at 9:30am. Compaction and moisture content testing was conducted at 8:20am and 11:20am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.5% and 96.1% with moisture of 4.7% and 5.3% respectively. Surveyed elevation came in .08 m Low, at 908.24 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #60E & 60W (908.69 m Target elevation) which was started at 9:30am and ended at 2:55pm. Compaction and moisture content testing was conducted at 2:50pm and 4:05pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 100.6% and 97.5% with moisture of 4.3% and 4.4% respectively. Surveyed elevation came in .02 m Low, at 908.67 m
- ADR road just before ramp into embankment has a large puddle of water. Link Belt 425x4 Excavator and grader spent majority of the day blading water off to the side of ADR road.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method

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specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 227 loads using CAT 777 Haul Trucks, 32 loads using CAT 773 Haul Trucks and 17 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 9148 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- CAT D-10 Dozer cut out a soft spot of structural fill on embankment. More structural fill was brought over with a CAT 777 Haul Truck.
- ADR road just before embankment ramp has a large puddle in front. Pelly Construction used a Link Belt 425x4 Excavator to bail out water to make it safer for heavy vehicles to get onto the embankment.
- CAT 777 Haul Trucks were dumping structural fill on the ramp entering the Heap Leach embankment. CAT D-10 Dozer was spreading structural fill too decrease the grade on ramp so vehicles were able to get up.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 26, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Raining
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	5	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	7	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-6 Dozer	12	Placing structural fill
	CAT D-10 Dozer	12	Pushing material to ADR stockpile
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment
	Volvo 40 Tonne Haul Truck	12	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR.
- Completed placement and compaction of lift #61E (909.12 m Target elevation) which was started on previous shift and ended at 11:00pm. Compaction and moisture content testing was conducted at 7:30pm and 11:30pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 99.6% and 98.9% with moisture of 4.3% and 6.9% respectively. Surveyed elevation came in .06 m low, at 909.06 m.
- Completed placement, and compaction for lift #62E (909.51 m Target elevation) which was started at 10:00pm and ended at 5:00am. Compaction and moisture content testing was conducted at 2:00am and 5:15am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.3% and 95.5% with moisture of 6.8% and 7.2%. Surveyed elevation came in .08 m Low, at 909.43 m.

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- Started placement, and compaction for lift #59E (909.88 m Target elevation) which was started at 4:00am and continued into next shift. Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 219 loads using CAT 777 Haul Trucks. Assuming 36 m^3 per load, a total of 7884 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Areas where new lift are meeting old lift need to be keyed into. Slopes of previously placed material could have loose material which has been exposed to rain for previous week, leaving over saturated pockets. Material can be spread out onto lift to spread out wet material and mix it with structural fill.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – keyed into edges on top of lift #61E.



Photo 2 – Lift #62E Placement of Structural Fill.



Photo 3 – Lift #62E Placed, prior to edge cleanup.



Photo 4 – Lift #62E Placed, after edge cleanup

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 27, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sunny
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 7°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #63E & 63W (909.88 m Target elevation) which was started on the pervious shift and ended at 9:45am. Compaction and moisture content testing was conducted at 10:00am and 10:05am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.4% and 97.2% with moisture of 4.8% and 5.5% respectively. Surveyed elevation came in .08m Low, at 909.80 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #64E & 64W (910.25 m Target elevation) which was started at 9:45am and ended at 2:35pm. Compaction and moisture content testing was conducted at 2:40pm and 2:50pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.2% and 99.1% with moisture of 3.9% and 4.1% respectively. Surveyed elevation came in .04m Low, at 909.21 m
- Completed compaction of lift #65 E (910.66 m Target elevation) which was started at 2:35pm and will end on next shift. Compaction and moisture content testing was conducted at 5:30pmon compacted sections using a nuclear densometer. Test performed and achieved a compaction of 96.7% with moisture of 4.2%

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 256 loads using CAT 777 Haul Trucks, 50 loads using CAT 773 Haul Trucks and 44 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 11020 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 425x4 Excavator cut out soft spot on east embankment. CAT 777 Haul Truck brought a new load of structural fill to be placed.
- ADR road just before embankment ramp has a large puddle in front. Pelly Construction used a Link Belt 425x4 Excavator to bail out water to make it safer for heavy vehicles to get onto the embankment.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 27, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Raining
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	5	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	7	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-6 Dozer	12	Placing structural fill
	CAT D-10 Dozer	12	Pushing material to ADR stockpile
	Link Belt 490x4 Excavator	8	Loading Type 3 BR from embankment
	Volvo 40 Tonne Haul Truck	8	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR.
- Completed placement and compaction of lift #65E (910.66 m Target elevation) which was started on previous shift and ended at 9:00pm. Surveyed elevation came in .06 m low, at 910.60 m.
- Completed placement, and compaction for lift #66E (911.05 m Target elevation) which was started at 8:00pm and ended at 5:00am. Compaction and moisture content testing was conducted at 8:00pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 96.6% with moisture of 6.8%. Surveyed elevation came in .09 m Low, at 910.96 m.
- Started placement, and compaction for lift #67E (911.41 m Target elevation) which was started at 4:00am and continued into next shift. Survey to be completed during next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 239 loads using CAT 777 Haul Trucks. Assuming 36 m^3 per load, a total of 8604 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Foundation on east bank not previously approved, due to uncompacted material covering bedrock. East bank cleared of loose material, exposing bedrock, using Link Belt 490x4 Excavator. Type 3 bedrock used as structural fill in lift #66.
- North end of lift was not completely uncovered due to large amount of material, and lack of survey data. Lift did not extend into loose material, to be looked at by next shift.
- Heap of loose material previously placed from upper embankment down and extended into current lifts. Loose structural fill removed and placed within lift #67.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – keyed into edges on top of lift #65E.



Photo 2 – keyed into edges, with compaction, on top of lift #65E.



Photo 3 – Clearing loose material from edges on top of lift #65E.



Photo 4 – Lift #65E Compaction of edges after clearing loose material.



Photo 5 – Lift #65E Placed and compacted structural fill after removing oversaturated fill.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 28, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sunny, light rain
Client:	JDS		High 15°C
File:	ENG.WARC03235-02.005		Low 7°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #67E & 67W (911.41 m Target elevation) which was started on the pervious shift and ended at 8:00am. Compaction and moisture content testing was conducted at 7:50am and 9:35am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.6% and 95.9% with moisture of 4.7% and 5.2% respectively. Surveyed elevation came in .05m Low, at 911.36 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #68E & 68W (911.81 m Target elevation) which was started at 8:00am and ended at 3:00pm. Compaction and moisture content testing was conducted at 2:40pm and 4:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.9% and 97.2% with moisture of 3.8% and 4.9% respectively. Surveyed elevation came in .05m Low, at 911.76 m
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.

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- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 218 loads using CAT 777 Haul Trucks, 72 loads using CAT 773 Haul Trucks and 0 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 9432 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment.
- ADR road just before embankment ramp has a large puddle in front. Pelly Construction used a Link Belt 425x4 Excavator to bail out water to make it safer for heavy vehicles to get onto the embankment.
- Three large rocks, two from the west embankment on lift #68 and one on the east embankment on lift #69 need to be removed. Will be excavated on next shift.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Starting lift #68 on east embankment.



Photo 2 – Compaction of lift # 68 on east embankment.



Photo 3 – Loading CAT 773 from east embankment abutment.



Photo 4 – Spreading structural fill on lift #68.



Photo 5 – Lift #68W structural fill on embankment toe.



Photo 6 – Structural fill being hauled from Event Pond.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 28, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly cloudy
Client:	JDS		High 13°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Link Belt 750 x4 Excavator	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment
	Volvo 40 Tonne Haul Truck	12	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from east bank of lower embankment as well as north side of upper embankment (drain trench excavation). Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR.
- Removed boulders, filled in holes and completed compaction of lift #68E. Surveyed elevation came in at 911.76 m.
- Completed placement and compaction of lift #69E (912.21 m Target elevation) which was started on previous shift and ended at 12:00am. Compaction and moisture content testing was conducted at 10:00pm and 1:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.5% and 97.1% with moisture of 7.6% and 7.2% respectively. Surveyed elevation came in .06 m low, at 912.15 m.
- Completed placement, and compaction for lift #70E (912.60 m Target elevation) which was started at 11:00pm and ended at 6:00am. Compaction and moisture content testing was conducted at 5:15am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.1%, 95.2% and 96.2% with moisture of 4.3%, 5.5%, and 5.1%. Surveyed elevation came in .05 m Low, at 912.55 m.

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- Started placement, and compaction for lift #71E (913.00 m Target elevation) which was started at 5:00am and continued into next shift. Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 242 loads using CAT 777 Haul Trucks and 66 loads using CAT 773 Haul Truck. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 10164 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Foundation on east bank had uncompacted material covering bedrock. East bank keyed into, exposing bedrock, using CAT D-6 Dozer. Type 3 bedrock used as structural fill in lift #69E.
- Heap of loose material previously placed from upper embankment down and extended into current lifts. Loose structural fill pushed with CAT D-10 Dozer into lifts #69E and #70E.
- Initial compaction test in NE corner of lift #70 did not meet specification. Surrounding areas tested, with compaction above 95%, as per specification. Observed loaded haul truck doing 1 pass of failed area, which was retested and achieved specified compaction.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Pooling water on surface of lift #69E.



Photo 2 – Lift #69E Structural fill in area with pooling water pushed with D-6 and compacted.



Photo 3 – Lift #69E, prior to edge cleanup.



Photo 4 – Lift #69E, after keying into edge

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 29, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sunny,
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 6°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #71E & 71W (913.00 m Target elevation) which was started on the pervious shift and ended at 12:05pm. Compaction and moisture content testing was conducted at 10:05am and 1:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.0% and 95.2% with moisture of 4.1% and 7.3% respectively. Surveyed elevation came in .08m Low, at 912.92 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #72 (913.37 m Target elevation) which was started at 12:05pm and will end on next shift. Compaction and moisture content testing was conducted at 5:30pm compacted section using a nuclear densometer. Test performed and achieved a compaction of 99.4% with a moisture of 4.0%.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.

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p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 200 loads using CAT 777 Haul Trucks, 53 loads using CAT 773 Haul Trucks and 6 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 8462 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment.
- A new ramp off the ADR road is being built. The current ramp is getting to steep for CAT 777 Haul Trucks to go up. New ramp should be in operation next shift.
- Due to heavy rains on night shift a standing water and a soft spot of structural fill was observed on the top layer of embankment before first full lift was placed.
- Organics were observed coming from ADR stockpile. BGC recommend that CAT D-10 Dozer stay clear of ADR stockpile while removing topsoil from ADR slide slopes.

4.0 CLOSURE

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John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Rains from night shift caused soft spot on top lift on embankment.



Photo 2 – Continuation of lift # 71 from night shift.



Photo 3 – North West corner of embankment additional structural fill required.



Photo 4 – Mixing of standing water on top lift of embankment



Photo 5 – Drying out of structural fill at lift # 72



Photo 6 – Ramp entering embankment getting too steep.



Photo 7 – Lift # 72 compacting fill, first full lift of embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 29, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly cloudy
Client:	JDS		High 12°C
File:	ENG.WARC03235-02.005		Low 1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Link Belt 750 x4 Excavator	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment
	Volvo 40 Tonne Haul Truck	12	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from east bank. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed placement and compaction of lift #72 (913.37 m Target elevation) which was started on previous shift and ended at 12:00am. Surveyed elevation came in .06 m low, at 913.31 m.
- Started placement, and compaction for lift #73 (913.76 m Target elevation) which was started at 10:45am and continued into next shift. Compaction and moisture content testing was conducted at 11:00pm and 1:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.5% on both test with moisture of 5.3%, and 5.8% Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.

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- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 272 loads using CAT 777 Haul Trucks and 63 loads using CAT 773 Haul Truck. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 11178 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Foundation on east bank had uncompacted material covering bedrock. East bank keyed into, at south section, exposing bedrock, using CAT D-6 Dozer. Link Belt 490x4 Excavator used to clear loose material from northern most section of east bank. Type 3 bedrock used as structural fill in lift #73.
- Filled in hole in lift #72 and compacted area with Volvo SD160 Compactor.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Site overview.



Photo 2 – Lift #73 Removing structural fill from east bank.



Photo 3 – Lift #73, Cleaning east bank in progress.



Photo 4 – Lift # 73 Cleaning east bank in progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 30, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sunny,
Client:	JDS		High 6°C
File:	ENG.WARC03235-02.005		Low 1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #73W (913.76 m Target elevation) which started and ended on the pervious shift. Compaction and moisture content testing was conducted at 8:0am and 8:25am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 99.6% and 97.1% with moisture of 4.2% and 4.0% respectively. Surveyed elevation came in .07m Low, at 913.69 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #74 (914.14 m Target elevation) which was started on the pervious shift and ended at 4:50pm Compaction and moisture content testing was conducted at 12:45pm, 3:40pm and 4:00pm on compacted section using a nuclear densometer. Tests performed and achieved a compaction of 97.2%, 95.4% and 95.1% with a moisture of 3.3%, 5.3% and 6.7% respectfully. Surveyed elevation came in .05m Low, at 914.09 m.
- Lift #75 (914.54 m Target elevation) began at 4:50pm and will be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 230 loads using CAT 777 Haul Trucks, 51 loads using CAT 773 Haul Trucks and 8 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 9530 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment.
- A new ramp off the ADR road was in operation on night shift, old ramp has been sealed off with a berm.
- Link Belt 490x4 Excavator cleared loose structural fill from east embankment wall. Fill was than spread out using CAT D-10 Dozer on next lift.
- Permafrost was observed in haul trucks coming from Event Pond. Link Belt 490x4 Excavator removed large clumps of permafrost from embankment.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Continuation of lift # 74 from pervious shift.



Photo 2 – Link Belt 490x4 cleaning loose structural fill on east embankment abutment.



Photo 3 – North East corner of embankment loading structural fill.



Photo 4 – Link Belt 490x4 Excavator dug a test pit on west embankment abutment.



Photo 5 – Location of Type 3 bedrock on east embankment abutment.



Photo 6 – Link Belt 490x4 Excavator removing permafrost from embankment.



Photo 7 – Loose fill on east abutment to embankment that needs to be clean off.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 30, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partly cloudy
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low 0°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	8	Pushing material down east bank
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment
	CAT D-6 Dozer	12	Placing structural fill/ramp maintenance
	Volvo 40 Tonne Haul Truck	12	Placing structural fill

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from east bank. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed compaction of lift #74 (914.14 m Target elevation) which was started on previous shift and ended at 8:00pm. Compaction and moisture content testing was conducted at 7:30pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 99.6% with moisture of 5.6%. Surveyed elevation came in .05m low, at 914.09 m.
- Completed placement, and compaction for lift #75 (914.54 m Target elevation) which was started at 6:30pm and continued onto next shift. Compaction and moisture content testing was conducted at 12:00am and 3:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.3%, 95.9% and 97.7% with moisture of 6.8%, 5.5%, and 4.7%. Surveyed elevation came in .06 m Low, at 914.49 m.

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- Started placement, and compaction for lift #76 (914.94 m Target elevation) which was started at 3:00am and continued into next shift. Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 249 loads using CAT 777 Haul Trucks and 71 loads using CAT 773 Haul Truck. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 10526 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Foundation on east bank had uncompacted material covering bedrock. CAT D-10 Dozer used to push material down south half of east embankment onto lift. Material piled onto lift was spread out onto compacted lifts and used in succeeding lifts. North half of embankment had larger piles of material. Attempted to key into lift to expose bedrock, using CAT D-6 Dozer and were not able to get to bedrock. Used Link Belt 490x4 Excavator to load material onto CAT 773 Haul Truck and place into succeeding lifts. Removal of material from east bank carried onto following shift.
- 2 rocks protruding lift at south east corner. Next lift to remove them and fill void.
- Very south east corner of lift not extended to boundary between toe and east bank. Next shift to fill low area and compact.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #75 East bank prior to removal of material.



Photo 2 – Lift #75 Placed and compacted section of lift.



Photo 3 – Lift #75, placement and compaction of lift ongoing.



Photo 4 – Lift #75, Pushing material down east bank slope.



Photo 5 – Lift #75, compaction of lift at east bank edge.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 31, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly Clear
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low 0°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT 773 Haul Truck	12	Placing structural fill/type 3 BR
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from bank north east of the embankment. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed compaction of lift #77E (915.31 m Target elevation) which was started on previous shift and ended at 10:00pm. Compaction and moisture content testing was conducted at 7:30pm and 10:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.3% and 98.5 with moisture of 4.2% and 5.7%, respectively. Surveyed elevation came in .06m low, at 915.25 m.
- Started placement, and compaction for lift #78E (915.70 m Target elevation) which was started at 9:30pm and continued onto next shift. Compaction and moisture content testing was conducted at 12:00am and 3:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 95.2%, 96.3% and 98.7% with moisture of 5.0%, 4.5%, and 3.7%. Surveyed elevation came in .05 m Low, at 915.65 m.
- Started placement, and compaction for lift #79E (916.10 m Target elevation) which was started at 4:00am and continued into next shift. Survey to be completed during next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 243 loads using CAT 777 Haul Trucks and 129 loads using CAT 773 Haul Truck. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 11586 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- West bank had a test pit dug into face. Structural fill placed and compacted with lifts. Packers drove directly into dug out area when packing.
- Haul truck broke down on top of lift #77, completion of lift 78 delayed until next shift. Truck needed be removed before material could be placed and compacted.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #77E Test pit dug into west bank.



Photo 2 – Lift #78E Placed and compaction ongoing.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 31, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly Clear
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low 0°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT 773 Haul Truck	12	Placing structural fill/type 3 BR
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from bank north east of the embankment. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed compaction of lift #77E (915.31 m Target elevation) which was started on previous shift and ended at 10:00pm. Compaction and moisture content testing was conducted at 7:30pm and 10:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.3% and 98.5 with moisture of 4.2% and 5.7%, respectively. Surveyed elevation came in .06m low, at 915.25 m.
- Started placement, and compaction for lift #78E (915.70 m Target elevation) which was started at 9:30pm and continued onto next shift. Compaction and moisture content testing was conducted at 12:00am and 3:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 95.2%, 96.3% and 98.7% with moisture of 5.0%, 4.5%, and 3.7%. Surveyed elevation came in .05 m Low, at 915.65 m.
- Started placement, and compaction for lift #79E (916.10 m Target elevation) which was started at 4:00am and continued into next shift. Survey to be completed during next shift.

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p. 780.451.2121 f. 780.454.5688

- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 243 loads using CAT 777 Haul Trucks and 129 loads using CAT 773 Haul Truck. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 11586 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- West bank had a test pit dug into face. Structural fill placed and compacted with lifts. Packers drove directly into dug out area when packing.
- Haul truck broke down on top of lift #77, completion of lift 78 delayed until next shift. Truck needed be removed before material could be placed and compacted.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #77E Test pit dug into west bank.



Photo 2 – Lift #78E Placed and compaction ongoing.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 1, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Cloudy
Client:	JDS		High 12°C
File:	ENG.WARC03235-02.005		Low -3°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #78 (915.70 m Target elevation) which started and ended on pervious shift. Compaction and moisture content testing was conducted at 9:00am, on compacted sections using a nuclear densometer. Test performed and achieved a compaction of 95.6% with moisture of 4.3 %. Surveyed elevation came in .05m Low, at 915.65 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #79 (916.10 m Target elevation) which was started on the pervious shift and end at 1:00pm. Compaction and moisture content testing was conducted at 9:30am, 2:50pm, 3:00pm and 3:10pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.9%, 96.5%, 96.6% and 95.7% with a moisture of 6.0%, 4.3% 5.4% and 4.9% respectfully. Surveyed elevation came in .05m Low, at 916.05 m.
- Completed compaction of lift #80 (916.50 m Target elevation) which was started 1:00pm and will end on the next shift. Compaction and moisture content testing was conducted at 5:50pm and 6:00pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.5% and 97.0% with a moisture of 4.9% and 4.7% respectfully.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 259 loads using CAT 777 Haul Trucks, 138 loads using CAT 773 Haul Trucks and 0 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 12072 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment.
- Link Belt 490x4 Excavator cleared loose structural fill from east embankment wall. Fill was than spread out using CAT D-10 Dozer on next lift.
- A CAT 777 Hual Truck had a leak on night shift and spilled oil on the embankment. Day shift cleaned up the spill using Link Belt 245x4 Excavator. Structural fill was brought over from east wall abutment and compacted.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Location of CAT 777 Haul Truck oil spill on pervious shift.



Photo 2 – Cleanup of oil spill.



Photo 3 – Placing of structural fill for lift # 79.



Photo 4 – CAT 777 Haul Trucks placing for lift # 80.



Photo 5 – Continuation of placing and spreading lift #80.



Photo 6 – Loading CAT 773 Haul Truck form North East corner of embankment.



Photo 7 – Compaction of lift #80.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 1, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly Clear
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low 0°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT 773 Haul Truck	12	Placing structural fill/type 3 BR
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from bank north east of the embankment. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed compaction of lift #80 (916.50 m Target elevation) which was started on previous shift and ended at 10:00pm. Compaction and moisture content testing was conducted at 7:30pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.6% and 96.4% with moisture of 5.0% and 5.6%, respectively. Surveyed elevation came in .07m low, at 916.43 m.
- Completed placement, compaction ongoing for lift #81 (916.88 m Target elevation) which was started at 9:00pm and continued onto next shift. Compaction and moisture content testing was conducted at 1:00am and 4:00am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 96.6%, 100.1% and 98.0% with moisture of 2.2%, 2.1%, and 5.4%. Survey to be completed during next shift
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.

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- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 255 loads using CAT 777 Haul Trucks and 90 loads using CAT 773 Haul Truck. Assuming. 36 m^3 and 22 m^3 per load respectively, a total of 11160 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- CAT D-10 Dozer North used key into edges along east bank. Material spread out onto compacted lift and used in succeeding lifts. North half of embankment had larger piles of material. Used Link Belt 490x4 Excavator to load material onto CAT 773 Haul Truck and place into succeeding lifts. Removal of material from east bank carried onto following shift.
- Link Belt 490x4 Excavator hit, and damaged liner in a drainage trench north of the embankment. Work in area stopped. Assessment and repair to be completed by next shift.

4.0 CLOSURE

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Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #80 Compaction in progress, east bank prior to removal of material.



Photo 2 – Lift #80E Removal of excess material from east bank.



Photo 3 – Lift #81, placement and compaction of starting.



Photo 4 – Lift #81, Removing material from east bank slope.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 2, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mostly Sunny
Client:	JDS		High 16°C
File:	ENG.WARC03235-02.005		Low -1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #81 (916.88 m Target elevation) which started and ended on pervious shift. Compaction and moisture content testing was conducted at 10:00am, on compacted sections using a nuclear densometer. Test performed and achieved a compaction of 102.2% with moisture of 4.4 %. Surveyed elevation came in .06m Low, at 916.82 m.
- Structural fill was observed to be getting dry in midafternoon. Material still able to reach design compaction.
- Completed compaction of lift #82 (917.27 m Target elevation) which was started on the pervious shift and end at 3:10pm. Compaction and moisture content testing was conducted at 10:15am, 10:20am, 4:00pm and 4:20pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 97.1%, 97.4%, 95.0% and 97.7% with a moisture of 4.4%, 3.3%, 5.0% and 3.9% respectfully. Surveyed elevation came in .05m Low, at 917.22 m.
- Lift #83 (917.67 m Target elevation) started at 3:10pm it will end next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method

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Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.

- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 241 loads using CAT 777 Haul Trucks, 126 loads using CAT 773 Haul Trucks and 0 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 11448 m^3 of structural fill was placed on the embankment during shift.

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3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment pad.
- CAT D-10 Dozer scrapped loose material on east embankment abutment. Structural fill was than piled near North East corner and loaded onto haul trucks
- Link Belt 425x4 Excavator dug a borrow pit on west embankment abutment. CAT D-10 Dozer keyed into embankment and scrapped loose fill onto embankment pad.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – CAT D-10 Dozer spreading fill from east embankment abutment.



Photo 2 – Compactors repacking South East corner of embankment pad.



Photo 3 – Placing and compacting of lift # 82.



Photo 4 – CAT D-10 Dozer scrapping loose structural fill onto east embankment pad.



Photo 5 – CAT D-10 Dozer keyed into west embankment abutment.



Photo 6 – CAT 777 Haul Truck beginning lift #83.

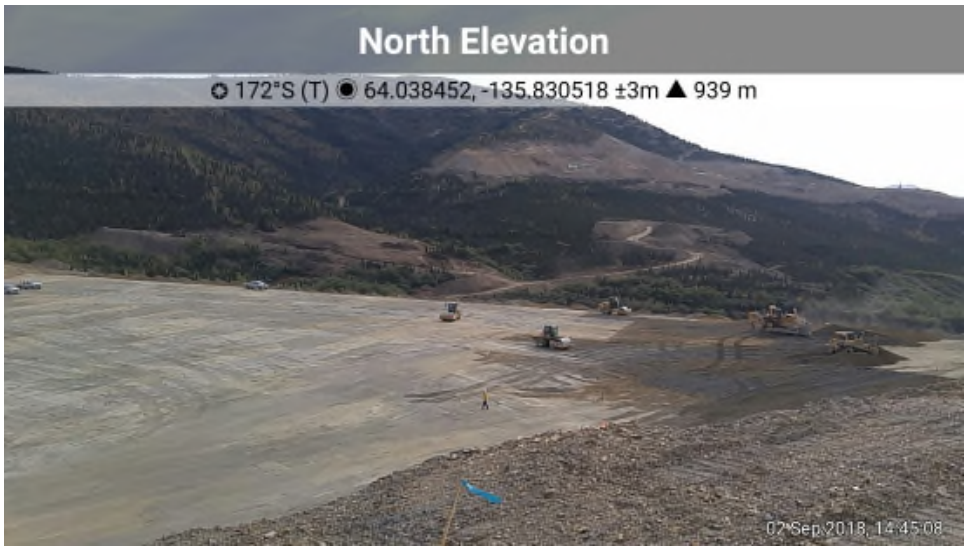


Photo 7 – Completing lift #82.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 2, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly Clear
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low -2°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	8 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT 773 Haul Truck	12	Placing structural fill/type 3 BR
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from bank north east of the embankment. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Tested lift #82 (917.27 m Target elevation) which was completed on previous shift. Compaction and moisture content testing was conducted at 10:00 pm on compacted section using a nuclear densometer. Test performed and achieved a compaction of 95.2% with moisture of 4.5%. Surveyed elevation came in .05m low, at 917.22 m. 917.22
- Completed placement, and compaction for lift #83 (917.67 m Target elevation) which was started on previous shift and ended at 2:30 am. Compaction and moisture content testing was conducted at 10:30pm, 2am and 3:30am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 95.8%, 98.9%, 97.3 and 96.0% with moisture of 4.5%, 4.5%, 4.2% and 3.9%. Surveyed elevation came in .06m low, at 917.61 m.
- Started placement, and compaction for lift #84E (918.06 m Target elevation) which was started at 2:00am and continued into next shift. Test performed and achieved a compaction of 99.5% with moisture of 3.9%. Survey to be completed during next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 259 loads using CAT 777 Haul Trucks and 113 loads using CAT 773 Haul Truck. Assuming. 36 m^3 and 22 m^3 per load respectively, a total of 11810 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Two stockpiles present north of the embankment, one with type 3 bedrock to be used as structural fill and the other a waste pile. Material hauled from only from the type 3 bedrock stockpile.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #83 placement and Compaction in progress.



Photo 2 – #83 placement and Compaction in progress.



Photo 3 – #83 placement and Compaction in progress.



Photo 4 – #84 placement and Compaction in progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	John Carnegie
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 3, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mostly Sunny
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low -4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Dayshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from Stockpile
	5 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	CAT CS 68 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	CAT D-10 Dozer	12	Pushing material to ADR stockpile

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned throughout the day.
- Completed compaction of lift #84 (918.06 m Target elevation) which started and ended at 4:30pm. Compaction and moisture content testing was conducted at 10:40am, 11:00am, 11:40 am and 4:15pm, on compacted sections using a nuclear densometer. Test performed and achieved a compaction of 96.6%, 100.1%, 98.3% and 95.9% with moisture of 4.1 %, 5.2%, 4.3% and 3.9% respectfully. Surveyed elevation came in .06m Low, at 918.00 m.
- Permafrost was observed in embankment pad on Lift #84 from night shift. Pelly Construction cut out sections of permafrost from embankment pad with Link Belt 490x4 Excavator and CAT D-6R and brought in new structural fill from ADR and Event Pond. Compactors rolled over sections with 3 additional passes.
- Completed compaction of lift #85 (918.45 m Target elevation) which was started at 9:30am and end at 6:30pm. Compaction and moisture content testing was conducted at 4:45pm and 4:55pm on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.8% and 96.5% with a moisture of 4.6% and 3.9% respectfully. Surveyed elevation came in .05m Low, at 918.40 m.
- Lift #86 (918.85 m Target elevation) started at 6:30pm and it will end next shift.

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- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill. One pass with loaded rock truck observed in west side of lift, this BGC method after performing test area.
- Ongoing grade checks during placement by contractor using GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 223 loads using CAT 777 Haul Trucks, 19 loads using CAT 773 Haul Trucks and 0 loads using CAT 740 Haul Trucks were placed during shift. Assuming 36 m^3, 22 m^3, and 16 m^3 per load respectively, a total of 8446 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Link Belt 490x4 Excavator loading structural fill from East wall on east embankment. CAT 773 Haul Truck would haul from North East corner and place structural fill on embankment pad.
- Permafrost was observed to be in structural fill on lift #84 from night shift. Pelly Construction informed BGC and Tetra Tech that night shift Hitachi 1200 Shovel Excavator operator was digging in the wrong location at the Event Pond. Sections of embankment that had permafrost have been cut out and hauled off the embankment pad. Structural fill was than brought from ADR which was placed in cut sections and compacted. Tests were performed and achieve compaction of 95% or higher.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

John Carnegie
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
John.Carnegie@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – Continuation of placing and compaction lift #84 from night shift.



Photo 2 – CAT 777 Haul Trucks stock piling structural fill for lift #85.



Photo 3 – Link Belt digging up permafrost from lift #84.



Photo 4 – Areas on lift #84 where permafrost was being cut out and hauled off.



Photo 5 – CAT 777 Haul Trucks placing new structural fill from ADR onto lift #84.



Photo 6 – CAT CS 78 B compacting structural fill where permafrost was cut out.



Photo 7 – Compacting and placing of lift #85.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Edgar Lopez-Negrete
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	September 3, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Mainly Clear
Client:	JDS		High 13°C
File:	ENG.WARC03235-02.005		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer With GPS	12	Placing structural fill
	CAT 992G Loader	12	Loading Structural fill from ADR Stockpile
	6 x CAT 777 Haul Truck	12	Hauling structural fill to embankment
	Volvo SD160 Compactor	12	Compacting structural fill at embankment
	CAT CS 78 B Compactor	12	Compacting structural fill at embankment
	Hitachi 1200 Shovel	12	Loading Structural fill from Event Pond
	2 x CAT 773 Haul Truck	12	Hauling structural fill/type 3 BR
	Link Belt 490x4 Excavator	12	Loading Type 3 BR from embankment

2.0 HEAP LEACH FACILITY

- Structural fill was hauled from ADR and Event Pond. Placed structural fill visually appeared fine, with less than 30% over 19 mm and with material under 150 mm. This meets the BGC method specification requirement for structural fill. Material from ADR stockpile was moisture conditioned from 1am until end of shift.
- Type 3 bedrock was used from bank north east of the embankment. Type 3 bedrock was used as fill material. Material was mixed with structural fill from ADR and Event Pond.
- Completed placement, and compaction for lift #85 (918.45 m Target elevation) which was started on previous shift and ended at 8:15 am. Surveyed elevation came in .05 m low, at 918.40 m.
- Started placement, and compaction for lift #86E (918.85 m Target elevation) which was started at 2:00am and continued into next shift. Compaction and moisture content testing was conducted at 10:30pm, 1am and 3:30am on compacted sections using a nuclear densometer. Tests performed and achieved a compaction of 98.1%, 98.7%, and 97.5% with moisture of 4.2%, 3.8%, and 4.7%. Survey to be completed during next shift.
- Two passes were observed with sufficient speed and overlap using the CAT CS 78 B Compactor or Volvo SD160 Compactor. Observed 3 passes with CAT CS 68 B Compactor as required. This meets the BGC method specification requirement for structural fill.

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- Ongoing grade checks during placement by contractor using CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed elevation was placed at approximately target design elevation of 45 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 242 loads using CAT 777 Haul Trucks and 141 loads using CAT 773 Haul Truck. Assuming. 36 m^3 and 22 m^3 per load respectively, a total of 11814 m^3 of structural fill was placed on the embankment during shift.

3.0 DISCUSSION/OTHER

- Compaction and moisture content testing was conducted on test pad constructed during previous shift using a nuclear densometer. Test performed and achieved a dry density of 2190 kg/m³ with moisture of 3.5%.
- Previous shift had to remove frozen material from lift placed during nightshift. Material coming from event pond was periodically checked. Minimal evidence of frost was found in 1 load, operator at event pond notified. following loads did not have any frozen material.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Edgar Lopez-Negrete
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Edgar.lopeznegrete@tetratech.com
Direct +1 (867) 444-7498



Photo 1 – #83 placement and Compaction in progress.



Photo 2 – #83 placement and Compaction in progress.



Photo 3 – #83 placement and Compaction in progress.



Photo 4 – #84 placement and Compaction in progress.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 4, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast
Client:	JDS		High 7°C
File:	ENG.WARC03235-02.005		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from ADR Stockpile
	5 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	3 x CAT 773 Haul Truck	11	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Volvo SD160 Compactor	10	Compacting structural fill at embankment
	CAT CS 68 B Compactor	10	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Cross shift arrival on site approximately 23:45 during night shift.
- Continued placement of structural fill at Heap Leach Facility Embankment.
- Compaction for lift elevation 919.62 m (design elevation) ongoing from start of night shift and was completed by 00:50. Compaction was completed by 01:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.8 % to 99.5 %. Moisture content ranged from 4.5 % MC to 6.2 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.07 m below the design elevation at 919.55 m.
- Placement of lift elevation 920.0 m (design elevation) began at 00:45. Placement was incomplete by the end of shift. Compaction for this lift began at 02:45 and was incomplete by the end of shift. Compaction and moisture content testing was conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.7 % to 95.9%. Moisture content ranged from 4.4 % MC to 6.0 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.07 m below the design elevation at 919.93 m.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was

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conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

- Excavators loaded structural fill from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 175 loads using CAT 777 haul trucks and approximately 140 loads using CAT 773 haul trucks were placed during shift. Assuming 36 m^3 and 22 m^3 respectively, a total of 9,380 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- None

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Typical gradation of structural fill.



Photo 2: Placement of structural fill on lift elevation 919.93 m.



Photo 3: West abutment prior to key in of slope.



Photo 4: North west toe may require additional compaction south of slope stakes.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 5, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast, rain
Client:	JDS		High 11°C
File:	ENG.WARC03235-05.003		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from lower ADR Stockpile
	CAT 992 loader	11	Loading Structural fill from upper ADR Stockpile
	4 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 x CAT 773 Haul Truck	11	Hauling structural fill to embankment
	CAT 349 Excavator	5	Trimming upstream slope
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Volvo SD160 Compactor	10	Compacting structural fill at embankment
	CAT CS 68 B Compactor	10	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement for lift elevation 919.93 m (design elevation) ongoing from start of shift and was completed by 925 hrs. Compaction was completed by 1030 hrs. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density. Moisture content ranged from 5.9 % MC to 7.6 % MC.
- Placement of lift elevation 920.38 m (design elevation) began at 0915 hrs.. Placement was completed by the end of shift. Compaction for this lift began at 1100 hrs and was incomplete by the end of shift. Compaction and moisture content testing was conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard. Moisture content ranged from 4.2 % MC to 6.8 % MC. As built average elevation of lift surveyed 0.06 m below the design elevation.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

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- Structural fill was loaded from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 221 loads using CAT 777 haul trucks and approximately 90 loads using CAT 773 haul trucks were placed during shift. Assuming 36 m^3 and 22 m^3 respectively, a total of 9,936 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- None

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Typical gradation of structural fill.



Photo 2: Placement of structural fill



Photo 3: Excavator “trimming” upstream slope.



Photo 4: Compacting with all three packers.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 5, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud, light rain/fog
Client:	JDS		High 7°C
File:	ENG.WARC03235-05.003		Low 2°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from lower Stockpile
	CAT 992 loader	10	Loading Structural fill from upper Stockpile
	6 x CAT 777 Haul Truck	10	Hauling structural fill to embankment
	3 x CAT 773 Haul Truck	0	Hauling structural fill to embankment
	Deere 40 Tonne Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	9	Compacting structural fill at embankment
	Volvo SD160 Compactor	3	Compacting structural fill at embankment
	CAT CS 68 B Compactor	9	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 920.38 m (design elevation) completed during day shift. Compaction was completed by 19:00. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 achieved 96.9 % with a moisture content 5.9 % MC. This satisfies the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.05 m below the design elevation at 920.32 m.
- Placement of lift elevation 920.77 m (design elevation) continued from day shift at 19:25. Placement was completed by 05:20. Compaction for this lift began at 20:10 and was completed by 05:25. Compaction and moisture content testing was conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.2 % to 98.6%. Moisture content ranged from 3.5 % MC to 5.9 % MC. One of which, falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.07 m below the design elevation at 920.70 m.
- Placement of lift elevation 921.15 m (design elevation) began at 04:15 and was incomplete by the end of shift. Compaction for this lift began at 6:10 and was incomplete by the end of shift.

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- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Sand was placed over finger drain on north slope of heap leach pad. Sand was packed using static compaction using CAT CS 68 B smooth drum compactor and captured by survey.
- Approximately 273 loads using CAT 777 haul trucks were placed during shift. Assuming 36 m^3 per load, a total of 9,828 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- After day shift rain event, grading and mud removal of embankment road was conducted. This delayed commencing of hauling.
- Volvo 9 tonne vibratory compactor was removed from service at 21:15 for repairs. Not used for remainder of shift.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Upper ADR structural fill source.



Photo 2: Lower ADR structural fill stockpile.



Photo 3: Placement and compaction of lift 920.70 m.



Photo 4: Removal of oversized boulders from lift.



Photo 5: Placement of sand for finger drain.



Photo 6: Typical structural fill gradation.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 6, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast
Client:	JDS		High 12°C
File:	ENG.WARC03235-05.003		Low 7°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from lower ADR Stockpile
	CAT 992 loader	11	Loading Structural fill from upper ADR Stockpile
	4 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 X 40 tonne Rock Trucks	5	Hauling structural fill to embankment
	CAT 349 Excavator	5	Trimming upstream slope
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Volvo SD160 Compactor	10	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement for lift elevation 921.15 m (design elevation) ongoing from start of shift and was completed by 1530 hrs. Compaction was completed by 1730 hrs. Compaction and moisture content testing conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density. Moisture content ranged from 3.9 % MC to 4.8 % MC. As built average elevation of lift surveyed 0.07 m below the design elevation.
- Placement of lift elevation 921.52 m (design elevation) began at 1530 hrs.. Placement was incomplete by the end of shift. Compaction for this lift began at 1730 hrs and was incomplete by the end of shift.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Structural fill was loaded from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size.

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Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 226 loads using CAT 777 haul trucks and approximately 78 loads using 40 tonne Rock trucks were placed during shift. Assuming 36 m^3 and 16 m^3 respectively, a total of 9,384 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Work was being done in the pond itself, including finger drain installation and backfilling.
- Reviewing liner material received on site and checking quantities. The rough-textured 2.0 mm LLDPE required for the pond is not on site and not expected until the end of September.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Work in the pond

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 6, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud, light rain
Client:	JDS		High 8°C
File:	ENG.WARC03235-05.003		Low 5°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	10	Loading Structural fill from lower Stockpile
	CAT 992 loader	10	Loading Structural fill from upper Stockpile
	6 x CAT 777 Haul Truck	10	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Volvo SD160 Compactor	3	Compacting structural fill at embankment
	CAT CS 68 B Compactor	3	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 921.52 m (design elevation) continued from day shift at 18:45 and was completed by 03:15. Compaction for this lift resumed at 18:45 and was completed by 03:50. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.4 % to 100.4 %. Moisture contents ranged from 3.4 % to 6.5 % MC. One of which falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.07 m below the design elevation at 921.45 m.
- Placement of lift elevation 921.90 m (design elevation) began at 02:30 and was incomplete by the end of shift. Compaction for this lift began at 05:30 and was incomplete by the end of shift.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Excavators loaded structural fill from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Structural fill was placed in lifts along the north slope of the heap leach area. Two lifts were compacted and surveyed as per BGC recommendations. Placement of third lift ongoing.
- Approximately 236 loads using CAT 777 haul trucks were placed during shift. Assuming 36 m^3 per load, a total of 8,496 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Due to manpower limitations during shift change, the Volvo 11 tonne vibratory compactor and the CAT CS 68 B was operated by dayshift crew until 20:20. Only one compactor was used for the rest of shift.
- During placement of structural fill in the south east corner of the embankment, approximately an additional hour was spent regrading this area after an excessively thick lift was rough placed by the CAT D10 Dozer.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Upper ADR structural fill source.



Photo 2: Lower ADR structural fill stockpile.



Photo 3: Typical structural fill gradation.



Photo 4: Heap Leach area structural fill placement and compaction.



Photo 5: Compaction of lift 921.45 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 7, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from lower ADR Stockpile
	CAT 992 loader	11	Loading Structural fill from upper ADR Stockpile
	4 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 X 40 tonne Rock Trucks	5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Volvo SD160 Compactor	6	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement for lift elevation 921.90 m (design elevation) ongoing from start of shift and was completed by 1000 hrs. Compaction was completed by 1345 hrs. Compaction and moisture content testing conducted on compacted sections using a nuclear densometer. One test area failed and was recompacted and retested. The tested areas exceeded 95 % of the standard proctor density. Moisture content ranged from 3.7 % MC to 4.2 % MC. As built average elevation of lift surveyed 0.12 m below the design elevation.
- Placement of lift elevation 922.23 m (design elevation) began at 1000 hrs.. Placement was completed by the end of shift. Compaction for this lift began at 1345 hrs and was incomplete by the end of shift.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Structural fill was loaded from both upper and lower ADR stockpiles which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 253 loads using CAT 777 haul trucks, 17 loads using CAT 773 haul trucks and approximately 7 loads using 40 tonne Rock trucks were placed during shift. Assuming 36 m^3, 22 m^3 and 16 m^3 respectively, a total of 9,594 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Work continued in the pond itself, including finger drain installation and backfilling.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Work in the pond



Photo 2: Compacting structural fill

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 7, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear, northern wind
Client:	JDS		High 8°C
File:	ENG.WARC03235-05.003		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	12	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from lower Stockpile
	CAT 992 loader	11	Loading Structural fill from upper Stockpile
	6 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	CAT CS 68 B Compactor	8	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 922.23 m (design elevation) was nearly completed at day shift. Final tie in to the access ramp completed at 22:00. Compaction for this lift resumed at 18:45 and was completed by 22:47. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 97.2 % to 99.0 %. Additional compaction was required in some areas to achieve above 95 %. Moisture contents achieved was 4.0 % MC. This falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.08 m below the design elevation at 922.15 m.
- Placement of lift elevation 922.60 m (design elevation) began at 18:50 and was completed at 04:00. Compaction for this lift began at 21:00 and was incomplete at the end of the shift. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.1 % to 98.0 %. Moisture contents ranged from 3.8 % to 4.6 % MC. This falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.06 m below the design elevation at 922.54 m.
- Placement of lift elevation 922.99 m (design elevation) began at 03:10 and was incomplete by the end of shift. Compaction for this lift was incomplete by the end of shift.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was conducted with sufficient

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

- Excavators loaded structural fill from both upper and lower ADR stockpiles which have been previously approved by BGC. Material from the upper ADR stock pile was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. During the shift the lower ADR stockpile was yielding coarser, drier material. Oversized cobbles or boulders that were placed were removed prior to compaction. The Hitachi 1200 Shovel moved from the lower ADR stockpile to the Event Pond at about 22:00 for the remainder of the shift. This material had less oversized boulders.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Grader profiled the 3:1 (H:V) slopes of the Heap Leach Facility area and was subsequently packed with a CS 54 B 6 tonne vibratory smooth compactor.
- Structural fill was placed in the base of the Heap Leach Facility area. Two lifts were placed at 0.45 m loose lift thickness. Each lift was compacted and surveyed as per BGC recommendations. A small amount of water seepage from the bedrock was noted to have collected on the surface of the bottom lift but did not soften the structural fill by end of shift.
- Approximately 290 loads using CAT 777 haul trucks and 20 loads were placed using CAT 773 during the shift. Assuming 36 m^3 and 22 m^3 per load respectively, a total of 10,880 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Next lift 922.99 m will extend out beyond the Cobalt access road near west abutment. Tie in method to be determined.
- Due to manpower limitations during shift change, the CAT CS 68 B was operated for approximately 8 hours. Only one compactor was used for the rest of shift. This did not significantly impede production of fill placement.
- Ramp to embankment required placement of structural fill to improve access for haul trucks.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Progress of Lift elevatoion 922.15 m at start of shift.



Photo 2: Typical gradation from upper ADR stockpile.



Photo 3: Typical structural fill gradation from lower ADR stockpile prior to oversize removal.



Photo 4: Grading and compaction of Heap Leach Facility area side slopes.



Photo 5: Placement of structural fill at bottom of Heap Leach Facility area.



Photo 6: Uncompacted windrow against west abuttment prior to remediation.



Photo 7: CAT D6 Dozer keying into west abuttment.



Photo 8: Next lift 922.99 m will extend out beyond the Cobalt access road.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 20°C
File:	ENG.WARC03235-02.005		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing structural fill
	CAT D-6 Dozer with GPS	11	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from Event Pond
	CAT 992 loader	11	Loading Structural fill from upper ADR Stockpile
	4 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	2 X 40 tonne Rock Trucks	5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	8	Compacting structural fill at embankment
	Volvo SD160 Compactor	8	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement for lift elevation 922.99 m (design elevation) ongoing from start of shift and was completed by 1300 hrs. Compaction was completed by 1515 hrs. Compaction and moisture content testing conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density. Moisture content ranged from 3.3 % MC to 4.3 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation.
- Placement of lift elevation 923.4 m (design elevation) began at 1245 hrs.. Placement was incomplete by the end of shift. Compaction for this lift began at 1515 hrs and was incomplete by the end of shift.
- Compaction for the embankment was completed using at least two passes (back and forth) of either 11 tonne or the 13.4 tonne vibratory roller. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Structural fill was loaded from both upper ADR stockpile and the Event Pond which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. Oversized cobbles or boulders were present in the stockpile but were removed prior to loading and placement. Oversized cobbles or boulders that were placed were removed prior to compaction.

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Approximately 228 loads using CAT 777 haul trucks during the shift. Assuming 36 m^3 per load, a total of 8,208 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Work continued in the pond itself, including finger drain installation and backfilling. A compaction test on the backfill was conducted and exceeded 95 % compaction.
- Prep work on the East slope of the pond continued. This included packing the base and clearing rocks by hand.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com



Photo 1: Work in the pond



Photo 2: Typical gradation of Event Pond structural fill



Photo 3: Embankment progress

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 8, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial Cloud
Client:	JDS		High 10°C
File:	ENG.WARC03235-05.003		Low 0°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	12	Placing fill - Embankment
	CAT D-6 Dozer with GPS	12	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from lower Stockpile
	CAT 992 loader	11	Loading Structural fill from upper Stockpile
	5 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	3	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment
	CAT D-6 Dozer	10	Placing fill - Cobalt Road and HLF
	CAT D-10 Dozer	10	Placing fill - HLF
	CAT CS 54 B Compactor	8	Compacting structural fill at HLF

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 923.40 m (design elevation) began at 7:30 and was completed at 01:30. Compaction for this lift resumed at 18:45 and was completed by 03:45. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 97.0 % to 100.6 %. Moisture content ranged from 4.2% to 5.6 % MC. One of which falls below the targeted BGC method specification requirements for moisture content. As built average elevation of lift surveyed 0.10 m below the design elevation at 922.30 m.
- Placement of lift elevation 923.75 m (design elevation) began at 12:10 and was incomplete by the end of shift. Compaction for this lift began at 03:50 and was incomplete by the end of shift. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 97.6 % to 99.3 %, though one area required additional compaction to achieve above 95 %. Moisture content ranged from 3.7 % to 4.6 % MC. One of which falls below the targeted BGC method specification requirements for moisture content.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and the 11 tonne vibratory roller or using three passes with the 9 tonne vibratory roller. Each pass was

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

- Excavators loaded structural fill from the upper ADR as well the Event Pond which have been previously approved by BGC. Material was fine, with less than 30 % over 19 mm and with material smaller under 150 mm particle size. During the shift the lower ADR stockpile was yielding coarser, drier material. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm loose lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Structural fill was placed in the “In-Sump” Heap Leach Facility area. Three lifts were placed at 0.45 m loose lift thickness. The first lift was placed at 45 cm lift thickness and was therefore compacted with 2 passes with the 13.4 tonne vibratory compactor. Successive lifts were placed at 30 cm and were compacted with 4 passes with the 6 tonne CAT 54 B vibratory compactor. One compaction test at elevation 915.88 m was conducted. The tested location exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 97.0 %. Moisture content ranged from 4.1%.
- Structural fill was placed in the “940 Bench” of the Heap Leach Facility area. One lift was placed at 30 cm and was also compacted using the 6 tonne CAT 54 B vibratory compactor.
- Structural fill was placed in 2 lifts directly adjacent to the east abutment to tie in the embankment over the Cobalt Road. Each lift was compacted using either the 13.4 or 11 tonne vibratory compactor and was captured by survey. Additional loads were required to blend in the existing roadway to allow for Cobalt hauling. Future lifts may also require to be built out to accommodate the 2.5:1 (H:V) slope of the embankment.
- Approximately 234 loads using CAT 777 haul trucks during the shift. Assuming 36 m^3 per load, a total of 8,424 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- None.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Structural fill stockpile, top of ADR.



Photo 2: Typical structural fill gradation from upper ADR stockpile.



Photo 3: Typical structural fill gradation from Event Pond.



Photo 4: Placement of lift 923.30 m.



Photo 5: Placement of structural fill at Heap Leach Facility In-Sump and 940 areas.



Photo 6: Cobalt road tie in prior to placement.



Photo 7: Cobalt road tie in after placement and compaction of first lift.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 20, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☑	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Structural fill was also coming from a source called Event Pond Road stockpile. Material was inspected and approved by BGC.
Lift #133: Design elevation 936.87 m. Average elevation 936.84 m.
Lift #134: Design elevation 937.14 m. Average elevation 937.13 m.
Lift #135: Design elevation 937.58 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	20-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

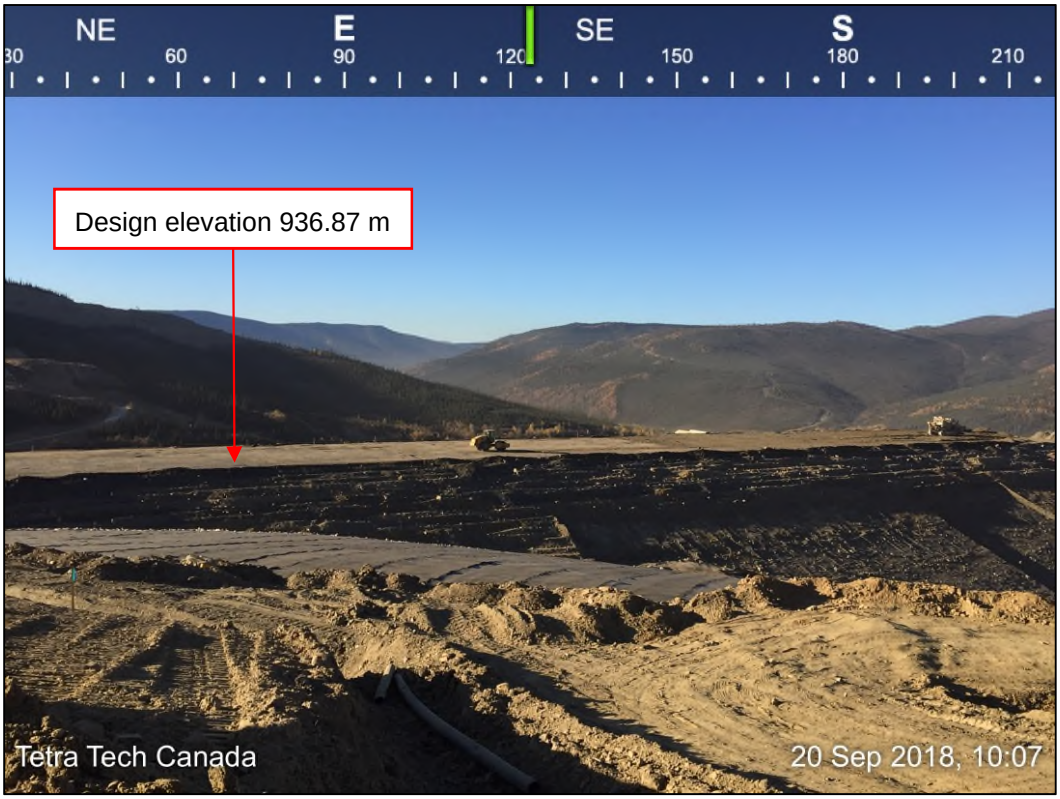


Photo 1 – Embankment progress.

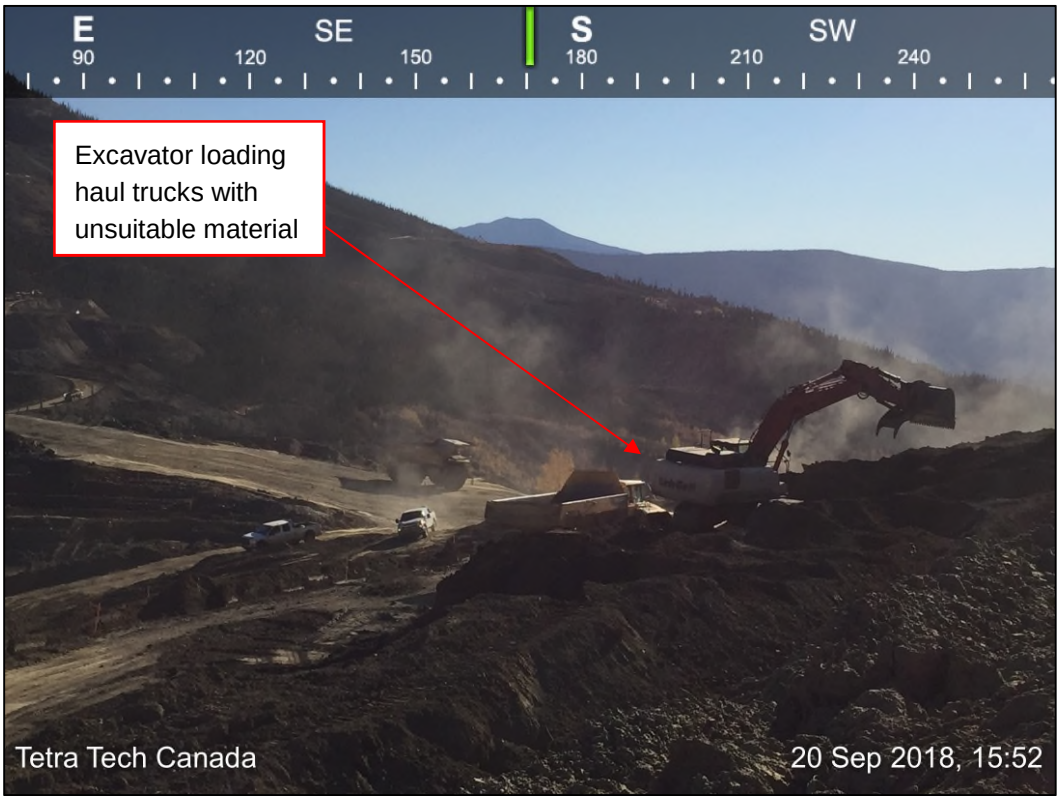


Photo 2 – View of HLF West abutment.



Photo 3 - Typical gradation of material from ADR Upper Structural Fill stockpile.

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 20, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 9°C
File:	ENG.WARC03235-05.003		Low -2°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11.5	Placing fill - Embankment
	CAT D-6 Dozer with GPS	11.5	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading fill - Event Pond
	Hitachi 1200 Shovel	10.5	Loading Structural fill from upper Stockpile
	6 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Placement of lift elevation 937.58 m (design elevation) resumed at the start of shift and was completed by 20:00. Compaction for this lift resumed at the beginning of shift and was completed by 21:00. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 98.0 % to 100.6 %. Moisture content ranged from 3.7 % to 5.6 % MC. As built average elevation of lift surveyed 0.12 m below the design elevation at 937.46 m.

- Placement of lift elevation 937.91 m (design elevation) began at 20:00 and was completed by 23:50. Compaction for this lift began at 21:30 and was completed by 00:30. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.5 % to 99.5 %. Moisture content ranged from 4.3 % to 4.7 % MC. As built average elevation of lift surveyed 0.03 m below the design elevation at 937.88 m.

- Placement of lift elevation 938.33 m (design elevation) began at 23:50 and was completed by 03:45. Compaction for this lift began at 02:00 and was completed by 04:30. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The remaining tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.9 % to 98.7 %. Moisture content ranged from 4.4 % to 4.6 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation at 938.29 m.

- Placement of lift elevation 938.74 m (design elevation) began at 03:45 and was incomplete by the end of shift. Compaction for this lift began around 06:00 and was incomplete by the end of shift.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Excavators loaded structural fill from the upper ADR which has been previously assessed by BGC.
- Material from this location appeared to have less than 30 % over 19 mm and are under 150 mm particle size. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and 11 tonne or using three passes with the 9 tonne vibratory roller for lifts using structural fill from the ADR and Event Pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm for lifts containing only ADR material. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.

3.0 DISCUSSION/OTHER

- Periodic soil temperatures of loose placed material ranged from 1.9°C to 4.9°C.
- Small lifts were placed to elevations 923.20, 923.65, 924.06, and 924.49 m at the far west end of the embankment, with ADR material. Lift thickness was approximately 45 cm, which satisfies the BGC method specification requirements of 50 cm maximum loose lift thickness.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441



Photo 1: Progress at the start of nightshift, looking west



Photo 2: Gradation of Upper ADR structural fill



Photo 3: Dozer preparing east slope for the next lift



Photo 4: Excavator removing material from the spillway tie-in area

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 21, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☑	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Lift #138: Design elevation 938.74 m. Average elevation 938.69 m.
Lift #139: Design elevation 939.14 m. Average elevation 939.10 m.
Lift #140: Design elevation 939.50 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	21-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 21, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 8°C
File:	ENG.WARC03235-05.003		Low -1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	2	Placing fill - Embankment
	CAT D-6 Dozer with GPS	11	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from upper Stockpile
	Hitachi 1200 Shovel	11	Loading undesirable material
	Hitachi 1200 Shovel	11	Loading undesirable material
	Linkbelt 490	9	Moving undesirable material to be loaded
	6 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Placement of lift elevation 925.66 m (design elevation) resumed at the start of shift and was completed by 20:30. Compaction for this lift resumed at the beginning of shift and was completed by 21:00. As built average elevation of lift surveyed 0.05 m below the design elevation at 925.61 m.

- Placement of lift elevation 926.06 m (design elevation) began at 20:30 and was completed by 23:00. Compaction for this lift began at 21:30 and was completed by 00:00. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 98.2 %. Moisture content at 4.1 % MC. As built average elevation of lift surveyed 0.06 m below the design elevation at 926.00 m.

- Placement of lift elevation 926.45 m (design elevation) began at 23:00 and was completed by 01:30. Compaction for this lift began at 00:30 and was completed by 02:30. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 98.0 %. Moisture content at 4.5 % MC. As built average elevation of lift surveyed 0.14 m below the design elevation at 926.31 m.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Placement of lift elevation 926.76 m (design elevation) began at 01:30 and was completed by 04:20. Compaction for this lift began at 03:00 and was completed by 04:40. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 98.7 %. Moisture content at 4.0 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation at 926.72 m.
- Placement of lift elevation 927.14 m (design elevation) began at 04:20 and was incomplete by the end of shift.
- Excavators loaded structural fill from the upper ADR which has been previously assessed by BGC.
- Material from this location appeared to have less than 30 % over 19 mm and are under 150 mm particle size. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and 11 tonne or using three passes with the 9 tonne vibratory roller for lifts using structural fill from the ADR. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm for lifts containing only ADR material. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Undesirable material was removed from the spillway tie-in area using three excavators throughout the shift.

3.0 DISCUSSION/OTHER

- Periodic soil temperatures of loose placed material ranged from 3.2°C to 4.3°C.
- Construction steps for tying into the existing embankment on the west side was discussed with BGC and Pelly. The dozer is required to cut into the existing embankment slope 2.5 m every two lifts, to ensure proper tie-in.
- Ensuring that no structural fill is placed on water puddles or ice was discussed with Pelly. If water or ice is found during construction, they must be removed, before construction can continue.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441



Photo 1: Progress at the start of nightshift, looking west



Photo 2: Gradation of Upper ADR structural fill



Photo 3: Excavators removing material from the spillway tie-in area

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 22, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☑	☐	☐	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☑	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
West lift #22: Design elevation 927.17 m. Average elevation 927.08 m.
West lift #23: Design elevation 927.53 m. Average elevation 927.48 m.
West lift #24: Design elevation 927.93 m. Average elevation 927.88 m.
West lift #25: Design elevation 928.33 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	22-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 22, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Light Rain
Client:	JDS		High 6°C
File:	ENG.WARC03235-05.003		Low 1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing fill - Embankment
	CAT D-6 Dozer with GPS	11.5	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from upper Stockpile
	Hitachi 1200 Shovel	11	Loading undesirable material
	Hitachi 1200 Shovel	9	Loading undesirable material
	Linkbelt 490	2	Loading undesirable material
	6 x CAT 777 Haul Truck	11	Hauling structural fill to embankment
	CAT 773 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Placement of lift elevation 928.33 m (design elevation) resumed at the start of shift and was completed by 22:30. Compaction for this lift resumed at the beginning of shift and was completed by 23:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 95.3 %. Moisture content was at 4.6 % MC. As built average elevation of lift surveyed 0.03 m below the design elevation at 928.30 m.
- Placement of lift elevation 928.75 m (design elevation) began at 22:30 and was completed by 04:45. Compaction for this lift began at 23:15 and was incomplete by the end of shift. As built average elevation of lift surveyed 0.04 m below the design elevation at 928.71 m.
- Excavators loaded structural fill from the upper ADR and in-heap leach which have both been previously assessed by BGC.
- Material from this location appeared to have less than 30 % over 19 mm and are under 150 mm particle size. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and 11 tonne or using three passes with the 9 tonne vibratory roller for lifts using structural fill from the ADR. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm for lifts containing only ADR material. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Undesirable material was removed from the spillway tie-in area using two excavators throughout the shift.

3.0 DISCUSSION/OTHER

- Periodic soil temperatures of loose placed material ranged from 3.0°C to 3.5°C.
- Falling material from the slope above was noticed on the west end of the embankment.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441



Photo 1: Progress at the start of nightshift, looking west



Photo 2: Gradation of Upper ADR structural fill



Photo 3: Excavators removing material from the spillway tie-in area



Photo 4: Compacting the structural fill

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 23, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Density test was completed during Pelly's lunch break under the supervision of BGC.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	23-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 23, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 8°C
File:	ENG.WARC03235-05.003		Low 1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	-	Placing fill - Embankment
	CAT D-6 Dozer with GPS	-	Placing fill - Embankment
	Hitachi 1200 Shovel	-	Loading Structural fill from upper Stockpile
	Hitachi 1200 Shovel	11	Loading undesirable material
	Hitachi 1200 Shovel	-	Loading undesirable material
	Linkbelt 490	4	Loading undesirable material
	6 x CAT 777 Haul Truck	11	Hauling undesirable material from embankment
	CAT 773 Haul Truck	11	Hauling undesirable material from embankment
	CAT CS 78 B Compactor	-	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Undesirable material was removed from the spillway tie-in area using excavators. Material was removed until bedrock was exposed.
- Material above the bedrock was sloped to ensure safe work when close to the slopes.

3.0 DISCUSSION/OTHER

- N/A

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441



Photo 1: Excavator removing material from the spillway tie-in area



Photo 2: Dozer sloping material above the bedrock



Photo 3: Excavators removing material from the spillway tie-in area

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 24, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Structural Fill	☐	☐	☑
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☐	☐	☑
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☐	☐	☑
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☐	☐	☑
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☐	☐	☑
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☐	☐	☑	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☐	☐	☑	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☐	☐	☑	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☐	☐	☑	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☐	☐	☑	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☐	☐	☑	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Unable to spot check site due to other JDS QC requests.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	24-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 24, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Rain
Client:	JDS		High 6°C
File:	ENG.WARC03235-05.003		Low 1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing fill - Embankment
	CAT D-6 Dozer with GPS	11	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from upper Stockpile
	Hitachi 1200 Shovel	11	Loading undesirable material
	Linkbelt 490	3	Moving undesirable material
	6 x CAT 777 Haul Truck	11	Hauling undesirable material from embankment
	CAT 773 Haul Truck	11	Hauling undesirable material from embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	CAT CS 68 B Compactor	1	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Placement of lift elevation 929.55 m (design elevation) resumed at the start of shift and was completed by 21:30. Compaction for this lift resumed at the beginning of shift and was completed by 22:45. As built average elevation of lift surveyed 0.06 m below the design elevation at 929.51 m.
- Placement of lift elevation 929.96 m (design elevation) resumed at the start of shift and was completed by 00:30. Compaction for this lift resumed at the beginning of shift and was completed by 01:45. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 96.0 %. Moisture content was at 3.9 % MC. As built average elevation of lift surveyed 0.06 m below the design elevation at 929.90 m.
- Placement of lift elevation 930.35 m (design elevation) began at 00:30 and was completed by 06:00. Compaction for this lift began at 23:15 and was incomplete by the end of shift. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 99.3 %. Moisture content was at 4.4 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation at 930.31 m.
- Excavators loaded structural fill from the upper ADR which have both been previously assessed by BGC.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Material from this location appeared to have less than 30 % over 19 mm and are under 150 mm particle size. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and 11 tonne or using three passes with the 9 tonne vibratory roller for lifts using structural fill from the ADR. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm for lifts containing only ADR material. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Undesirable material was removed from the spillway tie-in area using two excavators throughout the shift.

3.0 DISCUSSION/OTHER

- Periodic soil temperatures of loose placed material ranged from 3.6°C to 4.6°C.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441



Photo 1: Progress at the start of nightshift, looking west



Photo 2: Dozer sloping material above the bedrock



Photo 3: Placing and compacting material

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 25, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Excavator overcut material on the East side of the embankment. BGC was notified.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	25-Sep-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – West embankment progress.



Photo 2 – View of east embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Anthony Schoepp
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	September 25, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 7°C
File:	ENG.WARC03235-05.003		Low -1°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D-10 Dozer	11	Placing fill - Embankment
	CAT D-6 Dozer with GPS	11	Placing fill - Embankment
	Hitachi 1200 Shovel	11	Loading Structural fill from upper Stockpile
	Hitachi 1200 Shovel	10	Loading undesirable material
	Linkbelt 490	1	Moving undesirable material
	6 x CAT 777 Haul Truck	11	Hauling structural fill to the embankment
	CAT 773 Haul Truck	11	Hauling structural fill to the embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Compaction of lift elevation 931.14 resumed at the beginning of shift and was completed by 22:45.
- Placement of lift elevation 931.59 m (design elevation) resumed at the start of shift and was completed by 22:00. Compaction for this lift resumed at the beginning of shift and was completed by 23:45. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging between 96.5 to 98.3 %. Moisture content ranged between 3.7 to 4.0 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation at 931.55 m.
- Placement of lift elevation 932.00 m (design elevation) began at 22:00 and was completed by 03:30. Compaction for this lift began at 23:15 and was completed by 05:15. Compaction and moisture content testing as conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2272 kg/m^3 at 100.3 %. Moisture content was at 3.9 % MC. As built average elevation of lift surveyed 0.04 m below the design elevation at 931.96 m.
- Placement of lift elevation 932.00 m (design elevation) began at 3:30 and was incompleted by the end of shift. Compaction for this lift began at 5:15 and was incomplete by the end of shift.
- Excavators loaded structural fill from the upper ADR and in-leach heap which have both been previously assessed by BGC.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Material from this location appeared to have less than 30 % over 19 mm and are under 150 mm particle size. Oversized cobbles or boulders that were placed were removed prior to compaction.
- Compaction for the embankment was completed using at least two passes (back and forth) of the 13.4 tonne and 11 tonne or using three passes with the 9 tonne vibratory roller for lifts using structural fill from the ADR and in-leach heap. Each pass was conducted with sufficient overlap and complete coverage over the compacted area, which meets the BGC method specification requirement for structural fill.
- Ongoing grade checks during placement by contractor using a CAT D-6 Dozer equipped with GPS. Survey confirmed that the average surveyed lift elevation was placed at approximately 45 cm for lifts containing only ADR material. This satisfies the BGC method specification requirements of 50 cm maximum loose lift thicknesses.
- Undesirable material was removed from the spillway tie-in area using an excavator throughout the shift.

3.0 DISCUSSION/OTHER

- Periodic soil temperatures of loose placed material ranged from 3.7°C to 5.7°C.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Anthony Schoepp, B.Sc.
Geotechnical Engineer-In-Training
Tetra Tech Canada Inc.
Anthony.Schoepp@tetratech.com
Direct +1 (587) 460-3441

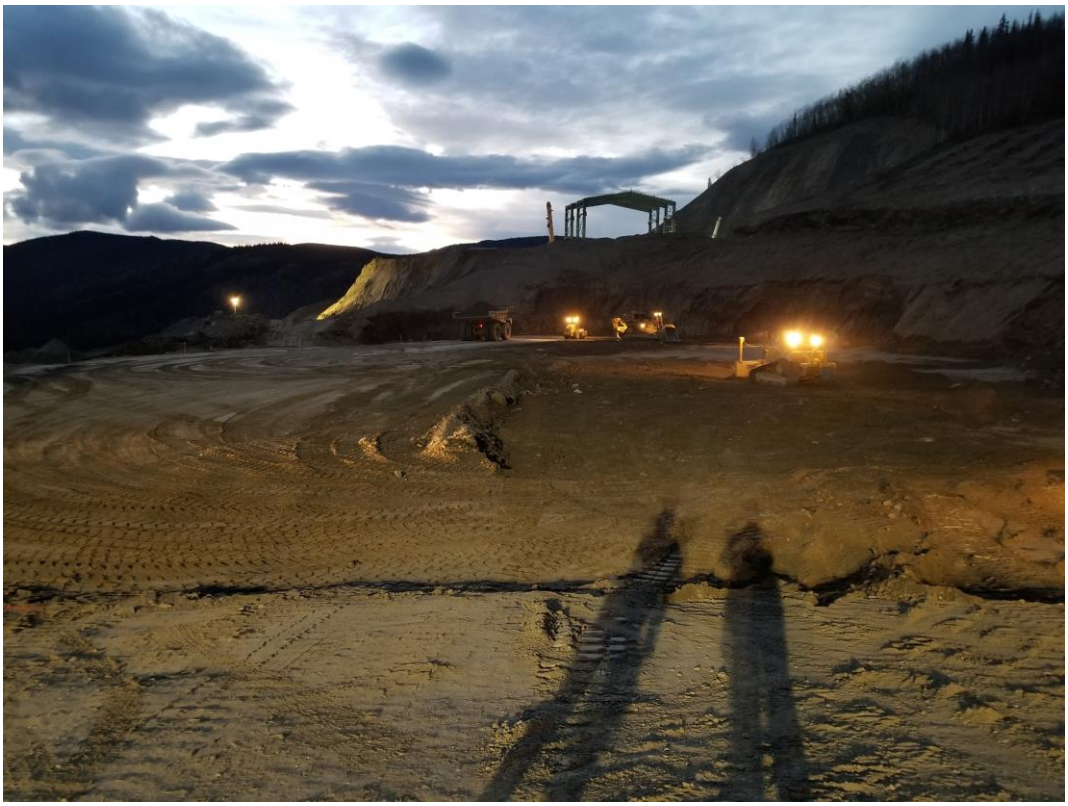


Photo 1: Progress at the start of nightshift, looking west



Photo 2: Gradation of Upper ADR structural fill



Photo 3: Dozer keying into the ramp



Photo 4: Loading in-leach heap material

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	September 26, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	26-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	September 27, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted sections using a nuclear densometer.
2 tests performed and achieved a compaction of 97.6% and 96.9% with 5.2% and 4.1% moisture respectively.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	27-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	September 28, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 99.4% with 3.8% moisture.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	28-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	September 29, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 98.8% with 4.9% moisture.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	29-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	September 30, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	30-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 1, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 95.9% with 3.8% moisture at elevation of 939.5.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	1-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 2, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Water pumping observed at event pond. Material to be removed and observed by BGC.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	2-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 3, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	3-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 4, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 101.8% with 4.3% moisture at lift 14.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	4-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 5, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 102.0% with 4.7% moisture at lift 23.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	5-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 20, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☐	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☐	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☐	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☐
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☐	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☐	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	20-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 14, 2018

Material Sources	Accept	N/A	Initals	Material Consistancy	Accept	N/A	Initals
ADR Upper Structural Fill	☑	☐		Material Type: Structural Fill	☑	☐	
Event Pond Structural Fill	☑	☐		Gradation: Roughly <30% over 19 mm	☑	☐	
ADR Lower Structural Fill (Type 3 Stockpile 2	☐	☑		Gradation: Roughly >10% fines	☑	☐	
ADR East Structural Fill	☐	☑		Oversize material removed	☑	☐	
HLF West Side Slope Structrual Fill	☑	☐		Uniform grading (not gap graded)	☑	☐	
Embankment Overbuild	☐	☑		Ice/Frozen material	☑	☐	
Other (specify):	☐	☑		Organics	☑	☐	

Placed Assessment	Accept	N/A	Initals	Compaction	Accept	N/A	Initals
Design Lift Elevation(s):	☑	☐		CAT CS78B: 2 passes at 45 cm	☑	☐	
As-built Lift Elevation(s):	☑	☐		CAT CS68B: 3 passes at 45 cm	☑	☐	
Lift thickness < 45 cm loose placed	☑	☐		Volvo SD160: 2 passes at 45 cm	☐	☑	
Lift keyed into abuttment and tied in	☑	☐		CAT CS54B: 4 passes at 30 cm	☐	☑	
Lift built out to toe stakes	☑	☐		Speed roughly under 4 km/hr	☑	☐	
Lift placed on approved bedrock/suitable	☑	☐		Sufficient overlap between passes	☑	☐	
Access/Egres ramps built out	☑	☐		Soft spots identified/removed if required	☐	☑	
Survey as-built lift	☐	☑		Compaction testing conducted	☑	☐	

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the shift.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	14-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 18, 2018

Material Sources	Accept	N/A	Initals	Material Consistancy	Accept	N/A	Initals
ADR Upper Structural Fill	☑	☐	ME	Material Type: Structural Fill	☑	☐	ME
Event Pond Structural Fill	☑	☐	ME	Gradation: Roughly <30% over 19 mm	☑	☐	ME
ADR Lower Structural Fill	☐	☑	ME	Gradation: Roughly >10% fines	☑	☐	ME
ADR East Structural Fill	☐	☑	ME	Oversize material removed	☑	☐	ME
HLF West Side Slope Structural Fill	☑	☐	ME	Uniform grading (not gap graded)	☑	☐	ME
Embankment Overbuild	☐	☑	ME	Ice/Frozen material	☑	☐	ME
Other (specify):	☐	☑	ME	Organics	☑	☐	ME

Placed Assessment	Accept	N/A	Initals	Compaction	Accept	N/A	Initals
Design Lift Elevation(s):	☑	☐	ME	CAT CS78B: 2 passes at 45 cm	☑	☐	ME
As-built Lift Elevation(s):	☑	☐	ME	CAT CS68B: 3 passes at 45 cm	☑	☐	ME
Lift thickness < 45 cm loose placed	☑	☐	ME	Volvo SD160: 2 passes at 45 cm	☐	☑	ME
Lift keyed into abuttment and tied in	☑	☐	ME	CAT CS54B: 4 passes at 30 cm	☐	☑	ME
Lift built out to toe stakes	☑	☐	ME	Speed roughly under 4 km/hr	☑	☐	ME
Lift placed on approved bedrock/suitable	☑	☐	ME	Sufficient overlap between passes	☑	☐	ME
Access/Egres ramps built out	☑	☐	ME	Soft spots identified/removed if required	☐	☑	ME
Survey as-built lift	☑	☐	ME	Compaction testing conducted	☑	☐	ME

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the shift.
Lift #123: Design elevation 932.85 m. Average elevation 932.85 m.
Lift #124: Design elevation 933.30 m. Average elevation 933.26 m.
Lift #125: Design elevation 933.71 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	18-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 19, 2018

Material Sources	Accept	N/A	Initals	Material Consistancy	Accept	N/A	Initals
ADR Upper Structural Fill	☑	☐	ME	Material Type: Structural Fill	☑	☐	ME
Event Pond Structural Fill	☑	☐	ME	Gradation: Roughly <30% over 19 mm	☑	☐	ME
ADR Lower Structural Fill	☐	☑	ME	Gradation: Roughly >10% fines	☑	☐	ME
ADR East Structural Fill	☐	☑	ME	Oversize material removed	☑	☐	ME
HLF West Side Slope Structural Fill	☑	☐	ME	Uniform grading (not gap graded)	☑	☐	ME
Embankment Overbuild	☐	☑	ME	Ice/Frozen material	☑	☐	ME
Other (specify):	☐	☑	ME	Organics	☑	☐	ME

Placed Assessment	Accept	N/A	Initals	Compaction	Accept	N/A	Initals
Design Lift Elevation(s):	☑	☐	ME	CAT CS78B: 2 passes at 45 cm	☑	☐	ME
As-built Lift Elevation(s):	☑	☐	ME	CAT CS68B: 3 passes at 45 cm	☑	☐	ME
Lift thickness < 45 cm loose placed	☑	☐	ME	Volvo SD160: 2 passes at 45 cm	☐	☑	ME
Lift keyed into abuttment and tied in	☑	☐	ME	CAT CS54B: 4 passes at 30 cm	☐	☑	ME
Lift built out to toe stakes	☑	☐	ME	Speed roughly under 4 km/hr	☑	☐	ME
Lift placed on approved bedrock/suitable	☑	☐	ME	Sufficient overlap between passes	☑	☐	ME
Access/Egres ramps built out	☑	☐	ME	Soft spots identified/removed if required	☐	☑	ME
Survey as-built lift	☑	☐	ME	Compaction testing conducted	☑	☐	ME

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the shift.
Lift #127: Design elevation 934.49 m. Average elevation 934.45 m.
Lift #128: Design elevation 934.90 m. Average elevation 934.84 m.
Lift #129: Design elevation 935.29 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	19-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 20, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☑	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Structural fill was also coming from a source called Event Pond Road stockpile. Material was inspected and approved by BGC.
Lift #133: Design elevation 936.87 m. Average elevation 936.84 m.
Lift #134: Design elevation 937.14 m. Average elevation 937.13 m.
Lift #135: Design elevation 937.58 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	20-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 22, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☑	☐	☐	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☑	☐	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
West lift #22: Design elevation 927.17 m. Average elevation 927.08 m.
West lift #23: Design elevation 927.53 m. Average elevation 927.48 m.
West lift #24: Design elevation 927.93 m. Average elevation 927.88 m.
West lift #25: Design elevation 928.33 m.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	22-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 23, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Density test was completed during Pelly's lunch break under the supervision of BGC.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	23-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Mark Estrada	September 24, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Structural Fill	☐	☐	☑
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☐	☐	☑
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☐	☐	☑
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☐	☐	☑
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☐	☐	☑
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☐	☐	☑	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☐	☐	☑	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☐	☐	☑	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☐	☐	☑	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☐	☐	☑	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☐	☐	☑	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Unable to spot check site due to other JDS QC requests.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	24-Sep-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 6, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 99.4% with 5.3% moisture at elevation 858.25

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	6-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 7, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 101.4% with 6.7% moisture at east lift 11a . Elevation: 854.75 m

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	7-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 8, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 95.3% with 6.9% moisture at east lift 17a . Elevation: 856.55 m

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	8-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 9, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed and achieved a compaction of 101.5% with 4.8% moisture at east lift 40 . Elevation: 860.95 m

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	9-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 10, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
2 test performed on lift 46 and achieved a compaction of
1) 102.8% with 6.0% moisture and 2) 96.2% with 3.2% moisture

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	10-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 11, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☑	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☑	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
2 test performed on lift 46 and achieved a compaction of
1) 100.2% with 6.1% moisture and 2) 93.6% with 12.0% moisture

Lift 47 was rejected, and is to be completely removed, and replaced with competent material.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	11-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 12, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☑	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☑	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
3 test performed, achieved compaction and mositure of:
1) 97.0% with 6.2% moisture; lift 26B
2) 97.6% with 6.9% moisture; lift 26B
3) 96.7% with 6.4% moisture; lift 25B

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	12-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 13, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☑	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
4 test performed, achieved compaction and mositure of:
1) 97.8% with 5.7% moisture; lift 30B
2) 97.0% with 6.5% moisture; lift 30B
3) 99.0% with 5.9% moisture; lift 31B
4) 97.1% with 5.3% moisture; lift 31B

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	13-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	Event Pond	Mark Estrada	October 16, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	16-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 17, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Lift 60 and 61 were placed.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	17-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Typical gradation of material.



Photo 2 – Typical gradation of material.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 18, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Lifts 62 and 63 were placed.
Event Pond material was coming from a borrow source below the ADR foundation.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	18-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #62.



Photo 2 – View of Event Pond pad lift #62.



Photo 3 – Typical gradation of material from borrow source located south of ADR pad.



Photo 4 – Material borrow source located south of ADR pad.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 19, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Lift #63 was completed. Started to place lift #64.
Event Pond material was coming from a borrow source below the ADR foundation.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	19-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #63.



Photo 2 – View of Event Pond pad lift #64.



Photo 3 – Typical gradation of material from borrow source located south of ADR pad.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 20, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished placing lift #65. Started to place lift #66.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	20-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #65



Photo 2 – View of Event Pond pad lift #65.



Photo 3 – Typical gradation of material.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 21, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished lift #66. Started to place lift #67.
Sample was taken from haul truck load on lift #67 for moisture test.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	21-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #66

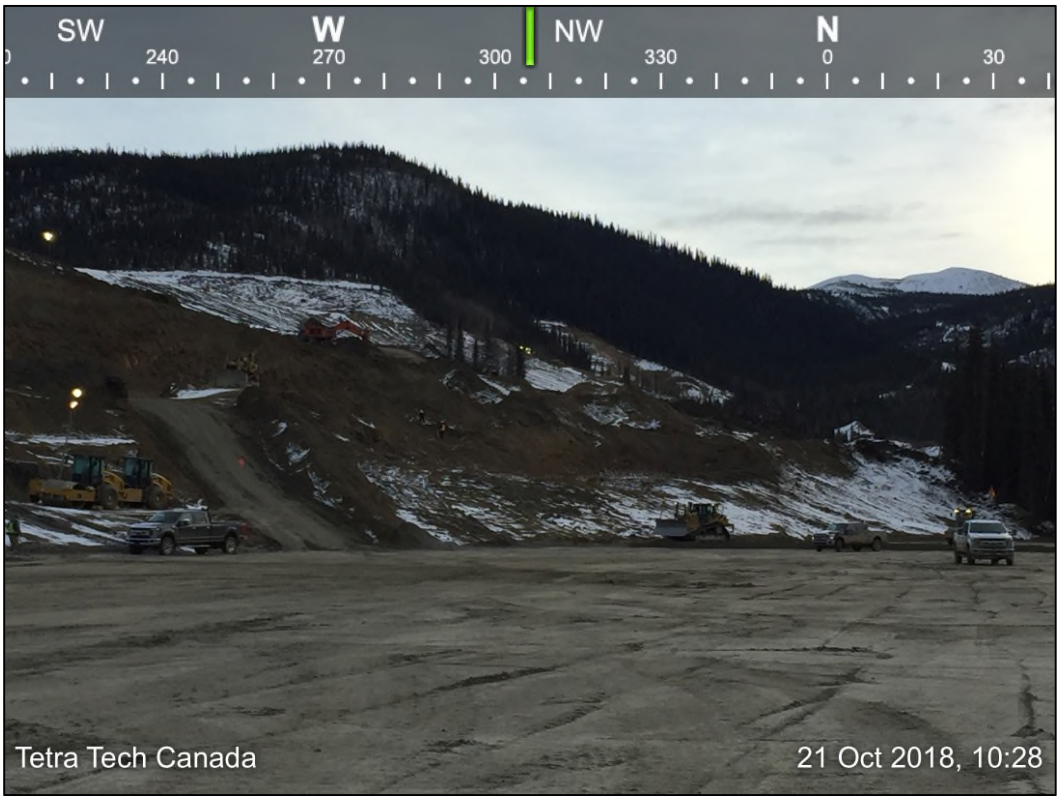


Photo 2 – Placement of lift #67.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 22, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished lift #69. Started to place lift #70.
Structural fill is coming from borrow sources West of the Event pond and below the ADR pad.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	22-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Borrow source located east of Event Pond.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 23, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Placed lift #71 (871.30 m elevation). Started lift #72 (871.60 m elevation).
Material came from HLF and Access Ramp borrow sources.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	23-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Typical gradation of material from Heap Leach Facility borrow source.



Photo 2 – View of Event Pond lift #72.



Photo 3 – View of Event Pond lift #72.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 24, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Material coming from HLF and Spillway borrow. Some boulders were observed in the material and were
removed from the lift. CAT 56B 6.7 tonne vibratory soil compactor was also used for compaction.
Lifts #75 (871.50 m elevation) and #76 (871.80 m elevation) were placed.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	24-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Compaction of lift #75 (871.50 m elevation).



Photo 2 – Typical gradation of material from HLF borrow source.



Photo 3 – View of Event Pond abutment.



Photo 4 – Placement of material for lift #76 (871.80 m elevation).



Photo 5 – View of Event Pond drain.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 25, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Material coming from HLF and Spillway borrow. Some boulders were observed in the material and were
removed from the lift. Material appeared coarse. CAT 56B 6.7 tonne vibratory soil compactor was also used for
compaction.
Lifts #79 (872.70 m elevation) and #80 (873.00 m elevation) were placed and compacted.
Started placing lift #81 (873.30 m elevation).

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	25-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Photo of Event Pond north abutment.



Photo 2 – Photo of Event Pond underdrain backfilled and compacted.

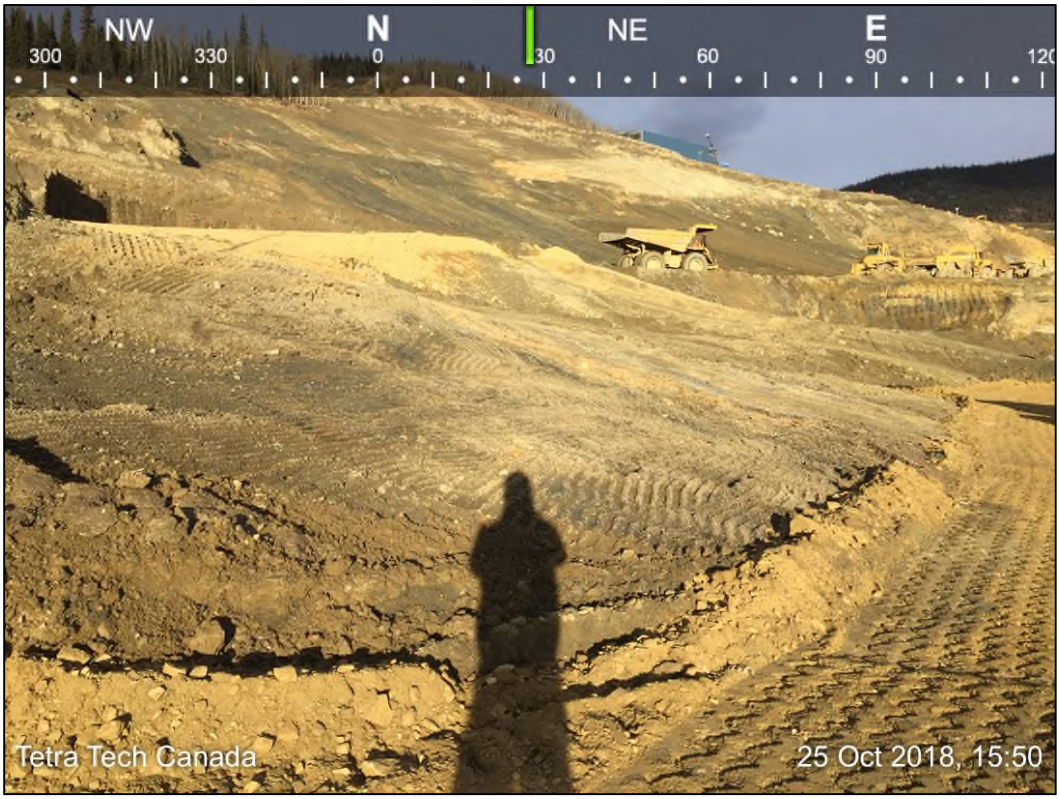


Photo 3 – Photo of Event Pond center abutment.



Photo 4 – Typical gradation of material from HLF borrow.



Photo 5 – Photo of HLF borrow source.



Photo 6 – Photo of Spillway borrow source.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 26, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Material coming from HLF and Spillway borrow. Some boulders were observed in the material and were
removed from the lift. Material appeared coarse. CAT 56B 6.7 tonne vibratory soil compactor was also used for
compaction.
Lifts #83 (873.9 m elevation) and #84 (874.2 m elevation) were placed and compacted.
Sample was taken from Spillway borrow for gradation test on lift #84.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	26-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

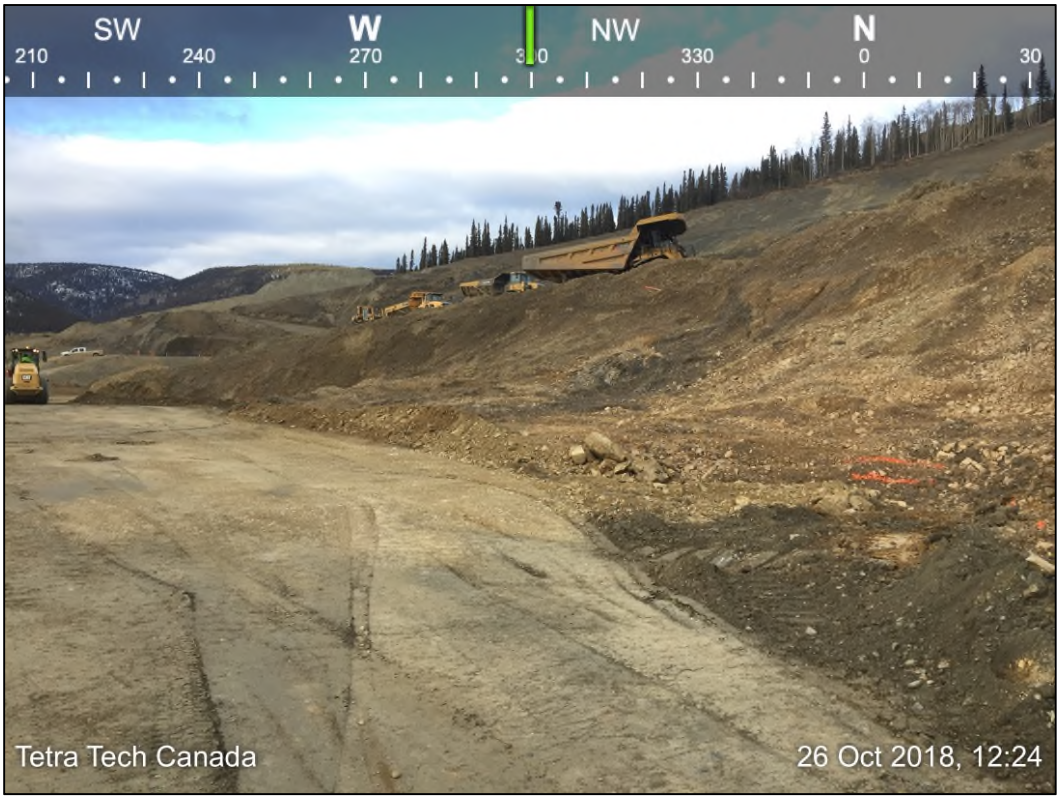


Photo 1 – Photo of Event Pond north abutment.



Photo 2 – Photo of Event Pond south abutment.



Photo 3 – Photo of HLF borrow source.



Photo 4 – Photo of dozer stripping material at HLF borrow source.



Photo 5 – Photo of second dozer stripping material at HLF borrow source.



Photo 6 – Photo of Spillway borrow source.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 27, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Material coming from HLF and Spillway borrow. Some boulders were observed in the material and were
removed from the lift. Material appeared coarse. CAT 56B 6.7 tonne vibratory soil compactor was also used for
compaction.
Sample was taken from Spillway borrow for gradation test on lift #86.
Lifts #86 (874.8 m elevation) and #87 (875.1 m elevation) were placed and compacted. Started lift #88.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	27-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

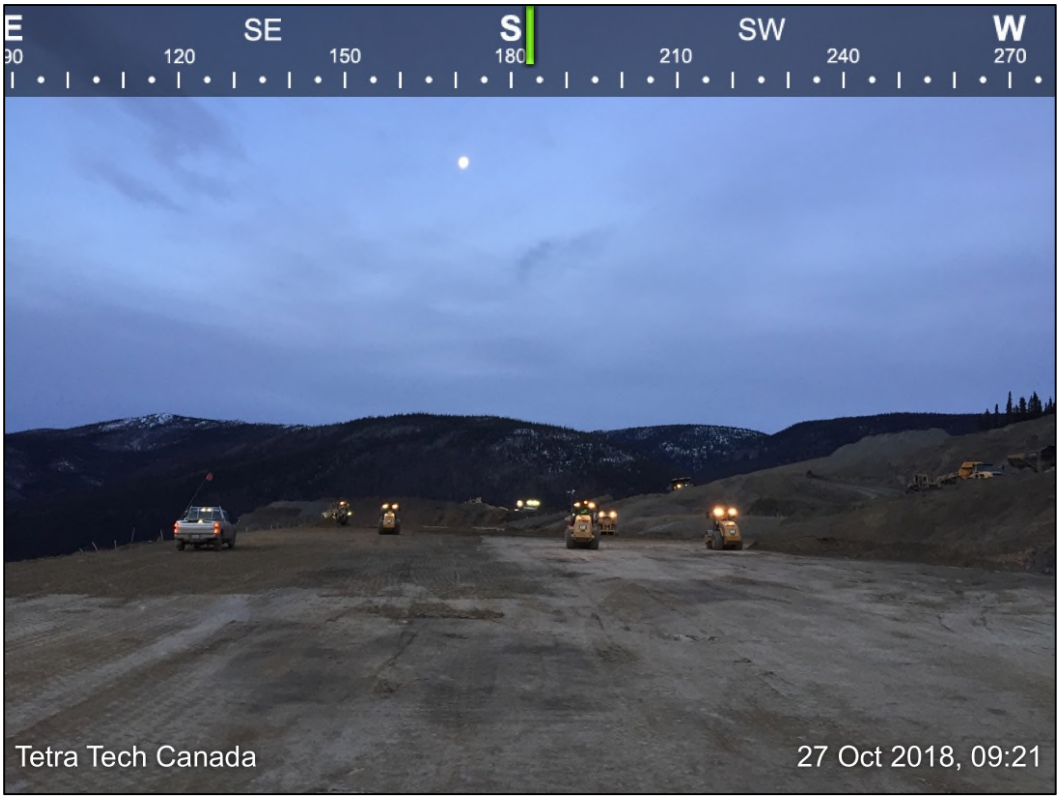


Photo 1 – Finishing lift #86 (874.8 m elevation) left by nightshift.

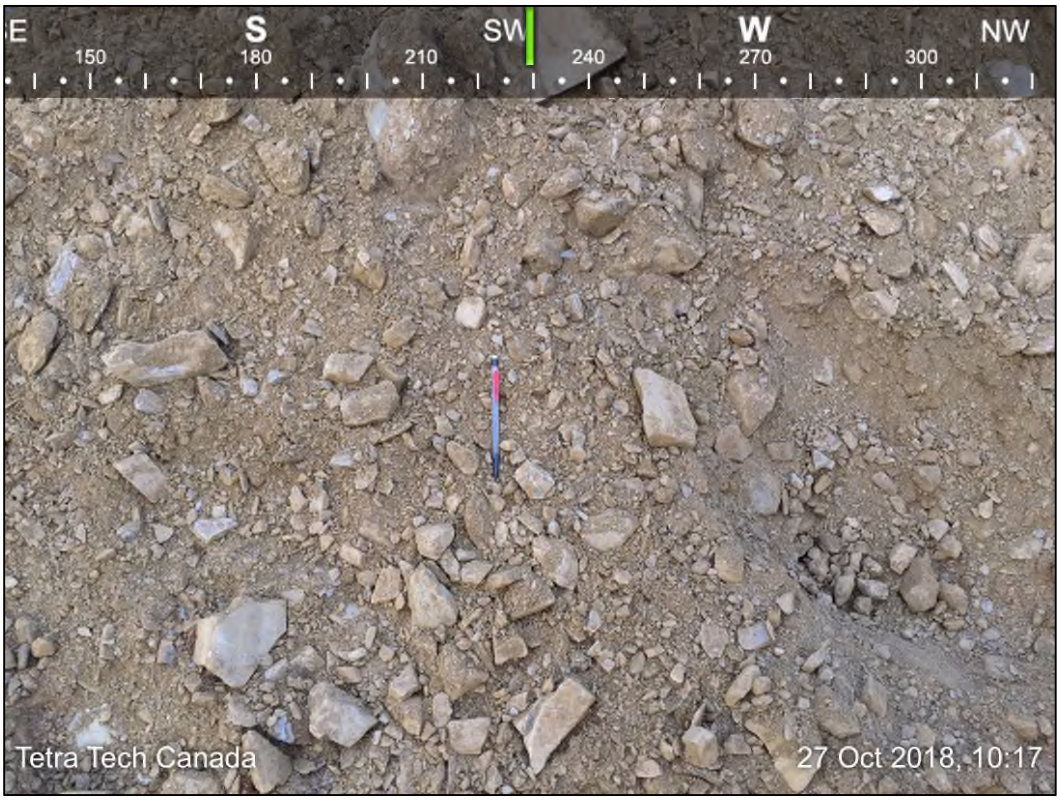


Photo 2 – Typical gradation of material from HLF borrow source.



Photo 3 – Typical gradation of material from Spillway borrow source.



Photo 4 – Photo of HLF borrow source. Material appears increasingly coarse.



Photo 5 – Photo of Spillway borrow source. Hauling unsuitable material.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 28, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
HLF Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
Spillway Structural Fill	☑	☐	☐	Gradation: Roughly >10% fines	☑	☐	☐
	☐	☐	☐	Oversize material removed	☑	☐	☐
	☐	☐	☐	Uniform grading (not gap graded)	☑	☐	☐
	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 5 passes at 30 cm	☑	☐	☐
Lift thickness < 30 cm loose placed	☑	☐	☐	CAT CS56B: 5 passes at 30 cm	☑	☐	☐
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 5 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Some boulders were observed in the material and were removed from the lift. Material appeared coarse.
Sample was taken from HLF borrow for gradation test on lift #89.
Completed lifts #88 (875.4 m elevation) and #89 (875.7 m elevation) were placed and compacted. Started lift #90
(876.0 m elevation).

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	28-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Photo of Spillway borrow source.

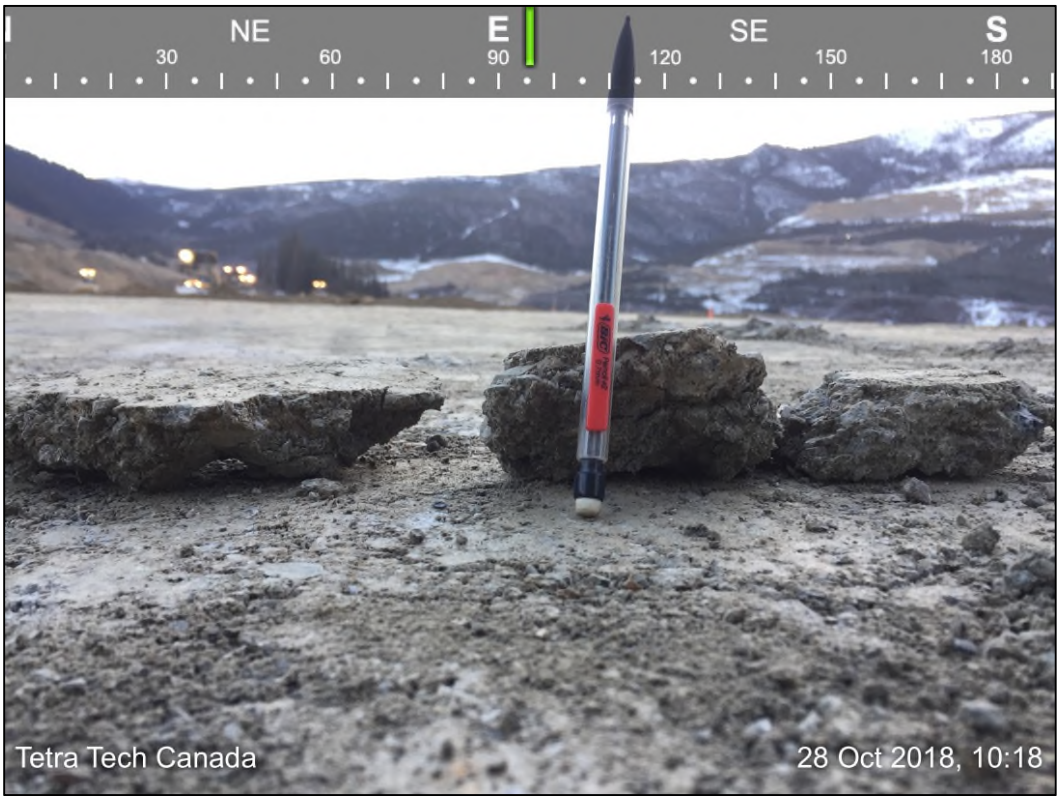


Photo 2 – Photo of compacted frozen material. Approximately 30 mm thick.



Photo 3 – Typical gradation of material from HLF borrow source.



Photo 4 – Temperature of loose HLF material before placement and compaction.



Photo 5 – Grubbing of material along the north side of the Event Pond.



Photo 6 – Photo of HLF borrow source. Loader down for maintenance.

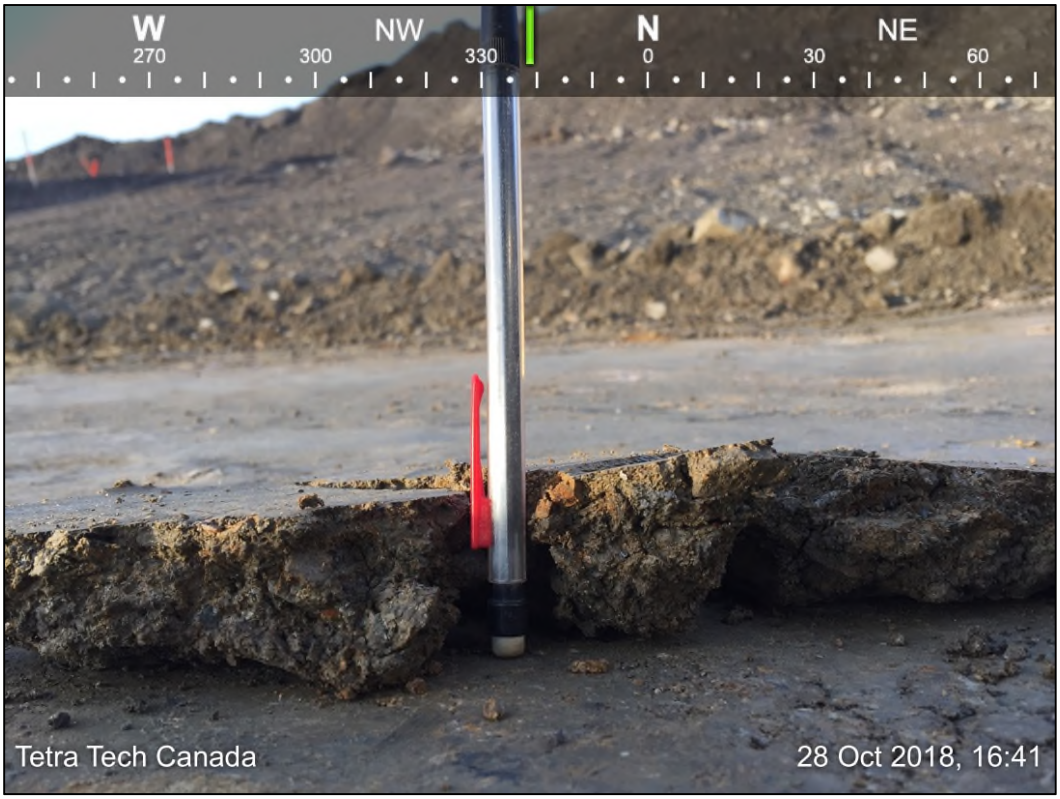


Photo 7 – Photo of compacted frozen material. Approximately 30 mm thick.



Photo 8 – Temperature of HLF material after compaction.



Photo 9 – View of compacted material. No visible ice observed.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 29, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
HLF Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
Spillway Structural Fill	☑	☐	☐	Gradation: Roughly >10% fines	☑	☐	☐
	☐	☐	☐	Oversize material removed	☑	☐	☐
	☐	☐	☐	Uniform grading (not gap graded)	☑	☐	☐
	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 5 passes at 30 cm	☑	☐	☐
Lift thickness < 30 cm loose placed	☑	☐	☐	CAT CS56B: 5 passes at 30 cm	☑	☐	☐
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 5 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Some boulders were observed in the material and were removed from the lift. Material appeared coarse.
Test fills was completed on Upper ADR blast borrow material and on HLF borrow material. Compaction tests
were completed on each of the materials after 4+ passes with the CAT CS54B, and then with 4+ passes with
the CAT CS68B compactor.
Completed lift #91 (876.3 m elevation) placed and compacted. Started lift #92 (876.6 m elevation).
Lift #91 was scraped approximately 15 cm down from surface to remove frozen layer and then compacted.
Density test results were below 95% compaction with a 2270kg/m3 proctor. Placement stopped by BGC
until further notice.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	29-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Photo of Event Pond test pit.



Photo 2 – Temperature of loose material inside of Event Pond test pit.

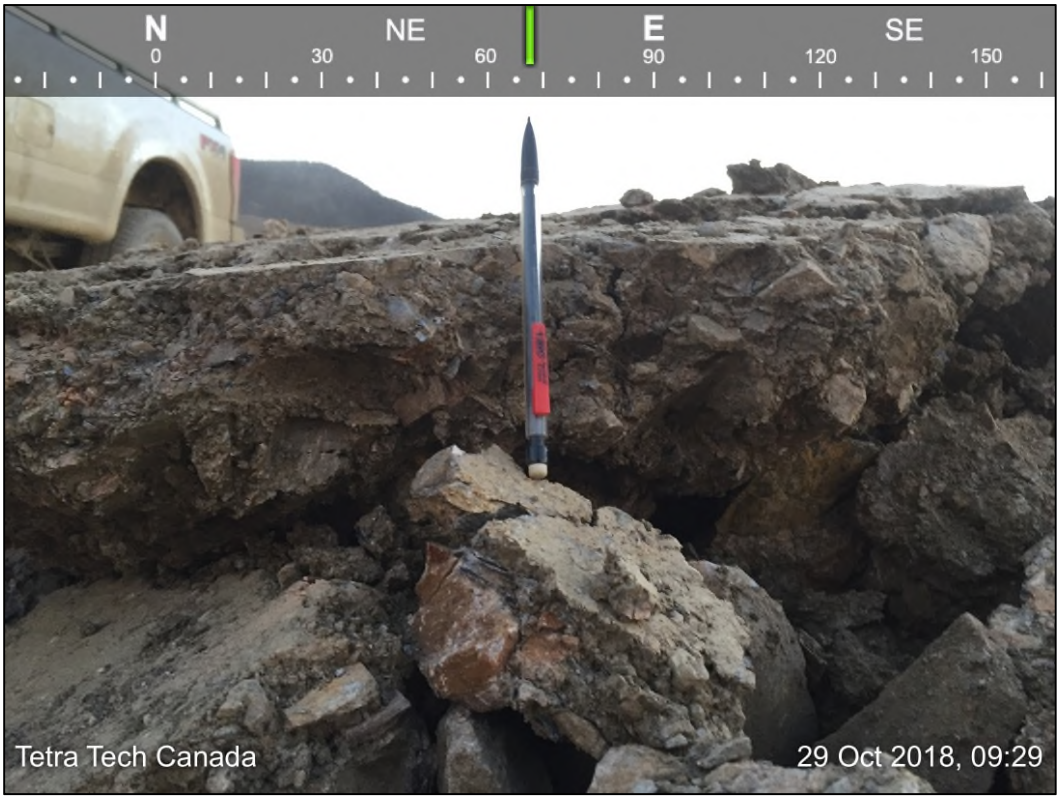


Photo 3 – Photo of frozen material from Event Pond test pit. Approximately 10 cm thick.

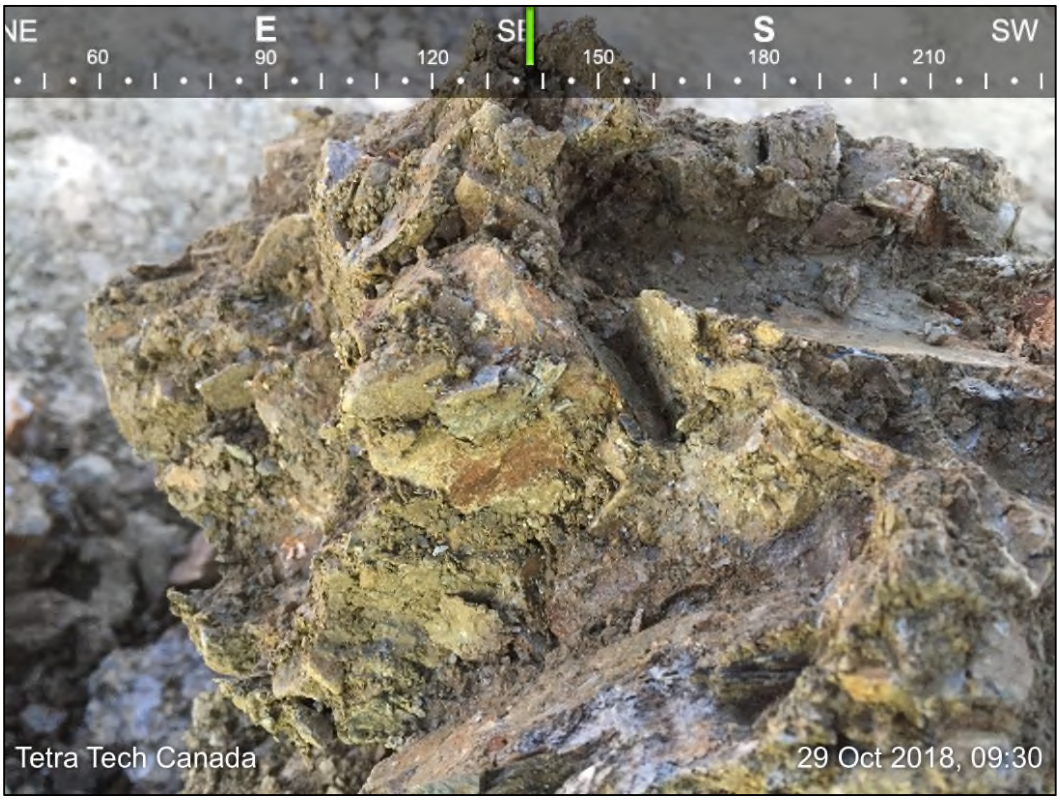


Photo 4 – Close-up of frozen material. No ice was observed.



Photo 5 – Scarifying surface with Dozer tracks. Frozen layer was still observed on the surface.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 30, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☐	☐	☑
HLF Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☐	☐	☑
Spillway Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☐	☐	☑
	☐	☐	☐	Oversize material removed	☐	☐	☑
	☐	☐	☐	Uniform grading (not gap graded)	☐	☐	☑
	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☐	☐	☑	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☐	☐	☑	CAT CS68B: 5 passes at 30 cm	☐	☐	☑
Lift thickness < 30 cm loose placed	☐	☐	☑	CAT CS56B: 5 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☐	☐	☑	CAT CS54B: 5 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☐	☐	☑	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☐	☐	☑	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Placement of fill suspended until further notice.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	30-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 31, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☐	☐	☑
HLF Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☐	☐	☑
Spillway Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☐	☐	☑
	☐	☐	☐	Oversize material removed	☐	☐	☑
	☐	☐	☐	Uniform grading (not gap graded)	☐	☐	☑
	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☐	☐	☑	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☐	☐	☑	CAT CS68B: 5 passes at 30 cm	☐	☐	☑
Lift thickness < 30 cm loose placed	☐	☐	☑	CAT CS56B: 5 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☐	☐	☑	CAT CS54B: 5 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☐	☐	☑	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☐	☐	☑	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Placement of fill suspended until further notice. Contractor is expected to place late this week or early next week.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	31-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	November 1, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☐	☐	☑
HLF Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☐	☐	☑
Spillway Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☐	☐	☑
	☐	☐	☐	Oversize material removed	☐	☐	☑
	☐	☐	☐	Uniform grading (not gap graded)	☐	☐	☑
	☐	☐	☐	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☐	☐	☑	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☐	☐	☑	CAT CS68B: 5 passes at 30 cm	☐	☐	☑
Lift thickness < 30 cm loose placed	☐	☐	☑	CAT CS56B: 5 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☐	☐	☑	CAT CS54B: 5 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☐	☐	☑	Speed roughly under 4 km/hr	☐	☐	☑
Lift placed on approved bedrock/suitable	☐	☐	☑	Sufficient overlap between passes	☐	☐	☑
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Placement of fill suspended until further notice. Contractor is expected to place late this week or early next week.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	1-Nov-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 12, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☑	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☑	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
3 test performed, achieved compaction and mositure of:
1) 97.0% with 6.2% moisture; lift 26B
2) 97.6% with 6.9% moisture; lift 26B
3) 96.7% with 6.4% moisture; lift 25B

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	12-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 12, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High -1°C
File:	ENG.WARC03235-05.005		Low -8°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading material 2 fill from event pond
	3 x CAT 777 Haul Tuck	11	Hauling material 2 fill to the event pond
	CAT CS 78B Compactor	10	Compacting material 2 fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift 28B at elevation 861.00 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 95.6. Moisture content was 46 % MC.
- Placement and compaction of east event pond lift 29B at elevation 861.30 m (design elevation) was completed during shift.
- Placement and compaction of east event pond lift 30B at elevation 861.6 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 96.8% with a moisture content was 4.7 %.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Placement and compaction of east event pond lift 31B elevation 861.90 m was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 97.0% with a moisture content was 4.6 %.
- Placement and compaction of east event pond lift 32B elevation 860.10 m was started during shift and was not completed before the end of shift.
- Type 2 bedrock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill.
- Compaction for the event pond was completed using at least using two passes (back and forth) with a 13.4 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 0.1°C to 1.0°C.
- Structural fill placed in 45 cm loose lift thickness in the West HLF downstream spillway. Compaction for the event pond was completed using at least using three passes (back and forth) with a 9 tonne vibratory compactor. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Five lifts placed at elevations 928.30 m, 928.75 m, 929.20 m, 929.65 m, and 930.10 m (design elevations) were placed during shift.
- Compaction and moisture content testing were conducted on compacted sections of lifts 1, 2, and 3 using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranging from 95.1 % to 100.5 % with moisture contents ranging from 4.6 % to 4.7% MC.

3.0 DISCUSSION/OTHER

- Observed fill material coming from event pond area. Larger quantities of oversized material found in areas of the source. Smaller coarse aggregates were blended into suitable material, while excessive oversized were pulverized by dozer or sorted out of the source.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Event pond embankment Lift 28B placement. Facing east.



Photo 2: Gradation of event pond site grading fill.



Photo 3: Removal of accumulated snow on side slope prior to lift placement. Facing north.



Photo 4: Gradation of event pond site grading fill. More coarse areas on left.



Photo 5: Placement of lift 31B.



Photo 6: Placed load of fill beginning to look coarse.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	HLF Embankment	Edgar Lopez-Negrete	October 13, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☑	☐
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Event Pond:
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
4 test performed, achieved compaction and mositure of:
1) 97.8% with 5.7% moisture; lift 30B
2) 97.0% with 6.5% moisture; lift 30B
3) 99.0% with 5.9% moisture; lift 31B
4) 97.1% with 5.3% moisture; lift 31B

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	13-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 13, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Overcast, snow
Client:	JDS		High 1°C
File:	ENG.WARC03235-05.005		Low 0°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading material 2 fill from event pond
	2 x CAT 777 Haul Tucks	11	Hauling material 2 fill to the event pond
	CAT CS 78B Compactor	10	Compacting material 2 fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift 35B at elevation 863.10 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 100.6. Moisture content was 4.4 % MC.
- Placement and compaction of east event pond lift 36B at elevation 863.40 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 95.0 % with a moisture content was 5.0 %.
- Placement and compaction of east event pond lift 37B at elevation 863.70 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 100.1 % with a moisture content was 4.6 %.

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61 Wasson Place
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Tel 867.668.3068 Fax 867.668.4349

- Placement and compaction of east event pond lift 38B elevation 864.00 m was started during shift and was not completed before the end of shift.
- Lift number 49 (863.65 m) which previously failed, was removed throughout the shift. After failing a shallow 100 mm compaction test using nuclear densometer, the remaining half of the lift was also removed. The material for the exposed lift 48 (863.20 m) was recompacted and tested above 95%. Negligible to marginal (approximately 5 mm) was noted during proof rolling with 13.4 tonne vibratory compactor.
- Type 2 rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill.
- Compaction for the event pond was completed using at least using two passes (back and forth) with a 13.4 tonne vibratory compactor and using at least using three passes with a 9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 0.9°C to 2.7°C.

3.0 HLF DOWNSTREAM SPILLWAY

- Structural fill placed in 45 cm loose lift thickness in the West HLF downstream spillway. Compaction for the event pond was completed using at least using three passes (back and forth) with a 9 tonne vibratory compactor. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Three lifts placed at elevations 932.10 m, 9932.55 m, and 933.00 m (design elevations) were placed during shift.
- Compaction and moisture content testing were conducted on compacted sections of lifts 1, 2, and 3 using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranging from 97.3 % to 99.3 % with moisture contents ranging from 4.4 % to 5.7 % MC.

4.0 DISCUSSION/OTHER

- Observed fill material coming from event pond area. Tetra Tech asked to observe borrow area. Material from this area looked more fine than previous days with clumps of fine that appeared partially frozen. This was not used in the event pond.
- Snowfall accumulating on the pad was removed multiple times throughout the shift.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Photo 1: Removal of lift 49 completed in sections.



Photo 2: Gradation of event pond site grading fill.



Photo 3: Gradation of event pond borrow became more fine and contained some frozen lumps.



Photo 4: Recompction of lift 48 after removal of lift 49.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	Event Pond	Edgar Lopez-Negrete	October 14, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed, and achieved compaction of 102.3% with 4.1% mositure on lift 49.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	14-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 14, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High -2°C
File:	ENG.WARC03235-05.005		Low -5°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading material 2 fill from event pond
	4 x CAT 777 Haul Tucks	11	Hauling material 2 fill to the event pond
	CAT CS 78B Compactor	6	Compacting material 2 fill at the event pond
	CAT CS 68B Compactor	10	Compacting material 2 fill at the event pond
	CAT CS 54B Compactor	6	Compacting material 2 fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift elevation 864.00 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 96.8 %. Moisture content was 3.5 % MC.
- Placement and compaction of east event pond lift elevation 864.30 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 95.3 % with a moisture content was 5.0 %.
- Placement and compaction of east event pond lift elevation 864.60 m (design elevation) was completed during shift.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Placement and compaction of east event pond lift elevation 864.90 m (design elevation) was completed during shift.
- Placement and compaction of east event pond lift elevation 865.20 m (design elevation) was started during shift and was not completed before the end of shift.
- Type 2 rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. As instructed by BGC, quartzite dominant fill was mixed with the less suitable phyllite dominant fill material. For marginal quality phyllite dominant fill, every load of fill may be mixed with two loads of quartzite dominant fill.
- Compaction for the event pond was completed using at least using two passes (back and forth) with a 13.4 tonne vibratory compactor, three passes with a 9 tonne vibratory compactor, and 4 passes with the 5.9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 1.9°C.

3.0 HLF DOWNSTREAM SPILLWAY

- Structural fill placed in 45 cm loose lift thickness in the West HLF downstream spillway. Compaction for the event pond was completed using at least using three passes (back and forth) with a 9 tonne vibratory compactor. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Compaction and moisture content testing were conducted on compacted sections of lift elevation 934.50 m using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 at 96.4 % with a moisture content of 5.4 % MC.

4.0 DISCUSSION/OTHER

- None

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Placement and compaction of lift elevation 864.60.



Photo 2: CAT CS54B packer used while CS78B was down.



Photo 3: Gradation of event pond borrow.



Photo 4: Gradation of event pond borrow. Mixed with material above.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	Event Pond	Edgar Lopez-Negrete	October 15, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Compaction and moisture content testing was conducted on compacted section using a nuclear densometer.
1 test performed, and achieved compaction of 100.0% with 5.1% mositure on lift 53.

Edgar Lopez-Negrete	Tetra Tech	**ISSUED FOR REVIEW**	15-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 15, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partial Cloud
Client:	JDS		High 2°C
File:	ENG.WARC03235-05.005		Low -1°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading material 2 fill from event pond
	4 x CAT 777 Haul Tucks	11	Hauling material 2 fill to the event pond
	CAT CS 68B Compactor	10	Compacting material 2 fill at the event pond
	CAT CS 54B Compactor	5	Compacting fill at HLF Spillway

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift elevation 865.20 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 99.4 %. Moisture content was 3.5 % MC.
- Placement and compaction of east event pond lift elevation 865.50 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 95.3 % with a moisture content was 3.5 %.
- Placement and compaction of east event pond lift elevation 865.80 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 95.3 % with a moisture content was 3.6 %.
- Placement and compaction of east event pond lift elevation 866.10 m (design elevation) was started during shift and was not completed before the end of shift.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill.
- Compaction for the event pond was completed using at least using three passes with a 9 tonne vibratory compactor, and 4 passes with the 5.9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 1.2°C.

3.0 HLF DOWNSTREAM SPILLWAY

- Structural fill placed in 30 cm thick loose lifts in the West HLF downstream spillway. Four lifts were placed and compacted during the shift. Compaction for the event pond was completed using at least using three passes (back and forth) with a 6 tonne vibratory compactor. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Compaction and moisture content testing was conducted on three compacted lifts using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranging from 95.3 % to 98.9 % with a moisture contents ranging between 4.3 % and 5.7 % MC.

4.0 DISCUSSION/OTHER

- None

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Gradation of placed event pond fill.



Photo 2: HLF Spillway at elevation 935.50 m.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - HLF Earthworks	Event Pond	Mark Estrada	October 16, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☑	☐	☐	Material Type: Structural Fill	☑	☐	☐
Event Pond Structural Fill	☐	☐	☑	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify):	☐	☐	☑	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 45 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 45 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 45 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☑	☐	☐	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☑	☐	☐	Compaction tests on lift(s):	☐	☐	☑

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	16-Oct-18
QA Representative (Print)	Company/Title	Signature	Date

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 16, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 2°C
File:	ENG.WARC03235-05.005		Low 1°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading fill from event pond
	4 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
	CAT CS 68B Compactor	10	Compacting fill at the event pond
	CAT CS 54B Compactor	10	Compacting fill at event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift elevation 866.10 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 at 100.1 %. Moisture content was 4.1 % MC.
- Placement and compaction of east event pond lift elevation 866.40 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 at 99.4 % with a moisture content was 5.0 %.
- Placement and compaction of east event pond lift elevation 866.70 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2230 kg/m^3 at 99.1 % with a moisture content was 3.4 %.
- Placement and compaction of east event pond lift elevation 867.00 m (design elevation) was started during shift and was not completed before the end of shift.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Quartzite dominant fill was mixed with phyllite dominant fill as per previous BGC recommendations.
- Compaction for the event pond was completed using at least using three passes with a 9 tonne vibratory compactor, and 5 passes with the 5.9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 2.0°C to 2.4°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access and borrow source access was reconfigured to improve production, causing delays in hauling.
- Frozen and unsuitable material was removed from the north side slope of the south embankment for foundation preparation on the east end of the lift. Further removal to be conducted prior to approval from BGC.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Placment of lift elevation 866.40 m.



Photo 2: Gradation of placed event pond fill.



Photo 3: Gradation of placed grey brown “phylite” fill at event pond to be mixed.



Photo 4: Removal of overburden prior to BGC foundation approval.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 17, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC present for construction monitoring throughout the day.
Lift 60 and 61 were placed.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	17-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Typical gradation of material.



Photo 2 – Typical gradation of material.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 17, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 1°C
File:	ENG.WARC03235-05.005		Low -3°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading fill from event pond
	2 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
	CAT CS 68B Compactor	9	Compacting fill at the event pond
	CAT CS 54B Compactor	10	Compacting fill at event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously placed lift elevation 867.30 m (design elevation) was completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 at 100.4 %. Moisture content was 5.5 % MC.
- Placement and compaction of east event pond lift elevation 867.60 m (design elevation) was started during shift and was not completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested area exceeded 95 % of the standard proctor density of 2270 kg/m^3 at 96.7 % with a moisture content was 3.7 %.
- Placement and compaction of east event pond lift elevation 867.90 m (design elevation)
- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Compaction for the event pond was completed using at least using either three passes with a 9 tonne vibratory compactor, or 5 passes with the 5.9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 1.0°C to 2.1°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access roads improved throughout shift.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Placment of lift elevation 867.30 m.



Photo 2: Compacted soil temperature reading.



Photo 3: Gradation of placed fill at event pond.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 18, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Lifts 62 and 63 were placed.
Event Pond material was coming from a borrow source below the ADR foundation.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	18-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #62.



Photo 2 – View of Event Pond pad lift #62.



Photo 3 – Typical gradation of material from borrow source located south of ADR pad.



Photo 4 – Material borrow source located south of ADR pad.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 17, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Clear
Client:	JDS		High 1°C
File:	ENG.WARC03235-05.005		Low -4°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	CAT D6 GPS Dozer	11	Placing fill – event pond
	Linkbelt 490 Excavator	11	Loading fill from event pond
	2 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
	CAT CS 68B Compactor	9	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 867.90 m (design elevation) was not completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranged from 96.1 % to 100.1 %. Moisture content ranged from 4.6 % to 6.0 % MC.
- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine. Contractor notified and remined to mix with coarser material when possible.
- Compaction for the event pond was completed using at least using three passes with a 9 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 1.4°C to 1.7°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

4.0 DISCUSSION/OTHER

- This lift required 1 pass of additional compaction after the initial tests for this lift were marginally low. After additional compaction, the results above were obtained.
- Event pond access roads improved throughout shift. Other haul trucks removing material from event pond.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Finer material required an extra pass to achieve 95 % compaction.



Photo 2: Lift placement at elevation 867.90 m.



Photo 3: Lift placement at elevation 867.90 m.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 19, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Lift #63 was completed. Started to place lift #64.
Event Pond material was coming from a borrow source below the ADR foundation.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	19-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #63.



Photo 2 – View of Event Pond pad lift #64.



Photo 3 – Typical gradation of material from borrow source located south of ADR pad.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 19, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partial Cloud
Client:	JDS		High 4°C
File:	ENG.WARC03235-05.005		Low 1°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer	11	Placing fill – event pond
Linkbelt 490 Excavator	11	Loading fill from event pond
2 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
CAT CS 78B Compactor	6	Compacting fill at the event pond
CAT CS 68B Compactor	6	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 868.20 m (design elevation) was not completed during shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 96.6 %. Moisture content was 6.0 % MC.
- Placement and compaction of event pond lift elevation 868.50 m was started during shift and was not completed before the end of shift.
- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine. Contractor notified and remined to mix with coarser material when possible.
- Compaction for the event pond was completed using at least using three passes with a 9 tonne vibratory compactor or two passes using a 13.4 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 3.0°C to 4.6°C.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access road improved continued throughout shift. Other haul trucks dedicated to removing material from event pond.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Lift at beginning of shift had only marginal snow accumilation.



Photo 2: Lift placement and compaction at elevation 868.20 m.



Photo 3: Gradation of structural fill from event pond borrow.



Photo 4: Surfical rutting prior to additional compaction.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 20, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☐	☐	☑
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished placing lift #65. Started to place lift #66.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	20-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #65



Photo 2 – View of Event Pond pad lift #65.



Photo 3 – Typical gradation of material.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 20, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partial Cloud
Client:	JDS		High 1°C
File:	ENG.WARC03235-05.005		Low -4°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer	10	Placing fill – event pond
Linkbelt 490 Excavator	9	Loading fill from event pond
2 x CAT 777 Haul Tucks	9	Hauling fill to the event pond
CAT CS 78B Compactor	10	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 868.50 m (design elevation) was completed during previous shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 96.6 %. Moisture content was 6.0 % MC.
- Placement and compaction of event pond lift elevation 868.80 m was started during shift and was not completed before the end of shift.
- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine.
- Compaction for the event pond was completed using at least using three passes using a 13.4 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material ranged from 1.3°C to 1.9°C.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access road improved continued throughout shift. Other haul trucks dedicated to removing material from event pond.
- Linkbelt 490 excavator went down at approximately 04:00. Placement of fill was interrupted during down time.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Placement of lift 868.8 m at beginning of shift.



Photo 2: Gradation of structural fill from event pond borrow.



Photo 3: Placement of lift 868.8 m at end of shift.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 21, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☐	☐	☑
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished lift #66. Started to place lift #67.
Sample was taken from haul truck load on lift #67 for moisture test.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	21-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – View of Event Pond pad lift #66

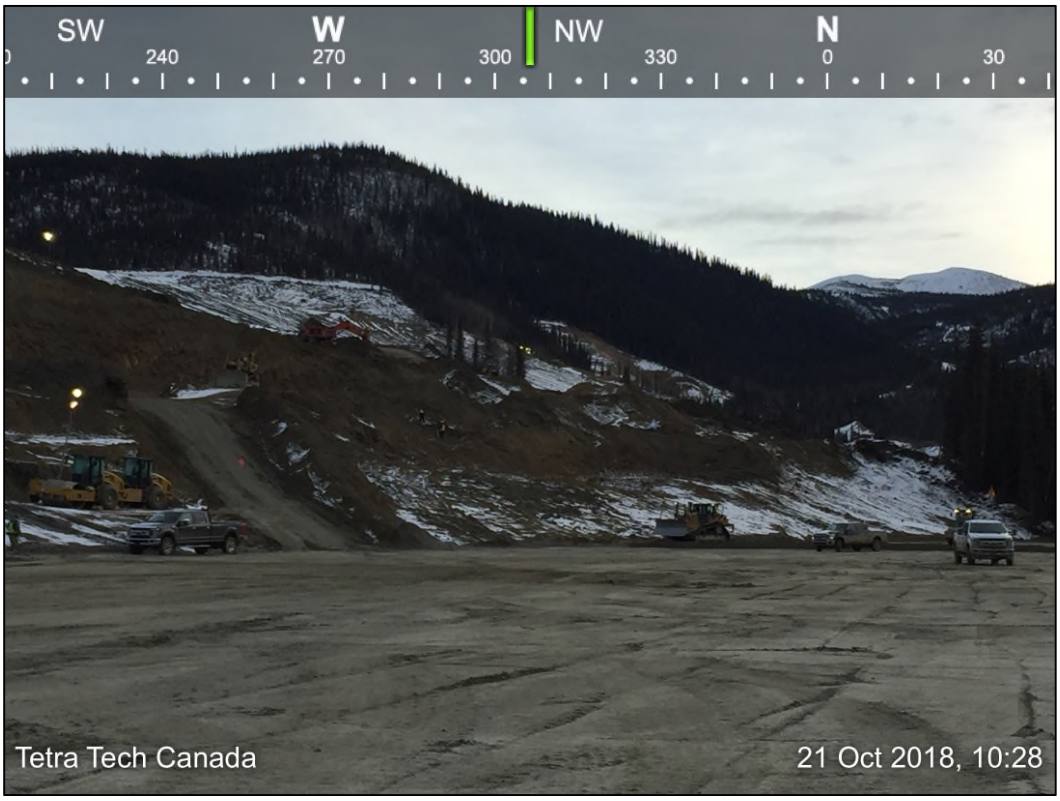


Photo 2 – Placement of lift #67.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 21, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Overcast, light rain
Client:	JDS		High 4°C
File:	ENG.WARC03235-05.005		Low 1°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer	10	Placing fill – event pond
Linkbelt 490 Excavator	9	Loading fill from event pond
2 x CAT 777 Haul Tucks	9	Hauling fill to the event pond
CAT CS 78B Compactor	10	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 869.10 m (design elevation) was not completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 95.1 %. Moisture content was 3.1 % MC.
- Lifts of site grading fill placed for a pad for the Discharge Pipe located in the event pond. A total of ten small lifts were placed during shift. Starting elevation was approximately at elevation 874.23 m. Compaction and moisture content testing were conducted on four of the ten lifts of the compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 95.1 %. Moisture content was 3.1 % MC.
- Type 2 structural fill rock, locally sourced from the north event pond area, was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine.
- Sample of fill from event pond spillway borrow, stockpiled during placement of lift elevation 869.10 m, was obtained for particle size distribution test (sieve gradation).

Tetra Tech Canada Inc.
61 Wasson Place
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- Compaction for the event pond was completed using at least using three passes using a 13.4 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 1.6°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access road improvement continued throughout shift. Other haul trucks dedicated to removing material from event pond.
- South east end of the Discharge Pipe Pad had a ramp feathered out. This material was not placed in controlled 30 cm lifts and was left uncompacted as it was on an inclined slope. Survey staked the appropriate cuts/fills to outline the elevation of 30 cm above the approved foundation (i.e. 1 lift). This material may be cut down to this elevation and compacted or remove the entire sloped ramp area.
- Some areas of the Discharge Pipe Pad may be outside of the approved foundation survey picked up.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Placement of lift 868.80 m at beginning of shift.



Photo 2: Gradation of structural fill from event pond borrow.



Photo 3: Placement of lift in event pond base for pipe discharge pad.



Photo 4: Uncontroled, uncompacted material placed from discharge pad to approved base.



Photo 5: Cut stakes indicate cut to approvable lift thickness in slope. Material may alternatively be removed.

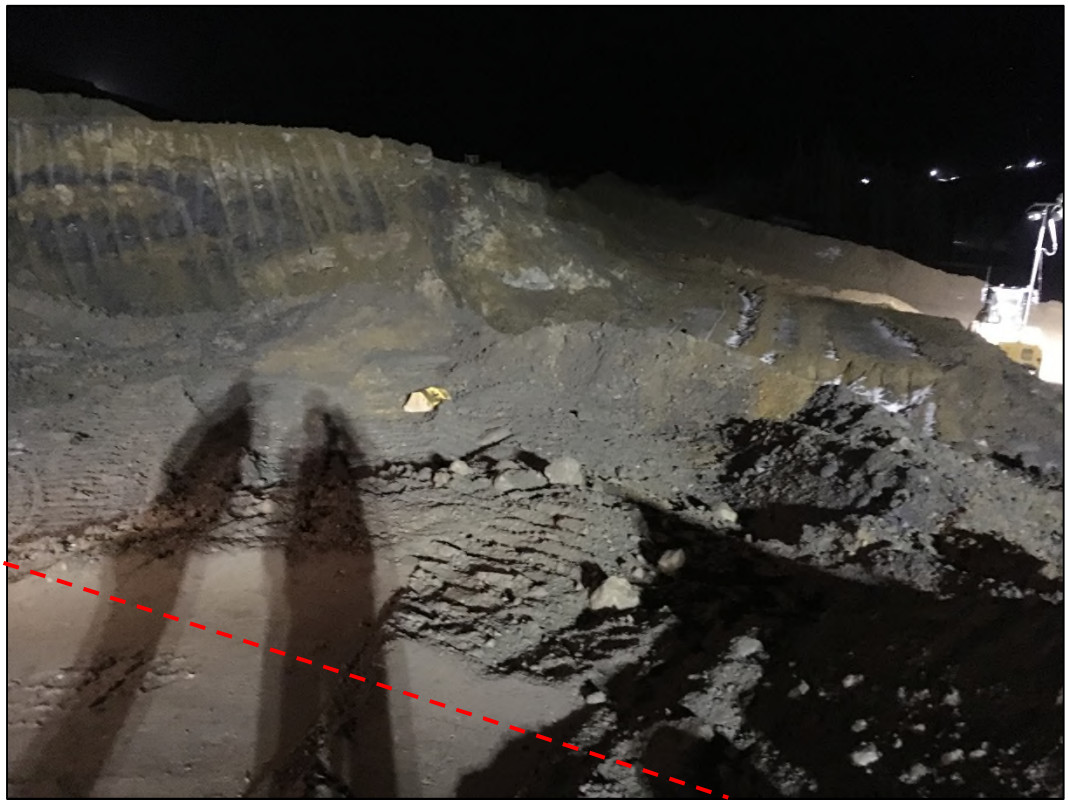


Photo 6: Lift extened beyond surveyed approved foundation.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 22, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☐	☐	☑
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Finished lift #69. Started to place lift #70.
Structural fill is coming from borrow sources West of the Event pond and below the ADR pad.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	22-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Borrow source located east of Event Pond.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 22, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partial Cloud
Client:	JDS		High 1°C
File:	ENG.WARC03235-05.005		Low -1°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer	11	Placing fill – event pond
Linkbelt 490 Excavator	11	Loading fill from event pond
3 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
CAT 773 Haul Tucks	11	Hauling fill to the event pond
CAT CS 78B Compactor	11	Compacting fill at the event pond
CAT CS 68B Compactor	11	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 869.70 m (design elevation) was completed by the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranged from 98.1 % to 101.9 %. Moisture content ranged from 2.8 % to 5.1 % MC.
- Placement and compaction of previously started lift elevation 870.00 m (design elevation) was incomplete by the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 of 100.7 %. Moisture content was 4.9 % MC.
- Lifts of site grading fill placed for a pad for the Discharge Pipe located in the event pond. A total of five small lifts were placed during shift. Elevation was approximately 877.60 m by the end of shift. Compaction and moisture content testing was conducted periodically on the compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 101.2 %. Moisture content was 6.2 % MC.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Type 2 structural fill rock, locally sourced from three areas: North event pond area near HLF, Event Pond Spillway, and the south embankment access ramp. This material was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine.
- Sample of fill from event pond HLF borrow, stockpiled during placement of lift elevation 869.70 m, was obtained for particle size distribution test (sieve gradation).
- Compaction for the event pond was completed using at least using three passes using a 13.4 tonne vibratory compactor for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 1.1°C to 1.9°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Event pond access road improvement continued throughout shift. Other haul trucks dedicated to removing material from event pond.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Lift placement progression of event pond near discharge pipe pad.



Photo 2: Gradation of structural fill from event pond borrow.



Photo 3: Placement of lift 869.70 m for the event pond south embankment.



Photo 4: Placement and compaction of lift 870.00 m.

TETRA TECH

EARTHWORKS
FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 23, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Placed lift #71 (871.30 m elevation). Started lift #72 (871.60 m elevation).
Material came from HLF and Access Ramp borrow sources.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	23-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Typical gradation of material from Heap Leach Facility borrow source.



Photo 2 – View of Event Pond lift #72.



Photo 3 – View of Event Pond lift #72.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 23, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Partial Cloud
Client:	JDS		High 4°C
File:	ENG.WARC03235-05.005		Low 2°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer with GPS	10	Placing fill – event pond
CAT D10 GPS Dozer	10	Placing fill – event pond
Linkbelt 490 Excavator	10	Loading fill from event pond
Hitachi 1200 Shovel	10	Loading fill from event pond
CAT 992 Loader	10	Loading fill from event pond
5 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
CAT CS 68B Compactor	11	Compacting fill at the event pond
CAT CS 56B Compactor	11	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 870.90 m (design elevation) was completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranged from 95.9 % to 99.0 %. Moisture content ranged from 4.4 % to 5.5 % MC.
- Placement and compaction of lift elevation 871.20 m (design elevation) was completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 of 98.4 %. Moisture content was 5.4 % MC.
- Placement and compaction of lift elevation 871.50 m (design elevation) was incomplete by the end of shift.
- Type 2 structural fill rock, locally sourced from three areas: North event pond area near HLF, Event Pond Spillway, and the south embankment access ramp. This material was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

pond as Site Grading Fill. Fill placed in lift looked slightly fine from the spillway and south access ramp borrows, and coarser at the event pond HLF borrow.

- Sample of fill from event pond spillway borrow, stockpiled during placement of lift elevation 872.70 m, was obtained for particle size distribution test (sieve gradation).
- Sample of fill from event pond HLF borrow, stockpiled during placement of lift elevation 871.20 m, was obtained for particle size distribution test (sieve gradation).
- Three areas along the north abutment of the embankment pad were observed to have severe deflection and rutting from softened material which may have resulted from rainfall during the previous shift. These soft areas were excavated with the D6 dozer until more suitable material was observed. The excavated surface was recompacted prior to replacement of removed material. Sub-cut area was backfilled and compacted as per BGC method specifications.
- Compaction along the edges of the event pond was completed using at least using three passes using a 9 tonne vibratory compactor or 5 passes using a 6.4 tonne vibratory compactor for lifts using site grading fill from the event pond. The center of the lift was compacted using one pass with a CAT 777 allowing for sufficient tire overlap and followed by 2 passes with either the 9 tonne or 6.4 tonne vibratory compactor. Although it was relayed to Pelly that this was not an approved method of compaction, it was observed that each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 1.3°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- Fill placement outpaced spreading and compaction resulting in compaction falling behind leaving large areas uncompacted for long periods of time and incomplete key-ins to the abutment.
- Pelly used a CAT 777 to assist the compaction equipment. Tetra Tech informed Pelly that wheel packing was not an approved method for compaction. Pelly proceeded using the CAT 777, so Tetra Tech conducted additional compaction testing for lift elevation 870.90 m and witnessed the compaction that the CAT 777 overlapped the wheel path with successive passes.
- Multiple areas along the north abutment were observed to have softened zones, possibly due to rainfall from the previous shift. Care should be given to remove access water from lift prior to placement of successive lifts. Wet material that has softened on the side slope of the north abutment should be removed to avoid a soft zone when lift is keyed into the slope or directly adjacent to the lift.
- Metal on metal equipment incident resulted in time loss in placement on the event pond embankment. Incident reported by Pelly.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Removal of softened area.



Photo 2: Sub-cut base compacted prior to addition of backfill.



Photo 3: Compaction of backfilled material.



Photo 4: Second softened spot.



Photo 5: Compaction of lift 871.20 m. Wheelpath overlapping observed prior to steel drum compaction.



Photo 6: Excavation of second soft spot.



Photo 7: Compaction of backfilled material.



Photo 8: Haul rate exceeded both comfortable placement and compaction rates.

TETRA TECH

EARTHWORKS

FIELD INSPECTION FORM

Project Name	Location/Element:	Reported By:	Date:
Victoria Gold Mine - Event Pond	South Embankment	Mark Estrada	October 24, 2018

Material Sources	Accept	Reject	N/A	Material Consistancy	Accept	Reject	N/A
ADR Upper Structural Fill	☐	☐	☑	Material Type: Site grading fill	☑	☐	☐
Event Pond Structural Fill	☑	☐	☐	Gradation: Roughly <30% over 19 mm	☑	☐	☐
ADR Lower Structural Fill	☐	☐	☑	Gradation: Roughly >10% fines	☑	☐	☐
ADR East Structural Fill	☐	☐	☑	Oversize material removed	☑	☐	☐
HLF West Side Slope Structrual Fill	☐	☐	☑	Uniform grading (not gap graded)	☑	☐	☐
Embankment Overbuild	☐	☐	☑	Ice/Frozen material	☐	☐	☑
Other (specify): Event Pond site grading fill	☑	☐	☐	Organics	☐	☐	☑

Placed Assessment	Accept	Reject	N/A	Compaction	Accept	Reject	N/A
Design Lift Elevation(s):	☑	☐	☐	CAT CS78B: 2 passes at 30 cm	☑	☐	☐
As-built Lift Elevation(s):	☑	☐	☐	CAT CS68B: 3 passes at 30 cm	☑	☐	☐
Lift thickness < 45 cm loose placed	☑	☐	☐	Volvo SD160: 2 passes at 30 cm	☐	☐	☑
Lift keyed into abuttment and tied in	☑	☐	☐	CAT CS54B: 4 passes at 30 cm	☑	☐	☐
Lift built out to toe stakes	☑	☐	☐	Speed roughly under 4 km/hr	☑	☐	☐
Lift placed on approved bedrock/suitable	☑	☐	☐	Sufficient overlap between passes	☑	☐	☐
Access/Egres ramps built out	☐	☐	☑	Soft spots identified/removed if required	☐	☐	☑
Survey as-built lift	☐	☐	☑	Compaction tests on lift(s):	☑	☐	☐

Remarks/Comments
Tetra Tech on site for spot checks only.
BGC on site for construction monitoring spot checks throughout the day.
Material coming from HLF and Spillway borrow. Some boulders were observed in the material and were
removed from the lift. CAT 56B 6.7 tonne vibratory soil compactor was also used for compaction.
Lifts #75 (871.50 m elevation) and #76 (871.80 m elevation) were placed.

Mark Estrada	Tetra Tech	**ISSUED FOR REVIEW**	24-Oct-18
QA Representative (Print)	Company/Title	Signature	Date



Photo 1 – Compaction of lift #75 (871.50 m elevation).



Photo 2 – Typical gradation of material from HLF borrow source.



Photo 3 – View of Event Pond abutment.



Photo 4 – Placement of material for lift #76 (871.80 m elevation).



Photo 5 – View of Event Pond drain.

TETRA TECH

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Richard Oswell
Project:	Event Pond Earthworks QC/QA	**Date:**	October 24, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Sparse Cloud
Client:	JDS		High 2°C
File:	ENG.WARC03235-05.005		Low -2°C

1.0 EVENT POND CONSTRUCTION SUMMARY

Equipment	Earthworks Hours Worked	Work(Nightshift)
CAT D6 GPS Dozer with GPS	11	Placing fill – event pond
CAT D10 GPS Dozer	11	Placing fill – event pond
Linkbelt 490 Excavator	11	Loading fill from event pond
Hitachi 1200 Shovel	11	Loading fill from event pond
CAT 992 Loader	11	Loading fill from event pond
5 x CAT 777 Haul Tucks	11	Hauling fill to the event pond
CAT CS 68B Compactor	11	Compacting fill at the event pond
CAT CS 56B Compactor	11	Compacting fill at the event pond

2.0 EVENT POND

- Continued placement of site grading fill along the south east downstream toe of the event pond embankment. Tetra Tech provided periodic site visits throughout the shift.
- Lifts were placed at thicknesses not exceeding 30 cm for the south east downstream toe of the event pond embankment.
- Placement and compaction of previously started lift elevation 872.10 m (design elevation) was completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranged from 95.3 % to 97.9 %. Moisture content ranged from 4.3 % to 5.7 % MC.
- Placement and compaction of lift elevation 872.40 m (design elevation) was completed before the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 ranged from 96.9 % to 97.1 %. Moisture content ranged from 4.7 % to 4.8 % MC.
- Placement and compaction of lift elevation 872.70 m (design elevation) was incomplete by the end of shift. Compaction and moisture content testing were conducted on compacted sections using a nuclear densometer. The tested areas exceeded 95 % of the standard proctor density of 2270 kg/m^3 was 98.2 %. Moisture content was 4.5 % MC.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse YT, Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- During placement of lift elevation 872.70 m, additional passes of the D6 dozer were completed to properly key into the abutment slope to aid in compaction near the abutment and avoid loose fill at the edge of the lift.
- Type 2 structural fill rock, locally sourced from three areas: North event pond area near HLF, Event Pond Spillway, and the south embankment access ramp. This material was hauled and placed along the south east downstream toe of the event pond embankment. This fill has been previously approved for use in the event pond as Site Grading Fill. Fill placed in lift looked slightly fine from the spillway and south access ramp borrows, and more coarse at the event pond HLF borrow.
- Compaction along the edges of the event pond was completed using at least using three passes using a 9 tonne vibratory compactor or 5 passes using one of the 6 tonne vibratory compactors for lifts using site grading fill from the event pond. Each pass was conducted with sufficient overlap and complete coverage over the compacted area.
- Periodic soil temperatures of loose placed material were approximately 2.6°C.

3.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

4.0 DISCUSSION/OTHER

- To avoid equipment and vehicles encountering loose material near the south crest of the embankment, the lift may be overbuilt at the crest and safety berms may be constructed to appropriate height. This would prevent equipment from encountering loose material near the edge.

5.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Tetra Tech Canada Inc. - Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com



Photo 1: Gradation of event pond borrow.



Photo 2: Placement of fill for lift elevation 872.10 m near the start of shift.



Photo 3: Sloping material along the north abutment.



Photo 4: Material piled along edge of lift, preventing compaction of edge of lift.



Photo 5: Proper keying in and removal of piled fill.

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Anthony Schoepp
Project:	Event Pond Earthworks QC/QA	**Date:**	October 31, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Light Snow
Client:	JDS		High -10°C
File:	ENG.WARC03235-05.005		Low -15°C

1.0 EVENT POND

- No placement of fill during shift. Contractor removed waste material from event pond area.

2.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

3.0 DISCUSSION/OTHER

- N/A

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

ISSUED FOR REVIEW

Anthony Schoepp, B.Sc.
Geotechnical Engineer-in-Training
Tetra Tech Canada Inc
Direct Line: +1 (587) 460-3441
Anthony.Schoepp@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com

EVENT POND FIELD REPORT

ISSUED FOR REVIEW

To:	Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; Richard Oswell; Scott Dimitroff; Edgar LopezNegrete; Anthony Schoepp; Kate Rogers; John Carnegie.	**From:**	Anthony Schoepp
Project:	Event Pond Earthworks QC/QA	**Date:**	November 1, 2018
Location:	Eagle Gold Mine, YT	**Weather:**	Cloudy
Client:	JDS		High -14°C
File:	ENG.WARC03235-05.005		Low -20°C

1.0 EVENT POND

- No placement of fill during shift. Contractor removed waste material from event pond area.

2.0 HLF DOWNSTREAM SPILLWAY

- No material placed.

3.0 DISCUSSION/OTHER

- N/A

4.0 CLOSURE

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Geotechnical Engineer-in-Training
Tetra Tech Canada Inc
Direct Line: +1 (587) 460-3441
Anthony.Schoepp@tetratech.com

ISSUED FOR REVIEW

James Buyck
Senior Geotechnical Technician
Tetra Tech Canada Inc.
Mobile +1 (250) 668-0472
James.Buyck@tetratech.com

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 4, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 19°C
File:	ENG.WARC03235-02.005		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	Cat D-10 Dozer	10	Placing structural fill at embankment
-	Hitachi 1200 Excavator	8.5	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	8.5	Hauling structural fill to embankment
-	Cat 777 Haul Truck	8.5	Hauling structural fill to embankment
-	Cat 777 Haul Truck	8.5	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment
-	Link Belt 490 Excavator	1.5	Removing loose material at embankment

2.0 HEAP LEACH FACILITY

- Continuation of nightshift's lower embankment lift (892.18 m design elevation), compactor started at 06:30 and finished at 07:30. Two passes were observed with sufficient speed and overlap. Loose lift finished at 07:00. Survey confirmed the average elevation to be 892.15 m, which calculates to be a 0.37 m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m^3 at 100%. The moisture content was 2.9%, which does not comply with BGC requirements.

- Start of lower embankment lift 5A (892.55m design elevation) started at 07:00. Compactor started at 08:15 and finished at 10:00. Two passes were observed with sufficient speed and overlap. Loose lift finished at 09:40. Survey confirmed the average elevation to be 892.60 m, which calculates to be a 0.45 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 96.2% to 99.3%. The moisture content was 3.0% to 4.3%, which does not comply with BGC requirements.

- Start of lower embankment lift 6A (893.0m design elevation) started at 09:45. Compactor started at 10:30 and finished at 14:00. Two passes were observed with sufficient speed and overlap. Loose lift finished at 13:00. Survey confirmed the average elevation to be 892.93 m, which calculates to be a 0.33 m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 96.4% to 100%. The moisture content was 3.1% to 3.9%, which does not comply with BGC requirements.

- Start of lower embankment lift 7A (893.33 m design elevation) started at 13:30. Compactor started at 14:30. Nightshift to continue.

- Structural fill was coming from the ADR stockpile and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to

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p. 780.451.2121 f. 780.454.5688

8%, whereas the material from ADR stockpile has a moisture content of 3 to 4%. Material was slightly coarser than yesterday, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.

- Approximately 81 777 haul truck loads and 30 wiggle haul truck loads were placed during shift. Assuming 36 m^3 per load for the 777 haul truck, and 16 m^3 for the wiggle truck, a total of 3,396 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- Excavators are to load haul trucks with structural fill material only when water conditioning is present.

4.0 CLOSURE

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Mark Estrada E.I.T.
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562

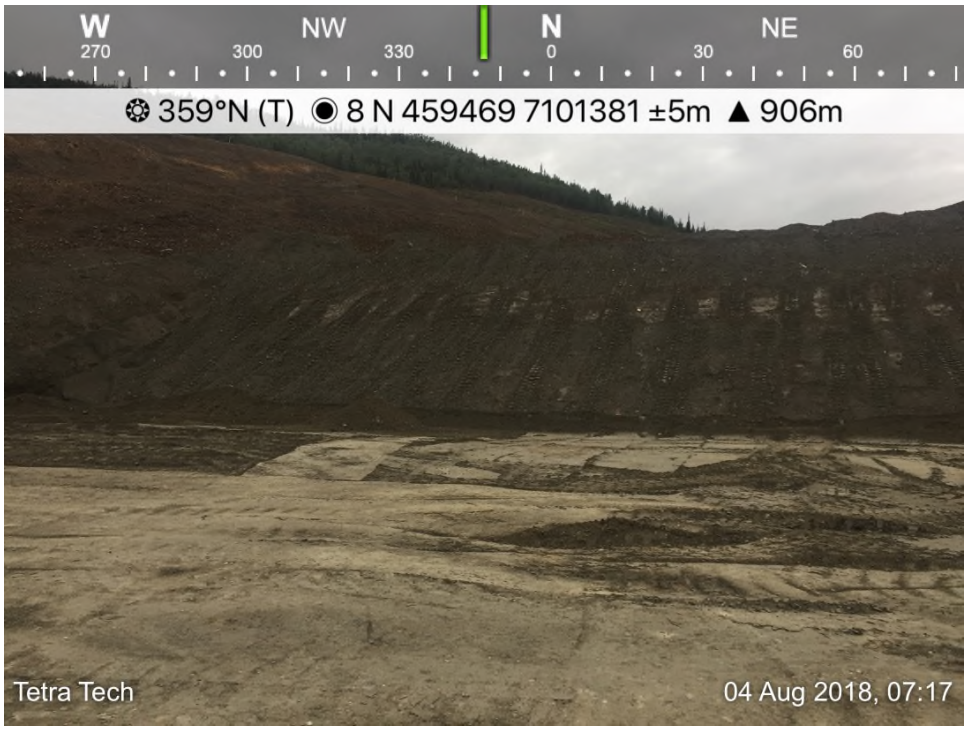


Photo 1 - Start of dayshift.



Photo 2 - Lift 5A progress.



Photo 3 - Density test near toe design.



Photo 4 - Excavator clearing loose material beside East ramp.



Photo 5 - Dozer benching West ramp to prepare for next lift.



Photo 6 - End of dayshift.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 4, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast, light rain 18:30 to 23:00
Client:	JDS		High 14°C
File:	ENG.WARC03235-02.005		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12.5	Placing structural fill
	Hitachi 1200 Shovel	11.5	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	11.5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	11.5	Moisture conditioning aggregates
	Link Belt 250 Excavator	2	Placing structural fill

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment.
- Placement of lift elevation 893.63 m started at 7:15 hours. Placement was completed at 00:10 hours. Compaction for this lift began at 20:00 hours and was completed by 00:50. Compaction and moisture testing was completed by 01:10. Survey was completed by 01:30.
- Placement of lift elevation 893.98 m started at 00:20 hours. Placement was completed at 05:30 hours. Compaction for this lift began at 01:40 hours should be completed by day shift.
- Placement of lift elevation 894.38 m started at 00:20 hours. Placement was incomplete by the end of the shift. Compaction for this lift will begin during next shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size, though more oversized material was required to be removed later in the shift. If oversized cobbles or boulders were noticed in the lift, they were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory roller. Six compaction tests, using the nuclear densometer, were completed. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 97.0 % to 99.6 %. Moisture content ranged from 3.6 % MC to 4.7 % MC, which is below the targeted BGC method specification requirements.

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- Each lift placed was benched into the existing side slope of the elevation 920 m raised lift. The uncompacted side slopes of the existing ramps to the 920 m raised lift were removed. Loose Type 3 Rock with visible voids present in the sidewall of the excavation was as also removed. This complies with the placement methodologies outlined by BGC.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged approximately 5 to 7 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 66 loads were placed during shift. Assuming 36 m^3 per load, a total of 2,376 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of fill on lower embankment slope may be expedited if one or more ramps to the upper 920 m raised lift were removed.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Typical gradation of structural fill.



Placement and compaction of lift elevation 893.63 m.



Benching lift elevation 894.63 m into side slope.



Moisture conditioning of structural fill on ADS stockpile.



Compaction of lift elevation 893.98 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Troy Meyer; Ethan Faber ; Dan Granda;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 18, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 12°C
File:	[Subject]		Low 4°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-6 Dozer	10.5	Placing Rockfill at Embankment
	Cat 345 Excavator	10.5	Loading Rockfill from ADR Stockpile
	Volvo 40 tonne Rock Truck	10.5	Hauling Rockfill to embankment
	Volvo 40 tonne Rock Truck	10.5	Hauling Rockfill to embankment
	Volvo 40 tonne Rock Truck	10.5	Hauling Rockfill to embankment
	CAT CS 68 B Compactor	0.5	Compacting Rockfill at embankment/ Down for repair

2.0 HEAP LEACH FACILITY

- Completed placement of elev. 881.2 lift at 1815 hours. Completed compacting lift at 1830 hours. Survey completed and lift approved at 1900 hours.
- Began placement of elev. 881.95 lift at 1940 hours. Started compaction at 2100 hours. Compactor broke down at 2130 hrs. Placement of the rockfill was completed at 0630 hours.
- BGC design spec requires that the 9 tonne compactor be used for compaction. As a result, the lift was not compacted and cannot be completed until the compactor is repaired.
- Excavator loading out rockfill from the ADR stockpile # 2. This stockpile will be depleted soon.
- Ongoing grade checks during placement by contractor using laser level.
- The load count was 81 loads placed. Assuming 16 m^3 per load, a total of 1,296 m^3 of rockfill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- A new source of rockfill is needed to allow the HLF backfill operation to continue.

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

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Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



"Notching" into slope prior to fill placement



Placing rockfill at embankment



Rockfill material

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 24, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 23°C
File:	[Subject]		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-6 Dozer	7.75	Placing Rockfill at Embankment
	Cat 345 Excavator	7.75	Loading Rockfill from ADR Stockpile
	Volvo 40 tonne Rock Truck	7.75	Hauling Rockfill to embankment
	Volvo 40 tonne Rock Truck	7.75	Hauling Rockfill to embankment
	John Deere 40 tonne Rock Truck	7.75	Hauling Rockfill to embankment
	CAT CS 78 B Compactor	6.5	Compacting Rockfill at embankment

2.0 HEAP LEACH FACILITY

- Completed placement of elev. 888.3 lift at 2340 hours. Completed compacting lift at 0225 hours. Survey completed at 0300 hrs.
- Placement of elev. 888.9 lift started at 0300 and was incomplete by end of shift. Compaction was incomplete by end of shift and will be completed on dayshift.
- Excavator continuing to load rockfill from the ADR stockpile # 2. Material for the 888.3 lift was coming from the upslope and was finer, all minus 200 mm but still met the rockfill specs. Material for the 888.9 lift came from the downslope portion and was coarser with more boulders in the 300mm to 500 mm range.
- Ongoing grade checks during placement by contractor using laser level.
- All compaction was done with four passes (back and forth) of the 13.4 tonne vibratory roller.
- The load count was 124 loads placed. Assuming 16 m^3 per load, a total of 1,984 m^3 of rockfill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Note the 3 hour delay between completion of lift placement, compaction and final survey.
- Contractor has suggested bringing in a second packer to speed up compaction and reduce stand-by time. The second packer must be the 9 tonne packer, nothing smaller is acceptable.
- Discussed with BGC the option of possibly reducing the number of passes required for the 13.4 tonne packer. They will do a test strip to determine if the number of passes can be reduced.

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

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Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



Loading from the upslope portion of ADR # 2 stockpile



Compacting lift 888.9



Coarser material for 888.9 lift

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 25, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 23°C
File:	[Subject]		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-6 Dozer	10	Placing Rockfill at Embankment
	Link Belt 490 Excavator	10	Loading Rockfill from ADR Stockpile
	Volvo 40 tonne Rock Truck	10	Hauling Rockfill to embankment
	Volvo 40 tonne Rock Truck	10	Hauling Rockfill to embankment
	John Deere 40 tonne Rock Truck	10	Hauling Rockfill to embankment
	CAT CS 78 B Compactor	4.5	Compacting Rockfill at embankment
	CAT CS 78 B Compactor	0	Stand-by

2.0 HEAP LEACH FACILITY

- Completed placement of elev. 888.9 lift at end of dayshift. Completed compacting lift at end of dayshift. Survey completed at 2055 hrs.
- Placement of elev. 889.6 lift started at 2100 and was incomplete by end of shift. Compaction was incomplete by end of shift and will be completed on dayshift. Placement was slow due to limited material left at the stockpile.
- Excavator continuing to load rockfill from the ADR stockpile # 2. Material for the 888.9 lift was finer, mostly minus 200 mm but still met the rockfill specs of plus 30 % greater than 19 mm. The excavator was hitting natural ground and encountering some organics and silty material. Excavator operator maintained grade above natural ground elevation to avoid the organics and silty material. Very little material left by end of nightshift.
- Ongoing grade checks during placement by contractor using laser level.
- All compaction was done with four passes (back and forth) of the 13.4 tonne vibratory roller.
- The load count was 123 loads placed. Assuming 16 m^3 per load, a total of 1,968 m^3 of rockfill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Discussed with BGC developing a QC checklist to be followed. Issued a draft version for BGC's review.
- Contractor brought in second packer, if needed, to speed up compaction and avoid undue delay.

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Spent time at start of dayshift with TetraTech QC to show him the inspection procedures and requirements.

4.0 CLOSURE

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Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



“Notching into slope prior to fill placement



Compacting lift



Excavator at stockpile keeping above natural ground



Typical gradation of rockfill

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 26, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 24°C
File:	[Subject]		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-6 Dozer	11	Placing Rockfill at Embankment
	CAT 375 Excavator	11	Loading Rockfill from ADR Stockpile
	Volvo 40 tonne Rock Truck	11	Hauling Rockfill to embankment
	Volvo 40 tonne Rock Truck	11	Hauling Rockfill to embankment
	John Deere 40 tonne Rock Truck	11	Hauling Rockfill to embankment
	Water Truck	8	Watering stockpile
	CAT CS 78 B Compactor	6.5	Compacting Rockfill at embankment
	CAT CS 78 B Compactor	0	Stand-by

2.0 HEAP LEACH FACILITY

- Completed placement of elev. 890.3 lift at end of nightshiftshift. Compaction was incomplete by end of shift and will be completed on dayshift.
- Excavator loaded rockfill from the new ADR stockpile. Material for the 890.3 lift was finer, mostly minus 200 mm but still met the rockfill specs of plus 30 % greater than 19 mm. The water truck continually sprayed water into the loading face of the stockpile. Please note that the water truck had to leave two or three times for less than 30 minutes to refill.
- Three samples of the rockfill were taken for moisture content. Two came from loads that had been moisture conditioned and one came from a load not moisture conditioned.
- Ongoing grade checks during placement by contractor using laser level.
- All compaction was done with four passes (back and forth) of the 13.4 tonne vibratory roller.
- The load count was 135 loads placed. Assuming 16 m^3 per load, a total of 2,160 m^3 of rockfill was placed on the embankment during nightshift. Please note that contractor placed all night with only one 45 minute delay for dozer repair.

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

3.0 DISCUSSION/OTHER

- Contractor's placement procedure allowed the packer to keep close behind. Lilkely less than an hour of compaction remaining when placement complete.

4.0 CLOSURE

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Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



Moisture conditioning at loading face



Typical gradation of rockfill



Compacted surface



Fill placement

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff	**From:**	Mark Estrada
vProject:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	July 27, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 22°C
File:	[Subject]		Low 9°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Day Shift)
-	Cat D-6 Dozer	-	Placing Rockfill at Embankment/Test pit
-	Link Belt 490 Excavator	-	Loading Rockfill from ADR Stockpile
-	Volvo 40 tonne Rock Truck	-	Hauling Rockfill to embankment
-	Volvo 40 tonne Rock Truck	-	Hauling Rockfill to embankment
-	John Deere 40 tonne Rock Truck	-	Hauling Rockfill to embankment
-	CAT CS 78 B Compactor	-	Compacting Rockfill at embankment
-	CAT CS 78 B Compactor	-	Stand-by

2.0 HEAP LEACH FACILITY

- Excavator was refueling and undergoing maintenance in the morning from 07:30 to 10:00. Production was at a standstill.
- Compaction started at 07:00 and stopped at 08:30 due to the absence of a safety berm at the toe of the embankment. Compactor operator had 09:00 orientation with no replacement operator.
- First haul truck arrived at the embankment at 09:00. Rockfill was used to create the safety berm. Rockfill was placed using dozer.
- Plate tamper was used along the abutment.
- Met with Roy (BGC) to examine the rockfill material at rockfill pile #1 near the Clark Builder's laydown area from 10:00 to 10:30.
- Rockfill areas high in moisture on the embankment were dug up using the dozer and excavator, filled with rockfill using the haul truck, and compacted using four passes. Survey was on the embankment taking as-builts and marking areas that needed to be cut (greater than 10cm) by the dozer. This was ongoing from 10:30 to 13:00.
- Three compaction tests were completed in along the West abutment. Proctor value of 98% was achieved with a moisture content ranging from 3.6 to 4.6 percent.
- D10 dozer started to bench along the West abutment in preparation for the next lift at 11:30.

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Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

- Packer finished packing the Southwest corner of the embankment at 13:00.
- Four compaction tests were completed on the embankment. Proctor value of 98% was achieved with a moisture content ranging from 4.2 to 4.8 percent.
- Survey obtained as-builts. Next lift was approved by Harra (BGC) at 13:30. Haul trucks brought in rockfill for the next lift and was placed using the D10 dozer
- Took a sample of the potential rockfill material as requested by Roy with BGC. Sample was brought to the concrete lab to be tested for moisture content and sieve analysis.

3.0 DISCUSSION/OTHER

- Met with James (Clark Builders) to discuss the plans for compaction testing near their concrete footings for tomorrow morning.
- Assisted Roy (BGC) at the structural test fill location with the nuclear densometer.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift



Photo 2 - D6 dozer building safety berm at embankment toe



Photo 3 – High moisture rockfill material dug up to be replaced



Photo 4 - Rockfill material near Clark Builder laydown



Photo 5 - Laborers using plate tamper around abutment edges.



Photo 6 - Compaction test location #1



Photo 7 - Compaction test location #2



Photo 8 - Compaction test location #3



Photo 9 - D10 dozer benching West abutment



Photo 90 – Haul truck dumping rockfill in dug up area



Photo 10 - First lift placed, 891.2m elevation.



Photo 12 - Rockfill material of first load.



Photo 113 - Compaction test location #4



Photo 124 - Compaction test location #5



Photo 135 - Compaction test location #6

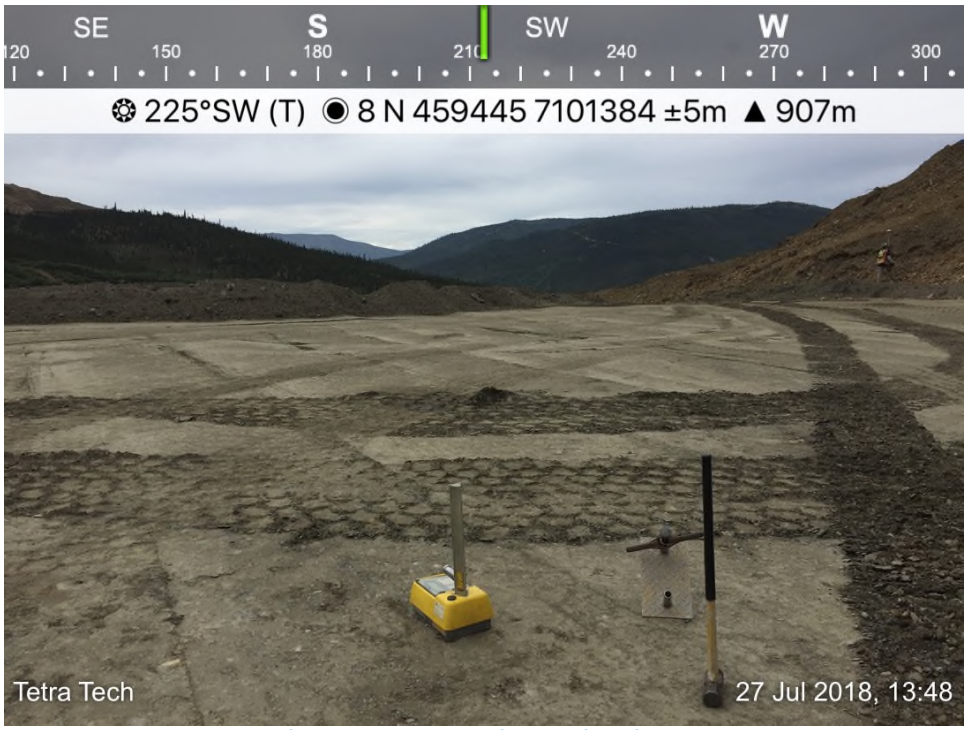


Photo 146 - Compaction test location #7



Photo 157 – Progress near the end of dayshift

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 28, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 20°C
File:	[Subject]		Low 10°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	8	Placing structural fill
	Hitachi 1200 Shovel	7	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	7	Hauling structural fill to embankment
	Cat 777 Haul Truck	7	Hauling structural fill to embankment
	CAT CS 78 B Compactor	5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Began placement of structural fill at embankment. Elevation lift 891.25 was started at 2045 hrs. Placement was completed at 2300 hrs. Compaction completed at 0030 hrs and survey completed by 0100 hrs.
- Elevation lift 891.55 was started at 0100 hrs. Placement was completed at 0330 hrs. Compaction completed at 0430 hrs and survey completed by 0500 hrs.
- Elevation lift 891.0 started at 0500 and was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was finer, mostly minus 100 mm. This met the BGC method spec requirement for structural fill..
- Ongoing grade checks during placement by contractor using laser level.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller with sufficient overlap that exceeded the method spec requirement of 2 passes with a 13.4 tonne vibratory roller. Eight compaction tests, using the nuclear densometer, were done. All eight exceeded 96 % of the standard proctor density of 2272 kg/m^3. All but one test ranged from 4.4 % MC to 5 % MC. One was 4 %.
- The load count was 44 loads placed. Assuming 45 m^3 per load, a total of 1,980 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Survey requirements for the structural fill were changed. A 0.45 metre lift is allowed and it will be determined from the average elevation of the previously placed lift.

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- Note that 2 777 Haul trucks, a D10 and a 1200 Hitachi shovel were used for loading and placing.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



Placing structural fill



Loading at ADR stockpile



Loaded haul truck



Typical gradation of structural fill



Compaction testing with nuclear densometer

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 29, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 21°C
File:	[Subject]		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	5	Placing structural fill
	Hitachi 1200 Shovel	4.5	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	4.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	4.5	Hauling structural fill to embankment
	Cat 777 Haul Truck	4.5	Hauling structural fill to embankment
	CAT CS 78 B Compactor	8	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Arrived on site at 1830 hrs. Contractor was in the process of “cutting” 15 cm from their placed lift because their large packers were broke down and the lighter packers were only approved for a 30cm lift. A test strip was done to confirm that their CS 54 packer could achieve the required compaction with two passes. After the lift was stripped, it turned out that the large CS 78 packer was up and running and that, in combination with the CS 54, were used to pack the 30 cm lift.
- Elevation lift 893.3 (45 cm lift) was started at 2210 hrs. Placement was completed at 0015 hrs. Compaction completed at 0145 hrs and survey completed by 0230 hrs.
- Elevation lift 893.65 started at 0245 hrs. Placement was completed by 0430 hrs.. Compaction was completed by 0615 hrs. Survey was incomplete by end of shift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was finer, mostly minus 100 mm. This met the BGC method spec requirement for structural fill.
- Ongoing grade checks during placement by contractor using laser level. Lift 893.63 brought in the D-6 to do some finer grading.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller with sufficient overlap that exceeded the method spec requirement of 2 passes with a 13.4 tonne vibratory roller. Twelve compaction tests, using the nuclear densometer, were done. All eight exceeded 96 % of the standard proctor density of 2272 kg/m^3. All but one test ranged from 4.6 % MC to 5.9 % MC. One was 4 %.

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- The load count was 49 loads placed. Assuming 45 m^3 per load, a total of 2,205 m^3 of structural fill was placed on the embankment during nightshift. Note that placement only went for 4.5 hrs which worked out to a rate of approximately 500 m3 per hour during actual placement.

3.0 DISCUSSION/OTHER

- BGC approved the use of the Volvo 11 tonne packer as a substitute for the 13.4 tonne CS 78 packer if necessary.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



Placing and compacting structural fill



Placement at embankment

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 30, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 22°C
File:	[Subject]		Low 12°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	8	Placing structural fill
	Hitachi 1200 Shovel	7	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck		Hauling structural fill to embankment
	Cat 777 Haul Truck	7	Hauling structural fill to embankment
	Cat 777 Haul Truck	7	Hauling structural fill to embankment
	CAT CS 78 B Compactor	5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at embankment. Completed elevation lift 895.17. Placement was completed at 1930 hrs.
- Elevation lift 895.55 was started at 1945 hrs. Placement was completed at 2200 hrs.
- Elevation lift 895.95 was started at 2215 hrs. Placement was completed at 0230 hrs.
- Elevation lift 896.35 was started at 0230 hrs. Placement was completed at 0540 hrs. Compaction was also incomplete and will be finished on dayshift.
- Elevation lift 896.75 started at 0540 and was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, mostly minus 100 mm. This met the BGC method spec requirement for structural fill. A water truck was set up at the loading face to spray water as the shovel loaded material. This was an attempt to moisture condition the material.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average elevation was anywhere from 8 cm to 3 cm below design.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller with sufficient overlap that exceeded the method spec requirement of 2 passes with a 13.4 tonne vibratory roller. Sixteen compaction tests, using the nuclear densometer, were done. All sixteen exceeded 97 % of the standard proctor density of 2272 kg/m^3. Tests ranged from 2.9 % MC to 5.6 % MC.

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- The load count was 121 loads placed. Assuming 38 m^3 per load, a total of 4,598 m^3 of structural fill was placed on the embankment during nightshift. Please note the revised volume per truck estimate, this based on the visual observation that the loads were definitely smaller, maybe 80 % of the loads placed yesterday.

3.0 DISCUSSION/OTHER

- Survey requirements for the structural fill were changed. A 0.40 metre lift is being placed with survey checks to confirm average elevation is between minus 10 cm and plus 5 cm. Once the west section of the lift is placed and compacted, it is surveyed, checked and then a new lift is placed while the east portion is being compacted. Once the east portion is compacted, again survey does its' check. There is no delay in placement waiting for either survey or compaction to be completed.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Scott Dimitroff
Project Technologist – Arctic Engineering Practice
Tetra Tech Canada Inc.
Scott.Dimitroff@tetratech.com

Edmonton: +1-587-460-3602



Survey marking pre-set 40 cm lifts



Placing new lift while completing compaction on previous lift



Typical gradation of structural fill.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber ; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis ,Mark Estrada	**From:**	Scott Dimitroff, Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	July 31, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 21°C
File:	ENG.WARC03235-02.005		Low 11°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at embankment. Compaction of Elevation lift 897.58 from day shift was completed, tested and surveyed by 1900.
- Continuation of fill of Elevation lift 897.95 from day shift continued at 1930 hrs. Placement was completed at 2300 hrs. Compaction and survey completed at 1100 hrs.
- Elevation lift 898.32 was started at 2130 hrs. Placement was completed at 0200 hrs.
- Elevation lift 898.70 was started at 0210 hrs. Placement was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. This meets the BGC method specification requirement for structural fill. A water truck did not precondition the stockpile this shift. This structural fill was tested for moisture content after placement. Moisture content ranged from 4.4 % MC to 5.7 % MC.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation ranged from 3 cm to 5 cm below target design elevation. This also meets the BGC method specification requirements for 40 cm lift thicknesses.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory roller. Seventeen compaction tests, using the nuclear densometer, were completed. The tested areas exceeded

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95 % of the standard proctor density of 2272 kg/m^3 ranging from 96.7 % to 100.4 %. Moisture content ranged from 4.4 % MC to 5.7 % MC.

- The load count was 93 loads placed. Assuming 36 m^3 per load, as per JDS estimates, a total of 3,348 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Code 1 was issued due to event elsewhere on mine site at approximately 0100. Stand down caused approximately 1 hour delay.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Placement of Elevation lift 989.32 while completing compaction of 987.95.



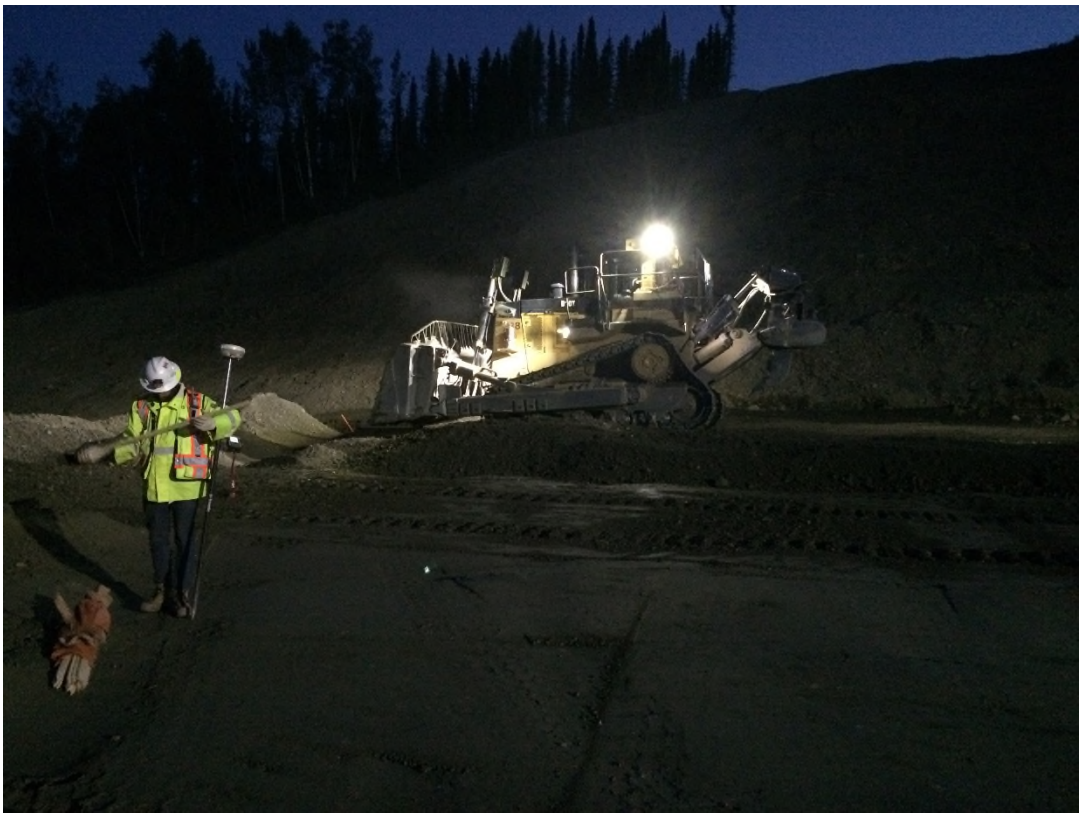
Checking grades during placement of Elevation lift 989.32.



Typical gradation of structural fill.



Dozer improving ramps for access to embankment.



Placement of embankment stakes for Elevation lift 988.70.



Loading haul truck at ADR stockpile.



Fill lines for Elevation lift 989.05 marked by survey.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 1, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 27°C
File:	[Subject]		Low 15°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Day Shift)
-	Cat D-10 Dozer	10.5	Placing structural fill
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	Cat 777 Haul Truck	10	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	11	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Density tests were completed on nightshift's structural lift. Nightshift's lift met BGC structural fill specifications.
- Start of lift #1 (899.05m design elevation) started at 07:00. Compactor started at 09:00 and finished at 11:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 10:40. Survey confirmed the average elevation to be 898.97m, which calculates to be a 0.32m lift. Moisture content was between 4.2 to 6.4%.
- Structural fill was coming from stockpile #3-1 (near Clark) and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to 6%, whereas the material from stockpile #3-1 has a moisture content of 4 to 5%. Material was fine, visually appeared to have less than 30% over 19 mm. This meets the BGC method specification requirement for structural fill.
- Start of lift #2 (899.37m design elevation) started at 10:40. Compactor started at 11:30 and finished at 14:50. Two passes was observed with sufficient speed and overlap. Loose lift finished at 14:00. Survey confirmed the average elevation to be 899.32m, which calculates to be a 0.35m lift. Moisture content was between 4.1 to 6.1%.
- Start of lift #3 (899.72m design elevation) started at 14:00. Compactor started at 14:50 and finished at 17:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 17:00. Survey confirmed the average elevation to be 899.68m, which calculates to be a 0.36m lift. Moisture content was between 3.4 to 5.6%.
- Density tests were completed on the embankment and complied with BGC's compaction specifications for structural fill.

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3.0 DISCUSSION/OTHER

- 1200 Excavator was seen to be loading 777 Haul trucks at stockpile #3-1 (near Clark) at 12:30 with no moisture conditioning.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift.



Photo 2 - Wiggle truck hauling structural fill from stockpile North of the embankment.



Photo 3 - Typical gradation of structural fill.



Photo 4 - Excavator loading trucks from stockpile near ADR.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 1, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Partial cloud, rain from 04:30
Client:	JDS		High 22°C
File:	ENG.WARC03235-02.005		Low 15°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	12	Placing structural fill
	Hitachi 1200 Shovel	11	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	Cat 777 Haul Truck	11	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	9.5	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment, Elevation lift 900.05 m from day shift. Placement of fill completed by 20:10 hours. Compaction for this lift began at 19:00 hours and was completed by 21:20 hours. Compaction and moisture testing and final survey completed at 21:30 hours.
- Placement of Elevation lift 900.45 m started at 20:15 hours. Placement was completed at 01:00 hours. Compaction for this lift began at 21:45 hours and was completed by 03:00 hours. Compaction and moisture testing and final survey completed at 03:20 hours.
- Elevation lift 900.84 m was started at 02:10 hours. Placement was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was slightly coarser than yesterday, but still visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. If oversized cobbles or boulders were noticed in the lift, they were removed prior to compaction. This meets the BGC method specification requirement for structural fill.
- The moisture content of the structural fill source was visually lower than previous days. This was later confirmed via moisture content testing via nuclear densometer to be below 3 %. A water truck was used to precondition the stockpile prior to placement. During the evening, Pelly discovered that the hydraulic pump was beginning to overheat and could no longer condition the structural fill at the stockpile. Pelly elected to use the gravity fed end discharge of the water truck to moisture condition the embankment surface.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory

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roller. Eleven compaction tests, using the nuclear densometer, were completed. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.6 % to 99.7 %. Moisture content ranged from 3.0 % MC to 5.2 % MC this is below the targeted BGC method specification requirements. Further moisture conditioning was held off until the extent of the rain event was to be determined.

- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged around 3 cm below target design elevation of 40 cm lift thickness. This also satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 88 loads were placed during shift. Assuming 36 m^3 per load, a total of 3,168 m^3 of structural fill was placed on the embankment during nightshift. Haul trucks experienced difficulty completing loads during the rain event as inclined roadways became increasingly difficult to traverse. Additional work to ramps and haul roads carried out to improve route.

3.0 DISCUSSION/OTHER

- Moisture conditioning of structural fill after placement is more evenly distributed throughout the lift when preformed at the borrow source. If moisture conditioning is required after placement. The lift may be scarified and bladed to promote complete mixing.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



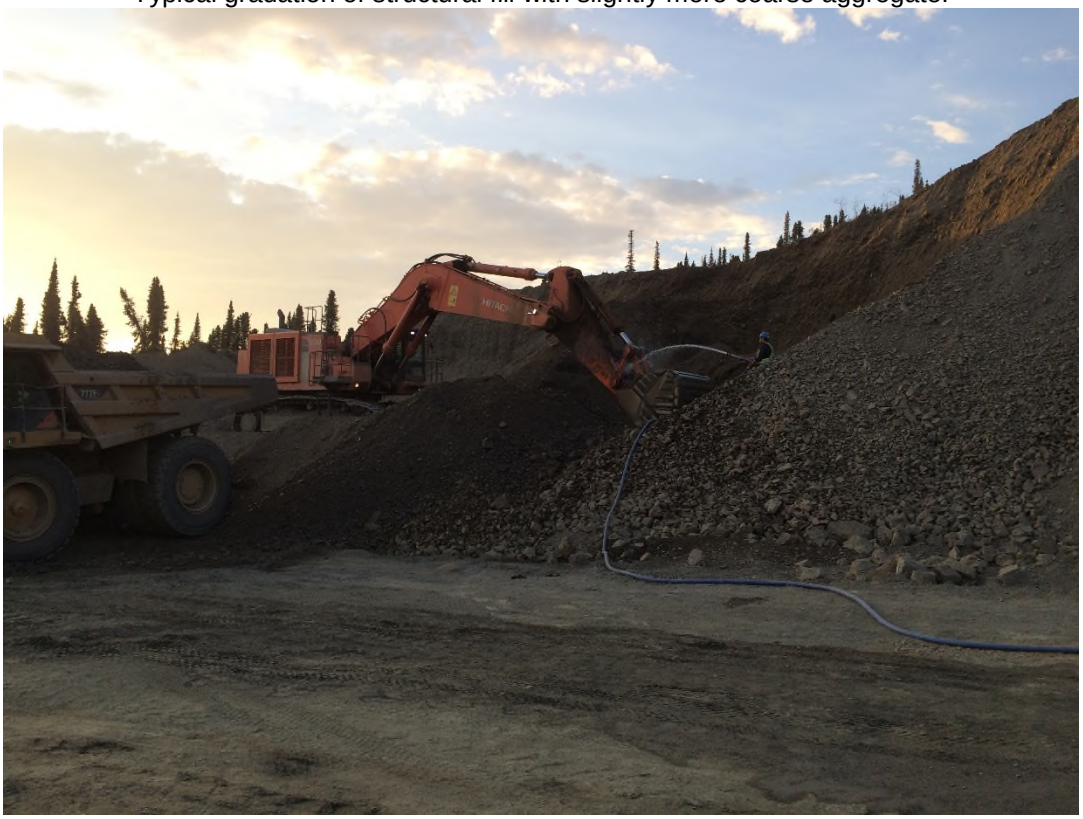
Placement and compaction of lift elevation 900.05 m.



Checking grades during placement of lift elevation 900.42 m.



Typical gradation of structural fill with slightly more coarse aggregate.



ADS stockpile being moisture conditioned via watertruck.



Water truck moisture conditioning a placed and compacted lift elevation 900.45 m.



Water truck moisture conditioning a placed and uncompacted lift elevation 900.85 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 2, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast, sporadic rain
Client:	JDS		High 21°C
File:	ENG.WARC03235-02.005		Low 13°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	11	Placing structural fill
	Cat D-10 Dozer	6	Placing structural fill on lower lift
	Hitachi 1200 Shovel	9	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	9	Hauling structural fill to embankment
	Cat 777 Haul Truck	9	Hauling structural fill to embankment
	Cat 777 Haul Truck	9	Hauling structural fill to embankment
	CAT CS 78 B Compactor	11	Compacting structural fill at embankment
	Water Truck	9	Moisture conditioning aggregates

2.0 HEAP LEACH FACILITY

- Shift change occurred for much of the crew this evening.
- Continued placement of structural fill at Heap Leach Facility Embankment, lift elevation 901.82 m from day shift. South berm underbuilt, so it was pushed out. Compaction for this lift began at 19:00 hours and was completed by 21:30 hours. Compaction and moisture testing and final survey completed at 21:30 hours.
- Placement of lift elevation 902.07 m started at 19:15 hours. Placement was completed by 04:45. Compaction for this lift began at 21:45 hours but was not completed by the end of shift.
- Lift elevation 902.47 m was started at 03:10 hours. Placement was incomplete by end of shift. Compaction was also incomplete and will be finished on dayshift.
- Overbuilt material removed from the embankment side slope spread over the lower section of embankment at lift elevation 891.10 m. Compaction was not completed and should be completed on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. If oversized cobbles or boulders were noticed in the lift, they were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory

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14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

roller. Seven compaction tests, using the nuclear densometer, were completed. The tested areas exceeded 95 % of the standard proctor density of 2272 kg/m^3 ranging from 95.1 % to 99.9 %. Moisture content ranged from 3.6 % MC to 5.2 % MC, which is below the targeted BGC method specification requirements.

- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged from 7 cm to 8 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 61 loads were placed during shift. Assuming 36 m^3 per load, a total of 2,196 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Haul trucks experienced difficulty ascending the ramps to the embankment.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Marking and placement of lift elevation 902.07 m.



Removal of oversize rock on lift elevation 902.07 m.



Typical gradation of structural fill.



Lift elevation 901.74 underbuilt berm. Extended prior to subsequent lift.



Material stockpiled on lower lift to be placed on lift elevation 891.10 m.



Spreading lower lift elevation 981.10 m.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 2, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 24°C
File:	[Subject]		Low 13°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Day Shift)
-	Cat D-10 Dozer	9.5	Placing structural fill
-	Cat D-10 Dozer	1	Resloping embankment toe
-	Hitachi 1200 Excavator	9	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	Cat 777 Haul Truck	9	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	10.5	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Grader levelled the West side of the embankment removing the oversaturated structural fill on the surface at 07:30.

- Continuation of nightshift's lift (900.82m design elevation) started at 07:00. Compactor started at 06:30 and finished at 08:45. Two passes was observed with sufficient speed and overlap. Loose lift finished at 07:30. Survey confirmed the average elevation to be 900.75m, which calculates to be a 0.33m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.3% to 100%. The moisture content was between 2.1 to 4.9%, which does not comply with BGC requirements.

- Start of lift #1 (901.15m design elevation) started at 07:30. Compactor started at 08:45 and finished at 11:45. Two passes was observed with sufficient speed and overlap. Loose lift finished at 11:15. Survey confirmed the average elevation to be 901.07m, which calculates to be a 0.32m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 94.7% to 99.0%. The moisture content from the ADR stockpile was 3.6% to 3.7%, which does not comply with BGC requirements. The moisture content from the stockpile north of the embankment was 5.9% to 7.9%, which complies with BGC requirements.

- Structural fill was coming from the stockpile west of the ADR foundation and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to 6%, whereas the material from stockpile #3-1 has a moisture content of 3 to 4%. Material was slightly coarser than yesterday, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.

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- Start of lift #2 (901.47m design elevation) started at 11:20. Compactor started at 11:50 and finished at 15:45. Two passes was observed with sufficient speed and overlap. Loose lift finished at 15:30. Survey confirmed the average elevation to be 901.42m, which calculates to be a 0.35m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 96.5% to 99.3%. The moisture content from the ADR stockpile was 3.6% to 3.7%, which does not comply with BGC requirements. The moisture content from the stockpile north of the embankment was 7.6%, which complies with BGC requirements.

3.0 DISCUSSION/OTHER

- 1200 Excavator was seen to be loading 777 Haul trucks west of the ADR foundation at 12:50 with no moisture conditioning.
- Second D10 dozer was resloping the embankment toe from 15:30 to 16:30.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift.



Photo 2 - Typical gradation.



Photo 3 - Typical gradation.



Photo 4 - Density test.



Photo 5 - Water conditioning stockpile.



Photo 6 - Oversize material sorted at stockpile.



Photo 7 - Typical gradation.



Photo 8 - Resloping.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley; Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan;		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck; John Purvis, Richard Oswell	**From:**	Mark Estrada
Project:	Heap Leach Facility (HLF) Earthworks QA	**Date:**	August 3, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Clear
Client:	JDS		High 22°C
File:	[Subject]		Low 13°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work (Dayshift)
-	Cat D-10 Dozer	7.0	Placing structural fill, upper embankment
-	Cat D-10 Dozer	9.5	Placing structural fill, lower embankment
-	Hitachi 1200 Excavator	6.5	Loading Structural fill from ADR Stockpile
-	Cat 777 Haul Truck	6.5	Hauling structural fill to embankment
-	Cat 777 Haul Truck	6.5	Hauling structural fill to embankment
-	Cat 777 Haul Truck	6.5	Hauling structural fill to embankment
-	CAT CS 78 B Compactor	9.0	Compacting structural fill at embankment

2.0 HEAP LEACH FACILITY

- Continuation of nightshift's lower embankment lift (891.10m design elevation), compactor started at 06:45 and finished at 07:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 08:00. Survey confirmed the average elevation to be 891.08m, which calculates to be a 0.38m lift. The test area exceeded 95% of the standard proctor density of 2272 kg/m^3 at 100%. The moisture content was 4.0%, which does not comply with BGC requirements.

- Start of lower embankment lift #1 (891.48m design elevation) started at 07:30. Compactor started at 11:15 and finished at 12:30. Two passes was observed with sufficient speed and overlap. Loose lift finished at 10:30. Survey confirmed the average elevation to be 891.40m, which calculates to be a 0.32m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 98.4% to 100%. The moisture content was 3.8% to 4.3%, which does not comply with BGC requirements.

- Start of lower embankment lift #2 (891.80m design elevation) started at 12:30. Compactor started at 15:00. Two passes was observed with sufficient speed and overlap. Nightshift to continue.

- Continuation of nightshift's upper embankment lift (902.07m design elevation) started at 07:40. Compactor started at 07:30 and finished at 09:00. Two passes was observed with sufficient speed and overlap. Loose lift finished at 08:45. Survey confirmed the average elevation to be 902.10m, which calculates to be a 0.43m lift. Density tests were completed by nightshift.

- Start of upper embankment lift #1 (902.50m design elevation) started at 08:45. Compactor started at 09:00 and finished at 11:15. Two passes was observed with sufficient speed and overlap. Loose lift finished at 10:00. Survey confirmed the average elevation to be 902.42m, which calculates to be a 0.32m lift. The tested areas

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exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 97.5% to 100%. The moisture content from the ADR stockpile was 3.6% to 4.4%, which does not comply with BGC requirements.

- Start of upper embankment lift #2 (902.82m design elevation) started at 10:15. Compactor started at 11:30 and finished at 14:45. Two passes was observed with sufficient speed and overlap. Loose lift finished at 14:00. Survey confirmed the average elevation to be 902.75m, which calculates to be a 0.33m lift. The tested areas exceeded 95% of the standard proctor density of 2272 kg/m^3 ranging from 95.7% to 98.1%. The moisture content from the ADR stockpile was 3.9% to 4.1%, which does not comply with BGC requirements. The moisture content from the stockpile north of the embankment was 5.7%, which complies with BGC requirements.
- Structural fill was coming from the stockpile west of the ADR foundation and the stockpile north of the embankment. Both are approved sources. Structural fill from the stockpile north of the embankment appears to have a moisture content of 5 to 6%, whereas the material from stockpile #3-2 has a moisture content of 3 to 4%. Material was slightly coarser than yesterday, but still visually appeared to have less than 30% over 19 mm. Oversize boulders were removed from lift. This meets the BGC method specification requirement for structural fill.
- Approximately 48 loads were placed during shift. Assuming 36 m^3 per load, a total of 1,728 m^3 of structural fill was placed on the embankment during dayshift.

3.0 DISCUSSION/OTHER

- East embankment ramp has been decommissioned.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Mark Estrada
Junior Geotechnical Engineer-In-Training – Arctic Group
Tetra Tech Canada Inc.
Mark.Estrada@tetratech.com
Direct +1 (587) 460-3562



Photo 1 - Start of dayshift on the lower embankment.



Photo 2 - Start of dayshift on the upper embankment.



Photo 3 - Dozer resloping toe.



Photo 4 - Typical gradation.



Photo 5 - Typical gradation.



Photo 6 - Excavator removing loose material beside East embankment ramp.



Photo 7 - Lower embankment progress.



Photo 8 - Packing along the toe design on the lower embankment.



Photo 9 - Density test on the lower embankment.

TETRA TECH

EARTHWORKS FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Troy Meyer; Ethan Faber; Dan Granda; Roy Morlan,		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Scott Dimitroff, Mark Estrada	**From:**	Richard Oswell
Project:	Heap Leach Facility (HLF) Earthworks CQA	**Date:**	August 3, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast, sporadic rain after 3:30
Client:	JDS		High 18°C
File:	ENG.WARC03235-02.005		Low 13°C

1.0 HLF EARTHWORKS CONSTRUCTION SUMMARY

Unit ID	Equipment	Earthworks Hours Worked	Work(Nightshift)
	Cat D-10 Dozer	11	Placing structural fill
	Hitachi 1200 Shovel	3	Loading Structural fill from ADR Stockpile
	Cat 777 Haul Truck	3	Hauling structural fill to embankment
	Cat 777 Haul Truck	3	Hauling structural fill to embankment
	Cat 777 Haul Truck	3	Hauling structural fill to embankment
	CAT CS 78 B Compactor	10	Compacting structural fill at embankment
	Water Truck	3	Moisture conditioning aggregates
	Link Belt 250 Excavator	4	Placing structural fill

2.0 HEAP LEACH FACILITY

- Continued placement of structural fill at Heap Leach Facility Embankment. Grades for embankment slope lower lift elevation 891.78 m placed during day shift were overbuilt by 30 cm.
- Re-grading of lift elevation 891.78 m began at 19:00 hours. Overbuilt fill was stockpiled to allow for compaction. The lift was keyed into side slope around the narrow area east of ramp as well as along the existing embankment slope. Re-grading completed by 01:45 hours. Compaction was competed by 02:20 hours. Compaction testing and survey were completed at 02:25 hours.
- Placement of lift elevation 892.18 m started at 2:30 hours. Placement was incomplete by end of shift. Compaction for this lift began at 04:00 hours but was not completed by the end of shift. Placement and compaction will be finished on dayshift.
- Shovel loaded structural fill from the ADR stockpile previously approved. Material was fine, visually appeared to have less than 30 % over 19 mm and smaller than over 150 mm particle size. If oversized cobbles or boulders were noticed in the lift, they were removed prior to compaction. This meets the BGC method specification requirement for structural fill. A water truck was used to moisture condition the structural fill stockpile prior to loading.
- All compaction was done with two passes (back and forth) of the 13.4 tonne vibratory roller. Sufficient overlap and complete coverage meets the method specification requirements for 2 passes with a 13.4 tonne vibratory roller. Six compaction tests, using the nuclear densometer, were completed. The tested areas exceeded 95 %

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of the standard proctor density of 2272 kg/m^3 ranging from 95.3 % to 100.1 %. Moisture content ranged from 4.2 % MC to 5.2 % MC, which is below the targeted BGC method specification requirements.

- Each lift placed was benched into the existing side slope of the elevation 920 m raised lift. The uncompacted side slopes of the existing ramps to the 920 m raised lift were removed. Loose Type 3 Rock with visible voids in the sidewall of the excavation was as also removed. This complies with the placement methodologies outlined by BGC.
- Ongoing grade checks during placement by contractor using laser level. Survey confirmed that the average surveyed elevation averaged approximately 2 cm below target design elevation of 40 cm lift thickness. This satisfies the BGC method specification requirements of 50 cm maximum lift thicknesses.
- Approximately 42 loads were placed during shift. Assuming 36 m^3 per load, a total of 1,512 m^3 of structural fill was placed on the embankment during nightshift.

3.0 DISCUSSION/OTHER

- Placement of fill on lower embankment slope may be expedited if one or more ramps to the upper 920 m raised lift were removed.

4.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Richard Oswell E.I.T. AB
Construction Materials Engineer-in-Training
Construction Services
Direct Line: 587.460.3591
Richard.Oswell@tetratech.com



Re-graded overbuilt lift elevation 891.78 m.



Water truck watering stockpile after re-grading.



Keying into ramp side slope to bench lift 891.78 m.



Moisture conditioning of structural fill on ADS stockpile.



Placement and compaction of lift elevation 892.18 m.

TETRA TECH

ORE PREP PAD AND OVERLAND CONVEYOR FIELD REPORT

To:	Roman Bilobrowka; Calvin Goldschmidt; Chris Copley, Matt Coverdale, Mike Blusson		
Cc:	Chad Cowan; Robert Zschuppe; James Buyck, John Purvis, Richard Oswell, Mark Estrada	**From:**	Scott Dimitroff
Project:	Ore Prep Pad and Overland Conveyor	**Date:**	September 22, 2018
Location:	Eagle Gold Mine, YK	**Weather:**	Overcast
Client:	JDS		High 9°C
File:	ENG.WARC03235-02.005		Low -2°C

1.0 ORE PREP PAD AND OVERLAND CONVEYOR

- JDS requested that TetraTech provide construction monitoring for the Ore Prep Pad and Overland Conveyor.
- Arrived on site to find that a pad approximately 4 metres high had already been placed. The pad was being built out of excavated Type 3 material from the cut for the ore pad. Material was being packed with loaded haul trucks as the packer was broken down.
- The area from sta. 1100 (Dublin Gulch Creek) to the pad appeared to have been excavated down to original ground with an organic spill pile on the east edge.
- Proof rolling with a loaded 40 ton haul truck indicated some soft, wet areas that needed to be removed. The contractor was in the process of doing this.

2.0 DISCUSSION/OTHER

- TetraTech will provide monitoring of the fill placement.
- Lifts of the Type 3 were being placed in 0.7 metre lifts. Contractor was advised to reduce lifts to 0.3 metres but continued with 0.7 metre lifts.

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3.0 CLOSURE

We trust that the information provided herein is accurate and complete. Please contact the undersigned if you require additional information or have any concerns.

Tetra Tech Canada Inc.

Scott Dimitroff
Senior Project Technologist
Arctic Group
Cell: 587.983.2850
Scott.Dimitroff@tetratech.com



Looking south from pad to Dublin Gulch



Looking SW



Organic layer on west side of excavation



Organic spill pile on East side



Pad on north end



Soft, wet areas on surface



Excavating soft areas



Type 3 fill placed on North side of culvert

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/11/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Test Pad - Type 3 Structural Fill

Material Usage/Zone: Method Spec Test Pad at Event Pond

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
8/11/2018	**1** / 300	Method Spec Test Fill - 6 pass cycles, beside plate #3	Gr	2233	3.7	2175	8.2	**102.7**
8/11/2018	**2** / 300	Method Spec Test Fill - 6 pass cycles, between plate #2 and #3	Gr	2274	3.6	2175	8.2	**104.6**
8/11/2018	**3** / 300	Method Spec Test Fill - 6 pass cycles, between plate #2 and #3	0.13	2096	5.5	2175	8.2	**96.4**

Remarks: Densities provided under supervision of Roy Morlan.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/4/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/4/2018	1 / 300	Event Pond; Center of lift; 14	n/a	2224	4.3	2185	6.7	**101.8**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/5/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/5/2018	1 / 300	Event Pond; Center of lift; 23	n/a	2176	3.8	2185	6.7	**99.6**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/6/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/6/2018	1 / 300	Event Pond; Center of lift; 14	n/a	2176	3.8	2185	6.7	**99.6**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/7/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/7/2018	1 / 300	Event Pond; East side of pad; lift 11a	854.75	2216	6.7	2185	6.7	**101.4**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/8/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/8/2018	1 / 300	Event Pond; East side of pad; lift 17a	856.55	2163	6.9	2270	6.7	**95.3**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/9/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Material 2

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/9/2018	1 / 300	Event Pond; East side of pad; lift 40	860.95	2225	4.8	2185	6.7	**101.8**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature Air:** -5.0 ºC **Soil:** 0.5 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/12/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/12/2018	**1** / 300	Event Pond - South east embankment - Lift 28B - Norht	861.00	2132	4.6	2230	7.7	**95.6**
10/12/2018	**2** / 300	Event Pond - South east embankment - Lift 30B - East	861.60	2158	4.7	2230	7.7	**96.8**
10/12/2018	**3** / 300	Event Pond - South east embankment - Lift 31B - East	861.90	2164	4.6	2230	7.7	**97.0**

Remarks: Compacted using CS78 13.4 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -5.0 ºC **Soil:** 0.5 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/12/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: HLF - West Spillway Downstream Sideslope

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/12/2018	**4** / 300	Spillway Slope - Lift 1 - South section	928.30	2281	4.6	2270	6.7	**100.5**
10/12/2018	**5** / 300	Spillway Slope - Lift 2 - Center section	928.75	2256	4.7	2270	6.7	**99.4**
10/12/2018	**6** / 300	Spillway Slope - Lift 3 - East section	929.20	2159	4.6	2270	6.7	**95.1**

Remarks: Compacted using CS78 13.4 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/4/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/4/2018	1 / 300	Event Pond; Center of lift; 14	n/a	2224	4.3	2230	7.7	**99.7**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/5/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/5/2018	1 / 300	Event Pond; Center of lift; 23	n/a	2176	3.8	2230	7.7	**97.6**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/6/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/6/2018	1 / 300	Event Pond; Center of lift; 14	n/a	2176	3.8	2230	7.7	**97.6**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/7/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/7/2018	1 / 300	Event Pond; East side of pad; lift 11a	854.75	2216	6.7	2230	7.7	**99.4**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/8/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/8/2018	1 / 300	Event Pond; Center of pad; lift 17a	856.55	2163	6.9	2270	6.7	**95.3**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/9/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/9/2018	1 / 300	Event Pond; East side of pad; lift 40	860.95	2225	4.8	2230	7.7	**99.8**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/10/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/10/2018	1 / 300	Event Pond; Southeast area of pad; lift 46	na	2247	3.2	2230	7.7	**100.8**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/10/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/10/2018	1 / 300	Event Pond; Center of pad; lift 46.	n/a	2225	4.8	2270	6.7	**98.0**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/11/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/11/2018	1 / 300	Event Pond; Center of pad; lift 47.	n/a	2234	6.1	2230	7.7	**100.2**
10/11/2018	2 / 300	Event Pond; East side of pad; lift 47.	n/a	2087	12.0	2230	7.7	**93.6**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.
Lift 47 was rejected, and is to be completely removed.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/11/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/11/2018	1 / 300	Event Pond; 0+075; 5.5 m from south toe; lift 26B.	n/a	2164	6.2	2230	7.7	**97.0**
10/11/2018	2 / 300	Event Pond; 0+130; 4.5 m from south toe; lift 26B.	n/a	2177	6.9	2230	7.7	**97.6**
10/11/2018	3 / 300	Event Pond; 0+075; 1.5 m from south toe; lift 25B.	n/a	2156	6.4	2230	7.7	**96.7**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.
Lift 47 was rejected, and is to be completely removed.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/11/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/11/2018	1 / 300	Event Pond; 0+160; 15 m from south toe; lift 30B.	n/a	2221	5.7	2270	6.7	**97.8**
10/11/2018	2 / 300	Event Pond; 0+180; 1 m from south toe; lift 30B.	n/a	2201	6.5	2270	6.7	**97.0**
10/11/2018	3 / 300	Event Pond; 0+175; 2 m from south toe; lift 31B.	n/a	2248	5.9	2270	6.7	**99.0**
10/11/2018	4 / 300	Event Pond; 0+160; 15 m from south toe; lift 31B.	n/a	2204	5.3	2270	6.7	**97.1**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.
Lift 47 was rejected, and is to be completely removed.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 1.0 ºC **Soil:** 0.9 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/13/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/13/2018	**1** / 300	Event Pond - South east embankment - Lift 35B	863.10	2243	4.1	2230	7.7	**100.6**
10/13/2018	**2** / 300	Event Pond - Lift 49 (partially removed)	863.50	2188	5.0	2230	7.7	**98.1**
10/13/2018	**3** / 100	Retest of 2. Removed remainder of lift 49 after this test.	863.50	2061	6.7	2230	7.7	**92.4**
10/13/2018	**4** / 300	Event Pond - South east embankment - Lift 36B	861.90	2119	5.0	2230	7.7	**95.0**
10/13/2018	**5** / 300	Event Pond - South east embankment - Lift 37B	861.90	2232	4.6	2230	7.7	**100.1**
10/13/2018	**6** / 300	Event Pond - South east embankment - Lift 48	863.35	2159	7.7	2230	7.7	**96.8**

Remarks: Compacted using CS78 13.4 tonne vibratory compactor. Remainder of lift 49 removed after test 2.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 1.0 ºC **Soil:** 0.9 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/13/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: HLF - West Spillway Downstream Sideslope

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/13/2018	**7** / 300	Spillway Slope - Lift 1 - South section	932.10	2234	5.7	2270	6.7	**98.4**
10/13/2018	**8** / 300	Spillway Slope - Lift 2 - Center section	932.55	2254	4.4	2270	6.7	**99.3**
10/13/2018	**9** / 300	Spillway Slope - Lift 3 - East section	933.00	2209	5.2	2270	6.7	**97.3**

Remarks: Compacted using CS78 13.4 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/14/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 1 - Site Grading Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/14/2018	1 / 300	Event Pond; 0+390; 2 m from south toe; lift 49.	n/a	2282	4.1	2230	7.7	**102.3**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3.0 ºC **Soil:** 1.9 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/14/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/14/2018	**1** / 300	Event Pond - South east embankment	864.00	2204	3.5	2230	7.7	**98.8**
10/14/2018	**2** / 300	Event Pond - South east embankment	864.60	2150	5.0	2230	7.7	**96.4**

Remarks: Compacted using CS78B 13.4 tonne, CS 68B 9 tonne, and CS54B 5.9 tonne vibratory compactors.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3.0 ºC **Soil:** 1.9 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/14/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: HLF - West Spillway Downstream Sideslope

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/14/2018	**3** / 300	Spillway Slope	932.10	2163	5.0	2270	6.7	**95.3**

Remarks: Compacted using CS78 13.4 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/15/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/15/2018	1 / 300	Event Pond; 0+262; 29 m from south toe; lift 54.	n/a	2270	5.1	2270	6.7	**100.0**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2.0 ºC **Soil:** 1.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/15/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: HLF - West Spillway Downstream Sideslope

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/15/2018	**4** / 300	Spillway Slope - Lift 1 - Center of lift	395.20	2163	5.3	2270	6.7	**95.3**
10/15/2018	**5** / 300	Spillway Slope - Lift 2 - East section of lift	395.35	2234	4.3	2270	6.7	**98.4**
10/15/2018	**6** / 300	Spillway Slope - Lift 3 - North section of lift	935.70	2245	5.7	2270	6.7	**98.9**
10/15/2018	**7** / 300	Spillway Slope - Lift 4 - Center of lift	936.05	2177	5.7	2270	6.7	**95.9**

Remarks: Compacted using CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 2.0 ºC **Soil:** 2.3 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/16/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/16/2018	**1** / 300	Event Pond - South east embankment - West seciton of lift	866.10	2273	4.1	2270	6.7	**100.1**
10/16/2018	**2** / 300	Event Pond - South east embankment - East seciton of lift	866.40	2257	5.0	2270	6.7	**99.4**
10/16/2018	**3** / 100	Event Pond - South east embankment - Center of lift	866.70	2249	3.4	2270	6.7	**99.1**

Remarks: Compacted using CS68 9 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/17/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/17/2018	1 / 300	Event Pond - Southeast Embankment - East section	867.00	2248	4.4	2270	6.7	**99.0**
10/17/2018	2 / 300	Event Pond - Southeast Embankment - West section	867.00	2264	4.9	2270	6.7	**99.7**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 1.0 ºC **Soil:** 1.0 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/17/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/17/2018	**1** / 300	Event Pond - South east embankment - SE seciton of lift	867.30	2239	5.5	2230	6.7	**100.4**
10/17/2018	**2** / 300	Event Pond - South east embankment - East seciton of lift	867.60	2157	3.7	2230	6.7	**96.7**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/18/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/18/2018	1 / 300	Event Pond - Southeast Embankment - Center	867.60	2235	3.1	2270	6.7	**98.5**
10/18/2018	2 / 300	Event Pond - Southeast Embankment - Northwest section	867.60	2216	3.2	2270	6.7	**97.6**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -3.0 ºC **Soil:** 1.7 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/18/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 1 - Site Grading Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/18/2018	**1** 300	Event Pond - South east embankment - East seciton of lift	867.90	2232	6.0	2230	6.7	**100.1**
10/18/2018	**2** 300	Event Pond - South east embankment - West seciton of lift	867.90	2143	4.6	2230	6.7	**96.1**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/19/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/19/2018	1 / 300	Event Pond - Southeast Embankment - Centre	867.90	2167	7.9	2270	6.7	**95.5**
10/19/2018	2 / 300	Event Pond - Southeast Embankment - West of centre	867.90	2172	8.1	2270	6.7	**95.7**
10/19/2018	3 / 300	Event Pond - Southeast Embankment - East of centre	868.20	2163	7.7	2270	6.7	**95.3**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 3.0 ºC **Soil:** 3.5 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/19/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/19/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	868.20	2193	6.0	2270	6.7	**96.6**
10/19/2018	**2** / 300	Event Pond - South east embankment - West seciton of lift	868.50	2284	4.1	2270	6.7	**100.6**
10/19/2018	**3** / 300	Event Pond - South east embankment - Centre of lift	868.50	2263	4.6	2270	6.7	**99.7**

Remarks: Compacted using either CS78B 13.4 tonne or CS68B 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/20/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/20/2018	1 / 300	Event Pond - Southeast Embankment - Northeast corner	868.50	2232	5.3	2270	6.7	**98.3**
10/20/2018	2 / 300	Event Pond - Southeast Embankment - Southwest corner	868.50	2204	3.6	2270	6.7	**97.1**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -4.0 ºC **Soil:** 1.9 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/20/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/20/2018	**1** 300	Event Pond - South east embankment - East seciton of lift	868.50	2297	4.4	2270	6.7	**101.2**
10/20/2018	**2** 300	Event Pond - South east embankment - West seciton of lift	868.80	2161	3.0	2270	6.7	**95.2**

Remarks: Compacted using a CS78B 13.4 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/21/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/21/2018	1 / 300	Event Pond - Southeast Embankment - Northwest corner	868.80	2231	6.1	2270	6.7	**98.3**
10/21/2018	2 / 300	Event Pond - Southeast Embankment - East of centre	869.10	2189	2.8	2270	6.7	**96.4**

Remarks: Compacted using CS68 9 tonne and CS54 6 tonne vibratory compactor.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 3.0 ºC **Soil:** 1.6 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/21/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/21/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	869.10	2159	3.1	2270	6.7	**95.1**
10/21/2018	**2** / 300	Event Pond - Discharge Pipe Pad - Lift 3	874.83	2261	3.5	2270	6.7	**99.6**
10/21/2018	**3** / 300	Event Pond - Discharge Pipe Pad - Lift 6	865.83	2184	6.2	2270	6.7	**96.2**
10/21/2018	**4** / 300	Event Pond - Discharge Pipe Pad - Lift 7	876.13	2159	6.3	2270	6.7	**95.1**
10/21/2018	**5** / 300	Event Pond - Discharge Pipe Pad - Lift 9	876.73	2172	6.8	2270	6.7	**95.7**

Remarks: Compacted using a CS78B 13.4 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0.0 ºC **Soil:** 1.5 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/22/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/22/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	869.70	2208	2.8	2270	6.7	**97.3**
10/22/2018	**2** / 300	Event Pond - South east embankment - East seciton of lift	869.70	2276	6.2	2270	6.7	**100.3**
10/22/2018	**3** / 300	Event Pond - Discharge Pipe Pad Lift 6	870.00	2294	5.4	2270	6.7	**101.1**
10/22/2018	**4** / 300	Event Pond - Discharge Pipe Pad Lift 7	877.30	2229	4.4	2270	6.7	**98.2**
10/22/2018	**5** / 300	Event Pond - Discharge Pipe Pad Lift 9	877.60	2207	4.9	2270	6.7	**97.2**

Remarks: Compacted using a CS78B 13.4 tonne and CS68B 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/23/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/23/2018	1 / 300	Event Pond - Southeast Embankment - West - Lift 71	871.30	2158	5.7	2270	6.7	**95.1**
10/23/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 72	871.60	2160	5.5	2270	6.7	**95.2**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, and CS78 13 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 4.0 ºC **Soil:** 1.3 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/23/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/23/2018	**1** / 300	Event Pond - South east embankment - East seciton of lift	870.90	2261	5.5	2270	6.7	**99.6**
10/23/2018	**2** / 300	Event Pond - South east embankment - East seciton of lift	870.90	2178	5.4	2270	6.7	**95.9**
10/23/2018	**3** / 300	Event Pond - South east embankment - East seciton of lift	870.90	2247	4.8	2270	6.7	**99.0**
10/23/2018	**4** / 300	Event Pond - South east embankment - West seciton of lift	870.90	2207	4.8	2270	6.7	**97.2**
10/23/2018	**5** / 300	Event Pond - South east embankment - East seciton of lift	871.20	2233	5.4	2270	6.7	**98.4**

Remarks: Compacted using a CS78B 13.4 tonne and CS68B 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/24/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/24/2018	1 / 300	Event Pond - Southeast Embankment - West - Lift 75 (871.50 m)	871.50	2229	5.0	2270	6.7	**98.2**
10/24/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 76 (871.80 m)	871.80	2244	5.3	2270	6.7	**98.9**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, CS78 13 tonne, and 56B 6.7 tonne vibratory compactor. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05.005 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -1.0 ºC **Soil:** 2.6 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/24/2018 **By:** R.Oswell

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Material Type 3 - Structural Fill - GRAVEL and sand, silty

Material Usage/Zone: Event Pond - South East Downstream Embankment

Date mm/dd/yyyy	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/24/2018	**1** / 300	Event Pond - South east embankment - West seciton of lift	872.10	2163	4.3	2270	6.7	**95.3**
10/24/2018	**2** / 300	Event Pond - South east embankment - East seciton of lift	872.10	2223	5.7	2270	6.7	**97.9**
10/24/2018	**3** / 300	Event Pond - South east embankment - West seciton of lift	872.40	2200	4.8	2270	6.7	**96.9**
10/24/2018	**4** / 300	Event Pond - South east embankment - West seciton of lift	872.40	2205	4.7	2270	6.7	**97.1**
10/24/2018	**5** / 300	Event Pond - South east embankment - West seciton of lift	872.70	2230	4.5	2270	6.7	**98.2**

Remarks: Compacted using CS68B CS56B and CS54B vibratory compactors.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/25/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/25/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 79	872.70	2244	3.5	2270	6.7	**98.9**
10/25/2018	1 / 300	Event Pond - Southeast Embankment - Northeast corner - Lift 80	873.00	2199	4.8	2270	6.7	**96.9**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, CS78 13 tonne, and 56B 6.7 tonne vibratory compactor. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 6 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/26/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/26/2018	1 / 300	Event Pond - Southeast Embankment - East abutment - Lift 83	873.90	2187	6.0	2270	6.7	**96.3**
10/26/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 83	873.90	2175	6.8	2270	6.7	**95.8**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, and 56B 6.7 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 3.0 ºC **Soil:** 0.2 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/27/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/27/2018	1 / 300	Event Pond - Southeast Embankment - East of center - Lift 86	874.80	2195	4.5	2270	6.7	**96.7**
10/27/2018	2 / 300	Event Pond - Southeast Embankment - Center - Lift 86	874.80	2216	6.4	2270	6.7	**97.6**
10/27/2018	3 / 300	Event Pond - Southeast Embankment - Along East abutment - Lift 87	875.10	2182	4.6	2270	6.7	**96.1**
10/27/2018	4 / 300	Event Pond - Southeast Embankment - East - Lift 87	875.10	2160	5.9	2270	6.7	**95.2**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, and 56B 6.7 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** N/A

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** -4.0 ºC **Soil:** -1.0 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/28/2018 **By:** ME

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: Type 3 - Structural Fill - GRAVEL and SAND, silty

Material Usage/Zone: Event Pond

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/28/2018	1 / 300	Event Pond - Southeast Embankment - West of center - Lift 88	875.40	2254	4.1	2270	6.7	**99.3**
10/28/2018	2 / 300	Event Pond - Southeast Embankment - East of center - Lift 89	875.70	2252	6.4	2270	6.7	**99.2**
10/28/2018	3 / 300	Event Pond - Southeast Embankment - West abutment - Lift 89	875.70	2263	6.8	2270	6.7	**99.7**

Remarks: Compacted using CS54 6 tonne, CS68 9 tonne, and 56B 6.7 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/4/2018 **By:** M. Estrada

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
9/4/2018	**1** 300	HLF Emankment - South section of lift	919.62	2191	6.9	2270	6.7	**96.5**
9/4/2018	**2** 300	HLF Emankment - North section of lift	919.17	2221	7.4	2270	6.7	**97.8**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0.0 ºC **Soil:** 4.0 ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/25/2018 **By:** A. Schoepp

Contractor: Pelly Construction | **Construction Period:** Nightshift

Soil Description: Structural Fill

Material Usage/Zone: Heap Leach Facility (HLF) Embankment

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/25/2018	**1** / 300	HLF Embankment - West lift	931.55	2190	3.7	2270	6.7	**96.5**
9/25/2018	**2** / 300	HLF Embankment - West lift	931.55	2231	4.0	2270	6.7	**98.3**
1/0/1900	**3** / 300	HLF Embankment - West lift	931.96	2277	3.9	2270	6.7	**100.3**

Remarks: Compacted using CS78 13.4 tonne, Volvo 11 tonne and CS68 9 tonne vibratory compactor.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/28/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/28/2018	1 / 300	0+102, 11 m from North toe; Lift 40	n/a	2215	3.8	2270	6.7	**97.6**
9/28/2018	2 / 300	0+020, 13 m from South toe; Lift 40	n/a	2200	3.8	2270	6.7	**96.9**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 4 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/28/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/28/2018	1 / 300	0+010, 6 m from South toe; lift 45	n/a	2255	3.8	2270	6.7	**99.3**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/29/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
9/29/2018	1 / 300	0+097, 2 m from South toe; lift 48	n/a	2255	3.8	2270	6.7	**99.3**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 64515

QC Inspection & Testing | **Specified Compaction:** 95 % Std. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 5 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 10/1/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date mm/dd/yyyy	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
10/1/2018	1 / 300	0+120, 2 m from South toe;	939.50	2176	3.8	2270	6.7	**95.9**

Remarks: Compacted using CS78 13.4 tonne and CS68 9 tonne vibratory smooth drum roller.

Final lift of structural fill.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/16/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/16	1 / 300	Structural Fill - SE corner	911.06	2224	5.2	2270	6.7	**98.0**
2018/08/16	2 / 300	Structural Fill - South, center	911.06	2271	5.1	2270	6.7	**100.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 10 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/17/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/17	1 / 300	Structural Fill - South, Center	912.21	2244	5.8	2270	6.7	**98.9**
2018/08/17	2 / 300	Structural Fill - Center of lift	912.21	2275	4.8	2270	6.7	**100.2**
2018/08/17	3 / 300	Structural Fill - South, Center	912.58	2272	2.4	2270	6.7	**100.1**
2018/08/17	4 / 300	Structural Fill - Center of lift	888.10	2202	5.3	2270	6.7	**97.0**
2018/08/17	5 / 300	Structural Fill - Center, 10 m N of toe	889.38	2308	3.3	2270	6.7	**101.7**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/18/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/18	1 / 300	Structural Fill - SE Corner	890.98	2205	6.3	2270	6.7	**97.1**
2018/08/18	2 / 300	Structural Fill - SW Corner	891.41	2232	4.3	2270	6.7	**98.3**
2018/08/18	3 / 300	Structural Fill - Center of lift	891.84	2202	4.3	2270	6.7	**97.0**
2018/08/18	4 / 300	Structural Fill - North, Center	892.21	2275	3.8	2270	6.7	**100.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 13 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 8/19/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/08/19	1 / 300	Structural Fill - SE Corner	893.75	2281	4.7	2270	6.7	**100.5**
2018/08/19	2 / 300	Structural Fill - South Center	894.13	2282	6.3	2270	6.7	**100.5**
2018/08/19	3 / 300	Structural Fill - NE Corner	894.53	2251	4.8	2270	6.7	**99.2**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	Structural Fill - 65m North of toe from Station 0+200	915.65	2171	4.3	2270	6.7	**95.6**
2018/09/01	2 / 300	Structural Fill - 100m North of toe from Station 0+350	916.05	2222	6.0	2270	6.7	**97.9**
2018/09/01	3 / 300	Structural Fill - 15m North of toe from Station 0+315	916.05	2190	4.3	2270	6.7	**96.5**
2018/09/01	4 / 300	Structural Fill - 30m North of toe from Station 0+215	916.05	2163	5.4	2270	6.7	**95.3**
2018/09/01	5 / 300	Structural Fill - 60m North of toe from Station 0+140	916.05	2172	4.9	2270	6.7	**95.7**
2018/09/01	6 / 300	Structural Fill - 100m North of toe from Station 0+200	916.43	2190	4.9	2270	6.7	**96.5**
2018/09/01	7 / 300	Structural Fill - 90m North of toe from Station 0+355	916.43	2202	4.7	2270	6.7	**97.0**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/1/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/01	1 / 300	0+340, 10 m from south toe	916.43	2209	4.2	2270	6.7	**97.3**
2018/09/01	2 / 300	0+250, 25 m from south toe	916.43	2236	5.7	2270	6.7	**98.5**
2018/09/01	3 / 300	0+320, 40 m from North toe	916.88	2162	5.0	2270	6.7	**95.2**
2018/09/01	4 / 300	0+290, 15 m from south toe	916.88	2187	4.5	2270	6.7	**96.3**
2018/09/01	5 / 300	0+220, 30 m from north toe	916.88	2240	3.7	2270	6.7	**98.7**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 11 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/2/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/02	1 / 300	0+160, 15 m from North toe	916.82	2321	4.4	2270	6.7	**102.2**
2018/09/02	2 / 300	0+200, 20 m from South toe	917.22	2205	4.4	2270	6.7	**97.1**
2018/09/02	3 / 300	0+250, 10 m from South toe	917.22	2210	3.3	2270	6.7	**97.4**
2018/09/02	4 / 300	0+330, 25 m from North toe	917.22	2157	5.0	2270	6.7	**95.0**
2018/09/02	5 / 300	0+140, 30 m from North toe	917.22	2219	3.9	2270	6.7	**97.8**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 0 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2/2/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/02/02	1 / 300	0+265, 5 m from south toe	917.22	2161	4.6	2270	6.7	**95.2**
2018/02/02	2 / 300	0+265, 30 m from north toe	917.61	2174	4.5	2270	6.7	**95.8**
2018/02/02	3 / 300	0+320, 116 m from south toe	917.61	2246	4.5	2270	6.7	**98.9**
2018/02/02	4 / 300	0+280, 15 m from south toe	917.61	2208	4.2	2270	6.7	**97.3**
2018/02/02	5 / 300	0+220, 15 m from south toe	917.61	2180	3.9	2270	6.7	**96.0**
2018/02/02	6 / 300	0+220, 15 m from south toe	918.06	2259	3.9	2270	6.7	**99.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 8 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 9/3/2018 **By:** JRC

Contractor: Pelly Construction | **Construction Period:** DAYSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/09/03	1 / 300	0+320, 40 m from North toe	918.00	2195	4.1	2270	6.7	**96.7**
2018/09/03	2 / 300	0+200, 10 m from North toe	918.00	2272	5.2	2270	6.7	**100.1**
2018/09/03	3 / 300	0+340, 30 m from North toe	918.00	2232	4.3	2270	6.7	**98.3**
2018/09/03	4 / 300	0+280, 40 m from North toe	918.00	2178	3.9	2270	6.7	**95.9**
2018/09/03	5 / 300	0+240, 25 m from South toe	918.40	2243	4.6	2270	6.7	**98.8**
2018/09/03	6 / 300	0+180, 30 m from South toe	918.40	2191	3.9	2270	6.7	**96.5**

Remarks: Testing completed with BGC present. Compacted with CS 78 13.4 tonne vibratory smooth drum roller. Issued for Review. Page 1 of 1.

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TETRA TECH

COMPACTION DENSITY TEST SUMMARY REPORT

ASTM Designation D6938

Project: Eagle Gold Project | **Test Apparatus:** Nuclear | **Troxler No:** 60841

QC Inspection & Testing | **Specified Compaction:** 95 % Mod. Proctor Max. Dry Density

Project No.: WARC.03235-05 | **Specified Moisture** (MC)**:** As Below

Client: JDS Energy & Mining/BGC | **Temperature** **Air:** 7 ºC **Soil:** ºC

Attention: R.Morlan/D. Granda | **Date Tested:** 2/3/2018 **By:** ELN

Contractor: Pelly Construction | **Construction Period:** NIGHTSHIFT

Soil Description: SAND & GRAVEL (Colluvium), silty

Material Usage/Zone: Type 3 Structural Fill

Date yyyy/mm/dd	**Test No.** / Probe (mm)	**Location:**	Depth to Grade (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % MPD
2018/02/03	1 / 300	Test pad; SE corner	918.45	2190	3.5	2270	6.7	**96.5**
2018/02/03	2 / 300	0+330, 15 m from north toe	918.85	2226	4.2	2270	6.7	**98.1**
2018/02/03	3 / 300	0+220, 5 m from north toe	918.85	2241	3.8	2270	6.7	**98.7**
2018/02/03	4 / 300	0+330, 45 m from south toe	918.85	2213	4.7	2270	6.7	**97.5**

Remarks: Compacted with CS 78 13.4 tonne vibratory smooth drum

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TETRA TECH

APPENDIX 7
TETRA TECH LINER QA REPORT

Construction Quality Assurance Report
Heap Leach Facility Geosynthetics Installation
Eagle Gold Project
Dublin Gulch, Yukon Territory
62°2’N, 135°50’W



PRESENTED TO

JDS Energy and Mining Inc.

SEPTEMBER 16, 2019
ISSUED FOR REVIEW
FILE: 704-ENG.WARC03235-07

This “Issued for Review” document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an “Issued for Use” document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the “Issued for Review” document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. has completed the construction quality assurance program during the installation of the geosynthetic liner system at the Eagle Gold Heap Leach Facility located at Dublin Gulch, Yukon Territory, approximately 85 km North of the Town of Mayo, Yukon Territory, centered at 62°2'N, 135°50'W.

The Heap Leach Facility project included the following components:

- Construction of the Heap Leach Facility earthworks, geosynthetics, and pipework; and
- Surrounding infrastructure including: solution pumps and facilities, ore delivery, and heap stacking equipment and their associated structures.

This report covers the installation of the geosynthetics liner system in the In-heap Pond and the Heap Leach Pad up to elevation 1,000 m of the Heap Leach Facility.

The purpose of the construction quality assurance program was to verify the contractor's quality control program and conformance with the plans and specifications prepared for this project.

The field and laboratory testing performed before and during the completion of this project are presented in the report appendices and summarized in the report text. The completion of the construction quality assurance program demonstrates that the geosynthetic installation completed to date was completed in accordance with the project plans and specifications, and any variances documented and accepted by the proper authorities.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
CQA	Construction Quality Assurance
HLF	Heap Leach Facility
Tetra Tech	Tetra Tech Canada Inc.
QC	Quality Control
LLDPE	Linear Low-Density Polyethylene
GCL	Geosynthetic Clay Liner
JDS	JDS Energy and Mining Inc.
StrataGold	StrataGold Corporation
EPCM	Engineering, Procurement, and Construction Management
NELPCo.	NND-EBA Land Protection Corp., operating as NELPCo Limited Partnership
BGC	BGC Engineering Inc.
Layfield	Layfield Group Ltd.
LDRS	Leak Detection and Recovery System
Specs.	Technical Specifications provided by BGC October 16, 2017
ODF	Over-liner Drainage Fill
GRI	Geosynthetic Research Institute
FM	Field Memorandum
RFI	Request for Information
IFC	Issued for Construction

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of JDS Energy and Mining Inc. and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than JDS Energy and Mining Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

This report details the construction quality assurance (CQA) program completed during the installation of the geosynthetic liner system in the In-heap Pond and Heap Leach Pad section (up to elevation 1,000 m) of the Heap Leach Facility (HLF). The liner system was installed at the Eagle Gold Mine, at Dublin Gulch, owned and operated by Victoria Gold, located approximately 85 km North of Mayo, Yukon Territory.

The geosynthetics CQA program was implemented to ensure that the liner system installed within the in-heap pond and heap leach pad of the HLF satisfied the design requirements and was installed in accordance with the plans and specifications prepared for the project, and any variances were documented and accepted by the proper authorities.

For the purposes of this report, the term CQA refers to the activities of Tetra Tech Canada Inc. (Tetra Tech) relating to the testing and inspections required to assure the Client that the various elements met the requirements of the project specifications. This is distinct from quality control (QC), which refers to the activities of the Contractor in the construction of the various elements to meet the requirements of the specification.

1.1 Project Description

1.1.1 Project

The geosynthetic liner system for the In-heap Pond is a double liner system, which is installed directly on the prepared subgrade, consisting of the following layers (starting from the top to the bottom):

- An 80-mil double-sided, textured, linear low-density polyethylene (LLDPE) geomembrane;
- A double-sided geocomposite installed in the in-heap pond to serve as a leak detection layer connected to the pond's leak detection sump;
- A 60-mil double-sided textured LLDPE geomembrane; and
- A geosynthetic clay liner (GCL) reinforced with a layer of sodium bentonite.

The geosynthetics liner system for the Heap Leach Pad Phase 1 is a single liner system, which is installed directly on the prepared subgrade, consisting of the following layers (starting from the top to the bottom):

- An 80-mil double-sided, textured, LLDPE geomembrane; and
- A GCL reinforced with a layer of sodium bentonite.

1.1.2 Location

The Eagle Gold Mine is located in Dublin Gulch, approximately 85 km North of Mayo, Yukon Territory, centered at 62°2'N, 135°50'W.

1.2 Project Documentation

The field and laboratory test data collected during the installation of the in-heap pond, and heap leach pad phase I liner system are detailed throughout this report and are presented in the following sections:

- Tables
- Figures
- Photographs
- Material Inventory Summary
- Panel Installation Summary
- Trial Seam Summary
- Panel Diagrams
- Seam Installation Summary
- Repair Logs
- Air Pressure Testing Summary
- Destructive Seam Testing
- Manufacturer Certification
- Geomembrane Reference Material
- Layfield QC Report
- Tetra Tech's Limitations on the Use of this Document
- Supporting Documentation for Section 3.10

1.3 Project Organization

JDS Energy and Mining Inc. (JDS), on behalf of StrataGold Corporation (StrataGold), a wholly owned subsidiary of Victoria Gold Corp., has been engaged for Engineering, Procurement, and Construction Management (EPCM) services to execute the Eagle Gold Project at Dublin Gulch, Yukon Territory.

JDS contracted NND-EBA Land Protection Corp., operating as NELPCo Limited Partnership (NELPCo), who used their engineering services provider Tetra Tech to provide CQA services throughout the duration of the liner installation, adhering to the design and specifications for the HLF prepared by BGC Engineering Inc. (BGC).

Tetra Tech's Project Manager was Chad Cowan, P.Eng. Scott Dimitroff and Kate Rogers, E.I.T. were Tetra Tech's CQA monitors for the entire geosynthetics portion of the project. Tetra Tech's CQA monitor was on site on a full-time basis for all geosynthetic installation. They worked closely with the contractor supervising daily activities such as panel placement, wedge welder and extruder qualifications, liner installation and repair inspection, and all testing completed on the liner material, both destructive and non-destructive.

The contractor for the geosynthetics installation was Layfield Group Ltd. (Layfield) of Edmonton, Alberta. The Foreman for Layfield was Chad Messervey, while Jason Wheeler was the Project Manager.

2.0 CONSTRUCTION QUALITY ASSURANCE PROGRAM

2.1 Objective

The objective of the CQA program was to ensure that the geosynthetic liner system was installed in accordance with the construction specifications. Table A, which summarizes the CQA requirements for the geosynthetics portion of this project, is attached.

The CQA program was designed to supplement the QC program implemented by Layfield, and fulfilled two purposes;

- To provide documentation of the specific technical requirements of the CQA program to be followed during the installation of the geosynthetic liner systems; and
- To be a source of information for personnel performing and monitoring construction.

2.2 Construction Quality Assurance Program Components

The following activities were performed as components of the CQA program:

- **Field inspections** performed by the CQA monitor. These inspections were primarily visual examinations, but also included measurements of materials and equipment used, and techniques employed. The purpose of these inspections was to demonstrate that the specific guideline, specification, or procedure for the activity was successfully completed.
- **Field laboratory seam testing** performed on site by the contractor and visually inspected by the CQA monitor according to specified procedures. Seam tests were performed on samples of the installed geomembrane seams to confirm the contractor's QC testing and ensure that actual seam performance was meeting the project seaming requirements.
- **Receiving inspections** performed by the CQA monitor. These inspections included visual examinations of materials received from the supplier along with their matching manufacturer certificates. The purpose of these inspections was to verify that the materials used met the requirements of the specifications and were free from defects.

3.0 HLF GEOSYNTHETIC LINER SYSTEM

3.1 Geosynthetic Liner Profile

3.1.1 In-Heap Pond Liner Profile

The completed geosynthetic liner system for the in-heap pond is a double liner system, which is installed directly on the prepared subgrade consisting of the following layers (starting from the top to the bottom):

- An 80-mil double-sided textured LLDPE geomembrane;
- A double-sided geocomposite installed in the in-heap pond and sump area to serve as a leak detection layer connected to the pond's leak detection sump;
- A 60-mil double-sided textured LLDPE geomembrane; and
- A GCL reinforced with a layer of sodium bentonite.

The 80-mil LLDPE double-sided textured geomembrane was placed directly on the geocomposite throughout all areas of the in-heap pond, apart from the sump area, as discussed below in section 3.10.

The double-sided geocomposite was installed between the 60-mil and 80-mil LLDPE geomembranes. The geocomposite is manufactured with a three dimensional bi-planar geonet, laminated on both sides with non-woven geotextile. The geocomposite serves as the leak detection layer which is connected to the pond's leak detection sump. A geocomposite with a geotextile weight of 270 g/m^2 was used on the embankment face above elevation 925 m, and in the West portion of the in-heap pond above elevation 930 m. All other areas of the in-heap pond used a geocomposite with a geotextile weight of 350 g/m^2, as shown in Figure 1.

The 60-mil LLDPE double-sided textured geomembrane was placed directly on the GCL in all areas throughout the in-heap pond.

The GCL was placed directly on the prepared subgrade, smooth and free of all rocks, stones, sticks, roots, sharp objects, or debris of any kind. GCL liner was covered the same day to limit exposure to moisture.

3.1.2 Heap Leach Pad Phase I

The geosynthetics liner system for the Heap Leach Pad Phase 1 is a single liner system, which is installed directly on the prepared subgrade, consisting of the following layers (starting from the top to the bottom):

- An 80-mil double-sided, textured, LLDPE geomembrane; and
- A GCL reinforced with a layer of sodium bentonite.

The 80-mil LLDPE double-sided, textured geomembrane was placed directly on the GCL throughout all areas of the heap leach pad phase I.

The GCL was placed directly on the prepared subgrade, smooth and free of all rocks, stones, sticks, roots, sharp objects, or debris of any kind. GCL liner was covered the same day to limit exposure to moisture.

3.2 Manufacturer's Quality Control Certification

GSE Environmental, SOLMAX, and SKAPS provided Manufacturing Quality Control certificates for the GCL, 60-mil and 80-mil LLDPE geomembrane, and geocomposite produced and delivered to site. These certificates show the average and minimum values for each roll of material delivered to site.

A summary of the manufacturer's certifications for the GCL, geomembrane, and geocomposite materials used for this project are included in Layfield's QC package shown in Appendix A.

Tetra Tech reviewed the test data contained within the Manufacturer's Certificates for comparison to the product specifications. This comparison demonstrated that the material supplied met or exceeded all the typical project-specific requirements. Any variances are discussed below, and in section 3.10.

3.3 Installation of 60-mil Linear Low-Density Polyethylene Geomembrane

The 60-mil geomembrane used in the geosynthetic liner system for this project was SOLMAX LLDPE series, 1.50 mm Black, Textured, manufactured by SOLMAX. The material was delivered to site in rolls measuring 6.8 m wide by approximately 165 m long. The 60-mil SOLMAX LLDPE is a double-sided textured geomembrane that was placed directly on the GCL. The specification sheet provided dictates values are outside of the range prescribed in the project specifications but was determined to be an acceptable product by BGC prior to installation. Product variances from design are outlined in section 3.10.

The 60-mil geomembrane was deployed immediately after placement of the GCL, so as to limit exposure of the GCL. In instances where GCL was left exposed overnight, or longer, it was thoroughly inspected to ensure it was clear of debris, and no swelling had occurred prior to any placement of 60-mil geomembrane. In instances where GCL was left exposed and snow had accumulated on the surface, the same inspection criteria listed above were evaluated once the snow had been removed, prior to any placement of 60-mil geomembrane.

The geomembrane overall panel layout and tie-in seams are included in Layfield's QC package shown in Appendix A. This final as-built differs from the design drawings provided by BGC, as discussed in section 3.10.

During placement, each geomembrane panel was inspected for signs of manufacturing defects or damage that may have been caused by the shipping, handling, or storage of the material. Any damage identified as part of the inspection were marked and removed from the roll prior to installation.

Photo 1 shows the deployment of 60-mil LLDPE on GCL, and Photo 2 shows a progress shot of 60-mil LLDPE installed.

3.4 Installation of Geocomposite

The double-sided geocomposite for this project was supplied by SKAPS. Geocomposite with a geotextile weight of 270 g/m^2 was used on the embankment face above elevation 925 m, and in the west portion of the in-heap pond above elevation 930 m (product: TN-220-2-8). All other areas of the in-heap pond used geocomposite with a geotextile weight of 350 g/m^2 (product: TN 350-2-8), as shown in Figure 1. The geocomposite was installed directly on top of the 60-mil LLDPE geomembrane.

The double-sided geocomposite was installed in all areas throughout the in-heap pond between the 60-mil and 80-mil LLDPE geomembranes including the sump area, pond slopes, and extends into the key trench which terminates at elevation 940 m. Double-sided geocomposite is manufactured with a three dimensional bi-planar geonet, laminated on both sides with non-woven geotextile and has a primary function of serving as the leak detection layer which is connected to the pond's leak detection sump.

The edges of adjacently placed geocomposite panels were overlapped and the geonet tied together using nylon ties (zip ties) at an approximate spacing of 1.5 m. A nylon tie spacing of 300 mm was used on slopes, and at roll ends. The upper geotextile layers of each geocomposite panel were then heat bonded using a Leister heat gun.

Photo 3 shows deployment of double-sided geocomposite. Photo 4 shows the geonet zip-tied together.

3.5 Installation of 80-mil Linear Low-Density Polyethylene Geomembrane

The 80-mil geomembrane used in the geosynthetic liner system for the in-heap pond portion of the project was SOLMAX LLDPE series, 2.00 mm Black, Textured, manufactured by SOLMAX. The material was delivered to site in rolls measuring 6.8 m wide by approximately 122 m long. The 80-mil SOLMAX LLDPE is a double-sided textured

geomembrane that was placed directly on the geocomposite. The specification sheet provided dictates values are outside of the range prescribed in the project specifications but was determined to be an acceptable product by BGC prior to installation. Product variances from design are outlined in section 3.10.

The 80-mil geomembrane used in the geosynthetic liner system for the heap leach pad portion of the project was SOLMAX LLDPE series, 2.00 mm Black RT, textured, manufactured by SOLMAX. The material was delivered to site in rolls measuring 6.8 m wide by approximately 122 m long. The 80-mil SOLMAX LLDPE is a double-sided textured geomembrane that was placed directly on the GCL.

The 80-mil geomembrane for the in-heap portion of the project was placed directly on top of the geocomposite. Prior to placement of the 80-mil, the geocomposite material was thoroughly inspected to ensure it was clear of debris. In instances where the geocomposite was left exposed for an extended length of time prior to placement of the 80-mil, and snow had accumulated on the surface, the same inspection criteria listed above were evaluated once the snow had been removed, prior to any placement of 80-mil geomembrane.

The 80-mil geomembrane used in the geosynthetic liner system for the heap leach pad portion of the project was deployed immediately after placement of the GCL, so as to limit exposure of the GCL. In instances where GCL was left exposed overnight, or longer, it was thoroughly inspected to ensure it was clear of debris, and no swelling had occurred prior to any placement of 80-mil geomembrane.

The geomembrane overall panel layout and tie-in seams are included in Layfield's QC package shown in Appendix A. This final as-built differs from the design drawings provided by BGC, as discussed in section 3.10.

During placement, each geomembrane panel was inspected for signs of manufacturing defects or damage that may have been caused by the shipping, handling, or storage of the material. Any damage identified as part of the inspection were marked and removed from the roll prior to installation.

Photo 5 shows the installation of 80-mil LLDPE on top of geocomposite.

3.6 Trial Seams

Seam quality is one of the most critical aspects of geomembrane installation. The ambient conditions at the time of seaming, setup of the welding equipment, and other variables can all affect the quality of the welded seams. Care was taken by the Installer to ensure that the welding equipment was properly set up and producing a conforming seam prior to field seaming operations. The welding equipment was requalified at four-hour intervals, as per Layfield's QC program, and as necessary during the working day, in accordance with specifications. Photo 6 shows a trial seam being completed.

3.7 Seam Wedge (Fusion) Welding

The seaming operations were continuously monitored by the CQA monitor to ensure there were no isolated problems, such as water puddles or dirt under the liner that could affect seam quality over any length of the seam. The temporary leading edges of the geomembrane occasionally became dirty due to windblown dust and mud from open areas of the clay subgrade. These edges were scrubbed and wiped clean prior to seaming.

3.7.1 Air Pressure Test

Fusion welded seams were non-destructively tested over their full-length using air pressure testing. The air pressure tests were performed by Layfield and observed by the CQA monitor. An air channel located between the dual tracks

of the fusion welded seam was pressurized to a minimum of 210 kN/m^2, or 30 lbs/in^2 (pounds per square inch [psi]) for a period of at least five minutes; an air pressure loss of more than 28 kN/m^2 or 4 psi required that the air leak be located, repaired, and retested. Photo 7 shows an air test in progress.

3.7.2 Destructive Test

Samples of the fusion welded seams were destructively tested at regular intervals of minimum one per 500 linear metres of seam throughout the installation of the liner, to ensure that seam quality did not change throughout seaming operations. In cases where a failed coupon from a destructive test was identified, the total length of failed seam was determined by taking additional destructive tests 3 linear metres before and after the first destructive test and retesting until a passing destructive test result was obtained in both directions of the first failed destructive test. The length of seam between the passing destructive tests was then replaced, patched, or extrusion welded. Photo 8 shows an area where a destructive test was taken from a seam.

Some variability existed in the case of failed destructs from what is outlined in the specifications provided. This is discussed in section 3.10.

3.8 Extrusion Welding

Each panel and seam were inspected continuously by the CQA monitor during the installation. Any defects found in the LLDPE membrane or in the seams were marked so that the installation crew was aware that a defect was found. Once all repairs were completed by the installer, the CQA monitor reviewed each panel and seam from the anchor trench to the panel end to ensure all defects were adequately repaired. Any defects identified in the 60-mil geomembrane were repaired prior to placing geocomposite.

Any repairs to the panels or seams were completed by placing an extrusion welded bead over defects smaller than 6 mm, or by extrusion welding a patch of LLDPE over any destructive sample holes, tears, or holes larger than 6 mm, or areas with blisters. Scratches, scuffs, or creases were generally repaired by placing an extrusion welded bead over the defect area. Photo 9 displays patch repair work completed using an extrusion welder.

3.8.1 Vacuum Test

All extrusion welded repairs were non-destructively tested using the vacuum box test method. The vacuum box assembly consists of a rigid housing, a transparent viewing window, and a vacuum gauge. The weld to be tested was wetted with a soapy solution and the vacuum box assembly was placed over the soapy weld, ensuring a seal over the test area.

A vacuum pressure between 5 psi to 8 psi was induced for at least 15 seconds, and the area within the viewing window was examined for the presence of bubbling, indicating a leak. Suspect areas were marked, repaired, and retested. As with the air pressure tests, the vacuum box tests were performed by Layfield and observed by the CQA monitor. Photo 10 shows a repair being tested using the vacuum box method.

3.9 In-Heap Pond Sumps

The in-heap pond includes a system of three sumps at the very bottom of the pond. As-built conditions show some variations from design, but no new drawings were re-issued for the modified liner system.

3.9.1 Closure Sump

The completed geosynthetic liner system for the closure sump consists of the following layers (starting from the top to the bottom), any variations in this assembly from design are discussed in section 3.10.

- A top layer 60-mil double-sided textured LLDPE geomembrane, welded to the bottom layer 60-mil LLDPE geomembrane;
- A 16 oz. non-woven geotextile encasing the piping and backfill;
- A bottom layer 60-mil double-sided textured LLDPE geomembrane continuous to meet the 60-mil LLDPE geomembrane on the in-heap pond slopes; and
- A GCL reinforced with a layer of sodium bentonite.

An as-built sketch of the sump liner profile is shown in Figure 2.

3.9.2 Leak Detection and Recovery System Sump

The completed geosynthetic liner system for the leak detection and recovery system (LDRS) sump consists of the following layers (starting from the top to the bottom), any variations in this assembly from design are discussed in section 3.10.

- A top layer 80-mil double-sided textured LLDPE geomembrane, welded to be continuous to surrounding slopes;
- A 16 oz. non-woven geotextile, which ties into the double-sided geocomposite existing on the surrounding slopes;
- A bottom layer 60-mil double-sided textured LLDPE geomembrane continuous to meet the 60-mil LLDPE geomembrane on the in-heap pond slopes; and
- Closure sump assembly as listed in section 3.9.1.

An as-built sketch of the sump liner profile is shown in Figure 2.

3.10 Variations from Design

3.10.1 Proposed Panel Layout

Section 4.1.1 of the Technical Specifications provided by BGC on October 16, 2017 (Specs.) dictate the “alignments, lengths, and areas are shown on the Drawings. Exact locations and lengths may vary to suit field conditions, as approved by the Engineer.” in reference to the proposed panel layout.

Due to the size of the liner, and design slopes of the in-heap pond, the original panel layout (shown in Figure 3) was not achievable, and upon installation, there were some variances from Section 4.1.7.1 of the Specs., which is summarized below:

- Geomembrane panels oriented such that they are perpendicular to the natural contours (parallel to the maximum slope;
- No horizontal seams allowed on slopes steeper than 3H:1V;
- All seams shall be oriented such that they are shingled in a down-slope direction; and

- If cross seams are required on a steep slope, the end of each panel shall be cut at a diagonal of 45° and seamed to prevent installation of a horizontal seam.

The as-built grading of the HLF in-heap pond shown in Figure 4 displays some areas with sloping greater than 3H:1V. This was stated as acceptable in an email from BGC sent October 28, 2018 (Appendix B). Comparing the as-built grading (Figure 4), and the as-builts of the LLDPE (Appendix A), it is apparent that there are horizontal seams located on slopes greater than 3H:1V.

3.10.2 Vehicle Contact with Geomembrane

Due to the sequence of works of the in-heap pond liner and sump piping, access to the sumps was required after the liner had been installed, but before over drainage fill (ODF) placement. To accommodate this schedule, BGC issued Field Memo 007 (FM-007) (Appendix B) which allowed for a reduced layer of ODF to be placed and serve as a “haul road” for material access to the in-heap pond sumps.

The Contractor responsible for the sump piping installation proposed a list of equipment to run on the reduced layer of ODF over the liner, that was approved by BGC. The equipment list is shown in Table 1.

Table 1: List of Approved Equipment to Drive on Installed Liner

Type	Code	Model 1	Model 2
Excavator 1	EXC045	CAT 324 EXC	324 E EXC045
Excavator 2	EXC014	CAT 314 EXC	314E LCR
Excavator 3	EXC140	DOOSAN DX140 EXC	DX140 LC
Dozer	DZR016	CAT D6T Dozer	D6T LGP
Loader	LDR004	CAT 950 Loader	950K LDR 004
Skid Steer	LDR040	CAT 279 Skidsteer	279D
Rock Truck 1	TRK512	CAT 401 RT	740B
Rock Truck 2	TRK513	CAT 301 RT	730C
Packer	PKR009	CAT CS56B Packer	PKR009

Additionally, the approved equipment was required to follow a specific path on and off the liner with only a forward and backward drive direction.

Tetra Tech completed sieve analysis on the ODF being placed throughout the haul road placement to ensure it adhered to FM-007. Results can be seen in Appendix B.

3.10.3 LLDPE Material Requirements

Section 4.1.5 of the Specs. provides Table 4.1. Geomembrane Properties, that dictate the properties that the supplied geomembrane is required to meet or exceed; however, some of the values listed are higher than those listed in the Geosynthetic Research Institute (GRI) GM 13 and GM 17.

It was acknowledged by BGC via email (Appendix B) that the proposed liner was acceptable provided it met the GRI values.

Table B shows Table 4.1 from the Specs. with the values from the GRI bracketed next to it in red.

3.10.4 Installation Requirements

3.10.4.1 LLDPE and Geocomposite Installation

The Sepcs. state, “no geomembrane deployment shall be allowed during periods of wet or extremely windy weather or in the presence of ponded water”. As the installation pushed into the months of October to January, there were installation days where there was snow falling/accumulating on the LLDPE, and geocomposite. Generally, the snow was removed using leaf blowers and shovels, to be <25 mm thick, prior to the installation of the next layer. In instances where welding was occurring, and it began to snow, the area being welded would be marked for a destructive test to be taken from to ensure the weld was not compromised. If the destructive test failed, the procedure as outlined in section 3.7.2 would be followed to determine the length of failed seam that was required to be repaired. Days of snow and adverse weather were reported on the Daily Reports, issued daily throughout liner installation.

3.10.4.2 GCL Installation

In general, as the installation of the liner system progressed, GCL would only remain exposed at panel edges where the width of LLDPE was not as wide as the GCL placed, and in these instances, it was typically 300 mm to 500 mm of exposure. As mentioned above, as the installation pushed into the months of October to January, there were installation days where the anticipated amount of liner was not completed in its entirety due to snow fall. In these instances, there were multiple panels of GCL left exposed overnight. As stated in the specs., “The GCL shall be installed in advance of the geomembrane installation, provided the GCL panels can be covered with seamed geomembrane within each day of deployment. Only those GCL panels that can be covered in the same day shall be unpackaged and installed. If exposed GCL cannot be permanently covered before the end of the work day, it shall be temporarily covered with plastic or other waterproof material to prevent hydration.” BGC was made aware of these occurrences and instructed that any snow accumulation was to be removed, and a thorough visual inspection of the GCL completed by the CQA to determine if it had hydrated.

It was reported in the Daily Reports when GCL was left exposed overnight.

3.10.5 Spark Testing

The Specs. state in section 4.1.5 “The In-Heap Pond liner shall be High Performance GSE UltraFlex Leak Location Textured (or approved equal) for post-installation damage utilizing spark testing technology per ASTM D 7240 and utilizing electrical resistivity testing per ASTM D 7002 on exposed geomembranes and ASTM D 7007 after water or cover soil placement”.

The request for information (RFI) EPCM-RFI-022 issued July 6, 2018 from JDS on behalf of Layfield to BGC (Appendix B), proposes to remove the requirement for a conductive backed liner, and use a valid-test (vacuum) to validate liner in the LDS layer. BGC-RFI-020 issued October 2, 2018 states a specification clarification that reads:

> “The project specifications call for Leak Location (or approved equal) for post-installation damage utilizing spark testing technology in the HLF in-heap pond. EPCM-RFI-022 approved vacuum (VALID) testing in place of spark testing. VALID testing is not possible once the liner is covered with Overliner Drain Fill (ODF). The current project schedule will not likely allow opportunity to fully place ODF in acceptable conditions (see BGC-RFI-016 regarding cold temperature liner system installation). The risk of leaving the liner exposed over the winter is significant with a high probability of damage due to environmental stress cracking from wind and snow induced loading and movement at temperatures below minus 25 degrees C. BGC made StrataGold aware of these risks and the decision was made to place ODF on the liner as soon as possible after incremental placement of the 2.0 mm LLDPE top liner to protect the liner over winter. VALID

> testing may be completed on the portion of the liner exposed and not yet covered with ODF once the top liner is completed. The final decision to complete the VALID testing will be made at that time."

As of August 2019, no valid testing has been completed on the installed liner system.

3.10.6 Liner Profile in Sumps

BGC-RFI-028 issued November 7, 2018 (Appendix B) modifies the liner detail shown on the Issued for Construction (IFC) drawings EGHLF XD-05-01 through 05-04. The installed liner system in the sumps is as shown in the as-built in Figure 2.

3.10.7 Frequency of Destructive Tests

Initially, destructive tests were being taken approximately one every 300 m for each type of LLDPE, as was suited to the field conditions at the time (temperature above 0°, dry). As the installation progressed into temperatures below 0°, and snow/ice, the frequency of destructive tests was increased to one every 150 m.

Upon testing several failing destructs in the liner system in the sump area, it became apparent that there were several entire seams that would need repair. To eliminate excessive destructive tests, a destruct was taken from every seam at the beginning of the seam, and the end of the seam, and if both failed, the seam was marked to be repaired. If only one end of the seam failed, then the failure would be chased every 3 m until a passing destruct was tested. Testing every seam at beginning and end allowed confidence in the integrity of the seams in an area where there were several failing destructs.

The quantity of failed destructs in a small area over a short period of time questioned whether the VM-20 model wedge welding machines being used by Layfield were adequate for the temperatures/field conditions at the time. Layfield introduced XL model wedge welders to be used in colder weather operations. Additionally, specific cold weather guidelines were set in place, as discussed in section 3.10.8.

In instances of entirely failed seams, a cap strip of LLDPE was placed, and wedge welded, or the seam was extruded over. Destructive Seam Testing logs can be found in Appendix A.

3.10.8 Installation of Liner in Cold/Wet Weather

The Technical Specifications state "No seaming shall be conducted if the temperature measured at 15 cm above the geomembrane is lower than 5°C or above 38°C, without written acceptance by the Engineer. When the temperature is below 10°C, the Installer shall preheat the weld zone by a hot air device", but in BGC-RFI-016, this statement is amended as follows:

> Cold weather installations should follow guidelines as outlined in GRI GM9: *Standard Practice for Cold Weather Seaming of Geomembranes*. No geomembrane material shall be seamed when liner (sheet) temperatures are less than 0 degrees C (32 degrees F) unless the following conditions are complied with:
>
> 1. Seaming of the geomembrane at material temperatures below 0 degrees C (32 degrees F) is allowed if the Geomembrane Installer (Layfield) can demonstrate to the Owner's Representatives (Tetra Tech and BGC), using pre-qualification test seams, that field seams comply with the project specifications, the safety of the crew is ensured, and geomembrane material can be fabricated (i.e., pipeboots, penetrations, repairs etc.) at sub-freezing temperatures.

2. The Geomembrane Installer shall submit to the Owner's Representative for approval, detailed procedures for seaming at low temperatures, including the following:

    a. Preheating of the geomembrane, if necessary.

    b. The provision of a tent or other device if necessary to prevent heat losses during seaming and rapid heat losses subsequent to seaming.

    c. Number of test welds to determine appropriate seaming parameters.

3. Trial welds shall always be done in the environment (temperature) and geometry in which production welding is to be done.

4. Freezing temperatures can cause geomembrane sheets to crack when unrolled, folded, impacted, or loaded. Geomembranes when unrolled or folded in cold weather should not crack, craze, or distort in texture. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that a geomembrane shall be unrolled unless it is shown otherwise to the satisfaction of the Owner's Representative.

5. Section 3.8.1.2 of the project technical specifications addresses placement of Overliner Drain Fill (ODF) on the installed liner. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that ODF shall be placed on the geomembrane unless it is shown otherwise to the satisfaction of the Owner's Representative.

In response to BGC-RFI-016, Layfield submitted their Cold Weather Installation Procedure (Appendix B), and through thorough discussions between BGC, JDS, and Tetra Tech, it was determined that provided all the above conditions had been met, Layfield would be able to continue seaming in colder temperatures.

3.10.8.1 Bend Test

In addition to BGC-RFI-016, it was requested that an additional test be completed to determine the ductility of the liner in colder conditions. Sageos; a geosynthetic research and development laboratory, references ASTM D2136-02: Standard Test Method for Coated Fabrics – Low-Temperature Bend Test (Appendix B) as an applicable test for cold weather conditions. The testing apparatus was built by Tetra Tech, and upon testing LLDPE ductility in a variety of temperatures, it appeared that the integrity of the LLDPE conformed to the Specs.

4.0 CONSTRUCTION QUALITY ASSURANCE RECORDS AND TESTS

The following tasks where performed during the installation of the geosynthetic liner system:

- Material Inventory Record;
- Panel Installation Record;
- Trial (or Qualification) Seams;
- Geomembrane Fusion Seam Installation;
- Air Pressure Tests (Wedge Welding);
- Vacuum Test and Repairs (Extrusion Welding);

- Panel Diagrams; and
- Destructive Testing of Geomembrane Seam.

The following provides a brief description of the various CQA testing methodologies. Records of these activities are included in Layfield's QC package shown in Appendix A.

4.1 Material Inventory

An inventory of the 60-mil LLDPE, and 80-mil LLDPE geomembrane liner was completed as the material was placed. This inventory is documented in the material inventory summary data sheets contained in the installer's QC records.

A panel installation summary data sheet contains further information on the individual panels of geomembrane installed and can be found in Layfield's QC package shown in Appendix A.

4.2 Trial (or Qualifying) Seams

Trial seams using both the hot wedge welder and the extrusion welder were produced using strips of LLDPE geomembrane prior to the welding of any seams each day, and every four hours thereafter. When any significant changes in ambient temperature or wind speed were observed, or if seaming was delayed for an extended period, additional trial seams were required for each machine and each material being used or affected. Seaming of installed geomembrane panels did not commence until passing trial seams were completed.

A minimum of five test coupons were cut from the trial seams for both peel and shear strength and tested by Layfield on site. The CQA monitor was present during trial seam testing to observe that quality seams were being produced. In order to receive a passing result, the trial seam sample was required to meet the criteria laid out in Table 2.

Table 2: LLDPE Seam Strength Properties

Material (mil)	Fusion (Wedge Weld) Shear Strength (PPI)	Fusion (Wedge Weld) Peel (PPI)	Extrusion Shear Strength (PPI)	Extrusion Peel (PPI)
60	90	75	90	66
80	120	100	120	88

In addition to meeting the minimum strength requirements, the test coupons were required to meet an adhesion specification of less than 25% incursion into the weld.

These minimum requirements are based on GRI Test Method GM19 – Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes (GRI 2011). The minimum strengths and adhesion specifications are detailed in Appendix C.

All trial seam results are recorded and detailed in Layfield's QC package shown in Appendix A.

4.3 Geomembrane Seaming

The CQA monitor observed and recorded information pertinent to fusion welding (hot wedge seaming) of both the 60-mil and 80-mil geomembrane. The details include start times of the seam, length of the seam, ambient temperature, welding equipment identification and operator, and machine settings.

A summary of the seaming completed can be found in Layfield's QC package shown in Appendix A.

4.4 Non-destructive Testing of Geomembrane Seams

4.4.1 Hot Wedge Welding

All hot wedge welded seams were non-destructively tested using the air pressure test method by Layfield, as described in Section 3.6.1 Air pressure testing results can be found in Layfield's QC package shown in Appendix A. Seams that failed air pressure tests were investigated for possible causes and depending on the cause, repaired and retested or extrusion welded, and vacuum tested.

4.4.2 Extrusion Welding

Extrusion welded repairs were non-destructively tested using the vacuum box test method by Layfield and observed by the CQA monitor. Any weld defects found using the vacuum box test method were marked as VTF (vacuum test failed) at the defect's location and repaired, prior to placement of the next layer. Vacuum box testing results are documented in the repair logs contained in Layfield's QC package shown in Appendix A. The panel diagrams contained in Appendix A display the location of each repair.

4.5 Destructive Testing of Geomembrane Seams

Destructive tests were carried out on wedge welded seams at a frequency of one per 150 linear metres (500 linear feet) of seam, with the exception of those described in Section 3.10. Samples were selected by the CQA monitor to give the best representation of seam quality and were tested by both the CQA monitor and the installer. They were tested to ensure they met or exceeded the minimum peel and shear strength requirements outlined in Table 2. The locations of the destructive samples varied from seam to seam but most samples were obtained from locations in the seam that would not affect the integrity of the liner system or require any extra patches or extrusion welding. Examples of locations of destructive samples include anchor trenches and seam cut offs. Results of the destructive testing are presented in Layfield's QC package shown in Appendix A.

5.0 PROJECT SUMMARY

Tetra Tech provided CQA services during the installation of the geosynthetic lining system installed in the In-heap Pond and Phase 1 of the Heap Leach Pad of the HLF at the Eagle Gold Mine Project located approximately 85 km North of Mayo, Yukon Territory. The completed geosynthetic lining system installed consists of the following layers (starting from top to bottom):

In-heap Pond:

- A 80-mil double-sided textured LLDPE geomembrane;
- A double-sided geocomposite installed in the in-heap pond and sump area to serve as a leak detection layer connected to the pond's leak detection sump;
- A 60-mil double-sided textured LLDPE geomembrane; and
- A GCL reinforced with a layer of sodium bentonite.

Heap Leach Pad (Phase 1):

- A 80-mil double-sided textured LLDPE geomembrane; and
- A GCL reinforced with a layer of sodium bentonite.

The CQA program was conducted in accordance with the construction drawings, specifications, and any Engineer approved revisions as discussed with BGC throughout the duration of the project. The monitoring and testing completed confirm that the geosynthetic material has been installed in accordance with the project plans, specifications, and Engineer approved revisions, prepared for this project.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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Prepared by:
Kate Rogers, E.I.T.
Junior Geotechnical Engineer, Arctic Region
Engineering Practice
Direct Line: 867.668.9243
Kate.Rogers@tetratech.com

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Reviewed by:
Chad P. Cowan, P.Eng.
Geotechnical Manager, Arctic Region
Engineering Practice
Direct Line: 867.668.9214
Chad.Cowan@tetratech.com

Reviewed by;
Scott Dimitroff
Project Technologist, Arctic Region
Engineering Practice
Direct Line: 587.983.2850
Scott.Dimitroff@tetratech.com

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TABLES

Table A Observations and Tests for Installation of Geomembrane
Table B Table 4.1 from BGC Technical Specifications

Table A: Observations and Tests for Installation of Geomembranes

Observation or Test Method*	Suggested Regulatory Requirements**		Tetra Tech Requirements	
		Number of Tests Suggested		Number of Tests Performed
Observation for uniformity, damage, imperfections, holes, cracks, thin spots, or foreign material.	Continuous.	-	Continuous.	Continuous.
Chemical Resistance:	Manufacturers' Certificates.	-	Reviewed Manufacturers' Certificates (included in Appendix J).	Prior to material deployment.
Resistance to chemical waste mixtures.				
Resistance to pure chemical reagents.				
Thickness (ASTM D5199).				
Density (ASTM D1505/D 792).				
Tensile Properties (ASTM D6693):				
Tensile strength at yield.				
Tensile strength at break.				
Elongation at yield.				
Elongation at break.				
Tear resistance (ASTM D1004).				
Puncture resistance (ASTM D4833).				
Carbon black content (range) (ASTM D1603).				
Carbon black dispersion (ASTM D5596).				
Oxidative Induction Time (ASTM D3895/D5885).				
Oven aging at 85°C (ASTM D5721/D3895/D5885).				
UV Resistance (GM 11/ASTM D3895/D5885).				
Observations for uniformity, damage, imperfections.	All sheets or panels prior to installation and documentation of repairs.	-	Continuous.	Continuous.
Observation for tears, punctures, folding, blisters.	All sheets or panels prior to installation and documentation of repairs.	-	Continuous.	Continuous.
Observation and inspection of test seams.	At start of work by each seaming crew; after every four hours of seaming, with every change in seaming equipment, and with significant changes in sheet temperature (assume 21 days).	>35	One to three tests per each day of the fifteen (15) days construction.	50
Sample of material during construction for future testing and analysis.	One sample taken for each geomembrane lot number and stored in a light-free environment.	>4	One sample taken for each geomembrane lot sample.	Material available on-site for testing.
Non-destructive testing of field seams.	All field seams, record test location, date, time, test results, and documentation of repairs and retesting.	-	Continuous.	Continuous.
Observations of patching and overlay seams that cannot be non-destructively tested.	All patches and overlays, record inspections, and document repairs.	-	Continuous.	Continuous.
Destructive testing of field seams: Bonded seam strength. Peel adhesion.	Sampling at fixed increments of not more than 150 m. Random locations with equivalent number of samples to a 150 m fixed increment.	>37	Random locations with equivalent number of samples to a 150 m fixed increment.	54

Notes:

* As per Geosynthetic Research Institute Test Method GM13 "Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes" (Revision 9: June 1, 2009) and as per Draft Guidelines for Landfills in Alberta (Alberta Environment 2004).

** As per Draft Guidelines for Landfills in Alberta (Alberta Environment 2004).

Number of tests proposed will vary depending on panel layout, as set out by synthetic liner installer.

*** Number of destructive seam tests required for Cell 2 is approximately 37 (Calculation (38,857m^2 (lined area) ÷7m (panel wideth))/150 m (test frequency) ×1 HDPE layer = 37 tests).

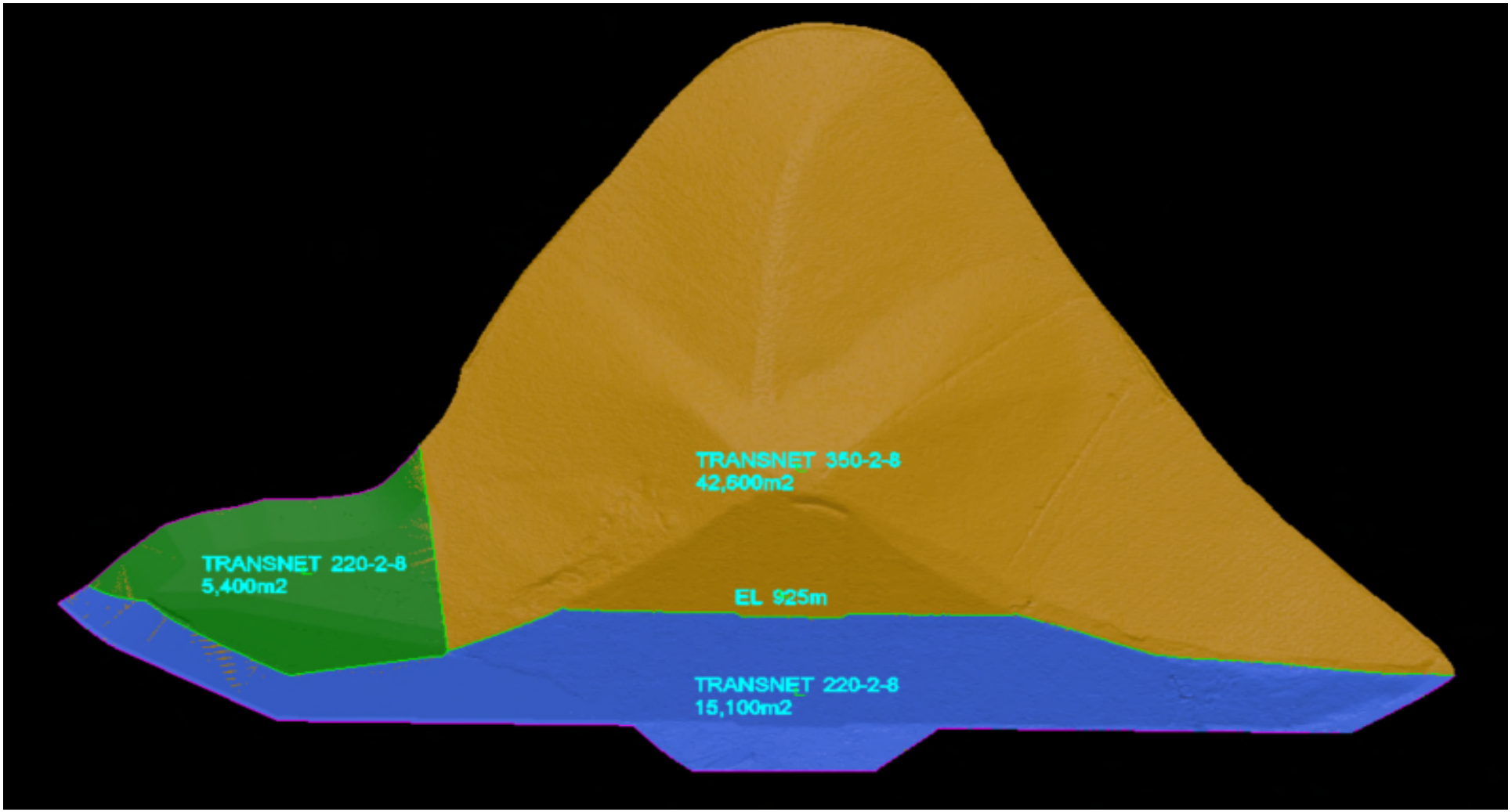
Table B: Table 4.1 from BGC Specs – Geomembrane Properties

Table 4-1. Geomembrane properties.

Tested Property	Test Method	Frequency	Minimum Average Value			
			1.50 mm HDPE Textured	2.0 mm HDPE Textured	1.50 mm LLDPE Textured	2.0 mm LLDPE Textured
Thickness, (minimum average), mm Lowest individual reading	ASTM D 5994	every roll	1.50 1.28	2.00 1.70	1.50 1.28	2.00 1.70
Density, g/cm^3 (min.)	ASTM D 1505	90,000 kg	0.940	0.940	0.939	0.939
Tensile Properties (each direction) Strength at Break, N/mm Strength at Yield, N/mm Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 50 mm/min G.L.=50mm G.L.= 33 mm	9,000 kg	 23.1 (22) 23.1 (16) 350 (100) 13 (12)	 30.8 (29) 30.8 (53) 350 (100) 13 (12)	 29.4 (16) 400 (250)	 39.2 (21) 400 (250)
Tear Resistance, N	ASTM D 1004	20,000 kg	200	267 (249)	160(150)	222(200)
Puncture Resistance, N	ASTM D 4833	20,000 kg	534	667 (534)	310(300)	400
Carbon Black Content, % (Range)	ASTM D 1603*/4218	9,000 kg	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	20,000 kg	Note	Note	Note	Note
Asperity Height, mm	ASTM D 7466	second roll	0.51	0.46	0.51	0.46
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	90,000 kg	>140	>140	>140	>140

FIGURES

Figure 1 Areas of Varying Geocomposite
Figure 2 In-heap Pond Sump Liner Profile Sketch
Figure 3 Panel Layout as per BGC design
Figure 4 As-built of HLF Grading



CLIENT

TETRA TECH

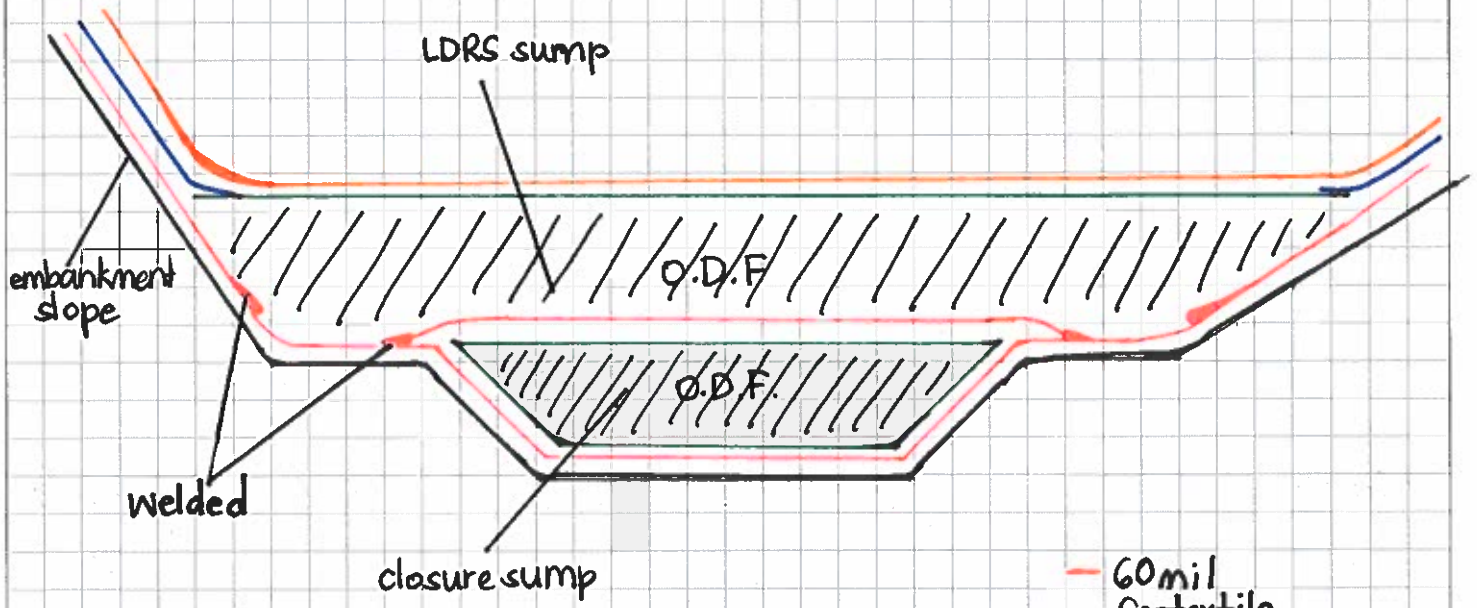
Geotextile Weights

PROJECT NO.	DWN	CKD	REV
704-ENG.WARC323505		KR	0

OFFICE	DATE
EBA-WHSE	SEPTEMBER 10, 2019

Figure 1

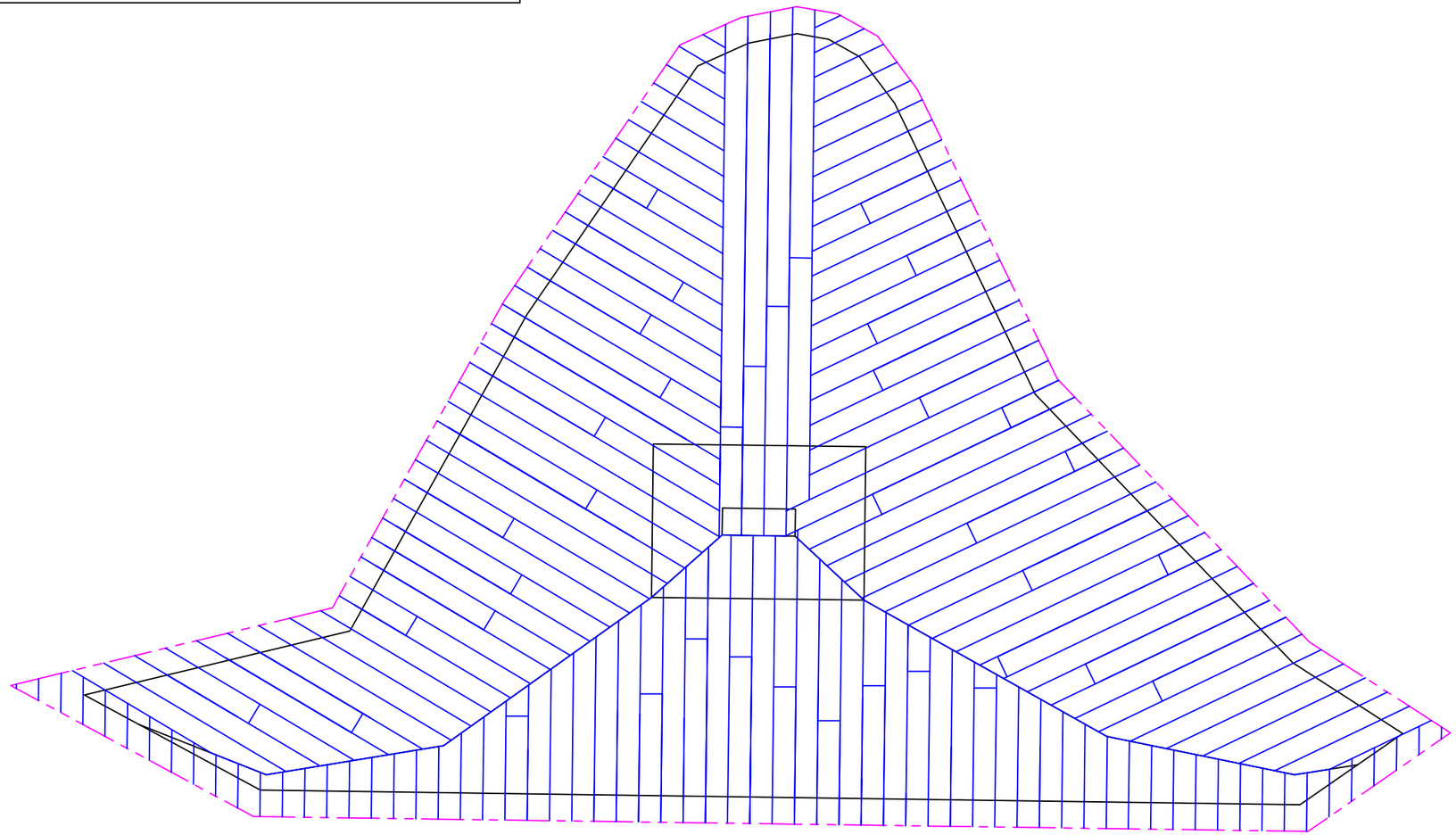
In-Heap Pond Sump Profile N.T.S.



Project Number: 03235-07 Page: 1 of 1

Date: MM/DD/YYYY By: KR Checked:

THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITION. SITE CONDITIONS AND SEQUENCING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT.



80MIL LLDPE DST LINER - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

LEGEND

ANCHOR TRENCH AND SLOPE FACTOR

NOTES

LAYFIELD CANADA LTD.

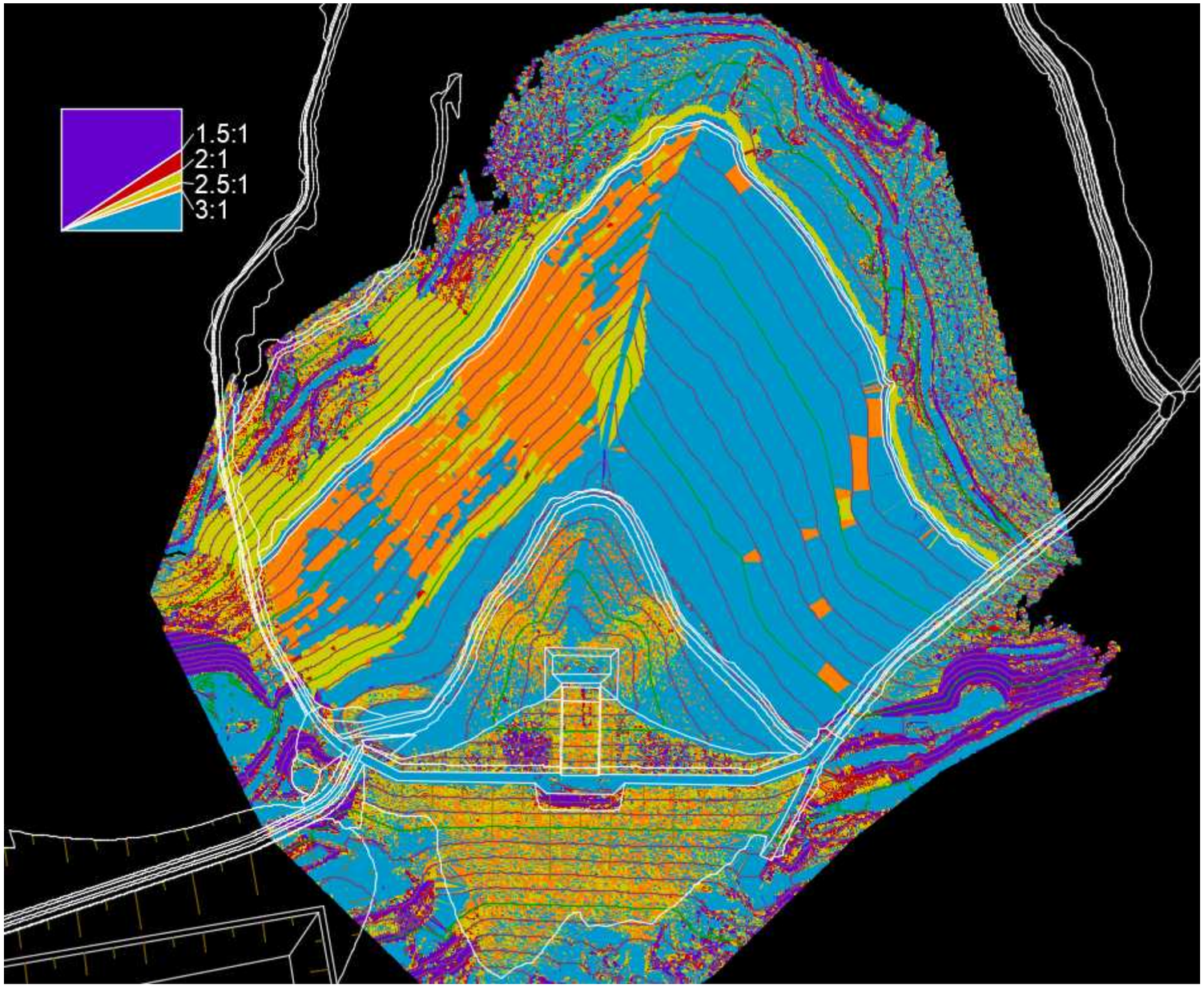
EAGLE GOLD MINE
IN-HEAP POND
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

Quote No.	PROJECT No.
P10348	CT000xxx

DWG: 1 OF 1		SCALE: N.T.S.
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DATE: 04/26/2018	REVISION: 0	

B-SIZE

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CLIENT

JDS Energy & Mining Inc.

HEAP LEACH FACILITY GEOSYNTHETICS INSTALLATION CQA

AS-BUILT GRADING OF HLF IN-HEAP POND

TETRA TECH

PROJECT NO.	DWN	CKD	REV
704-ENG.WARC03235-05		KR	0
OFFICE: EBA-WHSE	DATE: SEPTEMBER 10, 2019		

Figure 4

PHOTOGRAPHS

Photo 1 Installation of 60-mil LLDPE on GCL
Photo 2 60-mil Installation Progress
Photo 3 Deployment of Double-sided Geocomposite
Photo 4 Geonet Zip-tied Together Prior to Heat Fusion of Upper Geotextile
Photo 5 Installation of 80-mil LLDPE on Top of Geocomposite
Photo 6 Completing Trial Seam
Photo 7 Air Testing of Seams
Photo 8 Destructive Test Location
Photo 9 Patch Repair being Extrusion Welded
Photo 10 Completing Vacuum Testing in Closure Sump



Photo 1 Installation of 60-mil LLDPE on GCL



Photo 2 60-mil Installation Progress



Photo 3 Deployment of Double-sided Geocomposite



Photo 4 Geonet Zip-tied Together Prior to Heat Fusion of Upper Geotextile



Photo 5 Installation of 80-mil LLDPE on Top of Geocomposite



Photo 6 Completing Trial Seam



Photo 7 Air Testing of Seams



Photo 8 Destructive Test Location



Photo 9 Patch Repair being Extrusion Welded



Photo 10 Completing Vacuum Testing in Closure Sump

APPENDIX A

LAYFIELD QC REPORT

- Material Inventory Record;
- Panel Installation Record;
- Trial (or Qualification) Seams;
- Geomembrane Fusion Seam Installation;
- Air Pressure Tests (Wedge Welding);
- Vacuum Test and Repairs (Extrusion Welding);
- Panel Diagrams; and
- Destructive Testing of Geomembrane Seam.

LAYFIELD
Canada

Project Completion QA/QC Package for

Victoria Gold Corp

c/o JDS Energy and Mining

Eagle Gold mine Liner Works
Dublin Gulch, Yukon

Supply and Install 80 mil LLDPE, 350-2-6 Gecomposite, 220-2-8 Gecomposite, NWL 60 GCL, 60 mil LLDPE

Prepared By: Jason Wheeler

Reviewed By: Jason Wheeler

Date Revised: September 16, 2019

Layfield Canada Ltd.

Table of Contents

for

Victoria Gold Corp Liner Work

Eagle Gold Facility

Event Pond

Secondary

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	17 pgs.
3)	Geomembrane Seam & Test Log	27 pgs.
4)	Geomembrane Detail & Test Log	19 pgs.
5)	Geomembrane Destruct Log	7 pgs.
6)	As-built	1 pg.

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Primary

1)	Geomembrane Deployment Log	13 pgs.
2)	Geomembrane Seam & Test Log	23 pgs.
3)	Geomembrane Detail & Test Log	15 pgs.
4)	Geomembrane Destruct Log	7 pgs.
5)	As-Built	1 pg.
6)	Certificate of Final Inspection	1 pg.
7)	Installation Warranty	1 pg.

In heap Pond

Secondary

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	38 pgs.
3)	Geomembrane Seam & Test Log	56 pgs.
4)	Geomembrane Detail & Test Log	23 pgs.
5)	Geomembrane Destruct Log	7 pgs.
6)	As Built	1 pg.

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Primary

1)	Geomembrane Deployment Log	33 pgs.
2)	Geomembrane Seam & Test Log	51 pgs.
3)	Geomembrane Detail & Test Log	24 pgs.
4)	Geomembrane Destruct Log	9 pgs.
5)	As Built	1 pg.
6)	Certificate of Final Inspection	1 pg.
7)	Installation Warranty	1 pg.

Culverts

1)	Geomembrane Deployment Log	1 pg.
2)	Geomembrane Seam & Test Log	1 pg.
3)	Geomembrane Detail & Test Log	1 ps.
4)	As Built	1 pg.

Embankment Pipe Completion

1)	Geomembrane Deployment Log	1 pg.
2)	Geomembrane Seam & Test Log	2 pgs.
3)	Geomembrane Detail & Test Log	1 pgs.
4)	Geomembrane Destruct Log	1 pg.
5)	As Built	1 pg.

Phase 1A – Pad

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	42 pgs.
3)	Geomembrane Seam & Test Log	74 pgs.
4)	Geomembrane Detail & Test Log	112 pgs.
5)	Geomembrane Destruct Log	25 pgs.
6)	As Built	1 pg.
7)	Certificate of Final Inspection	1 pg.
8)	Installation Warranty	1 pg.

LandFarm

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	1 pg.
3)	Geomembrane Seam & Test Log	2 pg.
4)	Geomembrane Detail & Test Log	1 pg.
5)	Geomembrane Destruct Log	1 pg.
6)	As Built	1 pg.
7)	Certificate of Final Inspection	1 pg.
8)	Installation Warranty	1 pg.

Dublin Vault

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	2 pgs.
3)	Geomembrane Seam & Test Log	1 pgs.
4)	Geomembrane Detail & Test Log	1 pg.
5)	Geomembrane Destruct Log	1 pg.
6)	As Built	1 pg.
7)	Certificate of Final Inspection	1 pg.
8)	Installation Warranty	1 pg.

ADR Ditch

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	1 pg.
3)	Geomembrane Seam & Test Log	2 pg.
4)	Geomembrane Detail & Test Log	1 pg.
5)	Geomembrane Destruct Log	1 pg.
6)	As Built	1 pg.
7)	Certificate of Final Inspection	1 pg.
8)	Installation Warranty	1 pg.

90 Day Sump

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	2 pgs.
3)	Geomembrane Seam & Test Log	2 pgs.
4)	Geomembrane Detail & Test Log	1 pg.
5)	Geomembrane Destruct Log	1 pg.
6)	As Built	1 pg.
7)	Certificate of Final Inspection	1 pg.

Heap Leach Repairs August 2019

1)	Certificate of Inspection of Soil Subgrade	1 pg.
2)	Geomembrane Deployment Log	2 pgs.
3)	Geomembrane Seam & Test Log	2 pgs.
4)	Geomembrane Detail & Test Log	2 pgs.
5)	Certificate of Final Inspection	1 pg.

Other Documents

1)	60 mil LLDPE Geomembrane Mill Certificates	18 pgs.
2)	80 mil LLDPE Geomembrane Mill Certificates	23 pgs.
3)	80 mil LLDPE RT Geomembrane Mill Certificates	41 pgs.
4)	TN350-2-6 Mill Certificates	16 pgs.
5)	TN220-2-8 Mill Certificates	10 pgs.
6)	NWL60 GCL Mill Certificates	116 pgs

Event Pond
Secondary

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF SUBGRADE SURFACE INSPECTION

PROJECT NAME: Gold Eagle Event Pond
PROJECT NUMBER: CT001143
OWNER/CONTRACTOR: Victoria Gold / JDS Mining
LOCATION: Gold Eagle, YK

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☑ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial or ☑ Complete): _____
Dimensions of Subgrade Inspection: _____
Anchor Trench Dimensions: 0.5m to 1m deep to 1m wide
Comments: Entire Pond's subgrade is now accepted.

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: 2019-04-15
Signature: [signature]
Name: BRADLEY McLEOD
Title: QC Technician

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: April 30 2019
Signature: [signature]
Name: [signature]
Title: Project Technologist
Company: Tetra Tech

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/02

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-37830	54	6.8	0	Good	BM	OK
2	5-37830	54	6.8	0	Good	BM	OK
3	5-37830	38	6.8	0	Good	BM	OK
4	5-37891	29.5	6.8	0	Good	BM	OK
5	5-37891	22	6.8	0	Good	BM	OK
6	5-37891	15	6.8	0	Good	BM	OK
7	5-37830	7.5	6.8	0	Good	BM	OK
8	5-37891	9	4	0	Good	BM	OK
9	5-37892	13.5	6.8	0	Good	BM	OK
10	5-37818	2.5	6.8	0	Good	BM	OK
11	5-37892	24	6.8	0	Good	BM	OK
12	5-37854	32	6.8	0	Good	BM	OK
13	5-37854	39.5	6.8	0	Good	BM	OK
14	5-37891	40	6.8	0	Good	BM	OK
15	5-37891	40	6.8	0	Good	BM	OK
16	5-37892	40	6.8	0	Good	BM	OK
17	5-37892	40	6.8	0	Good	BM	OK
18	5-37854	40	6.8	0	Good	BM	OK
19	5-37854	38	6.8	0	Good	BM	OK
20	5-37837	29.5	6.8	0	Good	BM	OK

TOTAL PAGE AREA 4109.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 1 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/02

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
21	5-37837	21	6.8	0	Good	BM	OK
22	5-37854	13	6.8	0	Good	BM	OK
23	5-37891	5	5	0	Good	BM	OK
24	5-37818	8	6.8	0	Good	BM	OK
25	5-37818	15.5	6.8	0	Good	BM	OK
26	5-37892	23	6.8	0	Good	BM	OK
27	5-37892	30.5	6.8	0	Good	BM	OK
28	5-37818	38	6.8	0	Good	BM	OK
29	5-37818	54	6.8	0	Good	BM	OK
30	5-37818	54	6.8	0	Good	BM	OK
31	5-37891	6.5	5	0	Good	BM	OK
32	5-37841	54	6.8	0	Good	BM	OK
33	5-37841	54	6.8	0	Good	BM	OK
34	5-37841	54	6.8	0	Good	BM	OK
35	5-37837	54	6.8	0	Good	BM	OK
36	5-37837	54	6.8	0	Good	BM	OK
37	5-37863	54	6.8	0	Good	BM	OK

TOTAL PAGE AREA 4008.3 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 2 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/04

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
38	5-37863	54	6.8	-5	Good	BM	OK
39	5-37885	54	6.8	-5	Good	BM	OK
40	5-37885	54	6.8	-5	Good	BM	OK
41	5-37885	54	6.8	-5	Good	BM	OK
42	5-37853	54	6.8	-5	Good	BM	OK
43	5-37853	54	6.8	-5	Good	BM	OK
44	5-37853	54	6.8	-5	Good	BM	OK
45	5-37834	54	6.8	-5	Good	BM	OK
46	5-37834	54	6.8	-5	Good	BM	OK
47	5-37834	54	6.8	-5	Good	BM	OK
48	5-37840	54	6.8	-5	Good	BM	OK
49	5-37840	54	6.8	-5	Good	BM	OK
50	5-37840	54	6.8	-5	Good	BM	OK
51	5-37873	54	6.8	-5	Good	BM	OK

TOTAL PAGE AREA 5140.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 3 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/07

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
52	5-37866	54	6.8	1	Good	BM	OK
53	5-37866	54	6.8	1	Good	BM	OK
54	5-37866	54	6.8	1	Good	BM	OK
55	5-37873	54	6.8	1	Good	BM	OK
56	5-37873	54	6.8	1	Good	BM	OK
57	5-37861	54	6.8	1	Good	BM	OK
58	5-37861	54	6.8	1	Good	BM	OK
59	5-37861	54	6.8	1	Good	BM	OK
60	5-37865	54	6.8	1	Good	BM	OK
61	5-37865	54	6.8	1	Good	BM	OK
62	5-37865	54	6.8	1	Good	BM	OK
63	5-37864	54	6.8	1	Good	BM	OK
64	5-37864	54	6.8	1	Good	BM	OK
65	5-37864	54	6.8	1	Good	BM	OK

TOTAL PAGE AREA 5140.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 4 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/08

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
66	5-37862	54	6.8	5	Good	BM	OK
67	5-37862	54	6.8	5	Good	BM	OK
68	5-37862	54	6.8	5	Good	BM	OK
69	5-37862	9	6.8	5	Good	BM	OK
70	5-37897	45	6.8	5	Good	BM	OK
71	5-37897	54	6.8	5	Good	BM	OK
72	5-37897	54	6.8	5	Good	BM	OK
73	5-37871	54	6.8	5	Good	BM	OK
74	5-37871	54	6.8	5	Good	BM	OK
75	5-37871	54	6.8	5	Good	BM	OK
76	5-37821	54	6.8	5	Good	BM	OK
77	5-37821	54	6.8	5	Good	BM	OK
78	5-37821	54	6.8	5	Good	BM	OK
79	5-37870	54	6.8	5	Good	BM	OK
80	5-37870	54	6.8	5	Good	BM	OK

TOTAL PAGE AREA 5140.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 5 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
81	5-37867	54	6.8	4	Good	BM	OK
82	5-37867	54	6.8	4	Good	BM	OK
83	5-37867	54	6.8	4	Good	BM	OK
84	5-37872	54	6.8	4	Good	BM	OK
85	5-37872	54	6.8	4	Good	BM	OK
86	5-37872	54	6.8	4	Good	BM	OK
87	5-37838	54	6.8	4	Good	BM	OK
88	5-37838	54	6.8	4	Good	BM	OK
89	5-37838	54	6.8	4	Good	BM	OK
90	5-37816	54	6.8	4	Good	BM	OK
91	5-37816	54	6.8	4	Good	BM	OK
92	5-37816	54	6.8	4	Good	BM	OK
93	5-37823	54	6.8	4	Good	BM	OK

TOTAL PAGE AREA 4773.6 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 6 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
94	5-37837	54	6.8	5	Good	BM	OK
95	5-37837	54	6.8	5	Good	BM	OK
96	5-37837	54	6.8	5	Good	BM	OK
97	5-37814	54	6.8	5	Good	BM	OK
98	5-37814	54	6.8	5	Good	BM	OK
99	5-37814	54	6.8	5	Good	BM	OK
100	5-37823	54	6.8	5	Good	BM	OK
101	5-37823	54	6.8	5	Good	BM	OK
102	5-37823	54	6.8	5	Good	BM	OK
103	5-37868	54	6.8	5	Good	BM	OK
104	5-37868	54	6.8	5	Good	BM	OK
105	5-37868	54	6.8	5	Good	BM	OK
106	5-37874	54	6.8	5	Good	BM	OK
107	5-37869	54	6.8	5	Good	BM	OK
108	5-37869	54	6.8	5	Good	BM	OK
109	5-37869	54	6.8	5	Good	BM	OK
110	5-37820	54	6.8	5	Good	BM	OK
111	5-37820	54	6.8	5	Good	BM	OK
112	5-37820	54	6.8	5	Good	BM	OK

TOTAL PAGE AREA 6976.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 7 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/13

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
113	5-37840	54	6.8	3	Good	BM	OK
114	5-37826	54	6.8	3	Good	BM	OK
115	5-37826	54	6.8	3	Good	BM	OK
116	5-37826	54	6.8	3	Good	BM	OK
117	5-37846	54	6.8	3	Good	BM	OK
118	5-37846	54	6.8	3	Good	BM	OK
119	E0008894-005	54	6.8	3	Good	BM	OK
120	E0008894-005	54	6.8	3	Good	BM	OK
121	E0008894-005	54	6.8	3	Good	BM	OK
122	E0008894-003	54	6.8	3	Good	BM	OK
123	E0008894-003	54	6.8	3	Good	BM	OK
124	E0008894-003	54	6.8	3	Good	BM	OK
125	E0007574-010	54	6.8	3	Good	BM	OK
126	E0007574-010	54	6.8	3	Good	BM	OK
127	E0007574-010	54	6.8	3	Good	BM	OK
128	E0008894-007	54	6.8	3	Good	BM	OK
129	E0008894-007	54	6.8	3	Good	BM	OK

TOTAL PAGE AREA 6242.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 8 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/14

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
130	E0008894-004	54	6.8	4	Good	BM	OK
131	E0008894-004	64	6.8	4	Good	BM	OK
132	E0008894-004	51	6.8	4	Good	BM	OK
133	E0008894-007	56	6.8	4	Good	BM	OK
134	E0008894-009	8	6.8	4	Good	BM	OK
135	E0008894-009	7	6.8	4	Good	BM	OK
136	E0008894-009	57	6.8	4	Good	BM	OK
137	E0008894-009	47	6.8	4	Good	BM	OK
138	E0007547-023	39	6.8	4	Good	BM	OK
139	E0007547-023	31	6.8	4	Good	BM	OK
140	E0007547-023	23.5	6.8	4	Good	BM	OK
141	E0007547-023	16	6.8	4	Good	BM	OK
142	E0008894-009	8	6.8	4	Good	BM	OK
143	E0008894-009	13	6.8	4	Good	BM	OK
144	E0008894-006	46	6.8	4	Good	BM	OK
145	E0008894-006	46	6.8	4	Good	BM	OK
146	E0008894-006	46	6.8	4	Good	BM	OK
147	E0007541-021	38.5	6.8	4	Good	BM	OK
148	E0007541-021	31.5	6.8	4	Good	BM	OK
149	E0007541-021	24	6.8	4	Good	BM	OK

TOTAL PAGE AREA 4804.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 9 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/14

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
150	E0007541-021	17	6.8	4	Good	BM	OK
151	E0008894-006	7.5	6.8	4	Good	BM	OK
152	E0007541-021	2	6.8	4	Good	BM	OK

TOTAL PAGE AREA 180.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 10 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/20

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
153	E0008894-002	54	6.8	-1	Good	DB	OK
154	E0008894-002	54	6.8	-1	Good	DB	OK

TOTAL PAGE AREA 734.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 11 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/21

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
155	E0008894-010	45	6.8	4	Good	DB	OK
156	E0008894-010	45	6.8	4	Good	DB	OK
157	E0008894-010	45	6.8	4	Good	DB	OK

TOTAL PAGE AREA 918 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 12 of 13

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
DEPLOYMENT DATE 2019/04/22

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
158	E0008894-008	46.5	6.8	5	Good	DB	OK
159	E0008894-008	46.5	6.8	5	Good	DB	OK
160	E0008894-008	7.5	6.8	5	Good	DB	OK
161	E0008894-008	32.2	6.8	5	Good	DB	OK
162	E0008894-008	32.2	6.8	5	Good	DB	OK
163	E0008894-008	12	6.8	5	Good	DB	OK
164	E0007547-020	12.3	6.8	5	Good	DB	OK
165	E0007547-020	16.5	6.8	5	Good	DB	OK
166	E0007547-020	9.1	6.8	5	Good	DB	OK
167	E0007547-020	47.5	6.8	5	Good	DB	OK
168	E0007547-020	40.7	6.8	5	Good	DB	OK
169	E0007547-020	9	6.8	5	Good	DB	OK
170	E0007547-020	24.1	6.8	5	Good	DB	OK
171	E0008894-002	16.2	6.8	5	Good	DB	OK
172	E0008894-002	10	6.8	5	Good	DB	OK
173	E0008894-002	8.5	6.8	5	Good	DB	OK
174	E0008894-002	11	6.8	5	Good	DB	OK
175	E0008894-002	11.5	6.8	5	Good	DB	OK
176	E0008894-002	4	6.8	5	Good	DB	OK

TOTAL PAGE AREA 2701.64 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 13 of 13

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	900	DH	-4	70.0%	454	124	144	132	125	127	128	128	135	135	137	175	170	174	164	170	BM	
2	EC-WW-045	908	EB	-4	70.0%	454	126	147	136	123	123	125	127	112	129	120	166	169	166	169	169	BM	
3	EC-WW-054	1110	WP	-4	45.0%	454	133	136	129	150	147	133	135	138	134	137	163	167	163	161	169	BM	Textured/Textured
4	EC-WW-039	1300	DH	6	70.0%	454	128	128	130	125	135	105	134	133	128	118	166	168	165	166	165	BM	
5	EC-WW-045	1300	EB	6	70.0%	454	130	129	119	121	122	129	130	138	116	125	163	161	162	160	157	BM	
6	EC-WW-054	1320	WP	6	45.0%	454	120	123	120	123	121	122	121	123	130	124	168	163	159	166	168	BM	Smooth/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 2	SEOS	NEOS	936	-4	DH	EC-WW-039	54.0		AP+PS	2/4/19	1025	1030	35	35	Pass	BM
1 / 3	SEOS	NEOS	940	-4	EB	EC-WW-045	38.0		AP+PS	3/4/19	1212	1217	35	35	Pass	BM
3 / 4	SEOS	NEOS	1000	-4	DH	EC-WW-039	29.5		AP+PS	3/4/19	1216	1221	35	35	Pass	BM
4 / 5	SEOS	NEOS	1005	-4	EB	EC-WW-045	22.0		AP+PS	3/4/19	1425	1430	35	35	Pass	BM
6 / 7	SEOS	NEOS	1015	-4	DH	EC-WW-039	7.5		AP+PS	3/4/19	1440	1445	35	35	Pass	BM
5 / 6	SEOS	NEOS	1020	-4	EB	EC-WW-045	15.0	DS-1	AP+PS	3/4/19	1433	1438	35	35	Pass	BM
29 / 30	NEOS	2M	1055	-4	EB	EC-WW-045	9.0	DS-5	AP+PS	3/4/19	1330	1335	35	35	Pass	BM
29 / 30	2M	SEOS	1058	-4	EB	EC-WW-045	45.0	DS-5	AP+PS	3/4/19	1815	1820	35	35	Pass	BM
14 / 15	WEOS	EEOS	1100	-4	DH	EC-WW-039	39.5		AP+PS	3/4/19	1203	1208	35	35	Pass	BM
27 / 28	NEOS	SEOS	1110	-4	DH	EC-WW-039	30.5		AP+PS	2/4/19	1155	1200	35	35	Pass	BM
28 / 29	SEOS	NEOS	1114	-4	EB	EC-WW-045	38.0		AP+PS	3/4/19	1220	1225	35	35	Pass	BM
26 / 27	SEOS	NEOS	1120	-4	DH	EC-WW-039	23.0		AP+PS	2/4/19	1200	1205	35	35	Pass	BM
25 / 26	SEOS	NEOS	1125	-4	EB	EC-WW-045	15.5	DS-9	AP+PS	2/4/19	1205	1210	35	35	Pass	BM
1 / 29	EEOS	WEOS	1130	-4	WP	EC-WW-054	6.7		AP+PS	3/4/19	1159	1204	35	35	Pass	BM
2 / 30	EEOS	WEOS	1132	-4	WP	EC-WW-054	6.7		AP+PS	3/4/19	1740	1745	35	35	Pass	BM
24 / 25	SEOS	NEOS	1140	-4	EB	EC-WW-045	8.0		AP+PS	2/4/19	1205	1210	35	35	Pass	BM
16 / 17	WEOS	EEOS	1150	-4	EB	EC-WW-045	40.0		AP+PS	2/4/19	1215	1220	35	35	Pass	BM
9 / 10	SEOS	NEOS	1153	-4	WP	EC-WW-054	6.7		AP+PS	3/4/19	1456	1501	35	35	Pass	BM
15 / 16	WEOS	EEOS	1155	-4	DH	EC-WW-039	40.0	DS-3	AP+PS	2/4/19	1220	1225	35	35	Pass	BM
9 / 11	WEOS	2C	1205	6	DH	EC-WW-039	7.0		AP+PS	3/4/19	1433	1438	35	35	Pass	BM
						PAGE TOTAL	481.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-019	1515	DH	6	65.0%	454	125	120	139	133	136	136	130	123	119	118	166	166	176	161	159	BM	
8	EC-WW-045	1700	EB	6	70.0%	454	137	126	128	132	130	116	125	123	130	124	154	150	164	155	165	BM	
9	EC-WW-054	1745	WP	6	45.0%	454	149	157	153	125	162	141	149	151	151	147	174	181	176	183	177	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
9 / 11	2C	EEOS	1207	6	DH	EC-WW-039	6.5		AP+PS	3/4/19	1456	1501	35	35	Pass	BM
10 / 11	WEOS	EEOS	1208	6	DH	EC-WW-039	2.5		AP+PS	3/4/19	1456	1501	35	35	Pass	BM
8 / 9	WEOS	EEOS	1230	6	EB	EC-WW-045	6.5		AP+PS	3/4/19	1444	1449	35	35	Pass	BM
11 / 12	WEOS	EEOS	1230	6	DH	EC-WW-039	16.0	DS-2	AP+PS	3/4/19	1425	1430	35	35	Pass	BM
8 / 10	WEOS	EEOS	1232	6	EB	EC-WW-045	2.5		PS	3/4/19					Pass	BM
8 / 31	WEOS	EEOS	1255	6	WP	EC-WW-054	6.5		AP+PS	3/4/19	1452	1457	35	35	Pass	BM
12 / 13	WEOS	EEOS	1255	6	EB	EC-WW-045	24.0		AP+PS	3/4/19	1251	1256	35	35	Pass	BM
13 / 14	EEOS	WEOS	1300	6	DH	EC-WW-039	32.0		AP+PS	3/4/19	1247	1252	35	35	Pass	BM
22 / 23	WEOS	EEOS	1305	6	WP	EC-WW-054	5.0		AP+PS	2/4/19	1805	1810	35	35	Pass	BM
17 / 18	WEOS	EEOS	1310	6	EB	EC-WW-045	40.0		AP+PS	2/4/19	1835	1840	35	35	Pass	BM
18 / 19	WEOS	EEOS	1345	6	EB	EC-WW-045	38.0		AP+PS	2/4/19	1830	1835	35	35	Pass	BM
19 / 20	WEOS	EEOS	1400	6	EB	EC-WW-045	29.5		AP+PS	2/4/19	1830	1835	35	35	Pass	BM
20 / 21	WEOS	EEOS	1410	6	EB	EC-WW-045	21.0	DS-4	AP+PS	2/4/19	1825	1830	35	35	Pass	BM
21 / 22	WEOS	EEOS	1435	6	EB	EC-WW-045	13.0		AP+PS	2/4/19	1825	1830	35	35	Pass	BM
23 / 24	SEOS	NEOS	1445	6	WP	EC-WW-054	5.0		AP+PS	2/4/19	1820	1825	35	35	Pass	BM
22 / 24	SEOS	NEOS	1447	6	WP	EC-WW-054	5.5		AP+PS	2/4/19	1820	1825	35	35	Pass	BM
22 / 25	SEOS	NEOS	1449	6	WP	EC-WW-054	5.0		AP+PS	2/4/19	1825	1830	35	35	Pass	BM
21 / 25	SEOS	NEOS	1451	6	WP	EC-WW-054	4.5		AP+PS	2/4/19	1825	1830	35	35	Pass	BM
21 / 26	SEOS	NEOS	1452	6	WP	EC-WW-054	5.5		AP+PS	2/4/19	1825	1830	35	35	Pass	BM
20 / 26	SEOS	NEOS	1454	6	WP	EC-WW-054	4.0		AP+PS	2/4/19	1825	1830	35	35	Pass	BM
						PAGE TOTAL	272.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
20 / 27	SEOS	NEOS	1455	6	WP	EC-WW-054	6.0		AP+PS	2/4/19	1830	1835	35	35	Pass	BM
19 / 27	SEOS	NEOS	1457	6	WP	EC-WW-054	3.5		AP+PS	2/4/19	1830	1835	35	35	Pass	BM
19 / 28	SEOS	NEOS	1458	6	WP	EC-WW-054	7.0		AP+PS	2/4/19	1830	1835	35	35	Pass	BM
18 / 28	SEOS	NEOS	1500	6	WP	EC-WW-054	3.0		VB+PS	3/4/19					Pass	BM
18 / 29	SEOS	NEOS	1501	6	WP	EC-WW-054	4.5		AP+PS	2/4/19	1835	1840	35	35	Pass	BM
17 / 29	SEOS	NEOS	1502	6	WP	EC-WW-054	6.7		AP+PS	2/4/19	1835	1840	35	35	Pass	BM
16 / 29	SEOS	NEOS	1504	6	WP	EC-WW-054	3.4		AP+PS	3/4/19	1159	1204	35	35	Pass	BM
16 / 1	SEOS	NEOS	1505	6	WP	EC-WW-054	3.4		AP+PS	3/4/19	1159	1204	35	35	Pass	BM
15 / 1	SEOS	NEOS	1506	6	WP	EC-WW-054	6.7		AP+PS	3/4/19	1203	1208	35	35	Pass	BM
14 / 1	SEOS	NEOS	1508	6	WP	EC-WW-054	6.5		AP+PS	3/4/19	1203	1208	35	35	Pass	BM
14 / 3	SEOS	NEOS	1510	6	WP	EC-WW-054	1.5		VB+PS	3/4/19					Pass	BM
13 / 3	SEOS	NEOS	1511	6	WP	EC-WW-054	8.5		AP+PS	3/4/19	1216	1221	35	35	Pass	BM
13 / 4	SEOS	NEOS	1513	6	WP	EC-WW-054	1.0		VB+PS	3/4/19					Pass	BM
12 / 4	SEOS	NEOS	1514	6	WP	EC-WW-054	9.0		AP+PS	3/4/19	1251	1256	35	35	Pass	BM
12 / 5	SEOS	NEOS	1516	6	WP	EC-WW-054	0.5		VB+PS	3/4/19					Pass	BM
11 / 5	SEOS	NEOS	1517	6	WP	EC-WW-054	9.5		AP+PS	3/4/19	1425	1430	35	35	Pass	BM
9 / 6	SEOS	NEOS	1519	6	WP	EC-WW-054	9.5	DS-7	AP+PS	3/4/19	1439	1444	35	35	Pass	BM
8 / 6	SEOS	NEOS	1521	6	WP	EC-WW-054	0.5		VB+PS	3/4/19					Pass	BM
7 / 8	SEOS	NEOS	1522	6	WP	EC-WW-054	3.5		AP+PS	3/4/19	1441	1446	35	35	Pass	BM
7 / 31	SEOS	NEOS	1523	6	WP	EC-WW-054	5.5		AP+PS	3/4/19	1452	1457	35	35	Pass	BM
						PAGE TOTAL	99.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
30 / 32	SEOS	NEOS	1630	6	DH	EC-WW-019	54.0		AP+PS	3/4/19	1740	1745	35	35	Pass	BM
32 / 33	SEOS	NEOS	1658	6	DH	EC-WW-019	54.0		AP+PS	3/4/19	1735	1740	35	35	Pass	BM
33 / 34	SEOS	NEOS	1720	6	EB	EC-WW-045	54.0		AP+PS	3/4/19	1750	1755	35	35	Pass	BM
2 / 35	SEOS	NEOS	1750	6	EB	EC-WW-045	54.0		AP+PS	3/4/19	1655	1700	35	35	Pass	BM
35 / 36	SEOS	NEOS	1800	6	DH	EC-WW-019	54.0	DS-8	AP+PS	3/4/19	1649	1654	35	35	Pass	BM
36 / 37	SEOS	NEOS	1810	6	EB	EC-WW-045	54.0	DS-6	AP+PS	3/4/19	1654	1659	35	35	Pass	BM
32 / 35	EEOS	WEOS	1820	6	WP	EC-WW-054	6.7		AP+PS	3/4/19	1740	1745	35	35	Pass	BM
33 / 36	EEOS	WEOS	1822	6	WP	EC-WW-054	6.7		AP+PS	3/4/19	1750	1755	35	35	Pass	BM
34 / 37	EEOS	WEOS	1824	6	WP	EC-WW-054	6.7		AP+PS	4/4/19	900	905	35	35	Pass	BM
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PAGE TOTAL 344.1

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	815	EB	-12	70.0%	454	134	134	131	129	131	129	128	124	122	127	144	135	140	139	139	BM	
2	EC-WW-056	825	DH	-12	70.0%	454	120	125	118	117	117	118	125	117	121	113	135	133	135	133	137	BM	
3	EC-WW-019	900	WP	-12	65.0%	454	114	127	119	124	116	115	113	109	115	112	137	133	133	132	136	BM	
4	EC-WW-019	1200	WP	-3	55.0%	454	145	157	147	161	145	146	146	149	146	149	162	163	161	165	166	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
34 / 38	NEOS	SEOS	845	-12	EB	EC-WW-045	54.0		AP+PS	5/4/19	815	820	35	35	Pass	BM
39 / 40	NEOS	SEOS	910	-12	EB	EC-WW-045	54.0	DS-10	AP+PS	5/4/19	1045	1050	35	35	Pass	BM
40 / 41	SEOS	NEOS	915	-12	WP	EC-WW-019	54.0		AP+PS	5/4/19	805	810	35	35	Pass	BM
38 / 39	NEOS	SEOS	920	-12	DH	EC-WW-056	54.0		AP+PS	5/4/19	810	815	35	35	Pass	BM
43 / 44	SEOS	NEOS	940	-12	DH	EC-WW-056	54.0		AP+PS	5/4/19	745	750	35	35	Pass	BM
41 / 42	SEOS	NEOS	945	-12	EB	EC-WW-045	54.0		AP+PS	5/4/19	800	805	35	35	Pass	BM
42 / 43	NEOS	SEOS	950	-12	WP	EC-WW-019	54.0	DS-11	AP+PS	5/4/19	750	755	35	35	Pass	BM
37 / 45	NEOS	SEOS	1020	-12	EB	EC-WW-045	54.0		AP+PS	5/4/19	825	830	35	35	Pass	BM
45 / 46	NEOS	SEOS	1020	-12	DH	EC-WW-056	54.0	DS-12	AP+PS	5/4/19	830	835	35	35	Pass	BM
47 / 48	SEOS	NEOS	1052	-12	EB	EC-WW-045	54.0		AP+PS	5/4/19	840	845	35	35	Pass	BM
48 / 49	SEOS	NEOS	1055	-12	WP	EC-WW-019	54.0	DS-13	AP+PS	5/4/19	845	850	35	35	Pass	BM
46 / 47	SEOS	NEOS	1100	-12	DH	EC-WW-056	54.0		AP+PS	5/4/19	835	840	35	35	Pass	BM
49 / 50	SEOS	NEOS	1120	-12	EB	EC-WW-045	54.0		AP+PS	5/4/19	850	855	35	35	Pass	BM
50 / 51	SEOS	NEOS	1120	-12	WP	EC-WW-019	54.0		AP+PS	5/4/19	855	900	35	35	Pass	BM
38 / 45	EEOS	WEOS	1225	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
39 / 46	EEOS	WEOS	1227	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
40 / 47	EEOS	WEOS	1229	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
41 / 48	EEOS	WEOS	1231	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
42 / 49	EEOS	WEOS	1233	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
43 / 50	EEOS	WEOS	1235	-3	WP	EC-WW-019	6.7		VB+PS	5/4/19					Pass	BM
						PAGE TOTAL	796.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
44	51	EEOS	WEOS	1237	-3	WP	EC-WW-019	6.7	DS-14	VB+PS	5/4/19					Pass	BM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-019	1650	EB	2	70.0%	454	128	121	125	123	124	111	117	131	109	107	143	145	141	140	147	BM	
2	EC-WW-039	1655	FG	2	70.0%	454	125	129	122	122	119	114	103	117	103	107	144	146	145	145	149	BM	
3	EC-WW-054	1726	GB	2	70.0%	454	118	122	121	116	120	112	115	128	123	128	145	144	142	144	141	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
52 / 53	NEOS	SEOS	1705	2	FG	EC-WW-039	54.0		AP+PS	8/4/19	1512	1517	30	30	Pass	BM
44 / 52	NEOS	SEOS	1706	2	EB	EC-WW-019	54.0		AP+PS	9/4/19	800	805	40	40	Pass	BM
53 / 54	NEOS	SEOS	1721	2	FG	EC-WW-039	54.0	DS-15	AP+PS	9/4/19	812	817	35	35	Pass	BM
54 / 55	NEOS	SEOS	1730	2	EB	EC-WW-019	54.0		AP+PS	8/4/19	1530	1535	30	30	Pass	BM
55 / 56	NEOS	SEOS	1740	2	FG	EC-WW-039	54.0		AP+PS	8/4/19	1540	1545	30	30	Pass	BM
56 / 57	NEOS	SEOS	1742	2	GB	EC-WW-054	54.0	DS-16	AP+PS	8/4/19	1532	1537	30	30	Pass	BM
57 / 58	NEOS	SEOS	1750	2	EB	EC-WW-019	54.0		AP+PS	8/4/19	1600	1605	30	30	Pass	BM
59 / 60	NEOS	SEOS	1800	2	FG	EC-WW-039	54.0	DS-17	AP+PS	8/4/19	1615	1620	30	30	Pass	BM
60 / 61	NEOS	SEOS	1805	2	GB	EC-WW-054	54.0		AP+PS	8/4/19	1623	1628	30	30	Pass	BM
61 / 62	NEOS	6G	1812	2	FG	EC-WW-039	34.0		AP+PS	8/4/19	1630	1635	30	30	Pass	BM
58 / 59	NEOS	SEOS	1814	2	EB	EC-WW-019	54.0		AP+PS	8/4/19	1607	1612	30	30	Pass	BM
61 / 62	6G	SEOS	1823	2	FG	EC-WW-039	20.0		AP+PS	8/4/19	1838	1843	30	30	Pass	BM
62 / 63	NEOS	SEOS	1825	2	GB	EC-WW-054	54.0	DS-18	AP+PS	8/4/19	1637	1642	30	30	Pass	BM
63 / 64	NEOS	SEOS	1835	2	EB	EC-WW-019	54.0		AP+PS	8/4/19	1645	1650	30	30	Pass	BM
64 / 65	NEOS	SEOS	1835	2	FG	EC-WW-039	54.0		AP+PS	8/4/19	1700	1705	30	30	Pass	BM
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PAGE TOTAL 756.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1105	FG	0	70.0%	454	112	112	114	112	119	113	109	116	118	109	127	131	127	132	129	BM	
2	EC-WW-054	1110	GB	0	70.0%	454	111	118	116	114	108	122	120	108	114	116	131	132	131	132	132	BM	
3	EC-WW-019	1115	WP	0	70.0%	454	105	116	116	106	119	108	119	121	107	110	130	133	128	132	125	BM	
4	EC-WW-056	1118	DH	0	65.0%	454	109	108	109	113	110	112	110	110	111	109	128	133	129	134	130	BM	
5	EC-WW-054	1135	GB	0	50.0%	454	128	128	125	127	132	132	131	139	126	124	138	142	143	144	144	BM	Textured/Textured
6	EC-WW-054	1500	GB	9	50.0%	454	138	141	141	135	129	137	137	117	124	125	150	156	153	156	151	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
51 / 66	SEOS	NEOS	1137	0	FG	EC-WW-039	54.0		AP+PS	9/4/19	1505	1510	30	30	Pass	BM
66 / 67	SEOS	5T	1140	0	WP	EC-WW-019	26.0		AP+PS	9/4/19	840	845	30	30	Pass	BM
66 / 67	5T	NEOS	1140	0	WP	EC-WW-019	28.0		AP+PS	9/4/19	845	850	30	30	Pass	BM
69 / 70	EEOS	WEOS	1147	0	GB	EC-WW-054	6.7		AP+PS	8/4/19	1749	1754	30	30	Pass	BM
69 / 71	SEOS	NEOS	1158	0	FG	EC-WW-039	9.0		AP+PS	8/4/19	1540	1545	30	30	Pass	BM
67 / 68	SEOS	6A	1200	9	DH	EC-WW-056	16.0	DS-19	AP+PS	9/4/19	850	855	30	30	Pass	BM
67 / 68	6A	NEOS	1200	9	DH	EC-WW-056	38.0	DS-19	AP+PS	9/4/19	855	900	30	30	Pass	BM
70 / 71	SEOS	NEOS	1201	9	FG	EC-WW-039	45.0		AP+PS	8/4/19	1749	1754	30	30	Pass	BM
71 / 72	SEOS	NEOS	1202	9	GB	EC-WW-054	54.0		AP+PS	8/4/19	1547	1552	30	30	Pass	BM
68 / 69	SEOS	NEOS	1204	9	WP	EC-WW-019	9.0		AP+PS	8/4/19	1530	1535	30	30	Pass	BM
68 / 70	SEOS	NEOS	1207	9	WP	EC-WW-019	45.0		AP+PS	8/4/19	1750	1755	30	30	Pass	BM
52 / 66	EEOS	WEOS	1242	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1505	1510	35	35	Pass	BM
53 / 67	EEOS	WEOS	1244	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1525	1530	35	35	Pass	BM
54 / 68	EEOS	WEOS	1246	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1520	1525	35	35	Pass	BM
55 / 69	EEOS	WEOS	1248	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1530	1535	35	35	Pass	BM
56 / 71	EEOS	WEOS	1250	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1540	1545	35	35	Pass	BM
57 / 72	EEOS	WEOS	1252	9	GB	EC-WW-054	6.7		AP+PS	10/4/19	905	910	35	35	Pass	BM
72 / 73	NEOS	SEOS	1315	9	GB	EC-WW-054	54.0	DS-20	AP+PS	8/4/19	1600	1605	30	30	Pass	BM
73 / 74	NEOS	6F	1315	9	WP	EC-WW-019	16.0	DS-21	AP+PS	8/4/19	1607	1612	30	30	Pass	BM
74 / 75	NEOS	SEOS	1320	9	FG	EC-WW-039	54.0		AP+PS	8/4/19	1615	1620	30	30	Pass	BM
						PAGE TOTAL	494.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-039	1501	FG	9	70.0%	454	108	106	108	111	111	110	109	107	109	107	130	135	135	128	133	BM	
8	EC-WW-054	1510	GB	9	70.0%	454	102	116	105	109	116	115	107	112	109	113	136	135	133	134	129	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
73 / 74	6F	6E	1325	9	WP	EC-WW-019	9.0	DS-21	AP+PS	8/4/19	1730	1735	30	30	Pass	BM
73 / 74	6E	6D	1328	9	WP	EC-WW-019	15.0	DS-21	AP+PS	8/4/19	1801	1806	30	30	Pass	BM
73 / 74	6D	SEOS	1333	9	WP	EC-WW-019	14.0	DS-21	AP+PS	8/4/19	1823	1828	30	30	Pass	BM
76 / 77	SEOS	6H	1340	9	WP	EC-WW-019	2.5	DS-22	AP+PS	8/4/19	1630	1635	30	30	Pass	BM
76 / 77	6H	6I	1340	9	WP	EC-WW-019	2.5	DS-22	AP+PS	8/4/19	1723	1728	30	30	Pass	BM
76 / 77	6I	6J	1340	9	WP	EC-WW-019	2.5	DS-22	AP+PS	8/4/19	1715	1720	30	30	Pass	BM
76 / 77	6J	6L	1340	9	WP	EC-WW-019	8.5	DS-22	VB+PS	9/4/19					Pass	BM
76 / 77	6L	NEOS	1340	9	WP	EC-WW-019	38.0	DS-22	AP+PS	9/4/19	900	905	30	30	Pass	BM
75 / 76	SEOS	NEOS	1347	9	GB	EC-WW-054	54.0		AP+PS	8/4/19	1623	1628	30	30	Pass	BM
77 / 78	SEOS	6O	1348	9	FG	EC-WW-039	36.0		AP+PS	8/4/19	1637	1642	30	30	Pass	BM
77 / 78	6O	NEOS	1348	9	FG	EC-WW-039	18.0		AP+PS	8/4/19	1830	1835	30	30	Pass	BM
78 / 79	SEOS	NEOS	1521	9	FG	EC-WW-039	54.0		AP+PS	8/4/19	1645	1650	30	30	Pass	BM
79 / 80	SEOS	NEOS	1523	9	GB	EC-WW-054	54.0	DS-23	AP+PS	8/4/19	1700	1705	30	30	Pass	BM
58 / 73	EEOS	WEOS	1615	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1600	1605	35	35	Pass	BM
59 / 74	EEOS	WEOS	1617	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1607	1612	35	35	Pass	BM
60 / 75	EEOS	WEOS	1619	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1615	1620	35	35	Pass	BM
61 / 76	EEOS	WEOS	1621	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1623	1628	35	35	Pass	BM
62 / 77	EEOS	WEOS	1623	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1630	1635	35	35	Pass	BM
63 / 78	EEOS	WEOS	1625	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1637	1642	35	35	Pass	BM
64 / 79	EEOS	WEOS	1627	9	GB	EC-WW-054	6.7		AP+PS	9/4/19	1645	1650	35	35	Pass	BM
						PAGE TOTAL	354.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
65 / 80	EEOS	WEOS	1629	9	GB	EC-WW-054	6.7	DS-24	AP+PS	13/4/19	1325	1330	40	40	Pass	BM
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PAGE TOTAL							6.7									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 10 of 23

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1235	WP	9	70.0%	454	113	112	117	108	109	108	111	108	111	108	140	136	138	139	142	BM	
2	EC-WW-056	1410	DH	9	65.0%	454	109	108	114	110	117	106	103	106	112	111	124	126	122	130	115	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
65 / 81	SEOS	NEOS	1316	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1705	1710	35	35	Pass	BM
81 / 82	NEOS	7P	1330	9	WP	EC-WW-054	17.0	DS-25	AP+PS	12/4/19	1835	1840	35	35	Pass	BM
81 / 82	7P	SEOS	1335	9	WP	EC-WW-054	37.0	DS-25	AP+PS	12/4/19	1830	1835	35	35	Pass	BM
82 / 83	SEOS	NEOS	1353	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1725	1730	35	35	Pass	BM
83 / 84	SEOS	NEOS	1415	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1732	1737	35	35	Pass	BM
84 / 85	NEOS	SEOS	1420	9	DH	EC-WW-056	54.0	DS-26	AP+PS	12/4/19	1726	1731	35	35	Pass	BM
85 / 86	SEOS	NEOS	1500	9	DH	EC-WW-056	54.0		AP+PS	12/4/19	1720	1725	35	35	Pass	BM
87 / 88	NEOS	SEOS	1515	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1656	1701	35	35	Pass	BM
86 / 87	NEOS	SEOS	1530	9	DH	EC-WW-056	54.0		AP+PS	12/4/19	1708	1713	35	35	Pass	BM
88 / 89	SEOS	8H	1540	9	DH	EC-WW-056	40.0	DS-27	AP+PS	12/4/19	1820	1825	35	35	Pass	BM
89 / 90	SEOS	NEOS	1547	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1550	1555	35	35	Pass	BM
88 / 89	8H	NEOS	1553	9	DH	EC-WW-056	14.0	DS-27	AP+PS	12/4/19	1800	1805	35	35	Pass	BM
90 / 91	NEOS	SEOS	1601	9	DH	EC-WW-056	54.0		AP+PS	12/4/19	1550	1555	35	35	Pass	BM
91 / 92	NEOS	SEOS	1610	9	WP	EC-WW-054	54.0		AP+PS	12/4/19	1550	1555	35	35	Pass	BM
92 / 93	SEOS	NEOS	1630	9	DH	EC-WW-056	54.0	DS-28	AP+PS	12/4/19	1700	1705	35	35	Pass	BM
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PAGE TOTAL 702.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 11 of 23

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-019	1158	WP	1	45.0%	454	139	132	137	133	135	118	139	130	142	135	153	153	157	155	156	BM	Textured/Textured
2	EC-WW-056	1200	LC	7	65.0%	454	114	108	123	119	118	107	110	108	107	112	139	140	139	137	139	BM	
3	EC-WW-054	1202	EE	7	70.0%	454	119	120	120	119	115	110	124	105	125	113	137	133	138	138	140	BM	
4	EC-WW-019	1230	EB	7	70.0%	454	112	107	107	109	109	120	105	110	110	109	131	134	135	136	136	BM	
5	EC-WW-019	1515	EB	7	45.0%	454	129	138	134	140	126	140	131	128	134	130	148	145	151	148	147	BM	Textured/Textured
6	EC-WW-039	1550	DH	7	70.0%	454	96	130	123	126	125	100	110	103	115	117	141	141	138	143	140	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
80 / 94	SEOS	NEOS	1210	7	EE	EC-WW-054	54.0		AP+PS	12/4/19	1700	1705	35	35	Pass	BM
94 / 95	SEOS	NEOS	1222	7	LC	EC-WW-056	54.0		AP+PS	12/4/19	1725	1730	35	35	Pass	BM
95 / 96	SEOS	7Q	1240	7	LC	EC-WW-056	14.0	DS-29	AP+PS	12/4/19	1525	1530	35	35	Pass	BM
95 / 96	7Q	NEOS	1240	7	LC	EC-WW-056	40.0	DS-29	AP+PS	12/4/19	1855	1900	35	35	Pass	BM
96 / 97	SEOS	NEOS	1248	7	EE	EC-WW-054	54.0		AP+PS	12/4/19	1730	1735	35	35	Pass	BM
97 / 98	SEOS	NEOS	1253	7	EB	EC-WW-019	54.0	DS-30	AP+PS	12/4/19	1745	1750	35	35	Pass	BM
99 / 100	SEOS	NEOS	1318	7	EE	EC-WW-054	54.0		AP+PS	12/4/19	1755	1800	35	35	Pass	BM
100 / 101	SEOS	NEOS	1318	7	EB	EC-WW-019	54.0		AP+PS	12/4/19	1800	1805	35	35	Pass	BM
98 / 99	SEOS	NEOS	1320	7	LC	EC-WW-056	54.0		AP+PS	12/4/19	1750	1755	35	35	Pass	BM
101 / 102	SEOS	NEOS	1341	7	LC	EC-WW-056	54.0	DS-31	AP+PS	12/4/19	1805	1810	35	35	Pass	BM
102 / 103	SEOS	NEOS	1343	7	EB	EC-WW-019	54.0		AP+PS	12/4/19	1820	1825	35	35	Pass	BM
103 / 104	SEOS	NEOS	1345	7	EE	EC-WW-054	54.0	DS-32	AP+PS	12/4/19	1625	1630	35	35	Pass	BM
104 / 105	SEOS	NEOS	1500	7	LC	EC-WW-056	54.0		AP+PS	12/4/19	1830	1835	35	35	Pass	BM
105 / 106	SEOS	NEOS	1505	7	EE	EC-WW-054	54.0	DS-33	AP+PS	12/4/19	1535	1540	35	35	Pass	BM
107 / 108	NEOS	SEOS	1528	7	LC	EC-WW-056	54.0		AP+PS	12/4/19	1625	1630	35	35	Pass	BM
93 / 107	NEOS	SEOS	1530	7	EE	EC-WW-054	54.0		AP+PS	12/4/19	1620	1625	35	35	Pass	BM
81 / 94	EEOS	WEOS	1550	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1700	1705	35	35	Pass	BM
82 / 95	EEOS	WEOS	1552	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1725	1730	35	35	Pass	BM
83 / 96	EEOS	WEOS	1554	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1725	1730	35	35	Pass	BM
84 / 97	EEOS	WEOS	1556	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1730	1735	35	35	Pass	BM
						PAGE TOTAL	836.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1600	EE	7	70.0%	454	116	124	112	122	116	112	124	115	109	119	136	136	143	138	147	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
85 / 98	EEOS	WEOS	1558	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1745	1750	35	35	Pass	BM
86 / 99	EEOS	WEOS	1600	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1750	1755	35	35	Pass	BM
87 / 100	EEOS	WEOS	1602	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1755	1800	35	35	Pass	BM
88 / 101	EEOS	WEOS	1604	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1800	1805	35	35	Pass	BM
89 / 102	EEOS	WEOS	1606	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1805	1810	35	35	Pass	BM
90 / 103	EEOS	WEOS	1608	7	EB	EC-WW-019	6.7		AP+PS	12/4/19	1820	1825	35	35	Pass	BM
91 / 104	EEOS	WEOS	1610	7	EB	EC-WW-019	6.7	DS-34	AP+PS	12/4/19	1625	1630	35	35	Pass	BM
92 / 105	EEOS	WEOS	1612	7	EB	EC-WW-019	6.7		VB+PS	12/4/19					Pass	BM
93 / 106	EEOS	WEOS	1614	7	EB	EC-WW-019	6.7		AP+PS	13/4/19	1620	1625	35	35	Pass	BM
108 / 109	NEOS	SEOS	1625	7	EE	EC-WW-054	54.0		AP+PS	13/4/19	1630	1635	35	35	Pass	BM
110 / 111	NEOS	SEOS	1630	7	DH	EC-WW-039	54.0		AP+PS	13/4/19	1650	1655	35	35	Pass	BM
109 / 110	NEOS	SEOS	1658	7	LC	EC-WW-056	54.0	DS-35	AP+PS	13/4/19	1650	1655	35	35	Pass	BM
111 / 112	NEOS	SEOS	1700	7	DH	EC-WW-039	54.0	DS-36	AP+PS	13/4/19	1700	1705	35	35	Pass	BM
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PAGE TOTAL 276.3

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/13

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	930	EA	-1	70.0%	454	99	108	103	98	111	104	103	107	104	101	132	130	133	139	145	BM	
2	EC-WW-045	1002	LC	-1	70.0%	454	114	100	99	113	105	107	117	111	102	111	135	138	135	138	140	BM	
3	EC-WW-054	1038	EE	-1	70.0%	454	104	122	110	102	112	109	100	110	116	111	135	133	131	132	128	BM	
4	EC-WW-050	1100	EA	-1	40.0%	454	128	140	130	126	141	126	132	118	125	132	144	152	154	154	154	BM	Textured/Textured
5	EC-WW-019	1105	WP	-1	40.0%	454	108	91	102	104	120	118	119	108	118	115	133	137	148	140	143	BM	
6	EC-WW-019	1500	WP	7	40.0%	454	114	118	110	128	115	115	118	128	121	119	138	137	141	141	143	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
106 / 113	SEOS	NEOS	1050	-1	EA	EC-WW-056	54.0		AP+PS	13/4/19	1625	1630	35	35	Pass	BM
115 / 116	NEOS	SEOS	1120	-1	EA	EC-WW-056	54.0		AP+PS	13/4/19	1650	1655	35	35	Pass	BM
113 / 114	NEOS	SEOS	1123	-1	EE	EC-WW-054	54.0		AP+PS	14/4/19	1715	1720	35	35	Pass	BM
114 / 115	SEOS	NEOS	1127	-1	LC	EC-WW-045	54.0	DS-37	AP+PS	13/4/19	1630	1635	35	35	Pass	BM
119 / 120	SEOS	NEOS	1145	-1	EA	EC-WW-056	54.0	DS-39	AP+PS	13/4/19	1710	1715	35	35	Pass	BM
116 / 117	SEOS	NEOS	1150	-1	EE	EC-WW-054	54.0	DS-38	AP+PS	13/4/19	1650	1655	35	35	Pass	BM
117 / 118	SEOS	NEOS	1152	-1	LC	EC-WW-045	54.0		AP+PS	13/4/19	1700	1705	35	35	Pass	BM
120 / 121	NEOS	SEOS	1225	7	LC	EC-WW-045	54.0		AP+PS	15/4/19	1232	1237	35	35	Pass	BM
121 / 122	SEOS	NEOS	1230	7	EE	EC-WW-054	54.0		AP+PS	13/4/19	1720	1725	35	35	Pass	BM
122 / 123	SEOS	NEOS	1240	7	EA	EC-WW-056	54.0	DS-40	AP+PS	13/4/19	1725	1730	35	35	Pass	BM
124 / 125	NEOS	SEOS	1325	7	EE	EC-WW-054	54.0		AP+PS	13/4/19	1710	1715	35	35	Pass	BM
125 / 126	NEOS	SEOS	1331	7	LC	EC-WW-045	54.0		AP+PS	13/4/19	1715	1720	35	35	Pass	BM
126 / 127	NEOS	SEOS	1340	7	EA	EC-WW-056	54.0	DS-41	AP+PS	13/4/19	1720	1725	35	35	Pass	BM
127 / 128	NEOS	SEOS	1351	7	EE	EC-WW-054	54.0		AP+PS	13/4/19	1725	1730	35	35	Pass	BM
128 / 129	NEOS	SEOS	1400	7	LC	EC-WW-045	54.0	DS-42	AP+PS	14/4/19	1745	1750	35	35	Pass	BM
107 / 113	EEOS	WEOS	1520	7	WP	EC-WW-019	6.7		AP+PS	15/4/19	1215	1220	35	35	Pass	BM
108 / 114	EEOS	WEOS	1522	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1625	1630	35	35	Pass	BM
109 / 115	EEOS	WEOS	1524	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1630	1635	35	35	Pass	BM
110 / 116	EEOS	WEOS	1526	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1650	1655	35	35	Pass	BM
111 / 117	EEOS	WEOS	1528	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1650	1655	35	35	Pass	BM
						PAGE TOTAL	843.5									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED
PS - POINT STRESS	& VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/13

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
112	118	EEOS	WEOS	1530	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1700	1705	35	35	Pass	BM
124	119	EEOS	WEOS	1532	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1710	1715	35	35	Pass	BM
125	120	EEOS	WEOS	1534	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1710	1715	35	35	Pass	BM
126	121	EEOS	WEOS	1536	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1715	1720	35	35	Pass	BM
127	122	EEOS	WEOS	1538	7	WP	EC-WW-019	6.7		AP+PS	13/4/19	1720	1725	35	35	Pass	BM
128	123	EEOS	WEOS	1540	7	WP	EC-WW-019	6.7		AP+PS	14/4/19	1725	1730	35	35	Pass	BM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-019	815	AB	-1	40.0%	454	117	112	122	125	120	121	109	112	125	117	132	131	138	135	131	BM	Smooth/Textured
2	EC-WW-056	1300	EA	7	70.0%	454	122	121	111	122	117	121	118	109	110	119	135	132	136	135	140	BM	
3	EC-WW-054	1300	EE	7	70.0%	454	114	114	112	117	113	115	111	121	111	118	135	132	136	133	133	BM	
4	EC-WW-045	1330	WP	7	70.0%	454	105	113	114	108	110	111	116	114	114	116	128	123	127	124	124	BM	
5	EC-WW-019	1520	WP	7	40.0%	454	121	117	119	126	126	118	121	117	120	125	134	133	132	135	134	BM	
6	EC-WW-056	1700	EA	7	70.0%	454	109	108	101	106	111	105	98	98	103	97	114	111	114	112	115	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
112 / 124	NEOS	SEOS	835	-1	AB	EC-WW-019	54.0		AP+PS	14/4/19	1750	1755	35	35	Pass	BM
118 / 119	SEOS	NEOS	920	-1	AB	EC-WW-019	54.0		AP+PS	14/4/19	1720	1725	35	35	Pass	BM
144 / 145	EEOS	WEOS	1245	7	EE	EC-WW-054	46.0	DS-46	AP+PS	15/4/19	1105	1110	35	35	Pass	BM
129 / 130	NEOS	SEOS	1358	7	EA	EC-WW-056	46.0		AP+PS	15/4/19	1800	1805	35	35	Pass	BM
130 / 131	NEOS	SEOS	1408	7	EE	EC-WW-054	46.0	DS-43	AP+PS	15/4/19	1805	1810	35	35	Pass	BM
137 / 138	NEOS	SEOS	1425	7	EA	EC-WW-056	39.0		AP+PS	15/4/19	1715	1720	35	35	Pass	BM
131 / 132	NEOS	SEOS	1510	7	EA	EC-WW-056	51.0		AP+PS	15/4/19	1035	1040	35	35	Pass	BM
132 / 133	NEOS	SEOS	1520	7	EE	EC-WW-054	51.0		AP+PS	15/4/19	1035	1040	35	35	Pass	BM
132 / 143	EEOS	WEOS	1534	7	WP	EC-WW-019	6.7		AP+PS	15/4/19	1035	1040	35	35	Pass	BM
133 / 134	EEOS	WEOS	1538	7	WP	EC-WW-019	6.7		AP+PS	15/4/19	1040	1045	35	35	Pass	BM
135 / 136	EEOS	WEOS	1545	7	WP	EC-WW-019	6.7		AP+PS	15/4/19	1045	1050	35	35	Pass	BM
138 / 148	NEOS	SEOS	1559	7	WP	EC-WW-019	0.5		VB+PS	15/4/19					Pass	BM
133 / 143	SEOS	NEOS	1600	7	EE	EC-WW-054	5.0		AP+PS	15/4/19	1040	1045	35	35	Pass	BM
134 / 135	NEOS	SEOS	1600	7	EE	EC-WW-054	4.0		AP+PS	15/4/19	1045	1050	35	35	Pass	BM
134 / 143	SEOS	NEOS	1602	7	EE	EC-WW-054	8.0		AP+PS	15/4/19	1040	1045	35	35	Pass	BM
134 / 136	NEOS	SEOS	1602	7	EE	EC-WW-054	1.0		VB+PS	15/4/19					Pass	BM
133 / 136	NEOS	SEOS	1603	7	EE	EC-WW-054	59.0	DS-44	AP+PS	15/4/19	1045	1050	35	35	Pass	BM
131 / 143	NEOS	SEOS	1610	7	EE	EC-WW-054	13.0		AP+PS	15/4/19	917	922	35	35	Pass	BM
136 / 137	NEOS	SEOS	1615	7	EE	EC-WW-054	47.0		AP+PS	15/4/19	1140	1145	35	35	Pass	BM
138 / 139	NEOS	SEOS	1632	7	EE	EC-WW-054	31.0	DS-45	AP+PS	15/4/19	1607	1612	35	35	Pass	BM
						PAGE TOTAL	575.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1715	EE	7	70.0%	454	104	111	114	110	108	107	103	106	112	104	118	120	118	112	117	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
139 / 140	NEOS	SEOS	1641	7	EA	EC-WW-056	23.5		AP+PS	15/4/19	1615	1620	35	35	Pass	BM
140 / 141	NEOS	SEOS	1648	7	EA	EC-WW-056	16.0		AP+PS	15/4/19	1618	1623	35	35	Pass	BM
141 / 142	NEOS	SEOS	1655	7	EA	EC-WW-056	8.0		AP+PS	15/4/19	1641	1646	35	35	Pass	BM
145 / 146	WEOS	EEOS	1720	7	EA	EC-WW-056	46.0		AP+PS	15/4/19	1140	1145	35	35	Pass	BM
146 / 147	WEOS	EEOS	1734	7	EE	EC-WW-054	38.5		AP+PS	15/4/19	1600	1605	35	35	Pass	BM
147 / 148	EEOS	WEOS	1734	7	EA	EC-WW-056	31.5	DS-47	AP+PS	15/4/19	1607	1612	35	35	Pass	BM
151 / 152	SEOS	NEOS	1750	7	WP	EC-WW-019	6.7		AP+PS	15/4/19	1750	1755	35	35	Pass	BM
149 / 150	WEOS	EEOS	1750	7	EA	EC-WW-056	17.0		AP+PS	15/4/19	1622	1627	35	35	Pass	BM
135 / 144	NEOS	SEOS	1750	7	WP	EC-WW-019	3.4		AP+PS	15/4/19	1100	1105	35	35	Pass	BM
148 / 149	EEOS	WEOS	1751	7	EE	EC-WW-054	24.0		AP+PS	15/4/19	1615	1620	35	35	Pass	BM
136 / 144	NEOS	SEOS	1751	7	WP	EC-WW-019	3.4		AP+PS	15/4/19	1100	1105	35	35	Pass	BM
136 / 145	NEOS	SEOS	1752	7	WP	EC-WW-019	6.0		AP+PS	15/4/19	1140	1145	35	35	Pass	BM
137 / 146	NEOS	SEOS	1754	7	WP	EC-WW-019	9.5		AP+PS	15/4/19	1600	1605	35	35	Pass	BM
138 / 147	NEOS	SEOS	1757	7	WP	EC-WW-019	9.5		AP+PS	15/4/19	1600	1605	35	35	Pass	BM
150 / 151	EEOS	WEOS	1800	7	EA	EC-WW-056	7.5		AP+PS	15/4/19	1635	1640	35	35	Pass	BM
139 / 148	NEOS	SEOS	1800	7	WP	EC-WW-019	9.0		AP+PS	15/4/19	1607	1612	35	35	Pass	BM
150 / 152	EEOS	WEOS	1802	7	EA	EC-WW-056	2.0		AP+PS	15/4/19	1635	1640	35	35	Pass	BM
139 / 149	NEOS	SEOS	1803	7	WP	EC-WW-019	1.0		VB+PS	15/4/19					Pass	BM
140 / 149	NEOS	SEOS	1804	7	WP	EC-WW-019	8.5		AP+PS	15/4/19	1615	1620	35	35	Pass	BM
140 / 150	NEOS	SEOS	1806	7	WP	EC-WW-019	1.5		AP+PS	15/4/19	1622	1627	35	35	Pass	BM
						PAGE TOTAL	272.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
141	150	NEOS	SEOS	1807	7	WP	EC-WW-019	8.0		AP+PS	15/4/19	1628	1633	35	35	Pass	BM
141	151	NEOS	SEOS	1809	7	WP	EC-WW-019	2.0		AP+PS	15/4/19	1635	1640	35	35	Pass	BM
142	151	NEOS	SEOS	1810	7	WP	EC-WW-019	5.0	DS-48	AP+PS	15/4/19	1641	1646	35	35	Pass	BM
142	152	NEOS	SEOS	1811	7	WP	EC-WW-019	3.0		VB+PS	15/4/19					Pass	BM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/20

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	940	EE	1	60.0%	454	109	115	111	111	116	118	116	113	116	118	128	136	124	135	114	DB	
2	EC-WW-019	945	GB	2	60.0%	454	113	112	110	118	113	107	111	109	119	113	121	122	122	114	121	DB	
3	EC-WW-019	945	GB	2	40.0%	454	115	115	115	117	125	121	122	119	121	124	136	137	141	136	136	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
123	153	SEOS	NEOS	955	2	EE	EC-WW-054	54.0		AP+PS	20/4/19	1045	1050	35	35	Pass	DB
153	154	SEOS	NEOS	1024	2	EE	EC-WW-054	54.0		AP+PS	20/4/19	1050	1055	35	35	Pass	DB
129	153	EEOS	WEOS	1115		GB	EC-WW-019	6.5		AP+PS	20/4/19	1145	1150	35	35	Pass	DB
130	153	EEOS	WEOS	1119		GB	EC-WW-019	0.3		AP+PS	20/4/19	1150	1155	35	35	Pass	DB
130	154	EEOS	WEOS	1119		GB	EC-WW-019	6.5		AP+PS	20/4/19	1212	1217	35	35	Pass	DB
131	154	EEOS	WEOS	1130		GB	EC-WW-019	9.0		AP+PS	20/4/19	1225	1230	35	35	Pass	DB

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/21

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1400	FG	4	60.0%	454	121	119	119	117	117	114	117	113	114	118	141	143	139	139	143	DB	
2	EC-WW-054	1408	EB	4	55.0%	454	113	122	121	121	118	119	122	117	117	111	143	143	138	137	141	DB	
3	EC-WW-3907	1530	EE	4	6.0%	454	119	118	120	117	118	122	119	121	122	118	137	133	133	131	149	DB	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
154	155	SEOS	NEOS	1453		FG	EC-WW-056	45.0		AP+PS	21/4/19	1525	1530	35	35	Pass	DB
155	156	SEOS	NEOS	1505		EB	EC-WW-054	45.0		AP+PS	21/4/19	1540	1545	35	35	Pass	DB
156	157	SEOS	NEOS	1515		FG	EC-WW-056	45.0	DS-49	AP+PS	21/4/19	1545	1550	35	35	Pass	DB
131	155	EEOS	WEOS	1535		EE	EC-WW-3907	6.7		AP+PS	21/4/19	1705	1710	35	35	Pass	DB
143	156	EEOS	WEOS	1539		EE	EC-WW-3907	6.7		AP+PS	21/4/19	1700	1705	35	35	Pass	DB
134	157	EEOS	WEOS	1543		EE	EC-WW-3907	6.7		AP+PS	21/4/19	1700	1705	35	35	Pass	DB

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/22

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1350	FG	5	60.0%	454	119	115	109	112	109	112	111	108	110	111	137	133	131	133	133	DB	
2	EC-WW-054	1355	EB	5	60.0%	454	109	110	107	110	112	110	108	118	114	112	126	128	131	137	133	DB	
3	EC-WW-054	1355	EB	5	45.0%	454	125	132	124	124	121	134	122	124	131	137	147	145	145	139	147	DB	Textured/Textured
4	EC-WW-3907	1700	FG	5	2.5%	454	106	109	111	119	124	108	111	117	113	112	134	137	141	142	136	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
157 / 158	SEOS	NEOS	1438		EB	EC-WW-054	39.0		AP+PS	24/4/19	1600	1605	35	35	Pass	DB
158 / 159	SEOS	NEOS	1450		FG	EC-WW-056	46.5		AP+PS	24/4/19	1615	1620	35	35	Pass	DB
160 / 161	EEOS	WEOS	1454		EB	EC-WW-054	6.7		AP+PS	24/4/19	1735	1740	35	35	Pass	DB
159 / 160	SEOS	NEOS	1505		EB	EC-WW-054	7.5		AP+PS	24/4/19	1755	1800	35	35	Pass	DB
159 / 161	SEOS	NEOS	1508		EB	EC-WW-054	32.2		AP+PS	24/4/19	1735	1740	35	35	Pass	DB
162 / 160	SEOS	NEOS	1510		FG	EC-WW-056	1.5		AP+PS	24/4/19	1605	1610	35	35	Pass	DB
162 / 161	SEOS	NEOS	1511		FG	EC-WW-056	32.2	DS-50	AP+PS	24/4/19	1735	1740	35	35	Pass	DB
163 / 164	EEOS	WEOS	1521		EB	EC-WW-054	6.7		AP+PS	24/4/19	1625	1630	35	35	Pass	DB
162 / 163	SEOS	NEOS	1524		FG	EC-WW-056	12.0		AP+PS	24/4/19	1630	1635	35	35	Pass	DB
162 / 164	SEOS	NEOS	1529		FG	EC-WW-056	12.2		AP+PS	24/4/19	1605	1610	35	35	Pass	DB
163 / 165	SEOS	NEOS	1530		EB	EC-WW-054	4.5		AP+PS	24/4/19	1605	1610	35	35	Pass	DB
164 / 165	SEOS	NEOS	1532		EB	EC-WW-054	12.2		AP+PS	24/4/19	1605	1610	35	35	Pass	DB
165 / 166	SEOS	NEOS	1534		FG	EC-WW-056	9.1		AP+PS	24/4/19	1610	1615	35	35	Pass	DB
144 / 167	WEOS	EEOS	1540		FG	EC-WW-056	44.0		AP+PS	24/4/19	1725	1730	35	35	Pass	DB
167 / 168	WEOS	EEOS	1545		EB	EC-WW-054	40.7		AP+PS	24/4/19	1725	1730	35	35	Pass	DB
168 / 170	WEOS	EEOS	1600		FG	EC-WW-056	24.1	DS-51	AP+PS	24/4/19	1712	1717	35	35	Pass	DB
169 / 170	NEOS	SEOS	1603		EB	EC-WW-054	6.7		AP+PS	24/4/19	1705	1710	35	35	Pass	DB
168 / 169	WEOS	EEOS	1611		FG	EC-WW-056	9.0		AP+PS	24/4/19	1705	1710	35	35	Pass	DB
171 / 172	NEOS	SEOS	1617		EB	EC-WW-054	6.7		AP+PS	24/4/19	1710	1715	35	35	Pass	DB
170 / 172	WEOS	EEOS	1617		FG	EC-WW-056	10.0		AP+PS	24/4/19	1710	1715	35	35	Pass	DB
						PAGE TOTAL	363.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/22

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
170 / 171	WEOS	EEOS	1622		FG	EC-WW-056	16.2		AP+PS	24/4/19	1710	1715	35	35	Pass	DB
173 / 174	NEOS	SEOS	1624		EB	EC-WW-054	6.7		AP+PS	24/4/19	1711	1716	35	35	Pass	DB
171 / 169	WEOS	EEOS	1626		EB	EC-WW-054	2.0		VB+PS	24/4/19			35	35	Pass	DB
172 / 174	WEOS	EEOS	1628		FG	EC-WW-056	10.0		AP+PS	24/4/19	1711	1716	35	35	Pass	DB
174 / 175	WEOS	EEOS	1630		EB	EC-WW-054	11.5		AP+PS	24/4/19	1615	1620	35	35	Pass	DB
171 / 174	WEOS	EEOS	1632		FG	EC-WW-056	1.0		VB+PS	24/4/19			35	35	Pass	DB
171 / 173	WEOS	EEOS	1632		FG	EC-WW-056	8.5		AP+PS	24/4/19	1711	1716	35	35	Pass	DB
175 / 176	EEOS	WEOS	1637		EB	EC-WW-054	4.0		AP+PS	24/4/19	1610	1615	35	35	Pass	DB
166 / 176	NEOS	SEOS	1713		FG	EC-WW-3907	1.5		VB+PS	24/4/19			35	35	Pass	DB
166 / 175	NEOS	SEOS	1714		FG	EC-WW-3907	8.4		AP+PS	24/4/19	1610	1615	35	35	Pass	DB
165 / 175	NEOS	SEOS	1718		FG	EC-WW-3907	2.0		AP+PS	24/4/19	1615	1620	35	35	Pass	DB
165 / 173	NEOS	SEOS	1718		FG	EC-WW-3907	8.2		AP+PS	24/4/19	1650	1655	35	35	Pass	DB
163 / 173	NEOS	SEOS	1722		FG	EC-WW-3907	2.0		AP+PS	24/4/19	1650	1655	35	35	Pass	DB
163 / 171	NEOS	SEOS	1723		FG	EC-WW-3907	8.2		AP+PS	24/4/19	1630	1635	35	35	Pass	DB
162 / 171	NEOS	SEOS	1729		FG	EC-WW-3907	2.2		VB+PS	24/4/19			35	35	Pass	DB
162 / 169	NEOS	SEOS	1729		FG	EC-WW-3907	8.0		AP+PS	24/4/19	1645	1650	35	35	Pass	DB
160 / 169	NEOS	SEOS	1733		FG	EC-WW-3907	2.6	DS-52	VB+PS	24/4/19			35	35	Pass	DB
160 / 168	NEOS	SEOS	1734		FG	EC-WW-3907	7.5		AP+PS	24/4/19	1140	1145	35	35	Pass	DB
159 / 168	NEOS	SEOS	1739		FG	EC-WW-3907	2.8		AP+PS	24/4/19	1740	1745	35	35	Pass	DB
159 / 167	NEOS	SEOS	1742		FG	EC-WW-3907	7.6		AP+PS	24/4/19	1755	1800	35	35	Pass	DB
						PAGE TOTAL	120.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED EXTRUDED EXTRUDED EXTRUDED EXTRUDED

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Secondary
PROJECT TITLE Eagle Gold Event Pond | SEAM DATE 2019/04/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
158	135	EEOS	WEOS	1710		FG	EC-WW-3907	6.7		AP+PS	24/4/19	1800	1805	35	35	Pass	DB

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/04/02	1510	TW	6	240	237	129	99	131	141	139	167	168	159	162	171	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	23 / 24	On Crest	BO	P	EC-EX-035	2019/04/02	1557	TW	6	2019/04/04	VB+PS	BM
1B	22 / 23	Connected to 24	T	G&W	EC-EX-035	2019/04/02	1536	TW	6	2019/04/04	VB+PS	BM
1C	24 / 25	Connected to 22	T	G&W	EC-EX-035	2019/04/02	1543	TW	6	2019/04/04	VB+PS	BM
1D	21 / 22	Connected to 25	T	G&W	EC-EX-035	2019/04/02	1600	TW	6	2019/04/04	VB+PS	BM
1E	25 / 26	Connected to 21	T	G&W	EC-EX-035	2019/04/02	1603	TW	6	2019/04/04	VB+PS	BM
1F	20 / 21	Connected to 26	T	G&W	EC-EX-035	2019/04/02	1605	TW	6	2019/04/04	VB+PS	BM
1G	26 / 27	Connected to 20	T	G&W	EC-EX-035	2019/04/02	1607	TW	6	2019/04/04	VB+PS	BM
1H	19 / 20	Connected to 27	T	G&W	EC-EX-035	2019/04/02	1610	TW	6	2019/04/04	VB+PS	BM
1I	27 / 28	Connected to 19	T	G&W	EC-EX-035	2019/04/02	1613	TW	6	2019/04/04	VB+PS	BM
1J	28 / 29	Connected to 19, 18	T	P	EC-EX-035	2019/04/02	1630	TW	6	2019/04/04	VB+PS	BM
1K	17 / 18	Connected to 29	T	G&W	EC-EX-035	2019/04/02	1632	TW	6	2019/04/04	VB+PS	BM
1L	16 / 17	Connected to 29	T	G&W	EC-EX-035	2019/04/02	1635	TW	6	2019/04/04	VB+PS	BM
1M	1 / 29	Connected to 16	T	G&W	EC-EX-035	2019/04/02	1638	TW	6	2019/04/04	VB+PS	BM
1N	1 / 2	Connected to 29, 30	T	P	EC-EX-035	2019/04/02	1644	TW	6	2019/04/04	VB+PS	BM
1O	15 / 16	Connected to 1	T	G&W	EC-EX-035	2019/04/02	1647	TW	6	2019/04/04	VB+PS	BM
1P	14 / 15	Connected to 1	T	G&W	EC-EX-035	2019/04/02	1650	TW	6	2019/04/04	VB+PS	BM
1Q	13 / 14	Connected to 1, 3	T	P	EC-EX-035	2019/04/02	1832	TW	6	2019/04/04	VB+PS	BM
1R	12 / 13	Connected to 3, 4	T	G&W	EC-EX-035	2019/04/02	1735	TW	6	2019/04/04	VB+PS	BM
1S	11 / 12	Connected to 4, 5	T	G&W	EC-EX-035	2019/04/02	1738	TW	6	2019/04/04	VB+PS	BM
1T	5 / 6	Connected to 9, 11	T	P	EC-EX-035	2019/04/02	1754	TW	6	2019/04/04	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS 1Q Patch is 4m long

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 1 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/04/02	1510	TW	6	240	237	129	99	131	141	139	167	168	159	162	171	BM	
2	EC-EX-035	2019/04/03	845	TW	-8	251	248	84	101	127	105	89	153	145	132	155	160	BM	
3	EC-EX-002	2019/04/03	1130	TW	-8	251	248	142	131	140	135	138	156	144	160	140	155	BM	
4	EC-EX-002	2019/04/03	1545	TW	-1	251	248	113	137	127	118	126	138	138	141	138	138	BM	
5	EC-EX-008	2019/04/04	1155	TW	-12	251	248	134	130	114	118	112	142	145	156	152	147	BM	
6	EC-EX-011	2019/04/04	1300	BB	-3	243	237	124	114	129	120	128	158	159	140	155	144	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	6 / 7	Connected to 8, 9	T	G&W	EC-EX-035	2019/04/03	924	TW	-8	2019/04/04	VB+PS	BM
2B	8 / 31	Connected to 7	T	G&W	EC-EX-035	2019/04/02	1810	TW	6	2019/04/04	VB+PS	BM
2C	9 / 11	7m East of WEOS	BO	P	EC-EX-035	2019/04/02	1806	TW	6	2019/04/04	VB+PS	BM
2D	9 / 10	Connected to 11	T	G&W	EC-EX-035	2019/04/02	1813	TW	6	2019/04/04	VB+PS	BM
2E	9 / 10	Connected to 8	T	P	EC-EX-035	2019/04/03	931	TW	-8	2019/04/04	VB+PS	BM
2F	2 / 35	Connected to 30, 32	T	P	EC-EX-035	2019/04/03	1010	TW	-8	2019/04/04	VB+PS	BM
2G	35 / 36	Connected to 32, 33	T	P	EC-EX-035	2019/04/03	1100	TW	-8	2019/04/04	VB+PS	BM
2H	36 / 37	Connected to 33, 34	T	P	EC-EX-002	2019/04/03	1152	TW	-8	2019/04/04	VB+PS	BM
2I	32 / 35	3.4m West of EEOS, 1.5m South	D	P	EC-EX-002	2019/04/03	1750	TW	-1	2019/04/04	VB+PS	BM
2J	32 / 35	4m West of EEOS, 2m South	D	P	EC-EX-035	2019/04/03	1015	TW	-8	2019/04/04	VB+PS	BM
2K	32 / 35	3.4m West of EEOS, 4m South	D	P	EC-EX-002	2019/04/03	1710	TW	-1	2019/04/04	VB+PS	BM
2L	33 / 36	3.4m West of EEOS, 8m South	D	P	EC-EX-002	2019/04/03	1725	TW	-1	2019/04/04	VB+PS	BM
2M	29 / 30	9m South of NEOS	FS	P	EC-EX-008	2019/04/04	1200	TW	-3	2019/04/04	VB+PS	BM
2N	11 / 12	On Crest	DS	P	EC-EX-008	2019/04/04	1220	TW	-3	2019/04/04	VB+PS	BM
2O	15 / 16	On Crest	DS	P	EC-EX-008	2019/04/04	1230	TW	-3	2019/04/04	VB+PS	BM
2P	25 / 26	On Crest	DS	P	EC-EX-002	2019/04/03	1720	TW	-1	2019/04/04	VB+PS	BM
2Q	25 / 26	1m West of EEOS, on crest	D	P	EC-EX-002	2019/04/03	1700	TW	-1	2019/04/04	VB+PS	BM
2R	37 / 45	Connected to 34, 38	T	P	EC-EX-011	2019/04/04	1520	BB	-3	2019/04/04	VB+PS	BM
2S	45 / 46	Connected to 38, 39	T	P	EC-EX-011	2019/04/04	1530	BB	-3	2019/04/04	VB+PS	BM
2T	46 / 47	Connected to 39, 40	T	P	EC-EX-011	2019/04/04	1540	BB	-3	2019/04/04	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 2 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/04	1700	TW	-3	251	248	141	138	139	137	147	154	149	151	154	153	BM	
2	EC-EX-011	2019/04/04	1700	BB	-3	243	237	125	124	122	128	126	145	144	152	150	157	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 3 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/04	1155	TW	-12	251	248	134	130	114	118	112	142	145	156	152	147	BM	
2	EC-EX-011	2019/04/04	1300	BB	-3	243	237	124	114	129	120	128	158	159	140	155	144	BM	
3	EC-EX-008	2019/04/04	1700	TW	-3	251	248	141	138	139	137	147	154	149	151	154	153	BM	
4	EC-EX-011	2019/04/04	1700	BB	-3	243	237	125	124	122	128	126	145	144	152	150	157	BM	
5	EC-EX-008	2019/04/05	936	TW	-4	251	248	119	121	117	110	118	138	139	133	136	130	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	47 / 48	Connected to 40, 41	T	P	EC-EX-011	2019/04/04	1550	BB	-3	2019/04/04	VB+PS	BM
3B	48 / 49	Connected to 41, 42	T	P	EC-EX-011	2019/04/04	1600	BB	-3	2019/04/04	VB+PS	BM
3C	49 / 50	Connected to 42, 43	T	P	EC-EX-011	2019/04/04	1610	BB	-3	2019/04/04	VB+PS	BM
3D	43 / 50	3m East of WEOS	DS	P	EC-EX-011	2019/04/04	1620	BB	-3	2019/04/04	VB+PS	BM
3E	50 / 51	Connected to 43, 44	T	P	EC-EX-011	2019/04/04	1627	BB	-3	2019/04/04	VB+PS	BM
3F	44 / 51	3m West of EEOS	DS	P	EC-EX-011	2019/04/04	1755	BB	-3	2019/04/04	VB+PS	BM
3G	37 / 45	0.5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1341	BB	-3	2019/04/04	VB+PS	BM
3H	37 / 45	1m North of SEOS, 5m West	D	P	EC-EX-011	2019/04/04	1338	BB	-3	2019/04/04	VB+PS	BM
3I	37 / 45	2.5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1336	BB	-3	2019/04/04	VB+PS	BM
3J	37 / 45	2m North of SEOS, 3m West	D	P	EC-EX-011	2019/04/04	1334	BB	-3	2019/04/04	VB+PS	BM
3K	37 / 45	1.5m North of SEOS, 2m West	D	P	EC-EX-011	2019/04/04	1330	BB	-3	2019/04/04	VB+PS	BM
3L	37 / 45	1m North of SEOS, 2.5m West	D	P	EC-EX-011	2019/04/04	1332	BB	-3	2019/04/04	VB+PS	BM
3M	38 / 39	1.5m South of NEOS, 2.5m West	D	P	EC-EX-011	2019/04/04	1458	BB	-3	2019/04/04	VB+PS	BM
3N	38 / 39	1.5m South of NEOS, 3m West	D	P	EC-EX-011	2019/04/04	1459	BB	-3	2019/04/04	VB+PS	BM
3O	38 / 39	1.5m South of NEOS, 5m West	D	P	EC-EX-011	2019/04/04	1504	BB	-3	2019/04/04	VB+PS	BM
3P	38 / 39	3.5m South of NEOS, 5m West	D	P	EC-EX-011	2019/04/04	1502	BB	-3	2019/04/04	VB+PS	BM
3Q	46 / 47	3m North of SEOS, 2m West	D	P	EC-EX-008	2019/04/05	945	TW	-4	2019/04/05	VB+PS	BM
3R	46 / 47	1m North of SEOS, 6m West	D	P	EC-EX-011	2019/04/04	1514	BB	-3	2019/04/04	VB+PS	BM
3S	47 / 48	0.5m North of SEOS, 3m West	D	P	EC-EX-011	2019/04/04	1525	BB	-3	2019/04/04	VB+PS	BM
3T	47 / 48	0.5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1526	BB	-3	2019/04/04	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 4 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/04	1155	TW	-12	251	248	134	130	114	118	112	142	145	156	152	147	BM	
2	EC-EX-011	2019/04/04	1300	BB	-3	243	237	124	114	129	120	128	158	159	140	155	144	BM	
3	EC-EX-008	2019/04/04	1700	TW	-3	251	248	141	138	139	137	147	154	149	151	154	153	BM	
4	EC-EX-011	2019/04/04	1700	BB	-3	243	237	125	124	122	128	126	145	144	152	150	157	BM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	47 / 48	2.5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1531	BB	-3	2019/04/04	VB+PS	BM
4B	47 / 48	5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1533	BB	-3	2019/04/04	VB+PS	BM
4C	47 / 48	7m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1535	BB	-3	2019/04/04	VB+PS	BM
4D	47 / 48	9.5m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1537	BB	-3	2019/04/04	VB+PS	BM
4E	41 / 42	0.5m South of NEOS, 2.5m West	D	P	EC-EX-011	2019/04/04	1555	BB	-3	2019/04/04	VB+PS	BM
4F	41 / 42	1m South of NEOS, 3m West	D	P	EC-EX-011	2019/04/04	1556	BB	-3	2019/04/04	VB+PS	BM
4G	41 / 42	1m South of NEOS, 3.5m West	D	P	EC-EX-011	2019/04/04	1558	BB	-3	2019/04/04	VB+PS	BM
4H	41 / 42	3m South of NEOS, 4m West	D	P	EC-EX-011	2019/04/04	1601	BB	-3	2019/04/04	VB+PS	BM
4I	50 / 51	3.5m North of SEOS, 2.5m West	D	P	EC-EX-011	2019/04/04	1630	BB	-3	2019/04/04	VB+PS	BM
4J	50 / 51	1m North of SEOS, 2.5m West	D	P	EC-EX-011	2019/04/04	1740	BB	-3	2019/04/04	VB+PS	BM
4K	50 / 51	1m North of SEOS, 4m West	D	P	EC-EX-011	2019/04/04	1745	BB	-3	2019/04/04	VB+PS	BM
4L	50 / 51	1m North of SEOS, 4.5m West	D	P	EC-EX-011	2019/04/04	1746	BB	-3	2019/04/04	VB+PS	BM
4M	42 / 43	On Crest	DS	P	EC-EX-008	2019/04/04	1745	TW	-3	2019/04/04	VB+PS	BM
4N	39 / 40	On Crest	DS	P	EC-EX-008	2019/04/04	1737	TW	-3	2019/04/04	VB+PS	BM
4O	48 / 49	On Crest	DS	P	EC-EX-008	2019/04/04	1454	TW	-3	2019/04/04	VB+PS	BM
4P	38 / 45	Full Seam	FS	G&W	EC-EX-008	2019/04/04	1834	TW	-3	2019/04/04	VB+PS	BM
4Q	39 / 46	Full Seam	FS	G&W	EC-EX-008	2019/04/04	1827	TW	-3	2019/04/04	VB+PS	BM
4R	40 / 47	Full Seam	FS	G&W	EC-EX-008	2019/04/04	1820	TW	-3	2019/04/04	VB+PS	BM
4S	41 / 48	Full Seam	FS	G&W	EC-EX-008	2019/04/04	1813	TW	-3	2019/04/04	VB+PS	BM
4T	42 / 49	Full Seam	FS	G&W	EC-EX-008	2019/04/04	1806	TW	-3	2019/04/04	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 5 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/04/03	845	TW	-8	251	248	84	101	127	105	89	153	145	132	155	160	BM	
2	EC-EX-002	2019/04/03	1130	TW	-8	251	248	142	131	140	135	138	156	144	160	140	155	BM	
3	EC-EX-002	2019/04/03	1545	TW	-1	251	248	113	137	127	118	126	138	138	141	138	138	BM	
4	EC-EX-008	2019/04/04	1155	TW	-12	251	248	134	130	114	118	112	142	145	156	152	147	BM	
5	EC-EX-011	2019/04/04	1300	BB	-3	243	237	124	114	129	120	128	158	159	140	155	144	BM	
6	EC-EX-008	2019/04/04	1700	TW	-3	251	248	141	138	139	137	147	154	149	151	154	153	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	43 / 50	Full Seam	FS	G&W	EC-EX-011	2019/04/04	1806	BB	-3	2019/04/04	VB+PS	BM
5B	44 / 51	Full Seam	FS	G&W	EC-EX-011	2019/04/04	1813	BB	-3	2019/04/04	VB+PS	BM
5C	39 / 40	10m South of Toe	FS	P	EC-EX-008	2019/04/05	1100	TW	-4	2019/04/05	VB+PS	BM
5D	1 / 14	1m North of SEOS, 1m West	D	P	EC-EX-002	2019/04/03	1725	TW	-1	2019/04/04	VB+PS	BM
5E	51 / 66	Connected to 44, 52	T	P	EC-EX-011	2019/04/08	1503	RC	9	2019/04/12	VB+PS	BM
5F	66 / 67	Connected to 52, 53	T	P	EC-EX-011	2019/04/08	1515	RC	9	2019/04/12	VB+PS	BM
5G	67 / 68	Connected to 53, 54	T	P	EC-EX-011	2019/04/08	1527	RC	9	2019/04/12	VB+PS	BM
5H	68 / 69	Connected to 54, 55	T	P	EC-EX-011	2019/04/08	1535	RC	9	2019/04/12	VB+PS	BM
5I	69 / 71	Connected to 55, 56	T	P	EC-EX-011	2019/04/08	1540	RC	9	2019/04/12	VB+PS	BM
5J	71 / 72	Connected to 56, 57	T	P	EC-EX-011	2019/04/08	1545	RC	9	2019/04/12	VB+PS	BM
5K	72 / 73	Connected to 57, 58	T	P	EC-EX-011	2019/04/08	1703	RC	9	2019/04/12	VB+PS	BM
5L	73 / 74	Connected to 58, 59	T	P	EC-EX-011	2019/04/08	1707	RC	9	2019/04/12	VB+PS	BM
5M	74 / 75	Connected to 59, 60	T	P	EC-EX-011	2019/04/08	1712	RC	9	2019/04/12	VB+PS	BM
5N	75 / 76	Connected to 60, 61	T	P	EC-EX-011	2019/04/08	1718	RC	9	2019/04/12	VB+PS	BM
5O	76 / 77	Connected to 61, 62	T	P	EC-EX-011	2019/04/08	1723	RC	9	2019/04/12	VB+PS	BM
5P	77 / 78	Connected to 62, 63	T	P	EC-EX-011	2019/04/08	1730	RC	9	2019/04/12	VB+PS	BM
5Q	78 / 79	Connected to 63, 64	T	P	EC-EX-011	2019/04/08	1745	RC	9	2019/04/12	VB+PS	BM
5R	79 / 80	Connected to 64, 65	T	P	EC-EX-011	2019/04/08	1750	RC	9	2019/04/12	VB+PS	BM
5S	44 / 52	On Toe	WR	P	EC-EX-011	2019/04/08	1850	FG	9	2019/04/12	VB+PS	BM
5T	66 / 67	10m North of Toe	BO	P	EC-EX-008	2019/04/09	930	TH	0	2019/04/12	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS 5C 5m of EXT on each side

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 6 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/04	1700	BB	-3	243	237	125	124	122	128	126	145	144	152	150	157	BM	
2	EC-EX-008	2019/04/05	936	TW	-4	251	248	119	121	117	110	118	138	139	133	136	130	BM	
3	EC-EX-011	2019/04/08	1340	RC	9	240	246	126	120	122	125	123	142	141	144	150	138	BM	
4	EC-EX-008	2019/04/09	815	TH	0	251	246	104	115	118	110	106	140	143	136	140	138	BM	
5	EC-EX-008	2019/04/09	1255	TH	9	251	246	115	118	111	118	117	138	141	131	136	137	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 7 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/08	1340	RC	9	240	246	126	120	122	125	123	142	141	144	150	138	BM	
2	EC-EX-008	2019/04/09	815	TH	0	251	246	104	115	118	110	106	140	143	136	140	138	BM	
3	EC-EX-008	2019/04/09	1255	TH	9	251	246	115	118	111	118	117	138	141	131	136	137	BM	
4	EC-EX-011	2019/04/12	949	EA	1	246	246	114	101	124	115	121	137	123	134	128	133	BM	
5	EC-EX-008	2019/04/12	1645	DB	7	226	240	93	87	79	82	80	141	143	140	148	147	BM	
6	EC-EX-011	2019/04/12	1745	EA	7	237	237	93	105	98	101	103	135	140	137	141	143	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
6A	67 / 68	On Toe	WR	G&W	EC-EX-011	2019/04/08	1550	RC	9	2019/04/12	VB+PS	BM
6B	69 / 70	Connected to 68	T	G&W	EC-EX-011	2019/04/08	1545	RC	9	2019/04/12	VB+PS	BM
6C	69 / 70	Connected to 71	T	G&W	EC-EX-011	2019/04/08	1550	RC	9	2019/04/12	VB+PS	BM
6D	73 / 74	On Toe	WR	P	EC-EX-011	2019/04/08	1635	RC	9	2019/04/12	VB+PS	BM
6E	73 / 74	9m North of Toe	BO	P	EC-EX-011	2019/04/08	1643	RC	9	2019/04/12	VB+PS	BM
6F	73 / 74	26m North of Toe	BO	P	EC-EX-011	2019/04/08	1656	RC	9	2019/04/12	VB+PS	BM
6G	61 / 62	16m South of Toe	BO	P	EC-EX-011	2019/04/08	1820	FG	9	2019/04/12	VB+PS	BM
6H	76 / 77	2.5m North of SEOS	BO	P	EC-EX-011	2019/04/08	1648	RC	9	2019/04/12	VB+PS	BM
6I	76 / 77	5m North of SEOS	BO	P	EC-EX-011	2019/04/08	1644	RC	9	2019/04/12	VB+PS	BM
6J	76 / 77	7.5m North of SEOS	BO	P	EC-EX-011	2019/04/08	1640	RC	9	2019/04/12	VB+PS	BM
6K	76 / 77	6J to 6L	FS	G&W	EC-EX-008	2019/04/09	945	TH	0	2019/04/12	VB+PS	BM
6L	76 / 77	On Toe	WR	P	EC-EX-011	2019/04/08	1800	FG	9	2019/04/12	VB+PS	BM
6M	62 / 63	2m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/09	830	TH	0	2019/04/12	VB+PS	BM
6N	62 / 63	1.5m South of NEOS, 4.5m West	D	P	EC-EX-008	2019/04/09	845	TH	0	2019/04/12	VB+PS	BM
6O	77 / 78	20m North of North Toe	FS	G&W	EC-EX-008	2019/04/08	1650	RC	9	2019/04/12	VB+PS	BM
6P	68 / 67	On Crest	DS	P	EC-EX-008	2019/04/09	1000	TH	0	2019/04/12	VB+PS	BM
6Q	74 / 75	On Crest	BO	P	EC-EX-008	2019/04/09	1000	TH	0	2019/04/12	VB+PS	BM
6R	54 / 55	On Crest	BO	P	EC-EX-008	2019/04/09	900	TH	0	2019/04/12	VB+PS	BM
6S	59 / 60	On Crest	DS	P	EC-EX-008	2019/04/09	910	TH	0	2019/04/12	VB+PS	BM
6T	80 / 94	Connected to 65, 81	T	P	EC-EX-008	2019/04/12	1700	DB	7	2019/04/12	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 8 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/12	949	EA	1	246	246	114	101	124	115	121	137	123	134	128	133	BM	
2	EC-EX-008	2019/04/12	1645	DB	7	226	240	93	87	79	82	80	141	143	140	148	147	BM	
3	EC-EX-011	2019/04/12	1745	EA	7	237	237	93	105	98	101	103	135	140	137	141	143	BM	
4	EC-EX-011	2019/04/13	1400	BB	7	235	232	130	112	115	120	121	139	143	144	146	148	BM	
5	EC-EX-008	2019/04/13	1620	GR	7	243	240	107	118	106	97	98	139	135	145	143	137	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
7A	94 / 95	Connected to 81, 82	T	P	EC-EX-008	2019/04/12	1705	DB	7	2019/04/12	VB+PS	BM
7B	95 / 96	Connected to 82, 83	T	P	EC-EX-008	2019/04/12	1711	DB	7	2019/04/12	VB+PS	BM
7C	96 / 97	Connected to 83, 84	T	P	EC-EX-008	2019/04/12	1717	DB	7	2019/04/12	VB+PS	BM
7D	97 / 98	Connected to 84, 85	T	P	EC-EX-008	2019/04/12	1722	DB	7	2019/04/12	VB+PS	BM
7E	98 / 99	Connected to 85, 86	T	P	EC-EX-008	2019/04/12	1728	DB	7	2019/04/12	VB+PS	BM
7F	99 / 100	Connected to 86, 87	T	P	EC-EX-008	2019/04/12	1733	DB	7	2019/04/12	VB+PS	BM
7G	100 / 101	Connected to 87, 88	T	P	EC-EX-008	2019/04/12	1740	DB	7	2019/04/12	VB+PS	BM
7H	101 / 102	Connected to 88, 89	T	P	EC-EX-008	2019/04/12	1745	DB	7	2019/04/12	VB+PS	BM
7I	102 / 103	Connected to 89, 90	T	P	EC-EX-008	2019/04/12	1750	DB	7	2019/04/12	VB+PS	BM
7J	103 / 104	Connected to 90, 91	T	P	EC-EX-008	2019/04/12	1755	DB	7	2019/04/12	VB+PS	BM
7K	104 / 91	1m East of WEOS	DS	P	EC-EX-011	2019/04/13	1536	BB	7	2019/04/13	VB+PS	BM
7L	104 / 105	Connected to 91, 92	T	P	EC-EX-008	2019/04/12	1812	DB	7	2019/04/12	VB+PS	BM
7M	105 / 106	Connected to 92, 93	T	P	EC-EX-008	2019/04/12	1817	DB	7	2019/04/12	VB+PS	BM
7N	106 / 93	2m West of EEOS	DS	P	EC-EX-011	2019/04/13	1547	BB	7	2019/04/13	VB+PS	BM
7O	106 / 93	1m East of WEOS	DS	P	EC-EX-011	2019/04/13	1552	BB	7	2019/04/12	VB+PS	BM
7P	81 / 82	3m South of South Toe	BO	P	EC-EX-011	2019/04/12	1750	EA	7	2019/04/12	VB+PS	BM
7Q	95 / 96	On Toe	FS	G&W	EC-EX-011	2019/04/12	1755	EA	7	2019/04/12	VB+PS	BM
7R	87 / 88	0.5m South of NEOS, 3.4m East	D	P	EC-EX-011	2019/04/12	1800	EA	7	2019/04/12	VB+PS	BM
7S	87 / 88	3m South of NEOS, 3.4m East	D	P	EC-EX-011	2019/04/12	1805	EA	7	2019/04/12	VB+PS	BM
7T	87 / 88	5.5m South of NEOS, 3.4m East	D	P	EC-EX-011	2019/04/12	1808	EA	7	2019/04/12	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 9 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/12	949	EA	1	246	246	114	101	124	115	121	137	123	134	128	133	BM	
2	EC-EX-008	2019/04/12	1645	DB	7	226	240	93	87	79	82	80	141	143	140	148	147	BM	
3	EC-EX-011	2019/04/12	1745	EA	7	237	237	93	105	98	101	103	135	140	137	141	143	BM	
4	EC-EX-011	2019/04/13	1400	BB	7	235	232	130	112	115	120	121	139	143	144	146	148	BM	
5	EC-EX-008	2019/04/13	1620	GR	7	243	240	107	118	106	97	98	139	135	145	143	137	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
8A	87 / 88	8m South of NEOS, 3.4m East	D	P	EC-EX-011	2019/04/12	1810	EA	7	2019/04/12	VB+PS	BM
8B	87 / 88	10.5m South of NEOS, 3.4m East	D	P	EC-EX-011	2019/04/12	1812	EA	7	2019/04/12	VB+PS	BM
8C	87 / 88	1m South of Toe, 3.4m East	D	P	EC-EX-011	2019/04/12	1815	EA	7	2019/04/12	VB+PS	BM
8D	87 / 88	3.5m South of Toe, 3.4m East	D	P	EC-EX-011	2019/04/12	1817	EA	7	2019/04/12	VB+PS	BM
8E	87 / 88	6m South of Toe, 3.4m East	D	P	EC-EX-011	2019/04/12	1820	EA	7	2019/04/12	VB+PS	BM
8F	87 / 88	8.5m South of Toe, 3.4m East	D	P	EC-EX-011	2019/04/12	1822	EA	7	2019/04/12	VB+PS	BM
8G	87 / 88	11m South of Toe, 3.4m East	D	P	EC-EX-011	2019/04/12	1825	EA	7	2019/04/12	VB+PS	BM
8H	88 / 89	On Toe	BO	P	EC-EX-011	2019/04/12	1840	EA	7	2019/04/12	VB+PS	BM
8I	102 / 103	On Toe	BO	P	EC-EX-008	2019/04/12	1600	DB	7	2019/04/12	VB+PS	BM
8J	104 / 105	4m North of Toe	BO	P	EC-EX-008	2019/04/12	1807	DB	7	2019/04/12	VB+PS	BM
8K	92 / 93	4m South of NEOS, 2m East	D	P	EC-EX-008	2019/04/12	1815	DB	7	2019/04/12	VB+PS	BM
8L	92 / 93	3m South of NEOS	BO	P	EC-EX-008	2019/04/12	1830	DB	7	2019/04/12	VB+PS	BM
8M	92 / 93	0.5m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/12	1820	DB	7	2019/04/12	VB+PS	BM
8N	81 / 82	Crest	DS	P	EC-EX-008	2019/04/13	1630	GR	7	2019/04/13	VB+PS	BM
8O	84 / 85	Crest	DS	P	EC-EX-008	2019/04/13	1640	GR	7	2019/04/13	VB+PS	BM
8P	88 / 89	Crest	DS	P	EC-EX-008	2019/04/13	1700	GR	7	2019/04/13	VB+PS	BM
8Q	92 / 93	Crest	DS	P	EC-EX-008	2019/04/13	1720	GR	7	2019/04/13	VB+PS	BM
8R	106 / 113	Connected to 93, 107	T	P	EC-EX-011	2019/04/13	1559	BB	7	2019/04/13	VB+PS	BM
8S	113 / 114	Connected to 107, 108	T	G&W	EC-EX-011	2019/04/13	1602	BB	7	2019/04/13	VB+PS	BM
8T	114 / 115	Connected to 108, 109	T	G&W	EC-EX-011	2019/04/13	1604	BB	7	2019/04/13	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 10 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/13	1400	BB	7	235	232	130	112	115	120	121	139	143	144	146	148	BM	
2	EC-EX-008	2019/04/13	1620	GR	7	243	240	107	118	106	97	98	139	135	145	143	137	BM	
3	EC-EX-008	2019/04/14	1150	HB	-1	243	243	118	118	88	90	106	124	128	120	129	124	BM	
4	EC-EX-011	2019/04/15	800	EA	-2	243	243	104	95	91	104	100	141	151	156	152	156	BM	
5	EC-EX-011	2019/04/15	1350	EA	7	237	240	142	140	139	136	136	146	155	149	148	149	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
9A	115 / 116	Connected to 109, 110	T	P	EC-EX-011	2019/04/13	1611	BB	7	2019/04/13	VB+PS	BM
9B	116 / 117	Connected to 110, 111	T	P	EC-EX-011	2019/04/13	1615	BB	7	2019/04/13	VB+PS	BM
9C	117 / 118	Connected to 111, 112	T	P	EC-EX-011	2019/04/13	1620	BB	7	2019/04/13	VB+PS	BM
9D	119 / 120	Connected to 124, 125	T	P	EC-EX-011	2019/04/13	1630	BB	7	2019/04/13	VB+PS	BM
9E	120 / 121	Connected to 125, 126	T	P	EC-EX-011	2019/04/13	1635	BB	7	2019/04/13	VB+PS	BM
9F	121 / 122	Connected to 126, 127	T	P	EC-EX-011	2019/04/13	1640	BB	7	2019/04/13	VB+PS	BM
9G	122 / 123	Connected to 127, 128	T	P	EC-EX-011	2019/04/13	1643	BB	7	2019/04/13	VB+PS	BM
9H	113 / 114	On toe	BO	P	EC-EX-008	2019/04/13	1830	GR	7	2019/04/13	VB+PS	BM
9I	118 / 119	Connected to 112, 124	T	G&W	EC-EX-008	2019/04/14	1300	HB	7	2019/04/14	VB+PS	BM
9J	118 / 119	On Toe	BO	P	EC-EX-008	2019/04/14	1230	HB	7	2019/04/14	VB+PS	BM
9K	133 / 143	Connected to 132	T	P	EC-EX-011	2019/04/15	914	EA	-2	2019/04/15	VB+PS	BM
9L	133 / 143	Connected to 136	T	P	EC-EX-011	2019/04/15	920	EA	-2	2019/04/15	VB+PS	BM
9M	134 / 135	Connected to 143	T	G&W	EC-EX-011	2019/04/15	923	EA	-2	2019/04/15	VB+PS	BM
9N	134 / 136	Connected to 135, 137	T	G&W	EC-EX-011	2019/04/15	928	EA	-2	2019/04/15	VB+PS	BM
9O	135 / 137	Connected to 144	T	G&W	EC-EX-011	2019/04/15	930	EA	-2	2019/04/15	VB+PS	BM
9P	144 / 145	Connected to 137	T	P	EC-EX-011	2019/04/15	938	EA	-2	2019/04/15	VB+PS	BM
9Q	145 / 146	Connected to 136, 137	T	G&W	EC-EX-011	2019/04/15	942	EA	-2	2019/04/15	VB+PS	BM
9R	146 / 147	Connected to 137, 138	T	G&W	EC-EX-011	2019/04/15	1055	EA	-2	2019/04/15	VB+PS	BM
9S	147 / 148	Connected to 138, 139	T	G&W	EC-EX-011	2019/04/15	1111	EA	-2	2019/04/15	VB+PS	BM
9T	148 / 149	Connected to 139, 140	T	G&W	EC-EX-011	2019/04/15	1145	EA	-2	2019/04/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 11 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/15	800	EA	-2	243	243	104	95	91	104	100	141	151	156	152	156	BM	
2	EC-EX-011	2019/04/15	1350	EA	7	237	240	142	140	139	136	136	146	155	149	148	149	BM	
3	EC-EX-011	2019/04/20	945	GR	2	248	246	108	108	105	109	105	140	138	150	148	144	DB	Textured/Textured
4	EC-EX-011	2019/04/21	1600	GB	4	248	246	108	107	108	109	106	135	137	127	132	124	DB	
5	EC-EX-011	2019/04/22	845	GB	4	248	246	128	121	115	118	121	148	151	143	141	145	DB	
6	EC-EX-011	2019/04/22	1445	GR	5	248	246	112	119	109	111	117	130	122	137	139	133	DB	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
10A	149 / 150	Connected to 140	T	G&W	EC-EX-011	2019/04/15	1204	EA	7	2019/04/15	VB+PS	BM
10B	140 / 141	Connected to 150	T	G&W	EC-EX-011	2019/04/15	1206	EA	7	2019/04/15	VB+PS	BM
10C	150 / 151	Connected to 141	T	G&W	EC-EX-011	2019/04/15	1610	EA	7	2019/04/15	VB+PS	BM
10D	141 / 142	Connected to 151	T	G&W	EC-EX-011	2019/04/15	1615	EA	7	2019/04/15	VB+PS	BM
10E	151 / 152	Connected to 150	T	G&W	EC-EX-011	2019/04/15	1607	EA	7	2019/04/15	VB+PS	BM
10F	151 / 152	Connected to 142	T	P	EC-EX-011	2019/04/15	1640	EA	7	2019/04/15	VB+PS	BM
10G	126 / 127	On Crest	DS	P	EC-EX-011	2019/04/15	1710	EA	7	2019/04/15	VB+PS	BM
10H	133 / 136	On Crest	DS	P	EC-EX-011	2019/04/15	1720	EA	7	2019/04/15	VB+PS	BM
10I	144 / 145	1m East of Crest	DS	P	EC-EX-011	2019/04/15	1445	EA	7	2019/04/15	VB+PS	BM
10J	123 / 153	2m from Neos	BO	P	EC-EX-011	2019/04/20	1106	GR	2	2019/04/20	VB+PS	DB
10K	123 / 153	Connected to 128-129	T	P	EC-EX-011	2019/04/20	1155	GR	2	2019/04/20	VB+PS	DB
10L	129 / 130	Connected to 153-154	T	P	EC-EX-011	2019/04/20	147	GR	2	2019/04/20	VB+PS	DB
10M	130 / 154	Connected to 131	T	P	EC-EX-011	2019/04/20	1210	GR	2	2019/04/20	VB+PS	DB
10N	129 / 130	7m from Neos	BO	P	EC-EX-011	2019/04/20	1135	GR	2	2019/04/20	VB+PS	DB
10O	130 / 131	7m from Neos	BO	P	EC-EX-011	2019/04/20	1140	GR	2	2019/04/20	VB+PS	DB
10P	154 / 155	Connected to 131	WS	P	EC-EX-011	2019/04/21	1640	GR	4	2019/04/21	VB+PS	DB
10Q	131 / 143	Connected to 155-156	T	P	EC-EX-011	2019/04/21	1645	GR	4	2019/04/21	VB+PS	DB
10R	134 / 143	Connected to 156-157	T	P	EC-EX-011	2019/04/21	1650	GR	4	2019/04/21	VB+PS	DB
10S	156 / 157	2m from Neos	DS	P	EC-EX-011	2019/04/22	940	GR	2	2019/04/22	VB+PS	DB
10T	157 / 158	6m South from Neos	IO	C	EC-EX-011	2019/04/24	1607	FG	4	2019/04/24	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 12 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/24	830	FG	-3	257	257	101	97	99	94	99	121	117	118	116	120	DB	Textured/Textured
2	EC-EX-011	2019/04/24	1400	FG	0	248	246	107	109	102	111	107	118	113	120	115	117	DB	Textured/Textured
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 13 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/24	830	FG	-3	257	257	101	97	99	94	99	121	117	118	116	120	DB	Textured/Textured
2	EC-EX-011	2019/04/24	1400	FG	0	248	246	107	109	102	111	107	118	113	120	115	117	DB	Textured/Textured
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
11A	161 / 162	Crest	DS	P	EC-EX-011	2019/04/24	1608	FG	4	2019/04/24	VB+PS	DB
11B	175 / 176	Connected to 166	T	G&W	EC-EX-011	2019/04/24	1330	FG	4	2019/04/24	VB+PS	DB
11C	165 / 166	Connected to 175	T	G&W	EC-EX-011	2019/04/24	1348	FG	4	2019/04/24	VB+PS	DB
11D	165 / 174	Connected to 175-173	T	P	EC-EX-011	2019/04/24	1558	FG	4	2019/04/24	VB+PS	DB
11E	163 / 164	Connected to 162	T	G&W	EC-EX-011	2019/04/24	1545	FG	4	2019/04/24	VB+PS	DB
11F	163 / 164	Connected to 165	T	G&W	EC-EX-011	2019/04/24	1537	FG	4	2019/04/24	VB+PS	DB
11G	163 / 165	Connected to 173	T	G&W	EC-EX-011	2019/04/24	1603	FG	4	2019/04/24	VB+PS	DB
11H	171 / 173	Connected to 163	T	G&W	EC-EX-011	2019/04/24	1605	FG	4	2019/04/24	VB+PS	DB
11I	162 / 163	Connected to 171	T	G&W	EC-EX-011	2019/04/24	1622	FG	4	2019/04/24	VB+PS	DB
11J	170 / 171	Connected to 169	T	G&W	EC-EX-011	2019/04/24	1635	FG	4	2019/04/24	VB+PS	DB
11K	169 / 170	Connected to 168	T	G&W	EC-EX-011	2019/04/24	1655	FG	4	2019/04/24	VB+PS	DB
11L	169 / 171	Connected to 162	T	G&W	EC-EX-011	2019/04/24	1635	FG	4	2019/04/24	VB+PS	DB
11M	160 / 161	Connected to 162-169	T	P	EC-EX-011	2019/04/24	1705	FG	4	2019/04/24	VB+PS	DB
11N	168 / 169	Connected to 160	T	G&W	EC-EX-011	2019/04/24	1707	FG	4	2019/04/24	VB+PS	DB
11O	160 / 159	Connected to 169	T	G&W	EC-EX-011	2019/04/24	1700	FG	4	2019/04/24	VB+PS	DB
11P	167 / 168	Connected to 159	T	G&W	EC-EX-011	2019/04/24	1705	FG	4	2019/04/24	VB+PS	DB
11Q	158 / 159	Connected to 167-135	T	P	EC-EX-011	2019/04/24	950	FG	4	2019/04/24	VB+PS	DB
11R	157 / 158	Connected to 134	T	P	EC-EX-011	2019/04/24	935	FG	4	2019/04/24	VB+PS	DB
11S	171 / 172	Connected to 170	T	G&W	EC-EX-011	2019/04/24	1613	FG	4	2019/04/24	VB+PS	DB
11T	171 / 172	Connected to 174	T	G&W	EC-EX-011	2019/04/24	1602	FG	4	2019/04/24	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 14 of 15

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Secondary

PROJECT TITLE Eagle Gold Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/24	830	FG	-3	257	257	101	97	99	94	99	121	117	118	116	120	DB	Textured/Textured
2	EC-EX-011	2019/04/24	1400	FG	0	248	246	107	109	102	111	107	118	113	120	115	117	DB	Textured/Textured
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
12A	173 / 174	Connected to 171	T	G&W	EC-EX-011	2019/04/24	1612	FG	4	2019/04/24	VB+PS	DB
12B	160 / 169	4m From Seos	DS	P	EC-EX-011	2019/04/24	1633	FG	4	2019/04/24	VB+PS	DB
12C	144 / 167	Connected to 135	T	G&W	EC-EX-011	2019/04/24	1633	FG	4	2019/04/24	VB+PS	DB
12D	160 / 161	Connected to 159	T	G&W	EC-EX-011	2019/04/24	1710	FG	4	2019/04/24	VB+PS	DB
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DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 15 of 15

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	5/6	2019/04/03	20		Pass			102	106	113	107	115	111	115	112	116	130	133	133	134	138	138
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-2	SPF	11/12	2019/04/03	20		Pass			122	130	116	128	130	110	111	110	102	117	142	141	142	138	138
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-3	SPF	15/16	2019/04/03	20		Pass			124	107	116	110	120	111	113	118	116	111	136	143	138	138	132
Crest									AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-4	SPF	20/21	2019/04/03	20		Pass			119	119	124	115	114	109	115	111	113	109	132	136	137	134	137
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-5	SPF	29/30	2019/04/03	20		Pass			112	125	103	119	109	105	105	107	109	113	112	130	120	125	135
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-6	SPF	36/37	2019/04/03	20		Pass			107	112	117	116	114	114	120	121	122	120	140	141	139	142	140
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-7	SPF	9/6	2019/04/03	20		Pass			124	116	136	133	130	131	133	134	132	127	152	149	148	147	147
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-8	SPF	35/36	2019/04/03	20		Pass			110	108	120	118	126	114	116	112	118	119	142	139	140	138	138
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 1 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-9	SPF	25/26	2019/04/03	20		Pass			113	116	116	116	117	113	120	116	115	125	125	135	120	134	133
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-10	SPF	39/40	2019/04/04	20		Pass			121	126	120	121	122	130	128	118	116	117	147	146	147	144	148
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-11	SPF	42/43	2019/04/04	20		Pass			117	123	123	134	119	113	117	114	114	115	144	148	140	143	144
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-12	SPF	45/46	2019/04/04	20		Pass			114	120	109	120	111	110	108	104	111	102	134	135	135	133	133
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-13	SPF	48/49	2019/04/05	20		Pass			117	120	114	122	122	109	122	110	108	106	134	135	136	130	127
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-14	SPF	44/51	2019/04/04	20		Fail																	
1m West of EEOS																							
DS-15	SPF	53/54	2019/04/08	20		Pass			125	126	106	112	128	120	122	122	115	118	144	145	137	141	139
South AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-16	SPF	56/57	2019/04/08	20		Pass			118	127	117	111	117	117	102	118	121	119	138	135	137	137	132
South AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 2 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-17	SPF	59/60	2019/04/08	20		Pass			113	108	114	117	116	111	117	121	115	113	139	134	139	136	140
2m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-18	SPF	62/63	2019/04/08	20		Pass			118	110	112	120	117	115	111	116	106	109	131	128	134	140	137
South AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-19	SPF	67/68	2019/04/08	20		Pass			108	117	111	112	116	108	111	115	122	117	140	143	140	142	139
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-20	SPF	72/73	2019/04/08	20		Pass			108	104	125	123	128	110	107	118	113	122	135	138	135	138	130
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-21	SPF	73/74	2019/04/08	20		Pass			124	116	104	118	111	113	121	117	121	110	131	134	134	135	134
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-22	SPF	76/77	2019/04/08	20		Pass			104	125	116	112	102	129	115	107	116	115	139	137	128	134	138
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-23	SPF	79/80	2019/04/08	20		Pass			130	117	110	125	117	110	104	117	122	126	135	140	135	133	130
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-24	SPF	65/80	2019/04/09	20		Pass			134	123	132	136	128	129	136	115	127	129	138	149	148	150	139
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 3 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-25	SPF	81/82	2019/04/12	20		Pass			126	118	123	119	112	118	117	114	126	123	140	147	120	142	140
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-26	SPF	84/85	2019/04/12	20		Pass			113	111	118	125	119	115	116	117	119	118	142	137	139	137	132
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-27	SPF	88/89	2019/04/12	20		Pass			125	127	123	117	114	108	114	120	114	113	145	141	140	142	147
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-28	SPF	92/93	2019/04/12	20		Pass			103	121	119	120	106	114	113	122	113	119	145	143	142	143	142
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-29	SPF	95/96	2019/04/12	20		Pass			119	127	110	115	128	120	123	125	116	124	136	138	139	135	136
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-30	SPF	98/97	2019/04/12	20		Pass			115	106	115	116	99	117	117	122	112	96	135	135	134	130	132
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-31	SPF	101/102	2019/04/12	20		Pass			109	121	113	106	114	119	112	115	114	113	131	137	135	135	135
2m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-32	SPF	103/104	2019/04/12	20		Pass			102	114	125	126	109	112	114	105	112	110	140	140	135	141	140
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 4 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-33	SPF	105/106	2019/04/12	20		Pass			110	114	116	114	114	103	116	96	110	110	136	138	136	132	143
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-34	SPF	91/104	2019/04/13	20		Pass			111	108	140	135	142	121	131	134	122	120	159	155	158	160	157
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-35	SPF	109/110	2019/04/13	20		Pass			100	120	110	125	119	110	117	107	121	113	147	145	143	142	146
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-36	SPF	111/112	2019/04/13	20		Pass			100	120	107	117	133	112	121	116	120	123	146	150	147	147	141
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-37	SPF	114/115	2019/04/13	20		Pass			121	121	129	125	117	110	100	105	114	108	145	128	129	136	141
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-38	SPF	116/117	2019/04/13	20		Pass			118	115	115	125	122	108	123	125	126	122	143	129	139	144	138
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-39	SPF	119/120	2019/04/13	20		Pass			107	110	108	112	114	106	107	110	112	114	123	120	123	120	122
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-40	SPF	122/123	2019/04/13	20		Pass			110	112	113	117	114	111	114	114	112	108	126	128	124	120	120
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 5 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-41	SPF	127/126	2019/04/14	20		Pass			115	106	113	111	115	110	115	114	112	113	124	123	120	122	124
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-42	SPF	128/129	2019/04/14	20		Pass			115	118	115	118	114	114	109	109	108	111	128	126	116	124	122
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-43	SPF	130/131	2019/04/14	20		Pass			114	121	115	116	115	112	120	105	117	117	123	119	117	111	120
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-44	SPF	133/136	2019/04/15	20		Pass			119	120	112	118	122	117	127	118	114	108	127	127	127	127	128
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-45	SPF	138/139	2019/04/15	20		Pass			95	115	118	103	110	118	123	116	118	119	121	127	127	120	126
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-46	SPF	144/145	2019/04/15	20		Pass			106	120	118	118	104	119	123	116	119	115	123	125	122	126	122
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-47	SPF	147/148	2019/04/15	20		Pass			121	105	109	108	112	104	112	104	112	115	123	129	124	126	122
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-48	SPF	142/151	2019/04/15	20		Pass			129	116	122	125	125	99	130	119	122	127	139	134	142	139	139
1m Down from Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 6 of 7

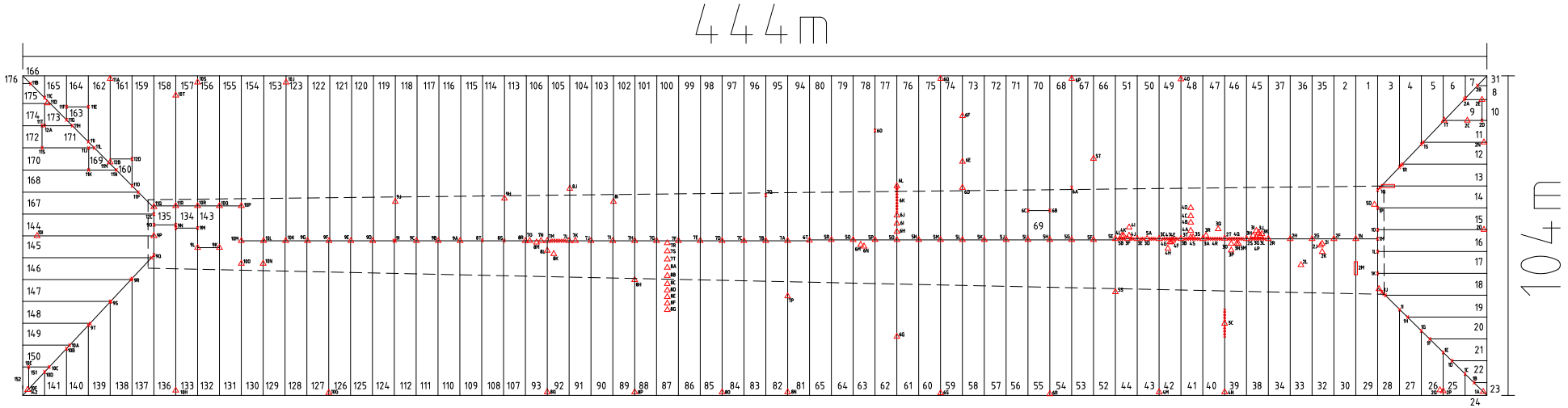
GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Event Pond
AREA / LAYER Secondary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-49	SPF	156/157	2019/04/22	20		Pass			107	110	113	107	115	108	121	110	103	105	137	137	127	122	130
6m From Neos									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-50	SPF	161/162	2019/04/22	20		Pass			115	113	115	109	107	114	119	115	121	119	126	121	123	112	123
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-51	SPF	168/170	2019/04/22	20		Pass			113	106	102	113	128	106	102	97	107	104	115	112	117	119	120
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-52	SPF	169/160	2019/04/24	20		Pass			116	112	11	120	116	117	117	113	127	107	123	128	130	133	119
3m From Seos									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 7 of 7



Event Pond
Secondary Layer
60mil LLDPE DST

LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No
Project No CT001143
DWG:
SCALE: NTS
DWN: BM
APPD:
CMKD:
DATE: 2019-04-26
REV.: 1

N

Event Pond
Primary

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/05

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-38014	108	6.8	-4	Good	BM	Okay
2	5-38016	44	6.8	-4	Good	BM	Okay
3	5-38014	20	6.8	-4	Good	BM	Okay
4	5-37999	44	6.8	-4	Good	BM	Okay
5	5-38016	64	6.8	-4	Good	BM	Okay
6	5-37999	44	6.8	-4	Good	BM	Okay

TOTAL PAGE AREA 2203.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 1 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/06

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
7	5-38017	108	6.8	-2	Good	BM	Okay
8	5-37936	108	6.8	-2	Good	BM	Okay
9	5-38016	108	6.8	-2	Good	BM	Okay
10	5-37941	108	6.8	-2	Good	BM	Okay
11	5-38020	108	6.8	-2	Good	BM	Okay
12A	5-38020	24	6.8	-2	Good	BM	Okay
12	5-37999	21	6.8	-2	Good	BM	Okay
13	5-37936	20	6.8	-2	Good	BM	Okay
14	5-38017	20	6.8	-2	Good	BM	Okay
15	5-37941	22	6.8	-2	Good	BM	Okay
16	5-38021	108	6.8	-2	Good	BM	Okay
17	5-38006	108	6.8	-2	Good	BM	Okay
18	5-37925	17	6.8	-2	Good	BM	Okay
19	5-37948	25	6.8	-2	Good	BM	Okay
20	5-37948	31	6.8	-2	Good	BM	Okay
21	5-37948	23.5	6.8	-2	Good	BM	Okay
22	5-38006	15.5	6.8	-2	Good	BM	Okay
23	5-38006	8	6.8	-2	Good	BM	Okay
24	5-38021	7	6.8	-2	Good	BM	Okay
25	5-38021	15	6.8	-2	Good	BM	Okay

TOTAL PAGE AREA 6834 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 2 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/06

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
26	5-38021	2	6.8	-2	Good	BM	Okay
27	5-37948	22.5	6.8	-2	Good	BM	Okay
28	5-37948	31	6.8	-2	Good	BM	Okay
29A	5-37948	0.5	9	-2	Good	BM	Okay
29	5-37925	39	6.8	-2	Good	BM	Okay
30	5-37925	41	6.8	-2	Good	BM	Okay
31	5-37925	41	6.8	-2	Good	BM	Okay
32	5-37938	41	6.8	-2	Good	BM	Okay
33	5-37938	41	6.8	-2	Good	BM	Okay
34	5-37938	41	6.8	-2	Good	BM	Okay

TOTAL PAGE AREA 2041.1 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 3 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/07

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
35	5-37943	40	6.8	-2	Good	BM	Okay
36	5-37943	32	6.8	-2	Good	BM	Okay
37	5-37943	15.5	6.8	-2	Good	BM	Okay
38	5-37943	8.5	6.8	-2	Good	BM	Okay
39	5-37990	10.5	6.8	-2	Good	BM	Okay
40	5-37943	4	6.8	-2	Good	BM	Okay
41	5-37943	6	6.8	-2	Good	BM	Okay
42	5-37990	8	6.8	-2	Good	BM	Okay
43	5-37990	15.5	6.8	-2	Good	BM	Okay
44	5-37990	23.5	6.8	-2	Good	BM	Okay
45	5-37990	31	6.8	-2	Good	BM	Okay
46	5-37990	39	6.8	-2	Good	BM	Okay

TOTAL PAGE AREA 1587.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 4 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/09

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
47	5-37940	54	6.8	-2	Good	BM	Okay
48	5-37940	54	6.8	-2	Good	BM	Okay
49	5-37949	54	6.8	-2	Good	BM	Okay
50	5-37949	54	6.8	-2	Good	BM	Okay
51	5-37949	19	6.8	-2	Good	BM	Okay
52	5-37940	20	6.8	-2	Good	BM	Okay
53	5-37937	35	6.8	-2	Good	BM	Okay
54	5-37937	34	6.8	-2	Good	BM	Okay
55	5-37937	54	6.8	-2	Good	BM	Okay
56	5-37195	54	6.8	-2	Good	BM	Okay
57	5-37195	54	6.8	-2	Good	BM	Okay
58	5-37195	20	6.8	-2	Good	BM	Okay
59	5-38015	34	6.8	-2	Good	BM	Okay
60	5-38015	54	6.8	-2	Good	BM	Okay
61	5-38015	19.5	6.8	-2	Good	BM	Okay
62	5-38015	18	6.8	-2	Good	BM	Okay
63	5-37944	34.5	6.8	-2	Good	BM	Okay
64	5-37944	36	6.8	-2	Good	BM	Okay
65	5-37944	54	6.8	-2	Good	BM	Okay
66	5-37947	54	6.8	-2	Good	BM	Okay

TOTAL PAGE AREA 5508 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 5 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/09

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
67	5-37947	54	6.8	-2	Good	BM	Okay
68	5-37913	54	6.8	-2	Good	BM	Okay
69	5-37913	54	6.8	-2	Good	BM	Okay
70	5-37942	54	6.8	-2	Good	BM	Okay

TOTAL PAGE AREA 1468.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 6 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
71	5-37942	54	6.8	0	Good	BM	Okay
72	5-37942	22	6.8	0	Good	BM	Okay
73	5-37921	32	6.8	0	Good	BM	Okay
74	5-37913	23.5	6.8	0	Good	BM	Okay
75	5-37921	30.5	6.8	0	Good	BM	Okay
76	5-37947	25	6.8	0	Good	BM	Okay
77	5-37921	29	6.8	0	Good	BM	Okay
78	5-37946	54	6.8	0	Good	BM	Okay
79	5-37946	54	6.8	0	Good	BM	Okay
80	5-37946	22	6.8	0	Good	BM	Okay
81	5-37921	32	6.8	0	Good	BM	Okay

TOTAL PAGE AREA 2570.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 7 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/17

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
82	5-37922	54	6.8	-3	Good	DB	Okay
83	5-37922	54	6.8	-3	Good	DB	Okay
84	5-37920	54	6.8	-3	Good	DB	Okay
85	5-37920	54	6.8	-3	Good	DB	Okay
86	5-37920	21.4	6.8	-3	Good	DB	Okay
87	5-37922	18.5	6.8	-3	Good	DB	Okay
88	5-37926	15	6.8	-3	Good	DB	Okay
89	5-37926	54	6.8	-3	Good	DB	Okay
90	5-37926	54	6.8	-3	Good	DB	Okay
91	5-37933	54	6.8	-3	Good	DB	Okay
92	5-37933	54	6.8	-3	Good	DB	Okay
93	5-37933	23.4	6.8	4	Good	DB	Okay
94	5-37926	8.7	6.8	4	Good	DB	Okay
95	5-37928	22.6	6.8	4	Good	DB	Okay
96	5-37928	54	6.8	4	Good	DB	Okay
97	5-37928	54	6.8	4	Good	DB	Okay
98	5-37916	54	6.8	4	Good	DB	Okay
99	5-37928	54	6.8	4	Good	DB	Okay
100	5-37916	20	6.8	4	Good	DB	Okay
101	5-37918	34	6.8	4	Good	DB	Okay

TOTAL PAGE AREA 5518.88 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 8 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/17

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
102	5-37918	54	6.8	4	Good	DB	Okay
103	5-37918	40	6.8	4	Good	DB	Okay
104	5-37905	14	6.8	4	Good	DB	Okay
105	5-37905	54	6.8	4	Good	DB	Okay
106	5-37905	54	6.8	4	Good	DB	Okay
107	5-37927	54	6.8	4	Good	DB	Okay
108	5-37927	54	6.8	4	Good	DB	Okay
109	5-37919	54	6.8	4	Good	DB	Okay
110	5-37920	54	6.8	4	Good	DB	Okay
111	5-37908	54	6.8	4	Good	DB	Okay
112	5-37908	54	6.8	4	Good	DB	Okay
113	5-37917	54	6.8	4	Good	DB	Okay
114	5-37917	54	6.8	4	Good	DB	Okay
115	5-37908	17.5	6.8	4	Good	DB	Okay
116	5-37917	11	6.8	4	Good	DB	Okay
117	5-37929	17.5	6.8	4	Good	DB	Okay
118	5-37929	54	6.8	4	Good	DB	Okay
119	5-37929	54	6.8	4	Good	DB	Okay
120	5-37977	54	6.8	4	Good	DB	Okay
121	5-37977	54	6.8	4	Good	DB	Okay

TOTAL PAGE AREA 6188 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 9 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/18

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
122	5-37914	54	6.8	-2	Good	DB	Okay
123	5-37914	54	6.8	-2	Good	DB	Okay
124	5-37906	54	6.8	-2	Good	DB	Okay
125	5-37906	54	6.8	-2	Good	DB	Okay
126	5-37991	54	6.8	-2	Good	DB	Okay
127	5-37991	54	6.8	-2	Good	DB	Okay
128	5-37959	54	6.8	-2	Good	DB	Okay
129	5-37959	54	6.8	-2	Good	DB	Okay
130	5-37959	22	6.8	-2	Good	DB	Okay
131	5-37991	11	6.8	-2	Good	DB	Okay
132	5-38011	22	6.8	-2	Good	DB	Okay

TOTAL PAGE AREA 3311.6 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 10 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/19

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
133	5-37967	54	6.8	2	Good	DB	Okay
134	5-37967	54	6.8	2	Good	DB	Okay
135	5-37993	54	6.8	2	Good	DB	Okay
136	5-37993	54	6.8	2	Good	DB	Okay
137	5-37993	20	6.8	2	Good	DB	Okay
138	5-37967	16	6.8	2	Good	DB	Okay
139	5-38011	18	6.8	2	Good	DB	Okay
140	5-38011	54	6.8	2	Good	DB	Okay
141	5-38011	36	6.8	2	Good	DB	Okay
142	5-37978	18	6.8	2	Good	DB	Okay
143	5-37978	54	6.8	2	Good	DB	Okay
144	5-37978	54	6.8	2	Good	DB	Okay

TOTAL PAGE AREA 3304.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 11 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/20

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
145	5-37972	54	6.8	2	Good	DB	Okay
146	5-37972	54	6.8	2	Good	DB	Okay
147	5-37981	54	6.8	2	Good	DB	Okay
148	5-37981	54	6.8	2	Good	DB	Okay
149	5-37963	62	6.8	2	Good	DB	Okay
150	5-37963	45	6.8	2	Good	DB	Okay
151	5-37963	20.5	6.8	2	Good	DB	Okay
152	5-37981	20	6.8	2	Good	DB	Okay
153	5-37972	5.6	6.8	2	Good	DB	Okay
154	5-37970	45	6.8	2	Good	DB	Okay
155	5-37970	45	6.8	2	Good	DB	Okay
146A	5-37972	8	1	2	Good	BM	Okay

TOTAL PAGE AREA 3129.88 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 12 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/21

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
156	5-37978	45	6.8	2	Good	DB	Okay
157	5-37978	8.5	6.8	2	Good	DB	Okay
158	5-37978	29.2	6.8	2	Good	DB	Okay
159	5-37978	29	6.8	2	Good	DB	Okay
160	5-37978	8.1	6.8	2	Good	DB	Okay
161	5-37972	14.5	6.8	2	Good	DB	Okay
162	5-37927	16	6.8	2	Good	DB	Okay
163	5-38978	7.8	6.8	2	Good	DB	Okay
164	5-37970	38	6.8	4	Good	DB	Okay
165	5-37929	7.1	6.8	4	Good	DB	Okay
166	5-37929	13.5	6.8	4	Good	DB	Okay
167	5-37914	17.5	6.8	4	Good	DB	Okay
168	5-37992	14.5	6.8	4	Good	DB	Okay
169	5-37914	40.5	6.8	4	Good	DB	Okay
170	5-37992	7	6.8	4	Good	DB	Okay
171	5-37992	25	6.8	4	Good	DB	Okay
172	5-38978	12	6.8	4	Good	DB	Okay
173	5-37992	13.5	6.8	4	Good	DB	Okay
174	5-37992	18.5	6.8	4	Good	DB	Okay
175	5-37992	10.5	6.8	4	Good	DB	Okay

TOTAL PAGE AREA 2554.76 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 13 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/21

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
176	5-37927	5	6.8	4	Good	DB	Okay

TOTAL PAGE AREA 34 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 14 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/25

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
177	5-37946	45	6.8	2	Good	DB	Okay
178	5-37946	45	6.8	2	Good	BM	Okay
179	5-37946	35	6.8	2	Good	BM	Okay
180	5-37906	10	6.8	2	Good	BM	Okay
181	5-37906	12	6.8	2	Good	BM	Okay
182	5-39087	33	6.8	2	Good	BM	Okay
183	5-39087	45	6.8	2	Good	BM	Okay
184	5-39087	44	6.8	2	Good	BM	Okay
185	5-39087	8.5	6.8	2	Good	BM	Okay
186	5-39087	28	6.8	2	Good	BM	Okay
187	5-39087	29	6.8	2	Good	BM	Okay
188	5-39087	8.5	6.8	2	Good	BM	Okay
189	5-38016	11.5	6.8	2	Good	BM	Okay
190	5-37992	11	6.8	2	Good	BM	Okay
191	5-37992	4	4	2	Good	BM	Okay
192	5-39087	7.3	6.8	2	Good	BM	Okay
193	5-38962	45	6.8	2	Good	BM	Okay
194	5-38962	45	6.8	2	Good	BM	Okay
195	5-38962	8.5	6.8	2	Good	BM	Okay
196	5-38981	29	6.8	2	Good	BM	Okay

TOTAL PAGE AREA 3418.04 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 15 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/25

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
197	5-38981	30	6.8	2	Good	BM	Okay
198	5-38981	8.5	6.8	2	Good	BM	Okay
199	5-38981	14	6.8	2	Good	BM	Okay
200	5-38981	15	6.8	2	Good	BM	Okay
201	5-39082	6	6.8	2	Good	BM	Okay
202	5-38981	1.5	6.8	2	Good	BM	Okay
203	5-39082	9	1	2	Good	BM	Okay
204	5-39082	19.5	1	2	Good	BM	Okay
205	5-39082	15	1	2	Good	BM	Okay

TOTAL PAGE AREA 553.5 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 16 of 17

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/26

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
206	5-38893	16	6.8	2	Good	BM	Okay
207	5-38893	16	6.8	2	Good	BM	Okay
208	5-37977	16	6.8	2	Good	BM	Okay
209	5-38981	16	6.8	2	Good	BM	Okay

TOTAL PAGE AREA 435.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 17 of 17

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/05

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1640	EB	-9	60.0%	454	155	136	134	135	142	137	137	136	139	138	170	169	168	170	168	BM	
2	EC-WW-054	1730	FG	-9	45.0%	454	177	177	180	161	163	176	165	166	173	166	205	207	201	206	198	BM	Textured/Textured
3	EC-WW-056	1730	RC	-9	50.0%	454	139	141	137	143	141	149	151	143	149	149	172	167	156	168	171	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
2 / 3	EEOS	WEOS	1700	-9	FG	EC-WW-054	6.7		AP+PS	12/4/19	1220	1225	40	40	Pass	BM
1 / 4	SEOS	NEOS	1740	-9	EB	EC-WW-045	44.0		AP+PS	6/4/19	1300	1305	40	40	Pass	BM
3 / 4	WEOS	EEOS	1750	-9	FG	EC-WW-054	6.7	DS-1	AP+PS	7/4/19	1430	1435	40	40	Pass	BM
1 / 3	SEOS	NEOS	1754	-9	EB	EC-WW-045	20.0		AP+PS	6/4/19	1420	1425	40	40	Pass	BM
5 / 6	EEOS	WEOS	1755	-9	FG	EC-WW-054	6.7		AP+PS	7/4/19	1442	1447	40	40	Pass	BM
4 / 6	SEOS	NEOS	1800	-9	RC	EC-WW-056	44.0		AP+PS	6/4/19	1306	1311	40	40	Pass	BM
1 / 2	SEOS	NEOS	1801	-9	EB	EC-WW-045	44.0	DS-2	AP+PS	6/4/19	1626	1631	40	40	Pass	BM
5 / 3	SEOS	NEOS	1814	-9	RC	EC-WW-056	20.0		AP+PS	6/4/19	1436	1441	40	40	Pass	BM
5 / 2	SEOS	NEOS	1821	-9	RC	EC-WW-056	44.0	DS-3	AP+PS	6/4/19	1617	1622	40	40	Pass	BM
6 / 7	SEOS	NEOS	1830	-9	EB	EC-WW-045	44.0		AP+PS	6/4/19	1312	1317	40	40	Pass	BM
5 / 7	SEOS	5R	1844	-9	EB	EC-WW-045	32.0		AP+PS	12/4/19	1615	1620	40	40	Pass	BM
5 / 7	5R	5S	1851	-9	EB	EC-WW-045	7.0		AP+PS	12/4/19	1642	1647	40	40	Pass	BM
5 / 7	5S	NEOS	1853	-9	EB	EC-WW-045	25.0		AP+PS	12/4/19	1650	1655	40	40	Pass	BM
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PAGE TOTAL 344.1

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 1 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/06

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	830	FG	-2	45.0%	454	179	179	186	167	182	159	180	197	169	165	216	220	210	216	219	BM	Textured/Textured
2	EC-WW-054	830	FG	-2	60.0%	454	155	146	147	168	148	150	142	145	155	151	190	189	192	188	194	BM	
3	EC-WW-045	830	EB	-2	60.0%	454	142	150	161	145	151	137	159	145	158	151	191	189	191	188	188	BM	
4	EC-WW-056	1140	FG	-2	30.0%	454	146	153	160	162	145	177	165	171	145	156	200	197	202	205	198	BM	Smooth/Textured
5	EC-WW-056	1315	FG	1	60.0%	454	142	143	165	153	159	144	161	143	150	147	195	192	197	197	190	BM	
6	EC-WW-045	1318	EB	1	60.0%	454	153	154	147	150	152	147	147	150	149	164	197	196	192	192	195	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
7 / 8	SEOS	5T	900	-2	FG	EC-WW-054	52.0	DS-4	AP+PS	12/4/19	1607	1612	40	40	Pass	BM
7 / 8	5T	1G	918	-2	FG	EC-WW-054	27.0	DS-4	AP+PS	12/4/19	1650	1655	40	40	Pass	BM
8 / 9	SEOS	NEOS	925	-2	EB	EC-WW-045	108.0	DS-5	AP+PS	7/4/19	1320	1325	40	40	Pass	BM
7 / 8	1G	NEOS	927	-2	FG	EC-WW-054	29.0	DS-4	AP+PS	12/4/19	1225	1230	40	40	Pass	BM
26 / 27	SEOS	NEOS	1030	-2	FG	EC-WW-054	6.7		AP+PS	10/4/19	1510	1515	40	40	Pass	BM
29 / 29A	SEOS	NEOS	1035	-2	FG	EC-WW-054	9.0		AP+PS	13/4/19	1455	1500	40	40	Pass	BM
26 / 28	EEOS	WEOS	1040	-2	FG	EC-WW-054	2.0		PS	12/4/19					Pass	BM
27 / 28	EEOS	WEOS	1041	-2	FG	EC-WW-054	22.5		AP+PS	12/4/19	1130	1135	40	40	Pass	BM
25 / 26	EEOS	WEOS	1052	-2	FG	EC-WW-054	2.0	DS-10	PS	12/4/19					Pass	BM
28 / 29	WEOS	EEOS	1052	-2	EB	EC-WW-045	31.0		AP+PS	7/4/19	1700	1705	40	40	Pass	BM
25 / 27	EEOS	WEOS	1053	-2	FG	EC-WW-054	13.0		AP+PS	12/4/19	1133	1138	40	40	Pass	BM
24 / 25	EEOS	WEOS	1100	-2	FG	EC-WW-054	7.0		AP+PS	10/4/19	1520	1525	40	40	Pass	BM
9 / 10	SEOS	6A	1115	-2	FG	EC-WW-054	43.0		AP+PS	12/4/19	1725	1730	40	40	Pass	BM
10 / 11	SEOS	4O	1120	-2	EB	EC-WW-045	39.0	DS-6	AP+PS	7/4/19	1335	1340	40	40	Pass	BM
9 / 10	6A	NEOS	1129	-2	FG	EC-WW-054	65.0		AP+PS	12/4/19	1540	1545	40	40	Pass	BM
10 / 11	4O	NEOS	1133	-2	EB	EC-WW-045	69.0	DS-6	AP+PS	12/4/19	1250	1255	40	40	Pass	BM
14 / 15	EEOS	WEOS	1150	-2	RC	EC-WW-054	6.7		AP+PS	12/4/19	1230	1235	40	40	Pass	BM
13 / 14	EEOS	WEOS	1200	1	RC	EC-WW-054	6.7		AP+PS	7/4/19	1446	1451	40	40	Pass	BM
12 / 13	EEOS	WEOS	1207	1	RC	EC-WW-054	6.7		AP+PS	7/4/19	1440	1445	40	40	Pass	BM
11 / 15	SEOS	NEOS	1220	1	FG	EC-WW-056	24.0		AP+PS	7/4/19	1342	1347	40	40	Pass	BM
						PAGE TOTAL	569.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 2 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/06

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1700	FG	1	60.0%	454	142	137	149	150	163	143	150	130	147	145	186	194	182	191	190	BM	
8	EC-WW-045	1710	EB	1	60.0%	454	139	148	146	146	151	141	144	144	153	154	187	189	188	188	186	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
11 / 14	SEOS	NEOS	1228	1	FG	EC-WW-056	21.0		AP+PS	12/4/19	1240	1245	40	40	Pass	BM
12A / 12	EEOS	WEOS	1230	1	RC	EC-WW-054	6.7		AP+PS	7/4/19	1537	1542	40	40	Pass	BM
11 / 13	SEOS	NEOS	1235	1	FG	EC-WW-056	20.0		AP+PS	7/4/19	1440	1445	40	40	Pass	BM
11 / 12	SEOS	1L	1241	1	FG	EC-WW-056	7.0		AP+PS	7/4/19	1520	1525	40	40	Pass	BM
11 / 12	1L	NEOS	1243	1	FG	EC-WW-056	13.0		AP+PS	7/4/19	1537	1542	40	40	Pass	BM
11 / 12A	SEOS	NEOS	1247	1	FG	EC-WW-056	22.0	DS-7	AP+PS	7/4/19	1558	1603	40	40	Pass	BM
33 / 34	EEOS	WEOS	1315	1	FG	EC-WW-056	41.0		AP+PS	7/4/19	1732	1737	40	40	Pass	BM
16 / 17	SEOS	NEOS	1335	1	FG	EC-WW-056	108.0	DS-9	AP+PS	7/4/19	1405	1410	40	40	Pass	BM
15 / 16	SEOS	NEOS	1350	1	EB	EC-WW-045	24.0		AP+PS	7/4/19	1349	1354	40	40	Pass	BM
14 / 16	SEOS	NEOS	1358	1	EB	EC-WW-045	21.0		AP+PS	12/4/19	1230	1235	40	40	Pass	BM
13 / 16	SEOS	1O	1405	1	EB	EC-WW-045	10.0		AP+PS	7/4/19	1455	1500	40	40	Pass	BM
13 / 16	1O	NEOS	1408	1	EB	EC-WW-045	10.0		AP+PS	7/4/19	1501	1506	40	40	Pass	BM
12 / 16	SEOS	NEOS	1411	1	EB	EC-WW-045	20.0		AP+PS	7/4/19	1520	1525	40	40	Pass	BM
12A / 16	SEOS	NEOS	1417	1	EB	EC-WW-045	22.0	DS-8	AP+PS	7/4/19	1550	1555	40	40	Pass	BM
32 / 33	WEOS	EEOS	1518	1	EB	EC-WW-045	41.0	DS-11	AP+PS	7/4/19	1724	1729	40	40	Pass	BM
30 / 31	WEOS	EEOS	1535	1	FG	EC-WW-056	41.0		AP+PS	7/4/19	1712	1717	40	40	Pass	BM
31 / 32	EEOS	WEOS	1540	1	EB	EC-WW-045	41.0		AP+PS	7/4/19	1718	1723	40	40	Pass	BM
29 / 30	EEOS	WEOS	1551	1	FG	EC-WW-056	39.0		AP+PS	7/4/19	1706	1711	40	40	Pass	BM
18 / 19	EEOS	WEOS	1627	1	FG	EC-WW-056	6.7		AP+PS	12/4/19	1205	1210	40	40	Pass	BM
1 / 18	SEOS	NEOS	1640	1	EB	EC-WW-045	14.0		AP+PS	7/4/19	1752	1757	40	40	Pass	BM
						PAGE TOTAL	528.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 3 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/06

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 19	SEOS	NEOS	1645	1	EB	EC-WW-045	25.0		AP+PS	7/4/19	1632	1637	40	40	Pass	BM
18 / 20	SEOS	NEOS	1650	1	FG	EC-WW-056	6.0		AP+PS	7/4/19	1800	1805	40	40	Pass	BM
19 / 20	SEOS	NEOS	1652	1	FG	EC-WW-056	25.0		AP+PS	7/4/19	1638	1643	40	40	Pass	BM
20 / 21	SEOS	NEOS	1720	1	EB	EC-WW-045	23.5		AP+PS	7/4/19	1644	1649	40	40	Pass	BM
21 / 22	SEOS	NEOS	1740	1	FG	EC-WW-056	15.5		AP+PS	7/4/19	1650	1655	40	40	Pass	BM
22 / 23	SEOS	NEOS	1740	1	EB	EC-WW-045	8.0		AP+PS	12/4/19	1210	1215	40	40	Pass	BM
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PAGE TOTAL							103.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 4 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	804	EB	-2	60.0%	454	142	143	144	146	136	141	132	136	140	135	169	187	165	165	167	BM	
2	EC-WW-039	930	WP	-2	30.0%	454	130	124	128	123	141	123	127	133	152	123	195	193	194	192	184	BM	Textured/Textured
3	EC-WW-056	1130	FG	-2	45.0%	454	171	171	170	155	181	172	159	154	155	137	189	190	186	188	187	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 46	NEOS	SEOS	906	-2	EB	EC-WW-054	39.0		AP+PS	10/4/19	1715	1720	40	40	Pass	BM
45 / 46	NEOS	SEOS	910	-2	FG	EC-WW-056	31.0		AP+PS	13/4/19	1450	1455	40	40	Pass	BM
44 / 45	SEOS	NEOS	925	-2	FG	EC-WW-056	23.5		AP+PS	10/4/19	1630	1635	40	40	Pass	BM
43 / 44	NEOS	SEOS	932	-2	EB	EC-WW-054	15.5	DS-12	AP+PS	10/4/19	1621	1626	40	40	Pass	BM
42 / 43	NEOS	SEOS	944	-2	EB	EC-WW-054	8.0		AP+PS	10/4/19	1614	1619	40	40	Pass	BM
34 / 35	WEOS	EEOS	1140	-2	EB	EC-WW-054	40.0		AP+PS	10/4/19	1539	1544	40	40	Pass	BM
35 / 36	WEOS	EEOS	1200	2	FG	EC-WW-056	32.0		AP+PS	10/4/19	1547	1552	40	40	Pass	BM
37 / 38	SEOS	NEOS	1220	2	FG	EC-WW-056	6.7		AP+PS	12/4/19	1145	1150	40	40	Pass	BM
39 / 40	SEOS	NEOS	1225	2	FG	EC-WW-056	6.7		AP+PS	12/4/19	1140	1145	40	40	Pass	BM
36 / 37	WEOS	EEOS	1226	2	EB	EC-WW-054	15.5		AP+PS	12/4/19	1152	1157	40	40	Pass	BM
36 / 38	WEOS	EEOS	1231	2	EB	EC-WW-054	8.5		AP+PS	10/4/19	1553	1558	40	40	Pass	BM
37 / 39	WEOS	EEOS	1233	2	FG	EC-WW-056	6.0		AP+PS	12/4/19	1145	1150	40	40	Pass	BM
38 / 39	WEOS	EEOS	1235	2	FG	EC-WW-056	4.5		AP+PS	12/4/19	1140	1145	40	40	Pass	BM
38 / 40	WEOS	EEOS	1236	2	FG	EC-WW-056	4.0	DS-13	AP+PS	10/4/19	1605	1610	40	40	Pass	BM
39 / 41	WEOS	EEOS	1253	2	EB	EC-WW-054	2.0		AP+PS	10/4/19	1635	1640	40	40	Pass	BM
40 / 41	WEOS	EEOS	1254	2	EB	EC-WW-054	4.0		AP+PS	10/4/19	1607	1612	40	40	Pass	BM
41 / 42	SEOS	NEOS	1330	2	FG	EC-WW-056	6.0		AP+PS	10/4/19	1635	1640	40	40	Pass	BM
39 / 42	SEOS	NEOS	1332	2	FG	EC-WW-056	4.5		AP+PS	10/4/19	1645	1650	40	40	Pass	BM
39 / 43	SEOS	NEOS	1333	2	FG	EC-WW-056	6.0		AP+PS	10/4/19	1645	1650	40	40	Pass	BM
37 / 43	SEOS	NEOS	1335	2	FG	EC-WW-056	4.0		AP+PS	10/4/19	1650	1655	40	40	Pass	BM
						PAGE TOTAL	267.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 5 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
37 / 44	SEOS	NEOS	1336	2	FG	EC-WW-056	6.5		AP+PS	10/4/19	1650	1655	40	40	Pass	BM
36 / 44	SEOS	NEOS	1338	2	FG	EC-WW-056	3.0		AP+PS	10/4/19	1656	1701	40	40	Pass	BM
36 / 45	SEOS	NEOS	1339	2	FG	EC-WW-056	7.0		AP+PS	10/4/19	1703	1708	40	40	Pass	BM
35 / 45	SEOS	NEOS	1341	2	FG	EC-WW-056	2.5		AP+PS	10/4/19	1703	1708	40	40	Pass	BM
35 / 46	SEOS	NEOS	1342	2	FG	EC-WW-056	8.0		AP+PS	10/4/19	1708	1713	40	40	Pass	BM
34 / 46	SEOS	NEOS	1344	2	FG	EC-WW-056	1.5		VB+PS	10/4/19					Pass	BM
34 / 1	SEOS	NEOS	1345	2	FG	EC-WW-056	6.0		AP+PS	10/4/19	1725	1730	40	40	Pass	BM
33 / 1	SEOS	NEOS	1347	2	FG	EC-WW-056	6.7		AP+PS	7/4/19	1740	1745	35	35	Pass	BM
32 / 1	SEOS	NEOS	1349	2	FG	EC-WW-056	6.7		AP+PS	7/4/19	1740	1745	35	35	Pass	BM
31 / 1	SEOS	NEOS	1351	2	FG	EC-WW-056	6.7		AP+PS	7/4/19	1746	1751	35	35	Pass	BM
30 / 1	SEOS	NEOS	1353	2	FG	EC-WW-056	4.5		AP+PS	7/4/19	1746	1751	35	35	Pass	BM
18 / 30	SEOS	NEOS	1354	2	FG	EC-WW-056	3.0		VB+PS	10/4/19					Pass	BM
18 / 29A	SEOS	NEOS	1355	2	FG	EC-WW-056	7.0		AP+PS	10/4/19	1450	1455	40	40	Pass	BM
20 / 29A	SEOS	NEOS	1357	2	FG	EC-WW-056	3.0		VB+PS	10/4/19					Pass	BM
20 / 28	SEOS	NEOS	1358	2	FG	EC-WW-056	7.0		AP+PS	12/4/19	1455	1500	35	35	Pass	BM
21 / 28	SEOS	NEOS	1400	2	FG	EC-WW-056	2.5		AP+PS	7/4/19	1807	1812	35	35	Pass	BM
21 / 27	SEOS	NEOS	1401	2	FG	EC-WW-056	7.5		AP+PS	7/4/19	1820	1825	35	35	Pass	BM
22 / 27	SEOS	NEOS	1403	2	FG	EC-WW-056	2.5		AP+PS	7/4/19	1820	1825	35	35	Pass	BM
22 / 25	SEOS	NEOS	1404	2	FG	EC-WW-056	7.5		AP+PS	7/4/19	1826	1831	35	35	Pass	BM
23 / 25	SEOS	NEOS	1406	2	FG	EC-WW-056	2.5		AP+PS	10/4/19	1457	1502	40	40	Pass	BM
						PAGE TOTAL	101.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 6 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
23 / 24	SEOS	NEOS	1407	2	FG	EC-WW-056	9.0	DS-14	AP+PS	10/4/19	1503	1508	40	40	Pass	BM
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PAGE TOTAL							9.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 7 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1005	WP	-2	50.0%	454	139	145	136	148	150	155	138	149	133	153	159	172	174	172	170	BM	
2	EC-WW-039	1010	GB	-2	60.0%	454	140	147	118	140	138	136	133	130	139	137	176	172	170	176	174	BM	
3	EC-WW-054	1030	WP	-2	60.0%	454	153	164	166	163	167	141	154	153	152	148	170	167	169	173	165	BM	
4	EC-WW-056	1211	FG	9	45.0%	454	154	160	160	153	158	159	161	152	162	165	184	193	188	174	190	BM	Textured/Textured
5	EC-WW-039	1400	FG	9	60.0%	454	119	138	125	129	131	128	140	136	131	137	161	167	168	163	166	BM	
6	EC-WW-056	1402	GB	9	45.0%	454	146	168	148	162	154	146	152	149	162	159	179	182	181	179	175	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
47 / 48	NEOS	SEOS	1045	-2	WP	EC-WW-054	54.0		AP+PS	10/4/19	1225	1230	35	35	Pass	BM
17 / 47	NEOS	SEOS	1048	-2	GB	EC-WW-039	54.0		AP+PS	10/4/19	1220	1225	35	35	Pass	BM
48 / 49	NEOS	SEOS	1120	-2	WP	EC-WW-054	54.0	DS-15	AP+PS	10/4/19	1230	1235	35	35	Pass	BM
49 / 50	NEOS	SEOS	1127	-2	GB	EC-WW-039	54.0		AP+PS	10/4/19	1235	1240	35	35	Pass	BM
51 / 53	WEOS	EEOS	1305	9	FG	EC-WW-056	6.7		AP+PS	10/4/19	1850	1855	40	40	Pass	BM
50 / 51	NEOS	SEOS	1308	9	GB	EC-WW-039	19.0		AP+PS	10/4/19	1815	1820	40	40	Pass	BM
52 / 54	WEOS	EEOS	1310	9	FG	EC-WW-056	6.7		AP+PS	10/4/19	1700	1705	40	40	Pass	BM
50 / 53	NEOS	SEOS	1314	9	GB	EC-WW-039	35.0		AP+PS	11/4/19	1045	1050	40	40	Pass	BM
51 / 52	NEOS	SEOS	1315	9	WP	EC-WW-054	19.0		AP+PS	10/4/19	1810	1815	40	40	Pass	BM
53 / 52	NEOS	SEOS	1321	9	WP	EC-WW-054	1.0		VB+PS	10/4/19					Pass	BM
53 / 54	NEOS	SEOS	1322	9	WP	EC-WW-054	34.0	DS-16	AP+PS	11/4/19	1037	1042	40	40	Pass	BM
52 / 55	NEOS	SEOS	1332	9	WP	EC-WW-054	20.0		AP+PS	10/4/19	1805	1810	40	40	Pass	BM
54 / 55	NEOS	SEOS	1339	9	WP	EC-WW-054	34.0		AP+PS	11/4/19	940	945	40	40	Pass	BM
55 / 56	NEOS	SEOS	1340	9	WP	EC-WW-054	54.0		AP+PS	10/4/19	1555	1600	35	35	Pass	BM
56 / 57	NEOS	SEOS	1530	9	FG	EC-WW-056	54.0	DS-17	AP+PS	10/4/19	1600	1605	35	35	Pass	BM
58 / 59	WEOS	EEOS	1550	9	GB	EC-WW-039	6.7		AP+PS	12/4/19	1707	1712	40	40	Pass	BM
57 / 58	NEOS	SEOS	1550	9	WP	EC-WW-054	20.0		AP+PS	10/4/19	1755	1800	40	40	Pass	BM
57 / 59	NEOS	SEOS	1557	9	WP	EC-WW-054	34.0		AP+PS	10/4/19	1650	1655	40	40	Pass	BM
59 / 60	SEOS	NEOS	1605	9	FG	EC-WW-056	34.0		AP+PS	10/4/19	1630	1635	40	40	Pass	BM
58 / 60	SEOS	NEOS	1616	9	FG	EC-WW-056	20.0		AP+PS	10/4/19	1733	1738	40	40	Pass	BM
						PAGE TOTAL	614.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 8 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1500	WP	9	60.0%	454	135	136	131	158	140	135	150	128	137	150	166	169	166	168	167	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
61 / 63	WEOS	EEOS	1618	9	GB	EC-WW-039	6.7		AP+PS	10/4/19	1713	1718	40	40	Pass	BM
60 / 61	NEOS	SEOS	1620	9	WP	EC-WW-054	19.5		AP+PS	10/4/19	1727	1732	40	40	Pass	BM
62 / 64	WEOS	EEOS	1625	9	GB	EC-WW-039	6.7		AP+PS	17/4/19	1810	1815	40	40	Pass	BM
61 / 62	NEOS	SEOS	1625	9	FG	EC-WW-056	18.0		AP+PS	12/4/19	855	900	40	40	Pass	BM
60 / 63	NEOS	SEOS	1627	9	WP	EC-WW-054	34.5		AP+PS	10/4/19	1636	1641	40	40	Pass	BM
61 / 64	NEOS	SEOS	1631	9	FG	EC-WW-056	1.5		VB+PS	10/4/19					Pass	BM
63 / 64	NEOS	SEOS	1632	9	FG	EC-WW-056	34.5	DS-18	AP+PS	10/4/19	1642	1647	40	40	Pass	BM
17 / 65	SEOS	4J	1703	9	FG	EC-WW-056	14.0		AP+PS	10/4/19	1840	1845	40	40	Pass	BM
17 / 65	4J	NEOS	1708	9	FG	EC-WW-056	40.0		AP+PS	10/4/19	1840	1845	40	40	Pass	BM
65 / 66	NEOS	SEOS	1710	9	WP	EC-WW-054	54.0	DS-19	AP+PS	10/4/19	1830	1835	40	40	Pass	BM
66 / 67	NEOS	SEOS	1745	9	FG	EC-WW-056	54.0		AP+PS	10/4/19	1825	1830	40	40	Pass	BM
67 / 68	NEOS	SEOS	1750	9	WP	EC-WW-054	54.0		AP+PS	10/4/19	1820	1825	40	40	Pass	BM
47 / 65	EEOS	WEOS	1750	9	GB	EC-WW-039	6.7		AP+PS	10/4/19	1835	1840	40	40	Pass	BM
48 / 66	EEOS	WEOS	1752	9	GB	EC-WW-039	6.7		AP+PS	12/4/19	845	850	40	40	Pass	BM
49 / 67	EEOS	WEOS	1754	9	GB	EC-WW-039	6.7		AP+PS	10/4/19	1820	1825	40	40	Pass	BM
50 / 68	EEOS	WEOS	1756	9	GB	EC-WW-039	6.7		AP+PS	10/4/19	1815	1820	40	40	Pass	BM
51 / 69	EEOS	WEOS	1758	9	GB	EC-WW-039	6.7		AP+PS	10/4/19	1810	1815	40	40	Pass	BM
52 / 70	EEOS	WEOS	1800	9	GB	EC-WW-039	6.7		AP+PS	12/4/19	840	845	40	40	Pass	BM
68 / 69	NEOS	SEOS	1805	9	FG	EC-WW-056	54.0	DS-20	AP+PS	10/4/19	1815	1820	40	40	Pass	BM
69 / 70	SEOS	NEOS	1815	9	WP	EC-WW-054	54.0		AP+PS	10/4/19	1810	1815	40	40	Pass	BM
						PAGE TOTAL	485.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 9 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	815	WP	0	60.0%	454	151	149	146	148	141	136	147	150	147	146	180	180	181	178	180	BM	
2	EC-WW-039	850	LC	0	60.0%	454	144	149	139	141	147	140	139	151	146	137	183	179	179	181	180	BM	
3	EC-WW-056	930	LC	0	45.0%	454	172	174	159	172	166	158	172	158	162	172	195	199	200	190	192	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
70 / 71	SEOS	NEOS	1035	0	WP	EC-WW-054	54.0		AP+PS	10/4/19	1805	1810	40	40	Pass	BM
72 / 73	EEOS	WEOS	1055	0	LC	EC-WW-056	6.7		AP+PS	11/4/19	1745	1750	40	40	Pass	BM
71 / 72	SEOS	NEOS	1118	0	LC	EC-WW-056	22.0		AP+PS	10/4/19	1750	1755	40	40	Pass	BM
74 / 75	EEOS	WEOS	1120	0	WP	EC-WW-054	6.7		AP+PS	11/4/19	1740	1745	40	40	Pass	BM
71 / 73	SEOS	NEOS	1125	0	LC	EC-WW-056	34.0		AP+PS	10/4/19	1750	1755	40	40	Pass	BM
76 / 77	EEOS	WEOS	1130	0	WP	EC-WW-054	6.7		AP+PS	11/4/19	1740	1745	40	40	Pass	BM
75 / 76	SEOS	NEOS	1133	0	WP	EC-WW-054	1.5		VB+PS	10/4/19					Pass	BM
75 / 77	SEOS	NEOS	1134	0	WP	EC-WW-054	19.0		AP+PS	10/4/19	1740	1745	40	40	Pass	BM
74 / 76	SEOS	5M	1135	0	WP	EC-WW-054	12.0		AP+PS	10/4/19	1755	1800	40	40	Pass	BM
74 / 76	5M	NEOS	1139	0	WP	EC-WW-054	11.5		AP+PS	10/4/19	1740	1745	40	40	Pass	BM
72 / 74	SEOS	NEOS	1147	0	LC	EC-WW-056	22.0	DS-21	AP+PS	10/4/19	1800	1805	40	40	Pass	BM
73 / 74	SEOS	NEOS	1154	0	LC	EC-WW-056	1.5		VB+PS	10/4/19					Pass	BM
73 / 75	SEOS	NEOS	1155	0	LC	EC-WW-056	32.5		AP+PS	10/4/19	1745	1750	40	40	Pass	BM
76 / 78	SEOS	5N	1205	8	WP	EC-WW-054	12.0	DS-22	AP+PS	10/4/19	1735	1740	40	40	Pass	BM
76 / 78	5N	NEOS	1209	8	WP	EC-WW-054	13.0	DS-22	AP+PS	10/4/19	1735	1740	40	40	Pass	BM
77 / 78	SEOS	NEOS	1213	8	WP	EC-WW-054	19.0		AP+PS	10/4/19	1733	1738	40	40	Pass	BM
78 / 79	SEOS	NEOS	1214	8	LC	EC-WW-056	54.0		AP+PS	10/4/19	1727	1732	40	40	Pass	BM
80 / 81	EEOS	WEOS	1240	8	WP	EC-WW-054	6.7		AP+PS	17/4/19	1400	1405	40	40	Pass	DB
79 / 80	SEOS	NEOS	1248	8	LC	EC-WW-056	22.0		AP+PS	10/4/19	1725	1730	40	40	Pass	BM
79 / 81	SEOS	NEOS	1255	8	LC	EC-WW-056	34.0		AP+PS	10/4/19	1730	1735	40	40	Pass	BM
						PAGE TOTAL	390.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 10 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
55	71	EEOS	WEOS	1340	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1805	1810	40	40	Pass	BM
56	72	EEOS	WEOS	1342	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1800	1805	40	40	Pass	BM
57	74	EEOS	WEOS	1344	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1820	1825	40	40	Pass	BM
58	76	EEOS	WEOS	1346	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1733	1738	40	40	Pass	BM
60	78	EEOS	WEOS	1348	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1727	1732	40	40	Pass	BM
61	79	EEOS	WEOS	1350	8	WP	EC-WW-054	6.7		AP+PS	10/4/19	1720	1725	40	40	Pass	BM
62	80	EEOS	WEOS	1352	8	WP	EC-WW-054	6.7		AP+PS	17/4/19	1400	1405	40	40	Pass	DB

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/17

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-019	820	FG	-3	50.0%	454	144	150	142	146	132	142	142	142	136	142	177	175	177	181	174	DB	
2	EC-WW-056	830	EA	-3	55.0%	454	147	155	151	150	144	148	146	144	137	148	174	174	176	179	176	DB	
3	EC-WW-054	830	EE	-3	55.0%	454	141	141	130	151	160	142	143	156	152	141	181	179	187	170	171	DB	
4	EC-WW-054	850	EE	-3	50.0%	454	166	164	162	166	163	157	161	163	167	167	194	191	195	190	195	DB	Textured/Textured
5	EC-WW-019	1230	FG	4	55.0%	454	145	143	150	144	148	135	136	146	134	137	174	177	182	174	174	DB	
6	EC-WW-056	1230	EA	4	55.0%	454	126	126	138	134	137	139	137	142	133	136	195	181	179	188	170	DB	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
81 / 82	SEOS	NEOS	905	-3	EA	EC-WW-056	34.0		AP+PS	17/4/19	1400	1405	40	40	Pass	DB
82 / 83	SEOS	NEOS	914	-3	EE	EC-WW-054	54.0	DS-23	AP+PS	17/4/19	1140	1145	40	40	Pass	DB
80 / 82	SEOS	NEOS	920	-3	EA	EC-WW-056	20.0		AP+PS	17/4/19	1400	1405	40	40	Pass	DB
83 / 84	SEOS	NEOS	935	-3	EA	EC-WW-056	54.0		AP+PS	17/4/19	1148	1153	40	40	Pass	DB
84 / 85	SEOS	NEOS	935	-3	FG	EC-WW-019	54.0		AP+PS	17/4/19	1148	1153	40	40	Pass	DB
86 / 87	EEOS	WEOS	946	-3	EE	EC-WW-054	6.7		AP+PS	17/4/19	1051	1056	40	40	Pass	DB
87 / 88	EEOS	WEOS	955	-3	EE	EC-WW-054	6.7		AP+PS	17/4/19	1051	1056	40	40	Pass	DB
85 / 86	SEOS	NEOS	1040	-2	EE	EC-WW-054	21.2		AP+PS	17/4/19	1445	1450	40	40	Pass	DB
86 / 89	SEOS	NEOS	1046	4	EA	EC-WW-056	21.2		AP+PS	17/4/19	1450	1455	40	40	Pass	DB
85 / 87	SEOS	NEOS	1051	-1	EE	EC-WW-054	18.2		AP+PS	17/4/19	1350	1355	40	40	Pass	DB
89 / 90	SEOS	NEOS	1055	4	FG	EC-WW-019	54.0		AP+PS	17/4/19	1155	1200	40	40	Pass	DB
87 / 89	SEOS	NEOS	1057	4	EA	EC-WW-056	18.2		AP+PS	17/4/19	1340	1345	40	40	Pass	DB
85 / 88	SEOS	NEOS	1058	0	EE	EC-WW-054	14.8		AP+PS	17/4/19	1350	1355	40	40	Pass	DB
88 / 89	SEOS	NEOS	1105	4	EA	EC-WW-056	14.8	DS-24	AP+PS	17/4/19	1340	1345	40	40	Pass	DB
90 / 91	SEOS	NEOS	1111	4	EE	EC-WW-054	54.0		AP+PS	17/4/19	1155	1200	40	40	Pass	DB
91 / 92	SEOS	NEOS	1120	4	EA	EC-WW-056	54.0	DS-25	AP+PS	17/4/19	1156	1201	40	40	Pass	DB
93 / 94	EEOS	WEOS	1140	4	EE	EC-WW-054	6.7		AP+PS	17/4/19	1202	1207	40	40	Pass	DB
92 / 93	SEOS	NEOS	1200	4	FG	EC-WW-019	23.2		AP+PS	17/4/19	1230	1235	40	40	Pass	DB
93 / 96	SEOS	NEOS	1200	4	EA	EC-WW-056	23.2		AP+PS	17/4/19	1455	1500	40	40	Pass	DB
94 / 95	EEOS	WEOS	1206	4	EE	EC-WW-054	6.7		AP+PS	17/4/19	1220	1225	40	40	Pass	DB
						PAGE TOTAL	559.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 12 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/17

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1300	EE	4	55.0%	454	141	139	146	135	147	145	144	150	142	143	171	177	174	173	173	DB	
8	EC-WW-054	1300	EE	4	50.0%	454	161	170	166	150	167	177	164	173	158	160	194	195	188	188	185	DB	Textured/Textured
9	EC-WW-050	1500	GB	4	55.0%	454	146	143	147	141	159	143	137	136	140	147	178	178	181	177	176	DB	
10	EC-WW-056	1620	EA	4	55.0%	454	146	150	152	145	145	144	147	143	144	147	177	180	180	176	181	DB	
11	EC-WW-019	1630	FG	4	55.0%	454	147	151	148	147	148	141	155	149	150	148	71	170	177	171	180	DB	
12	EC-WW-054	1630	EE	4	50.0%	454	147	178	171	160	161	164	169	164	171	169	198	199	198	201	197	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
92 / 94	SEOS	NEOS	1210	4	FG	EC-WW-019	8.6		AP+PS	17/4/19	1235	1240	40	40	Pass	DB
92 / 95	SEOS	NEOS	1213	4	FG	EC-WW-019	22.4		AP+PS	17/4/19	1240	1245	40	40	Pass	DB
94 / 96	SEOS	NEOS	1215	4	EA	EC-WW-056	8.6		AP+PS	17/4/19	1500	1505	40	40	Pass	DB
96 / 97	SEOS	NEOS	1215	4	EE	EC-WW-054	54.0	DS-26	AP+PS	17/4/19	1245	1250	40	40	Pass	DB
95 / 96	SEOS	NEOS	1217	4	EA	EC-WW-056	22.4		AP+PS	17/4/19	1500	1505	40	40	Pass	DB
97 / 98	SEOS	NEOS	1225	4	FG	EC-WW-019	54.0		AP+PS	17/4/19	1250	1255	40	40	Pass	DB
98 / 99	SEOS	NEOS	1255	4	EA	EC-WW-056	54.0		AP+PS	17/4/19	1320	1325	40	40	Pass	DB
100 / 101	EEOS	WEOS	1312	4	EE	EC-WW-054	6.7		AP+PS	17/4/19	1315	1320	40	40	Pass	DB
99 / 100	SEOS	NEOS	1315	4	FG	EC-WW-019	20.0		AP+PS	17/4/19	1530	1535	40	40	Pass	DB
99 / 101	SEOS	NEOS	1325	4	FG	EC-WW-019	34.0	DS-27	AP+PS	17/4/19	1530	1535	40	40	Pass	DB
100 / 102	SEOS	NEOS	1329	4	EE	EC-WW-054	20.0		AP+PS	17/4/19	1535	1540	40	40	Pass	DB
101 / 102	SEOS	NEOS	1338	4	EE	EC-WW-054	34.0		AP+PS	17/4/19	1535	1540	40	40	Pass	DB
103 / 104	EEOS	WEOS	1358	4	EE	EC-WW-054	6.7		AP+PS	17/4/19	1550	1555	40	40	Pass	DB
103 / 105	SEOS	NEOS	1400	4	FG	EC-WW-019	40.0		AP+PS	17/4/19	1601	1606	40	40	Pass	DB
102 / 103	SEOS	NEOS	1405	4	EA	EC-WW-056	40.0		AP+PS	17/4/19	1550	1555	40	40	Pass	DB
104 / 105	SEOS	NEOS	1416	4	FG	EC-WW-019	14.0	DS-28	AP+PS	17/4/19	1601	1606	40	40	Pass	DB
102 / 104	SEOS	NEOS	1418	4	EA	EC-WW-056	14.0		AP+PS	17/4/19	1550	1555	40	40	Pass	DB
105 / 106	SEOS	NEOS	1430	4	EA	EC-WW-056	54.0		AP+PS	17/4/19	1615	1620	40	40	Pass	DB
64 / 107	SEOS	NEOS	1550	4	EA	EC-WW-056	36.0		AP+PS	17/4/19	1810	1815	40	40	Pass	DB
107 / 108	SEOS	NEOS	1553	4	GB	EC-WW-050	54.0	DS-29	AP+PS	17/4/19	1640	1645	40	40	Pass	DB
						PAGE TOTAL	597.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 13 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/17

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
62 / 107	SEOS	NEOS	1603	4	EA	EC-WW-056	18.0		AP+PS	17/4/19	1810	1815	40	40	Pass	DB
108 / 109	SEOS	NEOS	1605	4	FG	EC-WW-019	54.0		AP+PS	17/4/19	1645	1650	40	40	Pass	DB
109 / 110	SEOS	NEOS	1623	4	EE	EC-WW-054	54.0		AP+PS	17/4/19	1645	1650	40	40	Pass	DB
110 / 111	SEOS	NEOS	1624	4	GB	EC-WW-050	54.0	DS-30	AP+PS	19/4/19	1111	1116	40	40	Pass	DB
111 / 112	SEOS	NEOS	1625	4	EA	EC-WW-056	54.0		AP+PS	17/4/19	1700	1705	40	40	Pass	DB
112 / 113	SEOS	NEOS	1645	4	FG	EC-WW-019	54.0		AP+PS	17/4/19	1705	1710	40	40	Pass	DB
113 / 114	SEOS	NEOS	1655	4	GB	EC-WW-050	54.0	DS-31	AP+PS	17/4/19	1715	1720	40	40	Pass	DB
116 / 117	EEOS	WEOS	1701	4	EE	EC-WW-054	6.7		AP+PS	19/4/19	1455	1500	40	40	Pass	DB
115 / 116	EEOS	WEOS	1708	4	EE	EC-WW-054	6.7		AP+PS	19/4/19	1445	1450	40	40	Pass	DB
114 / 117	SEOS	WEOS	1720	4	GB	EC-WW-050	17.5		AP+PS	19/4/19	1500	1505	40	40	Pass	DB
114 / 116	SEOS	WEOS	1725	4	GB	EC-WW-050	17.5		AP+PS	19/4/19	1445	1450	40	40	Pass	DB
114 / 115	SEOS	WEOS	1732	4	GB	EC-WW-050	11.0		AP+PS	19/4/19	1445	1450	40	40	Pass	DB
82 / 107	EEOS	WEOS	1732	4	EE	EC-WW-054	6.0		AP+PS	19/4/19	920	925	40	40	Pass	DB
83 / 107	EEOS	WEOS	1735	4	EE	EC-WW-054	0.8		AP+PS	19/4/19	920	925	40	40	Pass	DB
83 / 108	EEOS	WEOS	1736	4	EE	EC-WW-054	6.0		AP+PS	19/4/19	930	935	40	40	Pass	DB
84 / 108	EEOS	WEOS	1737	4	EE	EC-WW-054	0.8		AP+PS	19/4/19	930	935	40	40	Pass	DB
84 / 109	EEOS	WEOS	1738	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	930	935	40	40	Pass	DB
85 / 109	EEOS	WEOS	1740	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1000	1005	40	40	Pass	DB
85 / 110	EEOS	WEOS	1741	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1000	1005	40	40	Pass	DB
86 / 110	EEOS	WEOS	1744	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1000	1005	40	40	Pass	DB
						PAGE TOTAL	428.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 14 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/17

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
117 / 118	SEOS	WEOS	1745	4	FG	EC-WW-019	17.5		AP+PS	19/4/19	1455	1500	40	40	Pass	DB
86 / 111	EEOS	WEOS	1745	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1000	1005	40	40	Pass	DB
89 / 111	EEOS	WEOS	1747	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1120	1125	40	40	Pass	DB
118 / 119	SEOS	WEOS	1748	4	GB	EC-WW-050	54.0		AP+PS	17/4/19	1825	1830	40	40	Pass	DB
89 / 112	EEOS	WEOS	1748	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1120	1125	40	40	Pass	DB
116 / 118	SEOS	WEOS	1750	4	FG	EC-WW-019	11.0		AP+PS	19/4/19	1450	1455	40	40	Pass	DB
90 / 112	EEOS	WEOS	1751	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1120	1125	40	40	Pass	DB
90 / 113	EEOS	WEOS	1752	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1120	1125	40	40	Pass	DB
91 / 113	EEOS	WEOS	1753	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1520	1525	40	40	Pass	DB
115 / 118	SEOS	WEOS	1757	4	FG	EC-WW-019	17.5		AP+PS	19/4/19	1455	1500	40	40	Pass	DB
119 / 120	SEOS	WEOS	1810	4	EA	EC-WW-056	54.0	DS-32	AP+PS	17/4/19	1835	1840	40	40	Pass	DB
120 / 121	SEOS	NEOS	1816	4	gb	EC-WW-050	54.0		AP+PS	17/4/19	1835	1840	40	40	Pass	DB
91 / 114	EEOS	WEOS	1822	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1520	1525	40	40	Pass	DB
92 / 114	EEOS	WEOS	1826	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1520	1525	40	40	Pass	DB
92 / 115	EEOS	WEOS	1827	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1520	1525	40	40	Pass	DB
93 / 115	EEOS	WEOS	1829	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1635	1640	40	40	Pass	DB
93 / 118	EEOS	WEOS	1830	4	EE	EC-WW-054	6.5		AP+PS	19/4/19	1635	1640	40	40	Pass	DB
96 / 118	EEOS	WEOS	1833	4	EE	EC-WW-054	0.5		AP+PS	19/4/19	1635	1640	40	40	Pass	DB
96 / 119	EEOS	WEOS	1834	4	EE	EC-WW-054	6.3		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
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PAGE TOTAL 255.3

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 15 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/18

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1200	EE	2	50.0%	454	146	150	149	150	150	147	156	140	143	157	181	183	183	190	181	DB	
2	EC-WW-050	1200	GB	2	50.0%	454	153	153	151	145	149	147	158	137	156	159	184	184	184	187	177	DB	
3	EC-WW-056	1230	EA	2	50.0%	454	115	121	127	141	119	137	129	131	130	143	167	171	167	161	170	DB	
4	EC-WW-054	1500	EE	2	50.0%	454	166	172	159	173	162	165	151	166	164	156	188	182	182	178	177	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
126 / 127	SEOS	NEOS	1210	3	EA	EC-WW-056	54.0		AP+PS	19/4/19	1335	1340	40	40	Pass	DB
123 / 124	SEOS	NEOS	1224	3	EE	EC-WW-054	54.0		AP+PS	19/4/19	1305	1310	40	40	Pass	DB
122 / 123	SEOS	NEOS	1230	3	GB	EC-WW-050	54.0	DS-33	AP+PS	19/4/19	1305	1310	40	40	Pass	DB
124 / 125	SEOS	NEOS	1237	3	EA	EC-WW-056	54.0		AP+PS	20/4/19	1300	1305	40	40	Pass	DB
106 / 122	SEOS	NEOS	1258	3	EE	EC-WW-054	54.0		AP+PS	19/4/19	1325	1330	40	40	Pass	DB
125 / 126	SEOS	NEOS	1305	3	GB	EC-WW-050	54.0	DS-34	AP+PS	19/4/19	1335	1340	40	40	Pass	DB
121 / 128	SEOS	NEOS	1356	3	GB	EC-WW-050	54.0		AP+PS	19/4/19	1500	1505	40	40	Pass	DB
128 / 129	SEOS	NEOS	1450	3	GB	EC-WW-050	54.0	DS-35	AP+PS	19/4/19	1515	1520	40	40	Pass	DB
131 / 132	WEOS	EEOS	1520	3	EE	EC-WW-054	6.7		AP+PS	19/4/19	1555	1600	40	40	Pass	DB
130 / 131	WEOS	EEOS	1521	3	EE	EC-WW-054	6.7		AP+PS	19/4/19	1600	1605	40	40	Pass	DB
129 / 131	SEOS	NEOS	1525	3	EA	EC-WW-056	22.0		AP+PS	19/4/19	1555	1600	40	40	Pass	DB
129 / 132	SEOS	NEOS	1532	3	EA	EC-WW-056	11.0		AP+PS	19/4/19	1600	1605	40	40	Pass	DB
129 / 130	SEOS	NEOS	1540	3	EA	EC-WW-056	22.0		AP+PS	19/4/19	1615	1620	40	40	Pass	DB
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PAGE TOTAL 500.4

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 16 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1030	EE	2	55.0%	454	124	124	124	137	141	158	125	137	136	143	181	177	179	181	171	DB	
2	EC-WW-050	1100	GB	2	50.0%	454	171	148	159	146	146	156	155	144	145	145	176	189	165	167	179	DB	Textured/Textured
3	EC-WW-050	1120	GB	2	55.0%	454	123	133	134	127	134	127	141	140	137	141	171	167	161	170	171	DB	
4	EC-WW-019	1130	EB	2	55.0%	454	131	129	137	141	140	129	131	136	141	145	171	158	167	184	151	DB	
5	EC-WW-3907	1515	EB	4	50.0%	454	144	163	163	153	156	157	142	167	157	153	180	167	177	181	182	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
132 / 133	SEOS	NEOS	1105	3	EE	EC-WW-054	11.0		AP+PS	19/4/19	1605	1610	40	40	Pass	DB
131 / 133	SEOS	NEOS	1109	3	EE	EC-WW-054	22.0		AP+PS	19/4/19	1555	1600	40	40	Pass	DB
130 / 133	SEOS	NEOS	1117	3	EE	EC-WW-054	22.0		AP+PS	19/4/19	1200	1205	40	40	Pass	DB
133 / 134	SEOS	NEOS	1126	3	GB	EC-WW-050	54.0	DS-36	AP+PS	19/4/19	1225	1230	40	40	Pass	DB
134 / 135	SEOS	NEOS	1135	3	EE	EC-WW-054	54.0		AP+PS	19/4/19	1230	1235	40	40	Pass	DB
135 / 136	SEOS	NEOS	1137	3	EB	EC-WW-019	54.0		AP+PS	19/4/19	1300	1305	40	40	Pass	DB
138 / 139	WEOS	EEOS	1150	3	GB	EC-WW-050	6.7		AP+PS	19/4/19	1830	1835	40	40	Pass	DB
137 / 138	WEOS	EEOS	1153	3	GB	EC-WW-050	6.7		AP+PS	20/4/19	1130	1135	40	40	Pass	DB
136 / 139	SEOS	NEOS	1208	3	EE	EC-WW-054	18.0		AP+PS	20/4/19	1120	1125	40	40	Pass	DB
139 / 140	SEOS	NEOS	1215	3	EB	EC-WW-019	18.0		AP+PS	19/4/19	1830	1835	40	40	Pass	DB
136 / 138	SEOS	NEOS	1217	3	EE	EC-WW-054	16.0		AP+PS	20/4/19	1120	1125	40	40	Pass	DB
136 / 137	SEOS	NEOS	1223	3	EE	EC-WW-054	20.0	DS-37	AP+PS	19/4/19	1305	1310	40	40	Pass	DB
138 / 140	SEOS	NEOS	1223	3	EB	EC-WW-019	16.0		AP+PS	19/4/19	1830	1835	40	40	Pass	DB
137 / 140	SEOS	NEOS	1230	3	EB	EC-WW-019	20.0		AP+PS	20/4/19	1135	1140	40	40	Pass	DB
140 / 141	SEOS	NEOS	1245	3	GB	EC-WW-050	36.0		AP+PS	19/4/19	1825	1830	40	40	Pass	DB
141 / 143	SEOS	NEOS	1250	3	GB	EC-WW-050	36.0		AP+PS	19/4/19	1820	1825	40	40	Pass	DB
141 / 142	WEOS	EEOS	1253	3	GB	EC-WW-050	6.7		AP+PS	19/4/19	1820	1825	40	40	Pass	DB
143 / 144	SEOS	NEOS	1253	3	EB	EC-WW-019	54.0		AP+PS	19/4/19	1820	1825	40	40	Pass	DB
140 / 142	SEOS	NEOS	1300	3	GB	EC-WW-050	18.0		AP+PS	19/4/19	1825	1830	40	40	Pass	DB
142 / 143	SEOS	NEOS	1310	3	EE	EC-WW-054	18.0	DS-38	AP+PS	19/4/19	1820	1825	40	40	Pass	DB
						PAGE TOTAL	507.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 17 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
127	145	SEOS	WEOS	1530	4	FG	EC-WW-054	54.0		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
97	120	EEOS	WEOS	1540	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
97	119	EEOS	WEOS	1541	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
98	120	EEOS	WEOS	1545	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
98	121	EEOS	WEOS	1545	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
99	121	EEOS	WEOS	1545	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1640	1645	40	40	Pass	DB
99	128	EEOS	WEOS	1550	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1645	1650	40	40	Pass	DB
100	128	EEOS	WEOS	1555	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1645	1650	40	40	Pass	DB
100	129	EEOS	WEOS	1555	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1645	1650	40	40	Pass	DB
102	129	EEOS	WEOS	1600	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1645	1650	40	40	Pass	DB
102	130	EEOS	WEOS	1600	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1650	1655	40	40	Pass	DB
103	130	EEOS	WEOS	1605	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1650	1655	40	40	Pass	DB
103	133	EEOS	WEOS	1605	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1650	1655	40	40	Pass	DB
105	133	EEOS	WEOS	1608	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1650	1655	40	40	Pass	DB
105	134	EEOS	WEOS	1608	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1655	1700	40	40	Pass	DB
106	134	EEOS	WEOS	1611	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1655	1700	40	40	Pass	DB
106	135	EEOS	WEOS	1611	4	EB	EC-WW-3907	6.5	DS-39	AP+PS	19/4/19	1655	1700	40	40	Pass	DB
122	135	EEOS	WEOS	1615	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1730	1735	40	40	Pass	DB
122	136	EEOS	WEOS	1615	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1730	1735	40	40	Pass	DB
123	136	EEOS	WEOS	1620	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1730	1735	40	40	Pass	DB
							PAGE TOTAL	115.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 18 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
123	137	EEOS	WEOS	1620	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1730	1735	40	40	Pass	DB
124	137	EEOS	WEOS	1625	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1725	1730	40	40	Pass	DB
124	140	EEOS	WEOS	1625	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1725	1730	40	40	Pass	DB
125	140	EEOS	WEOS	1630	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
125	142	EEOS	WEOS	1630	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
126	142	EEOS	WEOS	1635	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
126	143	EEOS	WEOS	1635	4	EB	EC-WW-3907	6.5		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
127	143	EEOS	WEOS	1640	4	EB	EC-WW-3907	0.3		AP+PS	19/4/19	1720	1725	40	40	Pass	DB
127	144	EEOS	WEOS	1640	4	EB	EC-WW-3907	6.5		AP+PS	20/4/19	1720	1725	40	40	Pass	DB
							PAGE TOTAL	33.7									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 19 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/20

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1500	FG	4	55.0%	454	131	127	136	121	121	138	132	141	132	139	144	158	157	146	159	DB	
2	EC-WW-019	1515	GB	4	45.0%	454	168	154	179	144	165	162	158	165	157	157	181	170	170	173	180	DB	Textured/Textured
3	EC-WW-019	1518	GB	4	55.0%	454	129	127	127	128	137	123	127	142	137	141	161	163	157	168	160	DB	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
145 / 146	SEOS	WEOS	1537	4	FG	EC-WW-019	54.0	DS-40	AP+PS	21/4/19	945	950	40	40	Pass	DB
144 / 147	SEOS	WEOS	1602	4	GB	EC-WW-019	54.0		AP+PS	21/4/19	1830	1835	40	40	Pass	DB
147 / 148	SEOS	WEOS	1612	4	FG	EC-WW-054	54.0		AP+PS	21/4/19	1805	1810	40	40	Pass	DB
148 / 149	SEOS	WEOS	1630	4	GB	EC-WW-019	54.0	DS-41	AP+PS	21/4/19	1805	1810	40	40	Pass	DB
149 / 150	SEOS	WEOS	1642	4	FG	EC-WW-054	54.0		AP+PS	21/4/19	1800	1805	40	40	Pass	DB
146A / 146	NEOS	SEOS	1650	4	GB	EC-WW-019	8.0		AP+PS	21/4/19	910	915	40	40	Pass	BM
146A / 149	SEOS	NEOS	1654	4	GB	EC-WW-019	8.0		AP+PS	21/4/19	910	915	40	40	Pass	BM
151 / 152	EEOS	WEOS	1704	4	GB	EC-WW-019	6.7		AP+PS	22/4/19	1325	1330	40	40	Pass	DB
152 / 153	EEOS	WEOS	1708	4	GB	EC-WW-019	6.7		AP+PS	22/4/19	1325	1330	40	40	Pass	DB
150 / 153	SEOS	WEOS	1715	4	FG	EC-WW-054	5.0		AP+PS	22/4/19	1315	1320	40	40	Pass	DB
150 / 152	SEOS	WEOS	1718	4	FG	EC-WW-054	20.0		AP+PS	22/4/19	1315	1320	40	40	Pass	DB
150 / 151	SEOS	WEOS	1725	4	FG	EC-WW-054	20.0		AP+PS	22/4/19	1325	1350	40	40	Pass	DB
153 / 154	SEOS	WEOS	1735	4	GB	EC-WW-019	5.0		AP+PS	22/4/19	1320	1325	40	40	Pass	DB
152 / 154	SEOS	WEOS	1739	4	GB	EC-WW-019	20.0		AP+PS	22/4/19	1320	1325	40	40	Pass	DB
154 / 155	SEOS	WEOS	1750	4	FG	EC-WW-054	54.0	DS-42	AP+PS	21/4/19	1750	1755	40	40	Pass	DB
151 / 154	SEOS	WEOS	1752	4	GB	EC-WW-019	20.0		AP+PS	22/4/19	1325	1330	40	40	Pass	DB
146 / 147	EEOS	EEOS	1802	4	GB	EC-WW-019	0.3		AP+PS	21/4/19	945	950	40	40	Pass	DB
144 / 145	EEOS	WEOS	1810	4	GB	EC-WW-019	0.3		VB+PS	21/4/19			40	40	Pass	DB
145 / 147	EEOS	WEOS	1810	4	GB	EC-WW-019	6.5		AP+PS	21/4/19	945	950	40	40	Pass	DB
146 / 148	EEOS	EEOS	1812	3	GB	EC-WW-019	6.5		AP+PS	21/4/19	950	955	40	40	Pass	DB
						PAGE TOTAL	457.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 20 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/21

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	805	EB	2	40.0%	454	183	172	159	168	158	169	181	171	166	172	196	201	201	197	197	DB	Textured/Textured
2	EC-WW-056	820	FG	2	55.0%	454	152	148	123	151	139	150	142	139	138	141	178	181	177	189	175	DB	
3	EC-WW-050	830	EA	2	55.0%	454	147	150	149	148	151	144	132	143	146	146	186	183	189	189	176	DB	
4	EC-WW-3907	1220	EB	4	50.0%	454	171	179	164	163	171	168	174	165	164	170	207	202	201	201	202	DB	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
155 / 156	SEOS	NEOS	820	3	FG	EC-WW-056	45.0		AP+PS	21/4/19	1745	1750	40	40	Pass	DB
157 / 158	EEOS	WEOS	845	3	EB	EC-WW-054	6.7		AP+PS	21/4/19	1655	1700	40	40	Pass	DB
156 / 158	SEOS	NEOS	850	3	EA	EC-WW-050	29.0		AP+PS	21/4/19	1715	1720	40	40	Pass	DB
158 / 159	SEOS	NEOS	900	3	FG	EC-WW-056	29.0		AP+PS	21/4/19	1655	1700	40	40	Pass	DB
156 / 157	SEOS	NEOS	902	3	EA	EC-WW-050	8.5		AP+PS	21/4/19	1655	1700	40	40	Pass	DB
160 / 161	EEOS	WEOS	910	3	EB	EC-WW-054	6.7		AP+PS	21/4/19	1605	1610	40	40	Pass	DB
157 / 159	SEOS	NEOS	914	3	FG	EC-WW-056	1.0		VB+PS	21/4/19			40	40	Pass	DB
159 / 161	SEOS	NEOS	916	3	EA	EC-WW-050	14.5	DS-43	AP+PS	21/4/19	1700	1705	40	40	Pass	DB
159 / 160	SEOS	NEOS	922	3	EA	EC-WW-050	8.1		AP+PS	21/4/19	1640	1645	40	40	Pass	DB
161 / 162	SEOS	NEOS	922	3	FG	EC-WW-056	14.3		AP+PS	21/4/19	1605	1610	40	40	Pass	DB
160 / 162	SEOS	NEOS	928	3	FG	EC-WW-056	1.7		VB+PS	21/4/19			40	40	Pass	DB
162 / 163	NEOS	SEOS	929	3	EA	EC-WW-050	7.8		AP+PS	21/4/19	1555	1600	40	40	Pass	DB
164 / 165	NEOS	SEOS	1000	3	EB	EC-WW-054	6.7		AP+PS	22/4/19	1310	1315	40	40	Pass	DB
166 / 167	EEOS	WEOS	1105	4	EB	EC-WW-054	6.7		AP+PS	21/4/19	1740	1745	40	40	Pass	DB
167 / 168	EEOS	WEOS	1109	4	EB	EC-WW-054	6.7		AP+PS	21/4/19	1730	1735	40	40	Pass	DB
164 / 166	EEOS	WEOS	1115	4	EA	EC-WW-050	13.5		AP+PS	21/4/19	1820	1825	40	40	Pass	DB
164 / 167	EEOS	WEOS	1120	4	EA	EC-WW-050	14.5		AP+PS	21/4/19	1735	1740	40	40	Pass	DB
165 / 169	EEOS	WEOS	1122	4	FG	EC-WW-056	8.2		AP+PS	22/4/19	1310	1315	40	40	Pass	DB
167 / 169	EEOS	WEOS	1126	4	FG	EC-WW-056	17.5		AP+PS	21/4/19	1730	1735	40	40	Pass	DB
164 / 168	EEOS	WEOS	1127	4	EA	EC-WW-050	7.8		AP+PS	21/4/19	1735	1740	40	40	Pass	DB
						PAGE TOTAL	253.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED EXTRUDED

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 21 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/21

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
165 / 168	EEOS	WEOS	1130	4	EA	EC-WW-050	7.1		AP+PS	22/4/19	1305	1310	40	40	Pass	DB
168 / 169	EEOS	WEOS	1134	4	FG	EC-WW-056	14.5	DS-46	AP+PS	21/4/19	1730	1735	40	40	Pass	DB
170 / 171	NEOS	SEOS	1134	4	EB	EC-WW-054	6.7		AP+PS	21/4/19	1645	1650	40	40	Pass	DB
171 / 173	WEOS	EEOS	1140	4	FG	EC-WW-056	13.5		AP+PS	21/4/19	1635	1640	40	40	Pass	DB
169 / 170	EEOS	WEOS	1141	4	EA	EC-WW-050	7.0		AP+PS	21/4/19	1825	1830	40	40	Pass	DB
172 / 173	WEOS	SEOS	1141	4	EB	EC-WW-054	6.7		AP+PS	21/4/19	1610	1615	40	40	Pass	DB
171 / 172	WEOS	EEOS	1145	4	FG	EC-WW-056	12.0		AP+PS	21/4/19	1645	1650	40	40	Pass	DB
169 / 171	EEOS	WEOS	1146	4	EA	EC-WW-050	25.0		AP+PS	21/4/19	1640	1645	40	40	Pass	DB
173 / 174	WEOS	EEOS	1155	4	FG	EC-WW-056	13.5		AP+PS	21/4/19	1610	1615	40	40	Pass	DB
174 / 175	EEOS	WEOS	1155	4	EA	EC-WW-050	10.5		AP+PS	21/4/19	1600	1605	40	40	Pass	DB
172 / 174	WEOS	EEOS	1203	4	FG	EC-WW-056	5.0		AP+PS	21/4/19	1610	1615	40	40	Pass	DB
175 / 176	WEOS	EEOS	1203	4	EA	EC-WW-050	5.0	DS-45	AP+PS	21/4/19	1550	1555	40	40	Pass	DB
155 / 166	NEOS	SEOS	1245	4	EB	EC-WW-3907	1.4		VB+PS	21/4/19			40	40	Pass	DB
156 / 166	NEOS	SEOS	1245	4	EB	EC-WW-3907	6.6		AP+PS	21/4/19	1815	1820	40	40	Pass	DB
156 / 169	NEOS	SEOS	1249	4	EB	EC-WW-3907	3.5		AP+PS	21/4/19	1815	1820	40	40	Pass	DB
157 / 169	NEOS	SEOS	1251	4	EB	EC-WW-3907	6.4		AP+PS	21/4/19	1825	1830	40	40	Pass	DB
157 / 170	NEOS	SEOS	1255	4	EB	EC-WW-3907	3.4		AP+PS	21/4/19	1655	1700	40	40	Pass	DB
159 / 170	NEOS	SEOS	1257	4	EB	EC-WW-3907	6.5	DS-44	AP+PS	21/4/19	1655	1700	40	40	Pass	DB
159 / 172	NEOS	SEOS	1303	4	EB	EC-WW-3907	3.7		AP+PS	21/4/19	1645	1650	40	40	Pass	DB
160 / 172	NEOS	SEOS	1305	4	EB	EC-WW-3907	6.5		AP+PS	21/4/19	1630	1635	40	40	Pass	DB
						PAGE TOTAL	164.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: EXTRUDED

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 22 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/21

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
160	174	NEOS	SEOS	1309	4	EB	EC-WW-3907	3.5		AP+PS	21/4/19	1630	1635	40	40	Pass	DB
162	174	NEOS	SEOS	1311	4	EB	EC-WW-3907	6.8		AP+PS	21/4/19	1600	1605	40	40	Pass	DB
162	175	NEOS	SEOS	1316	4	EB	EC-WW-3907	3.5		AP+PS	21/4/19	1600	1605	40	40	Pass	DB
163	175	NEOS	SEOS	1318	4	EB	EC-WW-3907	7.0		AP+PS	21/4/19	1550	1555	40	40	Pass	DB
163	176	NEOS	SEOS	1321	4	EB	EC-WW-3907	2.5		AP+PS	21/4/19	1550	1555	40	40	Pass	DB

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	945	EB	-1	45.0%	454	137	146	137	141	132	140	147	126	134	140	153	152	155	151	149	DB	
2	EC-WW-056	1130	FG	-1	40.0%	454	156	155	146	158	155	145	140	150	157	157	179	175	179	179	173	DB	
3	EC-WW-056	1130	FG	-1	55.0%	454	156	157	159	139	151	150	147	143	132	138	172	174	172	175	172	DB	
4	EC-WW-050	1135	GB	-1	55.0%	454	150	139	155	159	149	152	154	135	136	144	173	175	177	177	166	DB	
5	EC-WW-050	1502	GB	3	55.0%	454	137	134	125	124	127	132	128	138	129	128	149	157	137	157	152	DB	
6	EC-WW-056	1530	FG	3	45.0%	454	147	152	146	161	151	158	149	134	154	145	170	174	168	164	156	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
179 / 180	EEOS	WEOS	1210	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1330	1335	40	40	Pass	BM
146 / 177	NEOS	SEOS	1215	3	FG	EC-WW-056	45.0	DS-47	AP+PS	26/4/19	1520	1525	40	40	Pass	BM
181 / 182	EEOS	WEOS	1220	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1605	1610	40	40	Pass	BM
177 / 178	NEOS	SEOS	1222	3	GB	EC-WW-050	45.0		AP+PS	26/4/19	1337	1342	40	40	Pass	BM
178 / 179	SEOS	NEOS	1230	3	FG	EC-WW-056	35.0		AP+PS	26/4/19	1610	1615	40	40	Pass	BM
179 / 181	SEOS	NEOS	1240	3	GB	EC-WW-050	12.0		AP+PS	26/4/19	1615	1620	40	40	Pass	BM
178 / 180	SEOS	NEOS	1242	3	FG	EC-WW-056	10.0		AP+PS	26/4/19	1330	1335	40	40	Pass	BM
179 / 182	SEOS	NEOS	1243	3	GB	EC-WW-050	23.0		AP+PS	26/4/19	1325	1330	40	40	Pass	BM
180 / 182	SEOS	NEOS	1250	3	GB	EC-WW-050	10.0		AP+PS	26/4/19	1325	1330	40	40	Pass	BM
181 / 183	SEOS	NEOS	1250	3	FG	EC-WW-056	12.0		AP+PS	26/4/19	1615	1620	40	40	Pass	BM
182 / 183	SEOS	NEOS	1253	3	FG	EC-WW-056	33.0	DS-48	AP+PS	26/4/19	1615	1620	40	40	Pass	BM
185 / 186	EEOS	WEOS	1321	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1245	1250	40	40	Pass	BM
183 / 184	SEOS	NEOS	1322	3	GB	EC-WW-050	44.0		AP+PS	26/4/19	1525	1530	40	40	Pass	BM
188 / 189	EEOS	WEOS	1345	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1300	1305	40	40	Pass	BM
184 / 185	SEOS	NEOS	1348	3	GB	EC-WW-050	8.5		AP+PS	26/4/19	1230	1235	40	40	Pass	BM
184 / 186	SEOS	NEOS	1350	3	GB	EC-WW-050	28.0		AP+PS	26/4/19	1245	1250	40	40	Pass	BM
187 / 188	SEOS	NEOS	1356	3	FG	EC-WW-056	8.5		AP+PS	26/4/19	1115	1120	40	40	Pass	BM
187 / 189	SEOS	NEOS	1358	3	FG	EC-WW-056	11.5		AP+PS	26/4/19	1300	1305	40	40	Pass	BM
190 / 191	EEOS	WEOS	1400	3	FG	EC-WW-056	4.0		AP+PS	26/4/19	1050	1055	40	40	Pass	BM
186 / 187	NEOS	14N	1406	3	GB	EC-WW-050	23.0		AP+PS	26/4/19	1145	1150	40	40	Pass	BM
						PAGE TOTAL	379.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 24 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1530	FG	3	55.0%	454	128	134	135	125	126	121	130	126	120	121	143	139	147	143	145	DB	
8	EC-WWXL-3407	1615	GB	3	21.5%	454	152	158	161	152	154	153	154	159	170	144	172	173	173	177	169	DB	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
188 / 191	SEOS	NEOS	1406	3	FG	EC-WW-056	1.5		AP+PS	27/4/19	1020	1025	40	40	Pass	BM
189 / 191	SEOS	NEOS	1407	3	FG	EC-WW-056	1.5		VB+PS	26/4/19					Pass	BM
189 / 190	SEOS	NEOS	1408	3	FG	EC-WW-056	11.0	DS-49	AP+PS	26/4/19	1010	1015	40	40	Pass	BM
186 / 187	14N	SEOS	1413	3	GB	EC-WW-050	5.0		AP+PS	26/4/19	1140	1145	40	40	Pass	BM
190 / 192	NEOS	SEOS	1413	3	FG	EC-WW-056	7.5		AP+PS	26/4/19	1307	1312	40	40	Pass	BM
185 / 187	NEOS	SEOS	1415	3	GB	EC-WW-050	1.0		VB+PS	26/4/19					Pass	BM
193 / 194	WEOS	EEOS	1525	3	GB	EC-WW-050	45.0		AP+PS	27/4/19	1030	1035	40	40	Pass	BM
195 / 196	NEOS	SEOS	1545	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1157	1202	40	40	Pass	BM
194 / 195	EEOS	WEOS	1548	3	GB	EC-WW-050	8.5		AP+PS	27/4/19	1215	1220	40	40	Pass	BM
194 / 196	EEOS	WEOS	1550	3	GB	EC-WW-050	29.0		AP+PS	27/4/19	1215	1220	40	40	Pass	BM
195 / 197	EEOS	WEOS	1550	3	FG	EC-WW-056	2.0		AP+PS	27/4/19	1157	1202	40	40	Pass	BM
196 / 197	EEOS	WEOS	1551	3	FG	EC-WW-056	28.0		AP+PS	27/4/19	1157	1202	40	40	Pass	BM
198 / 199	NEOS	SEOS	1604	3	FG	EC-WW-056	6.7		AP+PS	26/4/19	1056	1101	40	40	Pass	BM
197 / 198	EEOS	WEOS	1606	3	FG	EC-WW-056	8.5		AP+PS	27/4/19	1105	1110	40	40	Pass	BM
193 / 203	WEOS	EEOS	1608	3	FG	EC-WWXL-3407	9.0		AP+PS	26/4/19	1040	1045	40	40	Pass	BM
197 / 199	EEOS	WEOS	1608	3	FG	EC-WW-056	14.0	DS-50	AP+PS	27/4/19	1105	1110	40	40	Pass	BM
193 / 204	WEOS	EEOS	1610	3	FG	EC-WWXL-3407	19.5		AP+PS	26/4/19	1456	1501	40	40	Pass	BM
201 / 202	NEOS	SEOS	1613	3	FG	EC-WW-056	1.0		AP+PS	26/4/19	1040	1045	40	40	Pass	BM
193 / 205	WEOS	EEOS	1616	3	FG	EC-WWXL-3407	15.0		AP+PS	27/4/19	1450	1455	40	40	Pass	BM
200 / 201	EEOS	WEOS	1620	3	FG	EC-WW-056	6.0		AP+PS	27/4/19	1035	1040	40	40	Pass	BM
						PAGE TOTAL	226.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 25 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
200 / 202	EEOS	WEOS	1622	3	FG	EC-WW-056	1.5		AP+PS	27/4/19	1040	1045	40	40	Pass	BM
198 / 200	EEOS	WEOS	1627	3	GB	EC-WW-050	1.0		VB+PS	27/4/19					Pass	BM
199 / 200	EEOS	WEOS	1628	3	GB	EC-WW-050	14.0		AP+PS	27/4/19	1056	1101	40	40	Pass	BM
204 / 205	NEOS	SEOS	1630	3	FG	EC-WW-056	1.0		AP+PS	26/4/19	1456	1501	40	40	Pass	BM
203 / 204	NEOS	SEOS	1647	3	FG	EC-WW-056	1.0		AP+PS	26/4/19	1510	1515	40	40	Pass	BM
192 / 202	NEOS	SEOS	1654	3	GB	EC-WW-050	2.0		PS	27/4/19					Pass	BM
192 / 201	NEOS	SEOS	1655	3	GB	EC-WW-050	8.0	DS-52	AP+PS	27/4/19	1025	1030	40	40	Pass	BM
190 / 201	NEOS	SEOS	1657	3	GB	EC-WW-050	1.5		VB+PS	27/4/19					Pass	BM
190 / 200	NEOS	SEOS	1658	3	GB	EC-WW-050	4.5	DS-51	VB+PS	27/4/19					Pass	BM
191 / 200	NEOS	SEOS	1659	3	GB	EC-WW-050	4.0	DS-53	VB+PS	27/4/19					Pass	BM
188 / 200	NEOS	SEOS	1700	3	GB	EC-WW-050	1.5		AP+PS	27/4/19	1026	1031	40	40	Pass	BM
188 / 198	NEOS	SEOS	1701	3	GB	EC-WW-050	8.5		AP+PS	27/4/19	1115	1120	40	40	Pass	BM
187 / 198	NEOS	SEOS	1703	3	GB	EC-WW-050	1.5		AP+PS	27/4/19	1125	1130	40	40	Pass	BM
187 / 197	NEOS	SEOS	1704	3	GB	EC-WW-050	8.5		AP+PS	27/4/19	1135	1140	40	40	Pass	BM
185 / 197	NEOS	SEOS	1706	3	GB	EC-WW-050	2.0		VB+PS	27/4/19					Pass	BM
185 / 195	NEOS	SEOS	1707	3	GB	EC-WW-050	8.0		AP+PS	27/4/19	1230	1235	40	40	Pass	BM
184 / 195	NEOS	SEOS	1709	3	GB	EC-WW-050	2.0		AP+PS	27/4/19	1206	1211	40	40	Pass	BM
184 / 194	NEOS	SEOS	1710	3	GB	EC-WW-050	7.5		AP+PS	27/4/19	1153	1158	40	40	Pass	BM
183 / 194	NEOS	SEOS	1712	3	GB	EC-WW-050	1.0		VB+PS	27/4/19					Pass	BM
/																
						PAGE TOTAL	79.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 26 of 27

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Event Pond | SEAM DATE 2019/04/26

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	755	FG	-2	40.0%	454	174	156	166	150	162	165	142	164	154	153	177	176	175	173	173	BM	Textured/Textured
2	EC-WW-050	822	GB	-2	50.0%	454	146	151	134	136	143	134	137	131	141	130	167	168	164	164	169	BM	
3	EC-WWXL-340	942	FG	-2	22.5%	454	136	131	132	139	143	127	134	157	133	149	155	160	159	157	161	BM	Smooth/Textured
4	EC-WWXL-340	1340	GB	5	22.5%	454	156	147	136	149	158	154	130	132	158	136	174	170	173	170	173	BM	Smooth/Textured
5	EC-WWXL-340	1342	GB	5	20.5%	454	143	157	144	157	150	151	155	146	149	152	173	181	183	177	178	BM	Textured/Textured
6	EC-WW-030	1525	LC	5	50.0%	454	149	147	138	143	150	140	139	143	150	156	172	172	170	175	176	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
164 / 205	EEOS	WEOS	1050	-2	FG	EC-WWXL-3407	15.0		AP+PS	27/4/19	1223	1228	40	40	Pass	BM
164 / 204	EEOS	WEOS	1051	-2	FG	EC-WWXL-3407	19.0		AP+PS	26/4/19	1502	1507	40	40	Pass	BM
164 / 203	EEOS	WEOS	1052	-2	FG	EC-WWXL-3407	4.0		AP+PS	26/4/19	1303	1308	40	40	Pass	BM
165 / 203	EEOS	WEOS	1058	-2	FG	EC-WWXL-3407	5.0		AP+PS	26/4/19	1303	1308	40	40	Pass	BM
206 / 207	SEOS	NEOS	1126	-2	GB	EC-WW-050	16.0	DS-54	AP+PS	26/4/19	1415	1420	40	40	Pass	BM
207 / 208	SEOS	NEOS	1136	-2	GB	EC-WW-050	16.0		AP+PS	26/4/19	1420	1425	40	40	Pass	BM
208 / 209	SEOS	NEOS	1146	-2	GB	EC-WW-050	16.0		AP+PS	26/4/19	1425	1530	40	40	Pass	BM
149 / 209	SEOS	NEOS	1312	5	GB	EC-WWXL-3407	16.0		AP+PS	27/4/19	1155	1200	40	40	Pass	BM
209 / 178	EEOS	WEOS	1453	5	GB	EC-WWXL-3407	6.7		AP+PS	26/4/19	1600	1605	40	40	Pass	BM
208 / 179	EEOS	WEOS	1455	5	GB	EC-WWXL-3407	6.7		AP+PS	26/4/19	1600	1605	40	40	Pass	BM
207 / 181	EEOS	WEOS	1457	5	GB	EC-WWXL-3407	6.7		AP+PS	26/4/19	1555	1600	40	40	Pass	BM
206 / 183	EEOS	WEOS	1459	5	GB	EC-WWXL-3407	6.7		AP+PS	26/4/19	1555	1600	40	40	Pass	BM
206 / 193	NEOS	SEOS	1512	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1217	1222	40	40	Pass	BM
206 / 205	NEOS	SEOS	1514	5	GB	EC-WWXL-3407	1.0		AP+PS	27/4/19	1217	1222	40	40	Pass	BM
206 / 164	NEOS	SEOS	1515	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1603	1608	40	40	Pass	BM
206 / 166	NEOS	SEOS	1516	5	GB	EC-WWXL-3407	1.0		VB+PS	27/4/19					Pass	BM
206 / 155	WEOS	EEOS	1522	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1610	1615	40	40	Pass	BM
207 / 154	WEOS	EEOS	1524	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1037	1042	40	40	Pass	BM
208 / 151	WEOS	EEOS	1526	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1037	1042	40	40	Pass	BM
209 / 150	WEOS	EEOS	1528	5	GB	EC-WWXL-3407	6.7		AP+PS	27/4/19	1104	1109	40	40	Pass	BM
						PAGE TOTAL	176.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/28
SHEET NUMBER: 27 of 27

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/07	830	TW	-2	248	246	114	119	115	114	122	179	175	176	172	182	BM	
2	EC-EX-011	2019/04/07	930	BB	-2	251	240	147	160	154	168	177	190	186	183	183	179	BM	
3	EC-EX-008	2019/04/07	1320	TW	2	251	246	148	129	131	129	138	178	173	176	164	162	BM	
4	EC-EX-008	2019/04/08	1135	TH	0	251	246	147	120	133	139	144	170	171	167	156	168	BM	
5	EC-EX-008	2019/04/08	1630	TH	9	251	246	121	119	108	113	140	168	179	178	175	179	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	1 / 2	1m North of North Toe	WR	P	EC-EX-008	2019/04/07	1005	TW	-2	2019/04/10	VB+PS	BM
1B	2 / 3	Connected to 1	T	G&W	EC-EX-008	2019/04/07	845	TW	-2	2019/04/10	VB+PS	BM
1C	2 / 3	Connected to 5	T	G&W	EC-EX-008	2019/04/07	850	TW	-2	2019/04/10	VB+PS	BM
1D	3 / 4	Connected to 1	T	P	EC-EX-008	2019/04/07	942	TW	-2	2019/04/10	VB+PS	BM
1E	3 / 4	Connected to 5, 6	T	P	EC-EX-008	2019/04/07	920	TW	-2	2019/04/10	VB+PS	BM
1F	5 / 6	Connected to 7	T	G&W	EC-EX-008	2019/04/07	930	TW	-2	2019/04/10	VB+PS	BM
1G	7 / 8	9m North of North Toe	BO	P	EC-EX-008	2019/04/08	1730	TH	2	2019/04/10	VB+PS	BM
1H	9 / 8	On South Crest	BO	P	EC-EX-008	2019/04/07	1300	TW	2	2019/04/10	VB+PS	BM
1I	10 / 11	On North Crest	DS	P	EC-EX-008	2019/04/07	1420	TW	2	2019/04/10	VB+PS	BM
1J	12A / 12	Connected to 11	T	P	EC-EX-008	2019/04/07	1400	TW	2	2019/04/10	VB+PS	BM
1K	12A / 12	Connected to 16	T	G&W	EC-EX-008	2019/04/07	1147	TW	-2	2019/04/10	VB+PS	BM
1L	11 / 12	On North Toe	BO	P	EC-EX-008	2019/04/07	1245	TW	2	2019/04/10	VB+PS	BM
1M	12 / 13	Connected to 11	T	G&W	EC-EX-008	2019/04/07	1129	TW	-2	2019/04/10	VB+PS	BM
1N	12 / 13	Connected to 16	T	G&W	EC-EX-008	2019/04/07	1131	TW	-2	2019/04/10	VB+PS	BM
1O	13 / 16	10m North of SEOS	BO	P	EC-EX-008	2019/04/08	1745	TW	9	2019/04/10	VB+PS	BM
1P	13 / 14	Connected to 11	T	G&W	EC-EX-008	2019/04/07	1800	TW	2	2019/04/10	VB+PS	BM
1Q	13 / 14	Connected to 16	T	G&W	EC-EX-008	2019/04/07	1755	TW	2	2019/04/10	VB+PS	BM
1R	14 / 15	Connected to 11	T	G&W	EC-EX-008	2019/04/07	1341	TW	2	2019/04/10	VB+PS	BM
1S	14 / 15	Connected to 16	T	G&W	EC-EX-008	2019/04/07	1345	TW	2	2019/04/10	VB+PS	BM
1T	39 / 40	Connected to 41	T	G&W	EC-EX-008	2019/04/08	1353	TH	9	2019/04/10	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 1 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/07	830	TW	-2	248	246	114	119	115	114	122	179	175	176	172	182	BM	
2	EC-EX-011	2019/04/07	930	BB	-2	251	240	147	160	154	168	177	190	186	183	183	179	BM	
3	EC-EX-008	2019/04/07	1320	TW	2	251	246	148	129	131	129	138	178	173	176	164	162	BM	
4	EC-EX-008	2019/04/08	1135	TH	0	251	246	147	120	133	139	144	170	171	167	156	168	BM	
5	EC-EX-008	2019/04/08	1630	TH	9	251	246	121	119	108	113	140	168	179	178	175	179	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	39 / 40	Connected to 38	T	G&W	EC-EX-008	2019/04/08	1349	TH	9	2019/04/10	VB+PS	BM
2B	37 / 38	Connected to 39	T	G&W	EC-EX-008	2019/04/08	1347	TH	9	2019/04/10	VB+PS	BM
2C	37 / 38	Connected to 36	T	G&W	EC-EX-008	2019/04/08	1345	TH	9	2019/04/10	VB+PS	BM
2D	39 / 41	Connected to 42	T	G&W	EC-EX-008	2019/04/08	1509	TH	9	2019/04/10	VB+PS	BM
2E	42 / 43	Connected to 39	T	G&W	EC-EX-008	2019/04/08	1533	TH	9	2019/04/10	VB+PS	BM
2F	37 / 39	Connected to 43	T	G&W	EC-EX-008	2019/04/08	1539	TH	9	2019/04/10	VB+PS	BM
2G	43 / 44	Connected to 37	T	G&W	EC-EX-008	2019/04/08	1543	TH	9	2019/04/10	VB+PS	BM
2H	36 / 37	Connected to 44	T	G&W	EC-EX-008	2019/04/08	1545	TH	9	2019/04/10	VB+PS	BM
2I	44 / 45	Connected to 36	T	P	EC-EX-008	2019/04/08	1550	TH	9	2019/04/10	VB+PS	BM
2J	35 / 36	Connected to 45	T	G&W	EC-EX-008	2019/04/08	1559	TH	9	2019/04/10	VB+PS	BM
2K	45 / 46	Connected to 35	T	G&W	EC-EX-008	2019/04/08	1602	TH	9	2019/04/10	VB+PS	BM
2L	34 / 35	Connected to 1, 46	T	P	EC-EX-008	2019/04/08	1610	TH	2	2019/04/10	VB+PS	BM
2M	33 / 34	Connected to 1	T	G&W	EC-EX-008	2019/04/07	1529	TW	2	2019/04/10	VB+PS	BM
2N	32 / 33	Connected to 1	T	G&W	EC-EX-008	2019/04/07	1531	TW	2	2019/04/10	VB+PS	BM
2O	31 / 32	Connected to 1	T	G&W	EC-EX-008	2019/04/07	1533	TW	2	2019/04/10	VB+PS	BM
2P	1 / 31	2m South of NEOS, 0.5m East	D	P	EC-EX-008	2019/04/07	1535	TW	2	2019/04/10	VB+PS	BM
2Q	30 / 31	Connected to 1	T	G&W	EC-EX-008	2019/04/07	1540	TW	2	2019/04/10	VB+PS	BM
2R	29 / 30	Connected to 29A, 18	T	P	EC-EX-008	2019/04/07	1550	TW	2	2019/04/10	VB+PS	BM
2S	18 / 19	Connected to 1	T	G&W	EC-EX-008	2019/04/07	1108	TW	2	2019/04/10	VB+PS	BM
2T	18 / 19	Connected to 20	T	G&W	EC-EX-008	2019/04/07	1112	TW	2	2019/04/10	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 2 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/07	830	TW	-2	248	246	114	119	115	114	122	179	175	176	172	182	BM	
2	EC-EX-011	2019/04/07	930	BB	-2	251	240	147	160	154	168	177	190	186	183	183	179	BM	
3	EC-EX-008	2019/04/07	1320	TW	2	251	246	148	129	131	129	138	178	173	176	164	162	BM	
4	EC-EX-008	2019/04/08	1135	TH	0	251	246	147	120	133	139	144	170	171	167	156	168	BM	
5	EC-EX-008	2019/04/08	1630	TH	9	251	246	121	119	108	113	140	168	179	178	175	179	BM	
6	EC-EX-008	2019/04/09	1130	TH	-2	251	246	140	143	139	130	135	177	163	175	175	170	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	28 / 29	Coonnected to 18, 20	T	P	EC-EX-008	2019/04/07	1600	TW	2	2019/04/10	VB+PS	BM
3B	20 / 21	Connected to 28	T	G&W	EC-EX-008	2019/04/07	1630	TW	2	2019/04/10	VB+PS	BM
3C	27 / 28	Connected to 21	T	G&W	EC-EX-008	2019/04/07	1632	TW	2	2019/04/10	VB+PS	BM
3D	26 / 27	Connected to 28	T	G&W	EC-EX-008	2019/04/08	1315	TH	9	2019/04/10	VB+PS	BM
3E	26 / 27	Connected to 25	T	G&W	EC-EX-008	2019/04/08	1304	TH	9	2019/04/10	VB+PS	BM
3F	21 / 22	Connected to 27	T	G&W	EC-EX-008	2019/04/07	1630	TW	2	2019/04/10	VB+PS	BM
3G	25 / 27	Connected to 22	T	G&W	EC-EX-008	2019/04/07	1637	TW	2	2019/04/10	VB+PS	BM
3H	22 / 23	Connected to 25	T	P	EC-EX-008	2019/04/07	1644	TW	2	2019/04/10	VB+PS	BM
3I	24 / 25	Connected to 23	T	G&W	EC-EX-008	2019/04/08	1244	TH	9	2019/04/10	VB+PS	BM
3J	23 / 24	1m SW of Crest	DS	P	EC-EX-008	2019/04/08	1332	TH	9	2019/04/10	VB+PS	BM
3K	23 / 24	Crest	BO	P	EC-EX-008	2019/04/08	1239	TH	9	2019/04/10	VB+PS	BM
3L	17 / 47	2m South of NEOS, 2.5m West	D	P	EC-EX-008	2019/04/09	1610	TH	9	2019/04/10	VB+PS	BM
3M	17 / 47	2m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/09	1620	TH	9	2019/04/10	VB+PS	BM
3N	17 / 47	4m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/09	1600	TH	9	2019/04/10	VB+PS	BM
3O	17 / 47	6.5m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/09	1530	TH	9	2019/04/10	VB+PS	BM
3P	17 / 47	9m South of NEOS, 3.4m West	D	P	EC-EX-008	2019/04/09	1520	TH	9	2019/04/10	VB+PS	BM
3Q	48 / 49	1m South of NEOS, 3m West	D	P	EC-EX-008	2019/04/09	1645	TH	9	2019/04/10	VB+PS	BM
3R	51 / 53	Connected to 50	T	G&W	EC-EX-008	2019/04/09	1649	TH	9	2019/04/10	VB+PS	BM
3S	51 / 53	Connected to 52, 54	T	G&W	EC-EX-008	2019/04/09	1710	TH	9	2019/04/10	VB+PS	BM
3T	52 / 54	Connected to 55	T	G&W	EC-EX-008	2019/04/09	1715	TH	9	2019/04/10	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 3 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/09	1630	TH	9	251	243	137	150	158	150	151	168	170	164	167	180	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 4 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/07	830	TW	-2	248	246	114	119	115	114	122	179	175	176	172	182	BM	
2	EC-EX-011	2019/04/07	930	BB	-2	251	240	147	160	154	168	177	190	186	183	183	179	BM	
3	EC-EX-008	2019/04/07	1320	TW	2	251	246	148	129	131	129	138	178	173	176	164	162	BM	
4	EC-EX-008	2019/04/08	1135	TH	0	251	246	147	120	133	139	144	170	171	167	156	168	BM	
5	EC-EX-008	2019/04/08	1630	TH	9	251	246	121	119	108	113	140	168	179	178	175	179	BM	
6	EC-EX-008	2019/04/09	1130	TH	-2	251	246	140	143	139	130	135	177	163	175	175	170	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	55 / 56	0.5m South of NEOS, 2m West	D	P	EC-EX-008	2019/04/09	1720	TH	9	2019/04/10	VB+PS	BM
4B	55 / 56	0.5m South of NEOS, 4m West	D	P	EC-EX-008	2019/04/09	1725	TH	9	2019/04/10	VB+PS	BM
4C	55 / 56	2m South of NEOS, 4m West	D	P	EC-EX-008	2019/04/09	1730	TH	9	2019/04/10	VB+PS	BM
4D	56 / 57	On Crest	DS	P	EC-EX-008	2019/04/10	1605	EA	8	2019/04/10	VB+PS	BM
4E	58 / 59	Connected to 57	T	G&W	EC-EX-008	2019/04/09	1735	TH	9	2019/04/10	VB+PS	BM
4F	58 / 59	Connected to 60	T	G&W	EC-EX-008	2019/04/09	1739	TH	9	2019/04/10	VB+PS	BM
4G	58 / 60	On South Toe	BO	P	EC-EX-008	2019/04/09	1750	TH	9	2019/04/10	VB+PS	BM
4H	61 / 63	Connected to 60	T	P	EC-EX-008	2019/04/09	1745	TH	9	2019/04/10	VB+PS	BM
4I	61 / 63	Connected to 62, 64	T	G&W	EC-EX-008	2019/04/09	1742	TH	9	2019/04/10	VB+PS	BM
4J	17 / 65	On North Toe	BO	P	EC-EX-011	2019/04/10	1541	BB	8	2019/04/10	VB+PS	BM
4K	44 / 45	On Crest	BO	P	EC-EX-008	2019/04/08	1530	TH	9	2019/04/10	VB+PS	BM
4L	8 / 7	1.5m South of Crest, 0.5m East	D	P	EC-EX-008	2019/04/09	1305	TH	9	2019/04/10	VB+PS	BM
4M	8 / 7	3.5m South of Crest, 0.5m East	D	P	EC-EX-008	2019/04/09	1315	TH	9	2019/04/10	VB+PS	BM
4N	8 / 7	On crest, 4m West	D	P	EC-EX-008	2019/04/09	1240	TH	9	2019/04/10	VB+PS	BM
4O	10 / 11	On South Toe	BO	P	EC-EX-008	2019/04/07	1830	TW	2	2019/04/10	VB+PS	BM
4P	17 / 65	Connected to 47	T	P	EC-EX-011	2019/04/10	1409	BB	8	2019/04/10	VB+PS	BM
4Q	65 / 66	Connected to 47, 48	T	P	EC-EX-011	2019/04/10	1520	BB	8	2019/04/10	VB+PS	BM
4R	66 / 67	Connected to 48, 49	T	P	EC-EX-011	2019/04/10	1508	BB	8	2019/04/10	VB+PS	BM
4S	67 / 68	Connected to 49, 50	T	P	EC-EX-011	2019/04/10	1513	BB	8	2019/04/10	VB+PS	BM
4T	68 / 69	Connected to 50, 51	T	P	EC-EX-011	2019/04/10	1546	BB	8	2019/04/10	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 5 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/09	1630	TH	9	251	243	137	150	158	150	151	168	170	164	167	180	BM	
2	EC-EX-011	2019/04/10	1330	BB	8	237	232	145	149	143	144	145	178	180	183	181	174	BM	
3	EC-EX-008	2019/04/10	1345	EA	8	246	243	159	153	151	157	147	182	178	188	184	187	BM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

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REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
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REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 6 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/10	1330	BB	8	237	232	145	149	143	144	145	178	180	183	181	174	BM	
2	EC-EX-008	2019/04/10	1345	EA	8	246	243	159	153	151	157	147	182	178	188	184	187	BM	
3	EC-EX-011	2019/04/12	1500	EA	6	246	246	133	118	149	144	147	189	181	182	186	181	BM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	69 / 70	Connected to 51, 52	T	P	EC-EX-011	2019/04/10	1550	BB	8	2019/04/10	VB+PS	BM
5B	70 / 71	Connected to 52, 55	T	P	EC-EX-011	2019/04/10	1554	BB	8	2019/04/10	VB+PS	BM
5C	71 / 72	Connected to 55, 56	T	P	EC-EX-011	2019/04/10	1607	BB	8	2019/04/10	VB+PS	BM
5D	72 / 74	Connected to 56, 57	T	P	EC-EX-011	2019/04/10	1617	BB	8	2019/04/10	VB+PS	BM
5E	74 / 76	Connected to 57, 58	T	P	EC-EX-011	2019/04/10	1623	BB	8	2019/04/10	VB+PS	BM
5F	76 / 78	Connected to 58, 60	T	P	EC-EX-011	2019/04/10	1629	BB	8	2019/04/10	VB+PS	BM
5G	78 / 79	Connected to 60, 61	T	P	EC-EX-011	2019/04/10	1641	BB	8	2019/04/10	VB+PS	BM
5H	79 / 80	Connected to 61, 62	T	P	EC-EX-008	2019/04/10	1640	EA	8	2019/04/10	VB+PS	BM
5I	72 / 73	Connected to 71	T	G&W	EC-EX-008	2019/04/10	1440	EA	8	2019/04/10	VB+PS	BM
5J	72 / 73	Connected to 74, 75	T	P	EC-EX-008	2019/04/10	1450	EA	8	2019/04/10	VB+PS	BM
5K	74 / 75	Connected to 76, 77	T	G&W	EC-EX-008	2019/04/10	1500	EA	8	2019/04/10	VB+PS	BM
5L	76 / 77	Connected to 78	T	G&W	EC-EX-008	2019/04/10	1505	EA	8	2019/04/10	VB+PS	BM
5M	74 / 76	On Toe	BO	P	EC-EX-008	2019/04/10	1510	EA	8	2019/04/10	VB+PS	BM
5N	76 / 78	On Toe	BO	P	EC-EX-008	2019/04/10	1530	EA	8	2019/04/10	VB+PS	BM
5O	80 / 81	Connected to 79	T	G&W	EC-EX-008	2019/04/10	1507	EA	8	2019/04/10	VB+PS	BM
5P	79 / 80	3m North of SEOS	FS	G&W	EC-EX-011	2019/04/10	1642	BB	8	2019/04/10	VB+PS	BM
5Q	48 / 49	On Crest	DS	P	EC-EX-008	2019/04/10	1555	EA	8	2019/04/10	VB+PS	BM
5R	5 / 7	6m North of Toe	FS	G&W	EC-EX-011	2019/04/12	1630	EA	6	2019/04/12	VB+PS	BM
5S	5 / 7	13m North of Toe	FS	G&W	EC-EX-011	2019/04/12	1640	EA	6	2019/04/12	VB+PS	BM
5T	7 / 8	14m North of South Toe	FS	G&W	EC-EX-011	2019/04/12	1555	EA	6	2019/04/12	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 7 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/12	1500	EA	6	246	246	133	118	149	144	147	189	181	182	186	181	BM	
2	EC-EX-008	2019/04/17	800	TH	-3	243	243	166	164	62	166	163	194	191	195	190	185	DB	Textured/Textured
3	EC-EX-008	2019/04/17	1300	TH	4	243	243	126	140	147	141	137	201	200	198	201	203	DB	Textured/Textured
4	EC-EX-008	2019/04/17	1626	TH	4	243	243	153	158	158	158	161	196	201	201	198	196	DB	Textured/Textured
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
6A	9 / 10	4m North of South Toe	BO	P	EC-EX-011	2019/04/12	1530	EA	6	2019/04/12	VB+PS	BM
6B	80 / 81	Connected to 82	T	G&W	EC-EX-008	2019/04/17	1302	TH	4	2019/04/19	VB+PS	DB
6C	86 / 87	Connected to 85	T	G&W	EC-EX-008	2019/04/17	1305	TH	4	2019/04/19	VB+PS	DB
6D	87 / 88	Connected to 85	T	G&W	EC-EX-008	2019/04/17	1307	TH	4	2019/04/19	VB+PS	DB
6E	86 / 87	Connected to 89	T	G&W	EC-EX-008	2019/04/17	1309	TH	4	2019/04/19	VB+PS	DB
6F	87 / 88	Connected to 89	T	G&W	EC-EX-008	2019/04/17	1311	TH	4	2019/04/19	VB+PS	DB
6G	93 / 94	Connected to 92	T	G&W	EC-EX-008	2019/04/17	1313	TH	4	2019/04/19	VB+PS	DB
6H	94 / 95	Connected to 92	T	G&W	EC-EX-008	2019/04/17	1315	TH	4	2019/04/19	VB+PS	DB
6I	93 / 94	Conneted to 96	T	G&W	EC-EX-008	2019/04/17	1317	TH	4	2019/04/19	VB+PS	DB
6J	94 / 95	Connected to 96	T	G&W	EC-EX-008	2019/04/17	1319	TH	4	2019/04/19	VB+PS	DB
6K	93 / 96	3m North of SEOS	MD	P	EC-EX-008	2019/04/17	1321	TH	4	2019/04/19	VB+PS	DB
6L	100 / 101	Connected to 99	T	G&W	EC-EX-008	2019/04/17	1323	TH	4	2019/04/19	VB+PS	DB
6M	100 / 101	Connected to 102	T	G&W	EC-EX-008	2019/04/17	1325	TH	4	2019/04/19	VB+PS	DB
6N	103 / 104	Connected to 102	T	G&W	EC-EX-008	2019/04/17	1327	TH	4	2019/04/19	VB+PS	DB
6O	103 / 104	Connected to 105	T	G&W	EC-EX-008	2019/04/17	1329	TH	4	2019/04/19	VB+PS	DB
6P	62 / 80	Connected to 82-107	T	P	EC-EX-008	2019/04/17	1335	TH	4	2019/04/19	VB+PS	DB
6Q	62 / 64	Connected to 107	T	G&W	EC-EX-008	2019/04/17	1755	TH	4	2019/04/19	VB+PS	DB
6R	62 / 107	10m South from NEOS	BO	P	EC-EX-008	2019/04/17	1802	TH	4	2019/04/19	VB+PS	DB
6S	83 / 109	3m EAST & .5 SOUTH	MD	P	EC-EX-008	2019/04/17	1805	TH	4	2019/04/19	VB+PS	DB
6T	109 /	2m WEST from 6S	MD	P	EC-EX-008	2019/04/17	1809	TH	4	2019/04/19	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 8 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/17	800	TH	-3	243	243	166	164	62	166	163	194	191	195	190	185	DB	Textured/Textured
2	EC-EX-008	2019/04/17	1300	TH	4	243	243	126	140	147	141	137	201	200	198	201	203	DB	Textured/Textured
3	EC-EX-008	2019/04/17	1626	TH	4	243	243	153	158	158	158	161	196	201	201	198	196	DB	Textured/Textured
4	EC-EX-011	2019/04/19	815	FG	-1	248	246	134	139	132	134	131	158	161	158	156	171	DB	
5	EC-EX-011	2019/04/19	1330	FG	3	248	246	147	145	143	134	139	162	157	169	152	167	DB	Textured/Textured
6	EC-EX-008	2019/04/19	1700	GR	4	243	243	121	127	139	141	137	183	191	187	188	179	DB	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
7A	109 /	2.5m South from 6T	MD	P	EC-EX-008	2019/04/17	1815	TH	4	2019/04/19	VB+PS	DB
7B	109 /	2.5m East from 7A	MD	P	EC-EX-008	2019/04/17	1823	TH	4	2019/04/19	VB+PS	DB
7C	109 /	3m South from 7B	MD	P	EC-EX-008	2019/04/17	1828	TH	4	2019/04/19	VB+PS	DB
7D	109 /	3m South from 7C	MD	P	EC-EX-008	2019/04/17	1833	TH	4	2019/04/19	VB+PS	DB
7E	109 /	3m South from 7D	MD	P	EC-EX-008	2019/04/17	1838	TH	4	2019/04/19	VB+PS	DB
7F	62 / 80	Connected to 81-107	T	P	EC-EX-011	2019/04/19	900	FG	3	2019/04/19	VB+PS	DB
7G	82 / 83	Connected to 107-108	T	G&W	EC-EX-011	2019/04/19	910	FG	3	2019/04/19	VB+PS	DB
7H	83 / 84	Connected to108-109	T	G&W	EC-EX-011	2019/04/19	921	FG	3	2019/04/19	VB+PS	DB
7I	84 / 85	Connected to 109-110	T	G&W	EC-EX-011	2019/04/19	930	FG	3	2019/04/19	VB+PS	DB
7J	85 / 86	Conneceted to 110-111	T	G&W	EC-EX-011	2019/04/19	948	FG	3	2019/04/19	VB+PS	DB
7K	110 / 111	31.5m from NEOS	BO	P	EC-EX-011	2019/04/19	1100	FG	3	2019/04/19	VB+PS	DB
7L	86 / 89	Connected to 111-112	T	G&W	EC-EX-011	2019/04/19	1002	FG	3	2019/04/19	VB+PS	DB
7M	89 / 90	Connected to 112-113	T	G&W	EC-EX-011	2019/04/19	1115	FG	3	2019/04/19	VB+PS	DB
7N	90 / 91	Connected to 113-114	T	G&W	EC-EX-011	2019/04/19	1128	FG	3	2019/04/19	VB+PS	DB
7O	91 / 92	Connected to 114-115	T	G&W	EC-EX-011	2019/04/19	1132	FG	3	2019/04/19	VB+PS	DB
7P	115 / 116	Connected to 114	T	G&W	EC-EX-011	2019/04/19	1455	FG	3	2019/04/19	VB+PS	DB
7Q	115 / 116	Connected to 118	T	G&W	EC-EX-011	2019/04/19	1452	FG	3	2019/04/19	VB+PS	DB
7R	116 / 117	Connected to 114	T	G&W	EC-EX-011	2019/04/19	1400	FG	3	2019/04/19	VB+PS	DB
7S	116 / 117	Connected to 118	T	G&W	EC-EX-011	2019/04/19	1405	FG	3	2019/04/19	VB+PS	DB
7T	115 / 118	Connected to 92-93	T	G&W	EC-EX-011	2019/04/19	1506	FG	3	2019/04/19	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 9 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/19	815	FG	-1	248	246	134	139	132	134	131	158	161	158	156	171	DB	
2	EC-EX-011	2019/04/19	1330	FG	3	248	246	147	145	143	134	139	162	157	169	152	167	DB	Textured/Textured
3	EC-EX-008	2019/04/19	1700	GR	4	243	243	121	127	139	141	137	183	191	187	188	179	DB	Textured/Textured
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
8A	93 / 96	Connected to 118-119	T	G&W	EC-EX-011	2019/04/19	1510	FG	3	2019/04/19	VB+PS	DB
8B	115 / 118	9.5m from Neos	BO	P	EC-EX-011	2019/04/19		FG	3	2019/04/19	VB+PS	DB
8C	114 / 115	11m from Neos	BO	P	EC-EX-011	2019/04/19		FG	3	2019/04/19	VB+PS	DB
8D	96 / 97	Connected to 118-119	T	P	EC-EX-011	2019/04/19	1637	FG	3	2019/04/19	VB+PS	DB
8E	97 / 98	Connected to 120-121	T	G&W	EC-EX-011	2019/04/19	1623	FG	3	2019/04/19	VB+PS	DB
8F	98 / 99	Connected to 121-128	T	G&W	EC-EX-011	2019/04/19	1629	FG	3	2019/04/19	VB+PS	DB
8G	99 / 100	Conneted to 128-129	T	G&W	EC-EX-011	2019/04/19	1655	FG	3	2019/04/19	VB+PS	DB
8H	100 / 102	Connected to 129-130	T	G&W	EC-EX-011	2019/04/19	1456	FG	3	2019/04/19	VB+PS	DB
8I	102 / 103	Connected to 130-133	T	G&W	EC-EX-011	2019/04/19	1458	FG	3	2019/04/19	VB+PS	DB
8J	128 / 99	.5 W & .5 S from Neos	MD	P	EC-EX-011	2019/04/19	1640	FG	3	2019/04/19	VB+PS	DB
8K	128 /	2m West from 8J	MD	P	EC-EX-011	2019/04/19	1642	FG	3	2019/04/19	VB+PS	DB
8L	128 /	3m West from 8K	MD	P	EC-EX-011	2019/04/19	1643	FG	3	2019/04/19	VB+PS	DB
8M	128 /	4m West from 8J	MD	P	EC-EX-011	2019/04/19	1702	FG	3	2019/04/19	VB+PS	DB
8N	128 /	1m East from 8M	MD	P	EC-EX-011	2019/04/19	1755	FG	3	2019/04/19	VB+PS	DB
8O	128 /	2m South from 8N	MD	P	EC-EX-011	2019/04/19	1652	FG	3	2019/04/19	VB+PS	DB
8P	131 / 132	Connected to 129	T	G&W	EC-EX-011	2019/04/19	1545	FG	3	2019/04/19	VB+PS	DB
8Q	131 / 132	Connected to 133	T	G&W	EC-EX-011	2019/04/19	1549	FG	3	2019/04/19	VB+PS	DB
8R	130 / 131	Connected to 133	T	G&W	EC-EX-008	2019/04/19	1523	GR	3	2019/04/19	VB+PS	DB
8S	130 / 131	Connected to 129	T	G&W	EC-EX-008	2019/04/19	1519	GR	3	2019/04/19	VB+PS	DB
8T	141 / 142	Connected to 140	T	G&W	EC-EX-008	2019/04/19	1800	GR	3	2019/04/19	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 10 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/19	815	FG	-1	248	246	134	139	132	134	131	158	161	158	156	171	DB	
2	EC-EX-011	2019/04/19	1330	FG	3	248	246	147	145	143	134	139	162	157	169	152	167	DB	Textured/Textured
3	EC-EX-008	2019/04/19	1700	GR	4	243	243	121	127	139	141	137	183	191	187	188	179	DB	Textured/Textured
4	EC-EX-011	2019/04/20	1230	GR	4	248	246	134	137	128	136	141	196	201	197	197	190	DB	
5	EC-EX-011	2019/04/20	1630	GR	4	248	246	139	130	138	141	141	172	172	171	178	189	DB	Textured/Textured
6	EC-EX-011	2019/04/21	1300	GR	4	248	243	154	147	148	127	131	187	185	189	189	171	DB	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
9A	141 / 142	Connected to 143	T	G&W	EC-EX-008	2019/04/19	1803	GR	3	2019/04/19	VB+PS	DB
9B	137 / 138	Connected to 136	T	G&W	EC-EX-008	2019/04/19	1752	GR	3	2019/04/19	VB+PS	DB
9C	138 / 139	Connected to 136	T	G&W	EC-EX-008	2019/04/19	1745	GR	3	2019/04/19	VB+PS	DB
9D	137 / 138	Connected to 140	T	G&W	EC-EX-008	2019/04/19	1755	GR	3	2019/04/19	VB+PS	DB
9E	138 / 139	Connected to 140	T	G&W	EC-EX-008	2019/04/19	1748	GR	3	2019/04/19	VB+PS	DB
9F	103 / 105	Connected to 133-134	T	G&W	EC-EX-011	2019/04/19	1705	FG	3	2019/04/19	VB+PS	DB
9G	105 / 106	Connectd to 134-135	T	G&W	EC-EX-011	2019/04/19	1708	FG	3	2019/04/19	VB+PS	DB
9H	106 / 122	Connected to 135-136	DS	P	EC-EX-011	2019/04/19	1735	FG	3	2019/04/19	VB+PS	DB
9I	122 / 123	Connected to 136-137	T	G&W	EC-EX-008	2019/04/19	1735	GR	3	2019/04/19	VB+PS	DB
9J	123 / 124	Connected to 137-139	T	G&W	EC-EX-008	2019/04/19	1730	GR	3	2019/04/19	VB+PS	DB
9K	124 / 125	Connectd to 139-140	T	G&W	EC-EX-008	2019/04/19	1717	GR	3	2019/04/19	VB+PS	DB
9L	125 / 126	Connected to 142-143	T	G&W	EC-EX-008	2019/04/19	1714	GR	3	2019/04/19	VB+PS	DB
9M	126 / 127	Connected to 143-144	T	G&W	EC-EX-008	2019/04/19	1711	GR	3	2019/04/19	VB+PS	DB
9N	142 / 143	3m North of SEOS	DS	P	EC-EX-008	2019/04/19	1632	GR	3	2019/04/19	VB+PS	DB
9O	136 / 137	10m South From Neos	BO	P	EC-EX-011	2019/04/19	1825	FG	3	2019/04/19	VB+PS	DB
9P	105 / 106	10m North of SEOS	BO	P	EC-EX-011	2019/04/20	1335	GR	4	2019/04/20	VB+PS	DB
9Q	102 / 103	10m North of SEOS	BO	P	EC-EX-011	2019/04/20	1353	GR	4	2019/04/20	VB+PS	DB
9R	117 / 118	9m South of NEOS	BO	P	EC-EX-011	2019/04/20	1524	GR	4	2019/04/20	VB+PS	DB
9S	114 / 117	10m South from NEOS	BO	P	EC-EX-011	2019/04/20	1538	GR	4	2019/04/20	VB+PS	DB
9T	127 / 145	Connected to 147-146-147	WS	P	EC-EX-011	2019/04/21	1303	GR	4	2019/04/21	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 11 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/21	1710	GR	4	248	246	154	147	148	137	138	184	185	179	201	199	DB	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 12 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/21	1300	GR	4	248	243	154	147	148	127	131	187	185	189	189	171	DB	Textured/Textured
2	EC-EX-011	2019/04/21	1710	GR	4	248	246	154	147	148	137	138	184	185	179	201	199	DB	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
10A	145 / 147	3.5m West from EEOS&.5 South	MD	P	EC-EX-011	2019/04/21	1307	GR	4	2019/04/21	VB+PS	DB
10B	147 / 145	5M West from EEOS&.5 South	MD	P	EC-EX-011	2019/04/21	1311	GR	4	2019/04/21	VB+PS	DB
10C	145 / 146	Connected to 147-148	T	G&W	EC-EX-011	2019/04/21	1312	GR	4	2019/04/21	VB+PS	DB
10D	146 / 148	Connected to 149	T	P	EC-EX-011	2019/04/21	1336	GR	4	2019/04/21	VB+PS	DB
10E	163 / 175	Connecetd to 166	T	G&W	EC-EX-011	2019/04/21	1323	GR	4	2019/04/21	VB+PS	DB
10F	162 / 163	Connected to 165	T	G&W	EC-EX-011	2019/04/21	1325	GR	4	2019/04/21	VB+PS	DB
10G	160 / 161	Connected to 162	T	G&W	EC-EX-011	2019/04/21	1330	GR	4	2019/04/21	VB+PS	DB
10H	160 / 162	Connected to 164	T	G&W	EC-EX-011	2019/04/21	1331	GR	4	2019/04/21	VB+PS	DB
10I	160 / 172	Connected to 174	T	G&W	EC-EX-011	2019/04/21	1538	GR	4	2019/04/21	VB+PS	DB
10J	159 / 160	Connected to 161	T	G&W	EC-EX-011	2019/04/21	1331	GR	4	2019/04/21	VB+PS	DB
10K	159 / 160	Connected to 172	T	G&W	EC-EX-011	2019/04/21	1539	GR	4	2019/04/21	VB+PS	DB
10L	159 / 171	Connected to 172	T	G&W	EC-EX-011	2019/04/21	1545	GR	4	2019/04/21	VB+PS	DB
10M	159 / 170	2m North from 10L	DS	P	EC-EX-011	2019/04/21	1554	GR	4	2019/04/21	VB+PS	DB
10N	169 / 170	Connected to 161	T	G&W	EC-EX-011	2019/04/21	1602	GR	4	2019/04/21	VB+PS	DB
10O	171 / 172	Connected to 173	T	G&W	EC-EX-011	2019/04/21	1536	GR	4	2019/04/21	VB+PS	DB
10P	172 / 173	Connected to 174	T	G&W	EC-EX-011	2019/04/21	1534	GR	4	2019/04/21	VB+PS	DB
10Q	157 / 158	Connected to 159	T	G&W	EC-EX-011	2019/04/21	1600	GR	4	2019/04/21	VB+PS	DB
10R	157 / 159	Connected to 170	T	G&W	EC-EX-011	2019/04/21	1600	GR	4	2019/04/21	VB+PS	DB
10S	156 / 157	Connected to 158	T	G&W	EC-EX-011	2019/04/21	1605	GR	4	2019/04/21	VB+PS	DB
10T	157 / 169	Connected to 160	T	G&W	EC-EX-011	2019/04/21	1607	GR	4	2019/04/21	VB+PS	DB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 13 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/21	1300	GR	4	248	243	154	147	148	127	131	187	185	189	189	171	DB	Textured/Textured
2	EC-EX-011	2019/04/21	1710	GR	4	248	246	154	147	148	137	138	184	185	179	201	199	DB	
3	EC-EX-011	2019/04/26	815	TW	-2	248	248	101	108	110	108	113	143	137	137	139	140	BM	
4	EC-EX-008	2019/04/26	900	DH	-2	248	246	120	118	125	132	107	169	170	159	162	164	BM	
5	EC-EX-008	2019/04/26	1500	DH	5	246	248	141	152	139	138	147	169	168	167	175	177	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
11A	156 / 157	Connected to 169	T	G&W	EC-EX-011	2019/04/21	1611	GR	4	2019/04/21	VB+PS	DB
11B	156 / 166	Connected to 169	T	G&W	EC-EX-011	2019/04/21	1612	GR	4	2019/04/21	VB+PS	DB
11C	155 / 156	Connected to 166	T	G&W	EC-EX-011	2019/04/21	1619	GR	4	2019/04/21	VB+PS	DB
11D	156 / 166	2.5m From Neos	BO	P	EC-EX-011	2019/04/21	1620	GR	4	2019/04/21	VB+PS	DB
11E	166 / 167	Connected to 169	T	G&W	EC-EX-011	2019/04/21	1625	GR	4	2019/04/21	VB+PS	DB
11F	166 / 167	Connected to 164	T	G&W	EC-EX-011	2019/04/21	1626	GR	4	2019/04/21	VB+PS	DB
11G	167 / 168	Connected to 169	T	G&W	EC-EX-011	2019/04/21	1627	GR	4	2019/04/21	VB+PS	DB
11H	167 / 168	Connected to 164	T	G&W	EC-EX-011	2019/04/21	1630	GR	4	2019/04/21	VB+PS	DB
11I	164 / 165	Connected to 168	T	G&W	EC-EX-011	2019/04/21	1632	GR	4	2019/04/21	VB+PS	DB
11J	201 / 202	Connected to 192	T	G&W	EC-EX-008	2019/04/26	912	DH	-2	2019/04/26	VB+PS	BM
11K	201 / 202	Connected to 200	T	G&W	EC-EX-008	2019/04/26	914	DH	-2	2019/04/26	VB+PS	BM
11L	192 / 201	3m NW of SEEOS	DS	P	EC-EX-008	2019/04/26	1244	DH	5	2019/04/26	VB+PS	BM
11M	192 / 201	From SEEOS to 3m NW of SEEOS	FS	G&W	EC-EX-008	2019/04/26	915	DH	-2	2019/04/26	VB+PS	BM
11N	200 / 201	Connected to 190	T	P	EC-EX-008	2019/04/26	927	DH	-2	2019/04/26	VB+PS	BM
11O	190 / 200	Entire seam	FS	G&W	EC-EX-008	2019/04/26	920	DH	-2	2019/04/26	VB+PS	BM
11P	191 / 200	Entire Seam	FS	G&W	EC-EX-008	2019/04/26	925	DH	-2	2019/04/26	VB+PS	BM
11Q	191 / 200	2m NW of SEEOS	DS	P	EC-EX-008	2019/04/26	1257	DH	5	2019/04/26	VB+PS	BM
11R	189 / 190	On Crest	DS	P	EC-EX-008	2019/04/26	910	DH	-2	2019/04/26	VB+PS	BM
11S	189 / 191	Entire Seam	T	G&W	EC-EX-008	2019/04/26	945	DH	-2	2019/04/26	VB+PS	BM
11T	198 / 199	Connected to 200, 188	T	G&W	EC-EX-008	2019/04/26	934	DH	-2	2019/04/26	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 14 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/26	815	TW	-2	248	248	101	108	110	108	113	143	137	137	139	140	BM	
2	EC-EX-008	2019/04/26	900	DH	-2	248	246	120	118	125	132	107	169	170	159	162	164	BM	
3	EC-EX-008	2019/04/26	1500	DH	5	246	248	141	152	139	138	147	169	168	167	175	177	BM	
4	EC-EX-011	2019/04/27	800	RL	-2	241	248	134	163	120	148	161	171	166	162	174	173	BM	
5	EC-EX-008	2019/04/27	844	FG	-2	251	251	133	127	91	123	123	147	159	161	146	153	BM	
6	EC-EX-011	2019/04/27	1130	DH	-2	251	248	126	117	116	109	118	158	158	161	176	183	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
12A	188 / 189	Connected to 187	T	G&W	EC-EX-008	2019/04/26	948	DH	-2	2019/04/26	VB+PS	BM
12B	198 / 199	Connected to 197	T	G&W	EC-EX-008	2019/04/26	936	DH	-2	2019/04/26	VB+PS	BM
12C	197 / 199	On Crest	DS	P	EC-EX-008	2019/04/26	1330	DH	5	2019/04/26	VB+PS	BM
12D	187 / 188	Connected to 198	T	G&W	EC-EX-008	2019/04/26	943	DH	-2	2019/04/26	VB+PS	BM
12E	197 / 198	Connected to 187	T	G&W	EC-EX-008	2019/04/26	947	DH	-2	2019/04/26	VB+PS	BM
12F	185 / 186	Connecte to 187, 197	T	G&W	EC-EX-008	2019/04/26	1057	DH	-2	2019/04/26	VB+PS	BM
12G	195 / 196	Connected to 197	T	G&W	EC-EX-008	2019/04/26	1102	DH	-2	2019/04/26	VB+PS	BM
12H	195 / 196	Connected to 194	T	G&W	EC-EX-008	2019/04/26	1058	DH	-2	2019/04/26	VB+PS	BM
12I	185 / 186	Connected to 184	T	G&W	EC-EX-008	2019/04/26	1104	DH	-2	2019/04/26	VB+PS	BM
12J	184 / 185	Connected to 195	T	G&W	EC-EX-008	2019/04/26	1107	DH	-2	2019/04/26	VB+PS	BM
12K	194 / 195	Connected to 184	T	G&W	EC-EX-008	2019/04/26	1011	DH	-2	2019/04/26	VB+PS	BM
12L	183 / 184	Connected to 194	T	P	EC-EX-008	2019/04/27	1307	DH	7	2019/04/26	VB+PS	BM
12M	193 / 194	Connected to 183, 206	T	P	EC-EX-008	2019/04/27	1310	DH	7	2019/04/26	VB+PS	BM
12N	193 / 203	On Crest, 0.5m South	P	B	EC-EX-008	2019/04/26	1810	DH	5	2019/04/26	VB+PS	BM
12O	193 / 203	On Crest, 0.8m South	P	B	EC-EX-008	2019/04/26	1800	DH	5	2019/04/26	VB+PS	BM
12P	164 / 165	Connected to 203	T	G&W	EC-EX-008	2019/04/26	1240	DH	5	2019/04/26	VB+PS	BM
12Q	203 / 204	Connected to 164	T	G&W	EC-EX-008	2019/04/26	1145	DH	-2	2019/04/26	VB+PS	BM
12R	203 / 204	Connected to 193	T	G&W	EC-EX-008	2019/04/26	1147	DH	-2	2019/04/26	VB+PS	BM
12S	204 / 205	Connected to 164	T	G&W	EC-EX-008	2019/04/26	1142	DH	-2	2019/04/26	VB+PS	BM
12T	204 / 205	Connected to 193	T	G&W	EC-EX-008	2019/04/26	1137	DH	-2	2019/04/26	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 15 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/27	1230	RL	7	245	239	123	108	111	102	127	164	167	171	169	179	BM	
2	EC-EX-008	2019/04/27	1230	DH	7	251	251	159	145	130	144	145	179	172	186	190	182	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 16 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/26	815	TW	-2	248	248	101	108	110	108	113	143	137	137	139	140	BM	
2	EC-EX-008	2019/04/26	900	DH	-2	248	246	120	118	125	132	107	169	170	159	162	164	BM	
3	EC-EX-008	2019/04/26	1500	DH	5	246	248	141	152	139	138	147	169	168	167	175	177	BM	
4	EC-EX-011	2019/04/27	800	RL	-2	241	248	134	163	120	148	161	171	166	162	174	173	BM	
5	EC-EX-008	2019/04/27	844	FG	-2	251	251	133	127	91	123	123	147	159	161	146	153	BM	
6	EC-EX-011	2019/04/27	1130	DH	-2	251	248	126	117	116	109	118	158	158	161	176	183	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
13A	164 / 205	Connected to 206	T	G&W	EC-EX-008	2019/04/26	1135	DH	-2	2019/04/26	VB+PS	BM
13B	193 / 205	Connected to 206	T	G&W	EC-EX-008	2019/04/26	1130	DH	-2	2019/04/26	VB+PS	BM
13C	181 / 182	Connected to 183	T	G&W	EC-EX-008	2019/04/27	1440	DH	7	2019/04/26	VB+PS	BM
13D	181 / 182	Connected to 179	T	G&W	EC-EX-008	2019/04/27	1442	DH	7	2019/04/26	VB+PS	BM
13E	182 / 183	On Crest	DS	P	EC-EX-008	2019/04/27	1446	DH	7	2019/04/26	VB+PS	BM
13F	179 / 180	Connected to 182	T	G&W	EC-EX-008	2019/04/27	1450	DH	7	2019/04/26	VB+PS	BM
13G	179 / 180	Connected to 178	T	G&W	EC-EX-008	2019/04/27	1452	DH	7	2019/04/26	VB+PS	BM
13H	178 / 180	On Crest	BO	P	EC-EX-011	2019/04/27	1600	RL	7	2019/04/27	VB+PS	BM
13I	177 / 178	On Crest	BO	P	EC-EX-011	2019/04/27	1310	RL	7	2019/04/27	VB+PS	BM
13J	146 / 177	3m South of Crest	DS	P	EC-EX-008	2019/04/26	1300	DH	5	2019/04/26	VB+PS	BM
13K	146 / 177	On Crest	DS	P	EC-EX-008	2019/04/26	1250	DH	5	2019/04/26	VB+PS	BM
13L	206 / 207	Connected to 181, 183	T	P	EC-EX-008	2019/04/26	1530	DH	5	2019/04/26	VB+PS	BM
13M	207 / 208	Connected to 179, 181	T	P	EC-EX-008	2019/04/26	1535	DH	5	2019/04/26	VB+PS	BM
13N	208 / 209	Connected to 178, 179	T	P	EC-EX-008	2019/04/26	1540	DH	5	2019/04/26	VB+PS	BM
13O	177 / 178	Connected to 209, 149	T	P	EC-EX-008	2019/04/26	1545	DH	5	2019/04/26	VB+PS	BM
13P	146 / 177	Connected to 146A, 149	T	P	EC-EX-011	2019/04/26	910	RL	-2	2019/04/26	VB+PS	BM
13Q	149 / 209	8m North of SEOS	BO	P	EC-EX-011	2019/04/27	1455	RL	7	2019/04/27	VB+PS	BM
13R	149 / 209	3m North of SEOS	BO	P	EC-EX-011	2019/04/27	1505	RL	7	2019/04/27	VB+PS	BM
13S	150 / 209	Connected to 149	T	P	EC-EX-011	2019/04/27	815	RL	-2	2019/04/27	VB+PS	BM
13T	208 / 209	Connected to 150, 151	T	P	EC-EX-011	2019/04/27	835	RL	-2	2019/04/27	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 17 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/27	1230	RL	7	245	239	123	108	111	102	127	164	167	171	169	179	BM	
2	EC-EX-008	2019/04/27	1230	DH	7	251	251	159	145	130	144	145	179	172	186	190	182	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 18 of 19

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Event Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/04/27	800	RL	-2	241	248	134	163	120	148	161	171	166	162	174	173	BM	
2	EC-EX-008	2019/04/27	844	FG	-2	251	251	133	127	91	123	123	147	159	161	146	153	BM	
3	EC-EX-011	2019/04/27	1130	DH	-2	251	248	126	117	116	109	118	158	158	161	176	183	BM	
4	EC-EX-011	2019/04/27	1230	RL	7	245	239	123	108	111	102	127	164	167	171	169	179	BM	
5	EC-EX-008	2019/04/27	1230	DH	7	251	251	159	145	130	144	145	179	172	186	190	182	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
14A	207 / 208	Connected to 151, 154	T	P	EC-EX-011	2019/04/27	843	RL	-2	2019/04/27	VB+PS	BM
14B	154 / 207	3.4m West of EEOS, 3m South	D	P	EC-EX-011	2019/04/27	855	RL	-2	2019/04/27	VB+PS	BM
14C	154 / 207	3.4m West of EEOS, 1m South	D	P	EC-EX-011	2019/04/27	1040	RL	-2	2019/04/27	VB+PS	BM
14D	206 / 207	Connected to 154, 155	T	P	EC-EX-011	2019/04/27	1045	RL	-2	2019/04/27	VB+PS	BM
14E	166 / 206	Connected to 155, 156	T	P	EC-EX-008	2019/04/27	1554	FG	7	2019/04/27	VB+PS	BM
14F	155 / 156	1m South of NEOS	BO	P	EC-EX-008	2019/04/27	1550	FG	7	2019/04/27	VB+PS	BM
14G	149 / 177	2.5m West of EEOS, 0.5m North	D	P	EC-EX-011	2019/04/27	950	RL	-2	2019/04/27	VB+PS	BM
14H	149 / 177	3m West of EEOS, 0.5m North	D	P	EC-EX-011	2019/04/27	945	RL	-2	2019/04/27	VB+PS	BM
14I	149 / 177	3.4m West of EEOS, 0.5m North	D	P	EC-EX-011	2019/04/27	940	RL	-2	2019/04/27	VB+PS	BM
14J	149 / 177	5m West of EEOS, 1m North	D	P	EC-EX-011	2019/04/27	921	RL	-2	2019/04/27	VB+PS	BM
14K	149 / 177	5m West of EEOS, 0.5m North	D	P	EC-EX-011	2019/04/27	917	RL	-2	2019/04/27	VB+PS	BM
14L	149 / 177	5.5m West of EEOS, 0.5m North	D	P	EC-EX-011	2019/04/27	915	RL	-2	2019/04/27	VB+PS	BM
14M	18 / 19	3.4m West of EEOS, 1m North	D	P	EC-EX-008	2019/04/27	1725	FG	7	2019/04/27	VB+PS	BM
14N	186 / 187	5m North of SEOS	FS	G&W	EC-EX-008	2019/04/27	950	DH	-2	2019/04/27	VB+PS	BM
	/											
	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/28

SHEET NUMBER 19 of 19

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	3/4	2019/04/05	20		BM			163	168	162	164	159	158	156	156	161	156	191	189	187	180	187
EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-2	SPF	1/2	2019/04/07	20		BM			139	145	150	144	146	137	142	140	142	142	177	175	174	170	168
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-3	SPF	2/5	2019/04/07	20		BM			137	147	149	144	144	144	140	143	129	138	170	168	171	169	169
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-4	SPF	7/8	2019/04/07	20		BM			134	145	136	139	151	154	155	137	129	139	154	166	170	169	175
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-5	SPF	8/9	2019/04/07	20		BM			144	145	136	143	147	144	133	145	152	154	160	165	170	169	171
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-6	SPF	10/11	2019/04/07	20		BM			141	149	138	153	146	137	146	144	142	146	166	167	166	165	170
North Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-7	SPF	11/12A	2019/04/08	20		BM			123	126	122	124	114	123	125	120	124	118	142	145	143	144	145
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-8	SPF	12A/16	2019/04/08	20		BM			121	123	129	126	125	116	113	105	122	100	137	144	145	144	145
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 1 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-9	SPF	16/17	2019/04/08	20		BM			125	133	128	128	132	124	130	127	127	127	145	147	145	145	145
North AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-10	SPF	25/26	2019/04/08	20		BM			132	133	117	139	139	123	128	120	129	124	149	144	147	150	150
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-11	SPF	32/33	2019/04/08	20		BM			131	130	131	136	130	125	123	136	132	142	156	158	161	155	158
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-12	SPF	43/44	2019/04/08	20		BM			131	143	139	142	142	133	139	128	138	137	164	160	149	159	161
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-13	SPF	38/40	2019/04/08	20		BM			143	139	153	156	153	141	152	146	143	142	172	170	166	170	175
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-14	SPF	23/24	2019/04/08	20		BM			154	162	172	168	160	153	156	170	169	172	195	195	198	194	200
1m SW of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-15	SPF	48/49	2019/04/10	20		BM			147	140	143	148	141	145	145	139	144	140	175	175	180	179	176
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-16	SPF	53/54	2019/04/10	20		BM			157	149	152	160	153	148	167	146	152	159	180	172	178	176	176
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 2 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-17	SPF	56/57	2019/04/10	20		BM			158	157	145	148	138	152	152	129	140	142	181	185	178	183	180
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-18	SPF	63/64	2019/04/10	20		BM			151	147	145	146	159	124	133	149	137	144	177	180	175	174	174
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-19	SPF	65/66	2019/04/10	20		BM			151	156	150	162	150	132	142	143	147	143	179	172	173	175	180
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-20	SPF	68/69	2019/04/10	20		BM			144	160	144	150	148	153	150	161	157	159	189	181	192	189	188
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-21	SPF	72/74	2019/04/10	20		BM			134	145	134	140	152	150	150	134	151	152	191	185	188	184	180
SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-22	SPF	76/78	2019/04/10	20		BM			122	150	156	145	136	124	143	139	145	137	171	156	168	171	170
SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-23	SPF	82/83	2019/04/18	20		DB			147	144	141	141	169	148	151	149	151	148	179	189	180	166	170
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-24	SPF	88/89	2019/04/18	20		DB			139	149	129	133	135	137	137	133	135	128	174	153	168	153	161
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 3 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-25	SPF	91/92	2019/04/18	20		DB			110	154	141	156	159	139	136	150	137	138	168	169	163	172	151
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-26	SPF	96/97	2019/04/18	20		DB			128	155	157	149	136	132	131	141	140	137	172	166	170	162	172
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-27	SPF	99/101	2019/04/18	20		DB			133	148	158	153	139	114	145	155	156	139	170	172	165	165	176
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-28	SPF	104/105	2019/04/18	20		DB			151	152	163	147	138	158	131	122	135	147	189	179	173	183	183
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-29	SPF	107/108	2019/04/18	20		DB			148	127	149	137	136	151	145	136	136	130	141	175	167	157	165
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-30	SPF	110/111	2019/04/18	20		DB			133	148	143	143	144	131	135	134	136	134	149	175	170	172	161
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-31	SPF	113/114	2019/04/18	20		DB			138	147	147	155	153	145	147	148	149	143	180	178	181	166	169
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-32	SPF	119/120	2019/04/18	20		DB			140	148	139	146	143	119	139	141	137	147	148	163	170	162	172
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 4 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-33	SPF	122/123	2019/04/19	20		DB			122	141	131	129	125	148	125	126	126	131	150	159	157	157	154
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-34	SPF	125/126	2019/04/19	20		DB			143	157	129	131	137	125	125	124	125	135	156	136	153	155	153
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-35	SPF	128/129	2019/04/19	20		DB			128	141	139	139	131	127	128	138	133	134	163	142	165	154	154
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-36	SPF	133/134	2019/04/19	20		DB			132	130	137	141	137	130	140	143	134	140	164	166	164	129	168
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-37	SPF	136/137	2019/04/19	20		DB			134	138	133	139	129	142	134	133	124	129	157	128	158	154	150
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-38	SPF	142/143	2019/04/19	20		DB			149	143	148	148	145	142	147	155	142	146	168	169	165	166	167
3m From Neos									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-39	SPF	106/135	2019/04/19	20		DB			162	154	150	135	151	123	147	154	151	145	178	202	178	179	187
Tie in									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-40	SPF	145/146	2019/04/21	20		DB			141	162	156	142	151	140	148	144	138	142	170	171	178	170	174
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 5 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-41	SPF	148/149	2019/04/21	20		DB			145	135	139	135	139	124	136	133	139	129	170	168	162	171	176
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-42	SPF	154/155	2019/04/21	20		DB			138	161	148	136	137	136	130	118	144	135	169	170	178	170	174
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-43	SPF	159/161	2019/04/22	20		DB			136	150	149	143	137	143	146	152	146	136	169	171	172	173	167
Tie in									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-44	SPF	159/170	2019/04/22	20		DB			172	167	176	201	147	150	162	160	168	169	197	199	196	194	187
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-45	SPF	175/176	2019/04/22	20		DB			141	144	144	149	141	131	151	136	139	134	180	178	183	173	180
East Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-46	SPF	168/169	2019/04/22	20		DB			124	133	132	114	142	149	137	145	144	133	168	168	167	174	169
2m From weos									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-47	SPF	146/177	2019/04/26	20		BM			147	136	132	138	138	139	137	141	145	138	167	165	173	157	169
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-48	SPF	182/183	2019/04/26	20		BM			150	142	136	128	142	138	139	139	136	137	169	164	166	162	165
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 6 of 7

GEOMEMBRANE DESTRUCT LOG

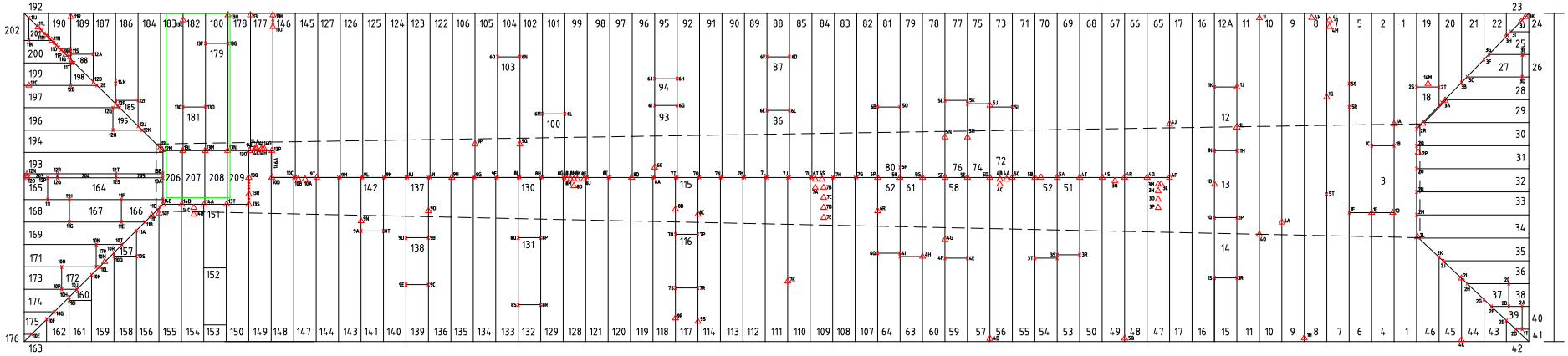
PROJECT NUMBER CT001143
PROJECT TITLE Event Pond
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-49	SPF	189/190	2019/04/26	20		BM			132	131	133	127	132	138	143	141	146	146	163	164	165	166	164
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-50	SPF	197/199	2019/04/26	20		BM			144	140	142	141	143	136	141	147	152	149	162	162	156	163	169
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-51	SPF	190/200	2019/04/26	20		Fail																	
1m South of NEOS																							
DS-52	SPF	192/201	2019/04/26	20		BM			151	149	148	146	142	158	154	143	161	156	166	174	179	176	177
3m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-53	SPF	191/200	2019/04/26	20		BM			149	148	142	140	148	149	151	148	140	149	166	176	166	167	172
2m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-54	SPF	206/207	2019/04/27	20		BM			126	124	140	137	130	126	127	128	134	132	164	164	161	165	159
North Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/04/28
SHEET NUMBER 7 of 7

444m



104m

Event Pond
Primary Layer
80mil LLDPE DST

LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap
- Rubsheet

LAYFIELD CANADA LTD

Quote No

Project No CT001143

DWG:

DWN: BM

APPD:

DATE: 2019-04-28

SCALE: NTS

CMKD:

REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Gold Eagle Event Pond
PROJECT NUMBER: CT001143 **DATE:** 2019-04-27
OWNER: Victoria Gold
LOCATION: Gold Eagle, YK

Scope of Installation(s): THE WORK
Area/Layer: Event Pond Area Inspected: ☐ Partial or ☐ Complete
Dimensions: Approx. 450m by 108m ~ 48,600m² of geocomposite GCL, 60mil LLDPE DST and 80mil LLDPE DST per layer. All liner tested with air channel and point stress testing. Repairs and Details tested. Two heater installed

Part 1 – LAYFIELD CANADA LTD.

I, BRADLEY McLEOD, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: BRADLEY McLEOD
Title: QC Technician
Date: 2019-04-27 **Signature:**

Part 2 – OWNER (or Representative)

I, Scott Dintinfl, a duly appointed representative of TetraTech, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Dintinfl
Title: Project Technologist
Company: Tetra Tech
Date: April 30, 2019 **Signature:**

Comments: South slope to be walked through at a later date

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as Event Pond will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (April 27, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will <u>not</u> be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

In Heap Pond Secondary

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF SUBGRADE SURFACE INSPECTION

PROJECT NAME: Eagle Gold In Heap Pond
PROJECT NUMBER: CT001143
OWNER/CONTRACTOR: Victoria Gold / JDS Mining
LOCATION: Eagle Gold Mine, YT

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the subgrade surface described below, and:

- ☑ *found it to be an Acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐Partial or ☑Complete): _____
Dimensions of Subgrade Inspection: Approx 62,000 m2
Anchor Trench Dimensions: 0.5 x 0.5
Comments: Final Subgrade acceptance to cover all the in heap pond scope

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: 18 May 2019
Signature: _____
Name: Chad Messervey
Title: Project Supervisor

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: Aug. 8, 2019
Signature: _____
Name: Scott Dimmuff
Title: QA Monitor
Company: TetraTech

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/11/09

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-37849	21	6.8	4	GOOD	DT	GOOD
2	5-37849	30	6.8	4	GOOD	DT	GOOD
3	5-37849	30	6.8	4	GOOD	DT	GOOD
4	5-37849	7.2	6.8	4	GOOD	DT	GOOD
5	5-37849	42.5	6.8	4	GOOD	DT	GOOD
6	5-37822	14.5	6.8	4	GOOD	DT	GOOD
7	5-37849	28	6.8	4	GOOD	DT	GOOD
8	5-37849	4.2	6.8	4	GOOD	DT	GOOD
9	5-37822	50.5	6.8	4	GOOD	DT	GOOD
10	5-37822	54	6.8	6	GOOD	DT	GOOD
11	5-37852	15	6.8	6	GOOD	DT	GOOD
12	5-37822	40	6.8	6	GOOD	DT	GOOD
13	5-37852	58.5	6.8	6	GOOD	DT	GOOD
14	5-37852	2.5	6.8	6	GOOD	DT	GOOD

TOTAL PAGE AREA 2705.72 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 1 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/12/09

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
15	5-37836	63	6.8	2	GOOD	DT	GOOD
16	5-37836	65.5	6.8	2	GOOD	DT	GOOD
17	5-37852	34	6.8	2	GOOD	DT	GOOD
18	5-37836	33	6.8	2	GOOD	DT	GOOD
19	5-37852	19.5	6.8	2	GOOD	DT	GOOD
20	5-37835	50.5	6.8	2	GOOD	DT	GOOD
21	5-37835	72.5	6.8	2	GOOD	DT	GOOD
22	5-37835	72.5	6.8	4	GOOD	DT	GOOD
23	5-37844	47	6.8	4	GOOD	DT	GOOD
24	5-37835	12.5	6.8	4	GOOD	DT	GOOD
25	5-37844	39	6.8	4	GOOD	DT	GOOD
26	5-37844	3	6.8	4	GOOD	DT	GOOD
27	5-37844	18	6.8	4	GOOD	DT	GOOD

TOTAL PAGE AREA 3604 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 2 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 13/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
28	5-37851	39	6.8	3	GOOD	DT	GOOD
29	5-37881	62	6.8	3	GOOD	DT	GOOD
30	5-37881	71	6.8	3	GOOD	DT	GOOD
31	5-37851	71	6.8	3	GOOD	DT	GOOD
32	5-37860	69.5	6.8	3	GOOD	DT	GOOD

TOTAL PAGE AREA 2125 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 3 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 14/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
33	5-37910	72	6.8	7	GOOD	DT	GOOD
34	5-37910	68.5	6.8	7	GOOD	DT	GOOD
35	5-37855	64	6.8	8	GOOD	DT	GOOD
36	5-37855	8	13	8	GOOD	DT	GOOD
37	5-37856	26	6.8	8	GOOD	DT	GOOD
38	5-37856	44.5	6.8	8	GOOD	DT	GOOD
39	5-37856	56.5	6.8	8	GOOD	DT	GOOD
40	5-37855	66	6.8	8	GOOD	DT	GOOD

TOTAL PAGE AREA 2807 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 4 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 15/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
41	5-37825	29	6.8	8	GOOD	DT	GOOD
42	5-37825	59	6.8	8	GOOD	DT	GOOD
43	5-37825	59	6.8	8	GOOD	DT	GOOD

TOTAL PAGE AREA 999.6 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 5 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 20/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
44	5-37902	83	6.8	9	GOOD	DT	GOOD
45	5-37902	3	3	9	GOOD	DT	GOOD

TOTAL PAGE AREA 573.4 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 6 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 21/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
46	5-37898	64	6.8	7	GOOD	DT	GOOD
47	5-37898	58	6.8	7	GOOD	DT	GOOD
48	5-37894	11	6.8	7	GOOD	DT	GOOD
49	5-37898	42.5	6.8	7	GOOD	DT	GOOD
50	5-37808	18	6.8	7	GOOD	DT	GOOD
51	5-37894	29.5	6.8	7	GOOD	DT	GOOD
52	5-37894	36	6.8	7	GOOD	DT	GOOD
53	5-37894	36	6.8	7	GOOD	DT	GOOD
54	5-37894	6	6.8	7	GOOD	DT	GOOD
55	5-37894	36	6.8	7	GOOD	DT	GOOD
56	5-37902	36	6.8	7	GOOD	DT	GOOD
57	5-37902	36	6.8	7	GOOD	DT	GOOD

TOTAL PAGE AREA 2781.2 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 7 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 22/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
58	5-37808	93	6.8	4	GOOD	DT	GOOD
59	5-37895	31.5	3	4	GOOD	DT	GOOD
60	5-37895	47	6.8	4	GOOD	DT	GOOD
61	5-37808	51.5	6.8	4	GOOD	DT	GOOD
62	5-37895	94	6.8	4	GOOD	DT	GOOD
63	5-37886	87.5	6.8	4	GOOD	DT	GOOD
64	5-37845	1.5	6.8	4	GOOD	DT	GOOD
65	5-37886	77	6.8	4	GOOD	DT	GOOD
66	5-37845	78.5	6.8	4	GOOD	DT	GOOD
67	5-37845	69.5	6.8	4	GOOD	DT	GOOD

TOTAL PAGE AREA 4171.1 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 8 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 23/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
68	5-37896	71	6.8	6	GOOD	DT	GOOD
69	5-37896	65	6.8	6	GOOD	DT	GOOD
70	5-37903	26	6.8	6	GOOD	DT	GOOD
71	5-37896	28	6.8	6	GOOD	DT	GOOD

TOTAL PAGE AREA 1292 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 9 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 24/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
72	5-37903	41.5	6.8	9	GOOD	DT	GOOD
73	5-37903	27	6.8	9	GOOD	DT	GOOD
74	5-37903	11.5	9.5	9	GOOD	DT	GOOD
75	5-37903	9.5	9.5	9	GOOD	DT	GOOD
76	5-37903	4.5	6.8	9	GOOD	DT	GOOD
77	5-37903	14	6.8	9	GOOD	DT	GOOD
78	5-37903	25	6.8	9	GOOD	DT	GOOD
79	5-38757	31.5	6.8	9	GOOD	DT	GOOD
80	5-38757	37.5	6.8	9	GOOD	DT	GOOD
81	5-38757	42	6.8	9	GOOD	DT	GOOD
82	5-38757	46	6.8	9	GOOD	DT	GOOD
83	5-38757	50	6.8	9	GOOD	DT	GOOD

TOTAL PAGE AREA 2368.7 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 10 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 26/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
84	5-37858	61	6.8	7	GOOD	DT	GOOD
85	5-37858	28.5	3.4	7	GOOD	DT	GOOD
86	5-37858	63.5	6.8	7	GOOD	DT	GOOD
87	5-37810	33.5	6.8	7	GOOD	DT	GOOD
88	5-37858	35	6.8	7	GOOD	DT	GOOD
89	5-37810	72.5	6.8	7	GOOD	DT	GOOD
90	5-37810	76.5	6.8	7	GOOD	DT	GOOD
91	5-37900	80	6.8	7	GOOD	DT	GOOD

TOTAL PAGE AREA 2966.5 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 11 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 27/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
92	5-37900	30.6	3	7	GOOD	CM	GOOD
93	5-37900	6.8	3	7	GOOD	CM	GOOD

TOTAL PAGE AREA 112.2 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 12 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/05/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
94	5-37900	16	6.8	-2	GOOD	DT	GOOD
95	5-37900	3	6.8	-2	GOOD	DT	GOOD
96	5-37900	13	6.8	-2	GOOD	DT	GOOD

TOTAL PAGE AREA 217.6 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 13 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/06/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
97	5-37848	90	6.8	-2	GOOD	DT	GOOD
98	5-37884	90	6.8	-2	GOOD	DT	GOOD

TOTAL PAGE AREA 1224 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 14 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/07/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
99	5-37819	90	6.8	-3	GOOD	DT	GOOD
100	5-37817	90	6.8	-3	GOOD	DT	GOOD
101	5-37811	95	6.8	-3	GOOD	DT	GOOD
102	5-37811	10	6.8	-3	GOOD	DT	GOOD
103	5-37811	10	6.8	-3	GOOD	DT	GOOD
104	5-37812	93	6.8	-3	GOOD	DT	GOOD

TOTAL PAGE AREA 2638.4 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 15 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/08/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
105	5-37811	3.5	0.5	-3	GOOD	DT	GOOD
106	5-37811	9	6.8	-3	GOOD	DT	GOOD
107	5-37811	16.8	6.8	-3	GOOD	DT	GOOD
108	5-37811	20	6.8	-3	GOOD	DT	GOOD
109	5-37812	34	6.8	-3	GOOD	DT	GOOD
110	5-37812	36	6.8	-3	GOOD	DT	GOOD
111	5-37893	36	6.8	-3	GOOD	DT	GOOD
112	5-37893	81	6.8	-3	GOOD	DT	GOOD
113	5-37888	87.5	6.8	-3	GOOD	DT	GOOD

TOTAL PAGE AREA 2179.79 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 16 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/09/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
114	5-37842	93	6.8	-4	GOOD	DT	GOOD
115	5-37883	14	6.8	-4	GOOD	DT	GOOD
123	5-37883	8	10	-4	GOOD	DT	GOOD
124	5-37883	14	6.8	-4	GOOD	DT	GOOD
125	5-37883	5	5	-4	GOOD	DT	GOOD
126	5-37883	10	6.8	-4	GOOD	DT	GOOD
127	5-37883	101	6.8	-4	GOOD	DT	GOOD

TOTAL PAGE AREA 1682.6 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 17 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/10/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
115	5-37880	5	5	-2	GOOD	DT	GOOD
116	5-37880	14	6.8	-2	GOOD	DT	GOOD
117	5-37880	14	6.8	-2	GOOD	DT	GOOD
118	5-37842	14	6.8	-2	GOOD	DT	GOOD
119	5-37842	14	6.8	-2	GOOD	DT	GOOD
120	5-37842	14	6.8	-2	GOOD	DT	GOOD
121	5-37842	14	6.8	-2	GOOD	DT	GOOD
134	5-37843	15	6.8	-2	GOOD	DT	GOOD
135	5-37843	82	6.8	-2	GOOD	DT	GOOD

TOTAL PAGE AREA 1255.8 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 18 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/12/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
128	5-37880	3	6.8	0	GOOD	DT	GOOD
129	5-37880	14	6.8	0	GOOD	DT	GOOD
130	5-37880	33	6.8	0	GOOD	DT	GOOD
131	5-37880	19	6.8	0	GOOD	DT	GOOD
132	5-37843	27	6.8	0	GOOD	DT	GOOD
133	5-37843	51	6.8	0	GOOD	DT	GOOD

TOTAL PAGE AREA 999.6 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 19 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 21/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
136	5-37879	87	6.8	-1	GOOD	DT	GOOD
137	5-37887	87	6.8	-1	GOOD	DT	GOOD

TOTAL PAGE AREA 1183.2 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 20 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 24/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
138	5-37815	102.5	6.8	2	GOOD	MJ	GOOD
139	5-37875	102.5	6.8	2	GOOD	MJ	GOOD
140	5-37875	9	6.8	2	GOOD	MJ	GOOD
141	5-37875	7.5	2.6	2	GOOD	MJ	GOOD
142	5-37875	65	6.8	2	GOOD	MJ	GOOD
143	5-37815	30	6.8	2	GOOD	MJ	GOOD

TOTAL PAGE AREA 2120.7 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 21 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 25/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
144	5-37882	74.6	6.8	1	GOOD	MJ	GOOD
145	5-37809	91	6.8	3	GOOD	MJ	GOOD
146	5-37882	4	6.8	3	GOOD	MJ	GOOD
147	5-37809	74	6.8	3	GOOD	MJ	GOOD
148	5-37882	13	6.8	3	GOOD	MJ	GOOD
149	5-37882	5	6.8	3	GOOD	MJ	GOOD

TOTAL PAGE AREA 1778.88 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 22 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 26/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
150	5-37879	76	6.8	2	GOOD	MJ	GOOD
151	5-37882	11.5	6.8	2	GOOD	MJ	GOOD
152	5-37882	54	6.8	2	GOOD	MJ	GOOD
153	5-37819	21	6.8	2	GOOD	MJ	GOOD

TOTAL PAGE AREA 1105 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 23 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/03/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
154	5-37828	70	6.8	-10	GOOD	DT	GOOD
155	5-37828	59.5	6.8	-10	GOOD	DT	GOOD
156	5-37848	47.5	6.8	-10	GOOD	DT	GOOD
157	5-37848	37.5	6.8	-10	GOOD	DT	GOOD
158	5-37828	27	6.8	-10	GOOD	DT	GOOD
159	5-37848	16	6.8	-10	GOOD	DT	GOOD

TOTAL PAGE AREA 1751 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 24 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/04/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
160	5-37829	69	6.8	-20	GOOD	DT	GOOD
161	5-37829	65	6.8	-20	GOOD	DT	GOOD
162	5-37827	61	6.8	-20	GOOD	DT	GOOD
163	5-37827	57	6.8	-20	GOOD	DT	GOOD
164	5-37813	53	6.8	-20	GOOD	DT	GOOD

TOTAL PAGE AREA 2074 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 25 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/05/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
165	5-37813	49	6.8	-20	GOOD	DT	GOOD

TOTAL PAGE AREA 333.2 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 26 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/06/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
166	5-37813	43	6.8	-25	GOOD	DT	GOOD
167	5-37855	38	6.8	-25	GOOD	DT	GOOD
168	5-37887	36	6.8	-25	GOOD	DT	GOOD
169	5-37848	31	6.8	-25	GOOD	DT	GOOD
170	5-37887	28	6.8	-25	GOOD	DT	GOOD

TOTAL PAGE AREA 1196.8 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 27 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/10/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
171	5-37832	93	6.8	-12	GOOD	VF	GOOD
172	5-37824	92	6.8	-12	GOOD	VF	GOOD
173	5-37833	91	6.8	-12	GOOD	VF	GOOD
174	5-37833	90	6.8	-12	GOOD	VF	GOOD
175	5-37824	89	6.8	-12	GOOD	VF	GOOD
176	5-37832	88	6.8	-12	GOOD	VF	GOOD

TOTAL PAGE AREA 3692.4 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 28 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 14/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1C	5-37832	6	1.5	-15	GOOD	VF	GOOD
2C	5-37832	6	1.5	-15	GOOD	VF	GOOD

TOTAL PAGE AREA 18 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 29 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 16/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
3C	5-37832	8	1	-24	GOOD	VF	GOOD

TOTAL PAGE AREA 8 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 30 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/03/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
177	5-37815	29.5	6.7	-18	GOOD	VF	GOOD
178	5-37829	6.5	6.7	-18	GOOD	VF	GOOD
179	5-37893	36	6.7	-18	GOOD	VF	GOOD
180	5-37884	36	6.7	-18	GOOD	VF	GOOD
181	5-37884	11	6.7	-18	GOOD	VF	GOOD

TOTAL PAGE AREA 797.3 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 31 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/04/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
182	5-37848	17.5	6.7	-20	GOOD	VF	GOOD
183	5-37845	6	6.7	-20	GOOD	VF	GOOD
184	5-37901	25	6.7	-20	GOOD	VF	GOOD
185	5-37811	6.8	6.7	-20	GOOD	VF	GOOD
186	5-37895	18	6.7	-20	GOOD	VF	GOOD
187	5-37900	18	6.7	-20	GOOD	VF	GOOD
188	5-37900	23	6.7	-20	GOOD	VF	GOOD
189	5-37886	22	6.7	-20	GOOD	VF	GOOD
190	5-37880	21	6.7	-20	GOOD	VF	GOOD
191	5-37817	20	6.7	-20	GOOD	VF	GOOD
192	5-37817	19	6.7	-20	GOOD	VF	GOOD
193	5-37817	19	6.7	-20	GOOD	VF	GOOD

TOTAL PAGE AREA 1442.51 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 32 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/07/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
194	5-37851	35.7	6.7	-14	GOOD	CM	GOOD
195	5-37851	18	6.7	-14	GOOD	CM	GOOD
196	5-37918	17	6.7	-14	GOOD	CM	GOOD
197	5-37819	26	6.7	-14	GOOD	CM	GOOD
198	5-37811	5	6.7	-14	GOOD	CM	GOOD
199	5-37847	26	6.7	-14	GOOD	CM	GOOD
200	5-37847	19.6	6.7	-7	GOOD	CM	GOOD
201	5-37847	20	6.7	-7	GOOD	CM	GOOD
202	5-37888	22	6.7	-7	GOOD	CM	GOOD
203	5-37888	22	6.7	-7	GOOD	CM	GOOD
204	5-37888	20	6.7	-7	GOOD	CM	GOOD
205	5-37860	23	6.7	-7	GOOD	CM	GOOD
206	5-37888	23	6.7	-7	GOOD	CM	GOOD
207	5-37860	23	6.7	-7	GOOD	CM	GOOD
208	5-37860	23	6.7	-7	GOOD	CM	GOOD
209	5-37860	22.2	6.7	-7	GOOD	CM	GOOD
210	5-37884	22.3	6.7	-7	GOOD	CM	GOOD
211	5-37884	13.8	6.7	-7	GOOD	CM	GOOD
212	5-37884	6.6	6.7	-7	GOOD	CM	GOOD
213	5-37884	14.7	6.7	-7	GOOD	CM	GOOD

TOTAL PAGE AREA 2699.43 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 33 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/07/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
214	5-37884	22	6.7	-7	GOOD	CM	GOOD
215	5-37889	22	6.7	-7	GOOD	CM	GOOD
216	5-37889	22.4	6.7	-7	GOOD	CM	GOOD
217	5-37889	22.6	6.7	-7	GOOD	CM	GOOD
218	5-37889	23	6.7	-7	GOOD	CM	GOOD
219	5-37889	23.5	6.7	-7	GOOD	CM	GOOD
220	5-37889	24	6.7	-7	GOOD	CM	GOOD
221	5-37899	24.5	6.7	-7	GOOD	CM	GOOD
222	5-37899	25	6.7	-7	GOOD	CM	GOOD
223	5-37899	25	6.7	-7	GOOD	CM	GOOD
224	5-37899	25	6.7	-7	GOOD	CM	GOOD
225	5-37899	12.5	4	-7	GOOD	CM	GOOD
226	5-37899	12.5	4	-7	GOOD	CM	GOOD
227	5-37884	1	2	-7	GOOD	CM	GOOD
228	5-37847	3	6.7	-7	GOOD	CM	GOOD

TOTAL PAGE AREA 1857.4 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 34 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 2018/09/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
229	5-37899	22	1.7	0	GOOD	CM	GOOD
230	5-37899	22	1.7	0	GOOD	CM	GOOD
231	5-37899	22	1.7	0	GOOD	CM	GOOD
232	5-37899	7	1.7	0	GOOD	CM	GOOD

TOTAL PAGE AREA 124.1 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 35 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 15/01/2019

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
233	5-37878	60	6.8	-19	GOOD	CM	GOOD
234	5-37878	58	6.8	-19	GOOD	CM	GOOD
235	5-37890	56	6.8	-19	GOOD	CM	GOOD
236	5-37890	50	6.8	-19	GOOD	CM	GOOD
237	5-37890	48	6.8	-19	GOOD	CM	GOOD
238	5-37878	44	6.8	-19	GOOD	CM	GOOD
239	5-37890	40	6.8	-19	GOOD	CM	GOOD
240	5-37850	35	6.8	-19	GOOD	CM	GOOD

TOTAL PAGE AREA 2658.8 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 36 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 16/01/2019

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
241	5-37850	33.5	6.8	-20	GOOD	CM	GOOD
242	5-37850	32	6.8	-20	GOOD	CM	GOOD
243	5-37850	30.5	6.8	-20	GOOD	CM	GOOD
244	5-37859	29	6.8	-20	GOOD	CM	GOOD
245	5-37859	27.5	6.8	-20	GOOD	CM	GOOD
246	5-37859	26	6.8	-20	GOOD	CM	GOOD
247	5-37859	24.5	6.8	-20	GOOD	CM	GOOD
248	5-37859	23	6.8	-20	GOOD	CM	GOOD
249	5-37825	21	6.8	-20	GOOD	CM	GOOD
250	5-37825	12	6.8	-20	GOOD	CM	GOOD
251	5-37850	6.9	6.8	-20	GOOD	CM	GOOD

TOTAL PAGE AREA 1808.12 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 37 of 38

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
DEPLOYMENT DATE 19/01/2019

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
252	5-37831	18.9	6.8	-20	GOOD	CM	GOOD
253	5-37831	12	6.8	-20	GOOD	CM	GOOD
254	5-37831	11	6.8	-20	GOOD	CM	GOOD

TOTAL PAGE AREA 284.92 m²

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 38 of 38

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/11/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1100	DH	21	60.0%	454	116	127	120	120	119	108	115	116	109	115	150	152	152	154	153	DT	SM2SM
2	EC-WW-045	1119	TB	21	60.0%	454	119	111	116	122	119	120	117	110	121	132	150	142	146	155	147	DT	SM2SM
3	EC-WW-054	1135	GB	21	45.0%	454	130	142	133	147	134	123	118	144	123	130	161	158	169	176	166	DT	TEX2TEX
4	EC-WW-039	1440	DH	21	60.0%	454	110	112	113	116	123	108	109	113	114	112	140	137	139	142	141	DT	SM2SM
5	EC-WW-045	1444	TB	21	60.0%	454	109	110	107	121	111	109	111	113	114	114	134	141	145	142	143	DT	SM2SM
6	EC-WW-054	1450	GB	21	45.0%	454	135	132	147	137	130	130	128	135	141	137	153	159	153	162	160	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 2	EEOS	1A	1204	2	DH	EC-WW-039	12.5	DS-1	AP+PS	11/9/18	1749	1754	35	35	PASS	DH
1 / 2	1A	WEOS	1208	2	DH	EC-WW-039	8.5	DS-1	AP+PS	11/9/18	1750	1755	35	35	PASS	DT
3 / 4	SEOS	NEOS	1212	2	GB	EC-WW-054	6.8		AP+PS	11/9/18	1809	1814	35	35	PASS	DH
2 / 3	EEOS	WEOS	1217	2	TB	EC-WW-045	30.5		AP+PS	11/9/18	1755	1800	35	35	PASS	CM
6 / 7	SEOS	NEOS	1224	2	GB	EC-WW-054	6.8		AP+PS	11/9/18	1617	1622	35	35	PASS	CM
3 / 5	EEOS	WEOS	1236	2	DH	EC-WW-039	30.0		AP+PS	11/9/18	1757	1802	35	35	PASS	DH
5 / 6	EEOS	WEOS	1236	2	TB	EC-WW-045	14.5		AP+PS	11/9/18	1803	1808	35	35	PASS	DH
7 / 8	SEOS	NEOS	1237	2	GB	EC-WW-054	6.8		AP+PS	12/9/18	856	901	35	35	PASS	DT
5 / 7	EEOS	WEOS	1240	2	TB	EC-WW-045	28.0		AP+PS	11/9/18	1802	1807	35	35	PASS	DH
4 / 5	EEOS	WEOS	1244	2	DH	EC-WW-039	7.2		AP+PS	11/9/18	1810	1815	35	35	PASS	DH
6 / 9	EEOS	WEOS	1250	2	DH	EC-WW-039	14.5	DS-2	AP+PS	12/9/18	939	944	35	35	PASS	DT
7 / 9	EEOS	WEOS	1254	2	DH	EC-WW-039	28.0		AP+PS	11/9/18	1622	1627	35	35	PASS	CM
8 / 9	EEOS	WEOS	1300	2	DH	EC-WW-039	4.2		AP+PS	12/9/18	857	902	35	35	PASS	DT
9 / 10	EEOS	WEOS	1647	6	DH	EC-WW-039	50.5		AP+PS	11/9/18	1818	1823	35	35	PASS	FC
11 / 12	SEOS	NEOS	1658	6	GB	EC-WW-054	6.8		AP+PS	12/9/18	1049	1054	35	35	PASS	DT
10 / 11	EEOS	WEOS	1703	6	TB	EC-WW-045	15.0		AP+PS	12/9/18	1042	1047	35	35	PASS	DT
10 / 12	EEOS	WEOS	1706	6	TB	EC-WW-045	38.5		AP+PS	12/9/18	1043	1048	35	35	PASS	DT
11 / 13	EEOS	WEOS	1708	6	DH	EC-WW-039	15.0		AP+PS	12/9/18	1055	1100	35	35	PASS	DT
12 / 13	EEOS	WEOS	1711	6	DH	EC-WW-039	41.0		AP+PS	12/9/18	1054	1059	35	35	PASS	DT
12 / 14	SEOS	NEOS	1720	6	GB	EC-WW-054	6.8		AP+PS	12/9/18	1105	1110	35	35	PASS	DT
						PAGE TOTAL	371.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 1 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/11/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
14	13	EEOS	WEOS	1720	6	DH	EC-WW-039	2.7		AP+PS	12/9/18	1106	1111	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/12/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	955	DH	21	60.0%	454	119	129	130	130	132	118	123	123	116	115	157	154	163	156	164	DT	SM2SM
2	EC-WW-045	1000	TB	21	60.0%	454	120	127	123	125	127	116	119	112	129	119	151	153	152	159	153	DT	SM2SM
3	EC-WW-054	1003	GB	21	45.0%	454	153	146	143	159	151	142	144	138	140	133	162	167	170	174	172	DT	TEX2TEX
4	EC-WW-054	1510	GB	21	45.0%	454	123	119	130	115	120	132	137	134	143	130	162	163	166	168	159	DT	TEX2TEX
5	EC-WW-039	1515	DH	21	60.0%	454	115	127	117	126	117	120	121	111	120	122	148	144	151	151	138	DT	SM2SM
6	EC-WW-045	1604	TB	21	60.0%	454	112	116	113	117	111	115	108	109	111	111	145	145	151	151	151	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
13 / 15	EEOS	WEOS	1018	2	TB	EC-WW-045	61.0		AP+PS	12/9/18	1215	1220	35	35	PASS	DT
15 / 16	EEOS	WEOS	1048	2	DH	EC-WW-039	63.0		AP+PS	12/9/18	1216	1221	35	35	PASS	DT
16 / 17	EEOS	WEOS	1226	3	DH	EC-WW-039	34.0	DS-3	AP+PS	13/9/18	1032	1037	35	35	PASS	DT
17 / 18	SEOS	NEOS	1227	3	GB	EC-WW-054	6.8		AP+PS	13/9/18	1116	1121	35	35	PASS	DT
16 / 18	EEOS	WEOS	1232	3	DH	EC-WW-039	31.5		AP+PS	13/9/18	1112	1117	35	35	PASS	DT
19 / 20	SEOS	NEOS	1310	3	GB	EC-WW-054	6.8		AP+PS	13/9/18	1122	1127	35	35	PASS	DT
17 / 19	EEOS	WEOS	1313	3	TB	EC-WW-045	19.5		AP+PS	13/9/18	1045	1050	35	35	PASS	DT
19 / 21	EEOS	WEOS	1317	3	DH	EC-WW-039	19.5		AP+PS	13/9/18	1038	1043	35	35	PASS	DT
17 / 20	EEOS	WEOS	1318	3	TB	EC-WW-045	14.5		AP+PS	13/9/18	1115	1120	35	35	PASS	DT
18 / 20	EEOS	WEOS	1322	3	TB	EC-WW-045	33.0		AP+PS	13/9/18	1113	1118	35	35	PASS	DT
20 / 21	EEOS	WEOS	1322	3	DH	EC-WW-039	50.5		AP+PS	13/9/18	1123	1128	35	35	PASS	DT
21 / 22	EEOS	WEOS	1545	4	DH	EC-WW-039	72.5		AP+PS	13/9/18	1046	1051	35	35	PASS	DT
23 / 24	SEOS	NEOS	1600	4	GB	EC-WW-054	6.8		AP+PS	13/9/18	1107	1112	35	35	PASS	DT
26 / 27	SEOS	NEOS	1615	4	GB	EC-WW-054	6.8		AP+PS	13/9/18	1059	1104	35	35	PASS	DT
23 / 25	EEOS	WEOS	1630	4	TB	EC-WW-045	39.0		AP+PS	13/9/18	1051	1056	35	35	PASS	DT
22 / 23	EEOS	WEOS	1640	4	DH	EC-WW-039	47.0		AP+PS	13/9/18	1050	1055	35	35	PASS	DT
25 / 26	EEOS	WEOS	1641	4	DH	EC-WW-039	3.0		AP+PS	13/9/18	1055	1100	35	35	PASS	DT
25 / 27	EEOS	WEOS	1642	4	DH	EC-WW-039	18.0		AP+PS	13/9/18	1056	1101	35	35	PASS	DT
22 / 24	EEOS	WEOS	1650	4	DH	EC-WW-039	12.5		AP+PS	13/9/18	1108	1113	35	35	PASS	DT
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						PAGE TOTAL	545.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 3 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/12/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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PAGE TOTAL																

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 4 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 13/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1145	TB	21	60.0%	454	119	117	116	113	120	113	112	110	113	115	145	146	146	146	147	DT	SM2SM
2	EC-WW-039	1145	DH	21	60.0%	454	127	115	120	132	128	108	109	113	112	119	143	146	143	151	151	DT	SM2SM
3	EC-WW-054	1151	GB	21	60.0%	454	112	118	114	108	120	106	117	95	109	115	141	141	141	147	143	DT	SM2SM
4	EC-WW-039	1518	DH	21	60.0%	454	109	113	115	114	118	110	115	106	114	112	137	136	139	145	142	DT	SM2SM
5	EC-WW-054	1523	TB	21	60.0%	454	114	114	113	115	118	102	116	108	113	112	135	138	137	139	139	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
29 / 30	EEOS	WEOS	1228	3	DH	EC-WW-039	62.0	DS-4	AP+PS	14/9/18	1742	1747	35	35	PASS	DT
28 / 29	EEOS	WEOS	1237	3	TB	EC-WW-054	39.0		AP+PS	14/9/18	1744	1749	35	35	PASS	DT
30 / 31	EEOS	WEOS	1620	3	DH	EC-WW-039	71.0		AP+PS	14/9/18	1734	1739	35	35	PASS	DT
31 / 32	EEOS	WEOS	1700	3	DH	EC-WW-039	69.5		AP+PS	14/9/18	1733	1738	35	35	PASS	DT
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PAGE TOTAL							241.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 5 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 14/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1424	DH	21	60.0%	454	123	122	122	122	124	115	117	120	120	114	142	148	147	153	154	DT	SM2SM
2	EC-WW-045	1435	TB	21	60.0%	454	117	114	111	120	116	100	111	114	102	115	140	147	143	150	147	DT	SM2SM
3	EC-WW-054	1521	GB	21	45.0%	454	128	126	130	126	130	122	121	107	110	119	155	158	161	164	158	DT	TEX2TEX
4	EC-WW-054	1800	GB	21	50.0%	454	114	118	117	124	116	96	105	112	127	113	143	145	144	147	144	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
32 / 33	WEOS	2C	1533	7	DH	EC-WW-039	34.0		AP+PS	15/9/18	1652	1657	35	35	PASS	DT
33 / 34	EEOS	WEOS	1533	7	TB	EC-WW-045	65.0		AP+PS	14/9/18	1718	1723	35	35	PASS	DT
32 / 33	2C	EEOS	1544	7	DH	EC-WW-039	35.5		AP+PS	15/9/18	1700	1705	35	35	PASS	DT
34 / 35	EEOS	WEOS	1557	7	DH	EC-WW-039	62.0		AP+PS	14/9/18	1717	1722	35	35	PASS	DT
39 / 40	NEEOS	SWEOS	1730	6	TB	EC-WW-045	56.5		AP+PS	15/9/18	1705	1710	35	35	PASS	DT
38 / 39	NEEOS	SWEOS	1800	6	DH	EC-WW-039	44.5	DS-5	AP+PS	15/9/18	1623	1628	35	35	PASS	DT
37 / 38	SWEOS	NEEOS	1803	6	TB	EC-WW-045	26.0		AP+PS	15/9/18	1704	1709	35	35	PASS	DT
36 / 37	SWEOS	NEEOS	1831	6	TB	EC-WW-045	13.0		AP+PS	15/9/18	1628	1633	35	35	PASS	DT
35 / 36	EEOS	WEOS	1838	6	GB	EC-WW-054	8.0		AP+PS	15/9/18	1627	1632	35	35	PASS	DT
35 / 37	EEOS	WEOS	1840	6	GB	EC-WW-054	14.0		AP+PS	15/9/18	1636	1641	35	35	PASS	DT
35 / 38	EEOS	EEOS	1845	6	GB	EC-WW-054	14.0		AP+PS	15/9/18	1725	1730	35	35	PASS	DT
35 / 39	EEOS	EEOS	1850	6	GB	EC-WW-054	14.0		AP+PS	15/9/18	1644	1649	35	35	PASS	DT
35 / 40	EEOS	EEOS	1855	6	GB	EC-WW-054	10.5		AP+PS	15/9/18	1645	1650	35	35	PASS	DT
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PAGE TOTAL							397.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 6 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 15/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	820	TB	21	60.0%	454	136	137	137	131	138	119	132	109	132	124	163	171	173	169	170	DT	SM2SM
2	EC-WW-054	845	GB	21	50.0%	454	142	144	154	154	135	106	122	115	113	134	166	174	176	177	173	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
41 / 42	EEOS	WEOS	854	-1	TB	EC-WW-039	29.0		AP+PS	15/9/18	1744	1749	35	35	PASS	DT
42 / 43	EEOS	WEOS	906	-1	TB	EC-WW-039	59.0		AP+PS	15/9/18	1755	1800	35	35	PASS	DT
40 / 41	SEEOS	NWEOS	1052	2	GB	EC-WW-054	29.0	DS-6	AP+PS	15/9/18	1743	1748	35	35	PASS	DT
40 / 42	SEEOS	NWEOS	1100	2	GB	EC-WW-054	28.0		AP+PS	15/9/18	1731	1736	35	35	PASS	DT
40 / 43	SEEOS	NWEOS	1107	2	GB	EC-WW-054	3.5		AP+PS	15/9/18	1733	1738	35	35	PASS	DT
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PAGE TOTAL							148.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 7 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 20/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	850	GB	21	40.0%	454	138	130	130	134	124	130	131	127	120	126	175	176	176	181	173	DT	TEX2TEX
2	EC-WW-054	1230	GB	21	50.0%	454	135	133	133	138	131	129	130	131	133	134	179	181	182	175	174	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
38 / 44	NEOS	SEOS	1051	5	GB	EC-WW-054	4.0		AP+PS	20/9/18	1240	1245	35	35	PASS	DT
37 / 44	NEOS	SEOS	1056	5	GB	EC-WW-054	10.0		AP+PS	20/9/18	1241	1246	35	35	PASS	DT
36 / 44	NEOS	SEOS	1106	5	GB	EC-WW-054	3.5		AP+PS	20/9/18	1352	1357	35	35	PASS	DT
35 / 44	NEOS	SEOS	1113	5	GB	EC-WW-054	7.5		AP+PS	20/9/18	1353	1358	35	35	PASS	DT
34 / 44	NEOS	SEOS	1120	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1419	1424	35	35	PASS	DT
33 / 44	NEOS	SEOS	1125	5	GB	EC-WW-054	7.5		AP+PS	20/9/18	1420	1425	35	35	PASS	DT
32 / 44	NEOS	SEOS	1127	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1518	1523	35	35	PASS	DT
31 / 44	NEOS	SEOS	1131	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1519	1524	35	35	PASS	DT
30 / 44	NEOS	SEOS	1135	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1649	1654	35	35	PASS	DT
29 / 44	NEOS	SEOS	1140	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1648	1653	35	35	PASS	DT
28 / 44	NEOS	SEOS	1145	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1657	1702	35	35	PASS	DT
26 / 45	NEOS	SEOS	1210	5	GB	EC-WW-054	3.0		AP+PS	21/9/18	1205	1210	35	35	PASS	DT
22 / 44	SEOS	NEOS	1220	5	GB	EC-WW-054	12.0		AP+PS	20/9/18	1710	1715	35	35	PASS	DT
24 / 44	SEOS	NEOS	1225	5	GB	EC-WW-054	11.5		AP+PS	20/9/18	1720	1725	35	35	PASS	DT
23 / 44	SEOS	3S	1231	5	GB	EC-WW-054	2.0		AP+PS	20/9/18	1724	1729	35	35	PASS	DT
23 / 44	3S	NEOS	1232	5	GB	EC-WW-054	7.0		AP+PS	20/9/18	1743	1748	35	35	PASS	DT
25 / 44	SEOS	NEOS	1238	5	GB	EC-WW-054	20.0		AP+PS	20/9/18	1742	1747	35	35	PASS	DT
27 / 44	SEOS	NEOS	1248	5	GB	EC-WW-054	18.0		AP+PS	20/9/18	1818	1823	35	35	PASS	DT
26 / 44	SEOS	NEOS	1256	5	GB	EC-WW-054	1.5		VB+PS	20/9/18					PASS	DT
44 / 45	SEOS	NEOS	1257	5	GB	EC-WW-054	3.0		AP+PS	20/9/18	1743	1748	35	35	PASS	DT
						PAGE TOTAL	152.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 8 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 21/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1100	TB	21	60.0%	454	125	112	117	124	110	113	118	115	115	118	149	150	152	160	157	DT	SM2SM
2	EC-WW-039	1100	DH	21	60.0%	454	120	124	114	124	122	120	122	112	120	119	115	158	150	154	148	DT	SM2SM
3	EC-WW-039	1105	DH	21	45.0%	454	137	144	136	134	133	123	118	125	143	140	169	175	164	170	174	DT	TEX2TEX
4	EC-WW-054	1147	GB	21	60.0%	454	110	121	117	118	121	116	120	112	126	127	142	153	143	150	147	DT	SM2SM
5	EC-WW-045	1509	TB	21	60.0%	454	112	104	111	114	119	108	101	104	104	109	137	139	134	137	139	DT	SM2SM
6	EC-WW-054	1514	GB	21	50.0%	454	115	116	124	126	116	105	109	110	112	115	142	147	145	146	146	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
48 / 49	SEOS	NEOS	1305	5	DH	EC-WW-039	6.8		AP+PS	28/9/18	1519	1524	35	35	PASS	DT
46 / 47	EEOS	WEOS	1318	5	GB	EC-WW-054	58.0		AP+PS	1/10/18	1605	1610	35	35	PASS	CM
47 / 48	EEOS	WEOS	1326	5	TB	EC-WW-045	11.0		AP+PS	28/9/18	1512	1517	35	35	PASS	GB/CM
47 / 49	EEOS	WEOS	1330	5	TB	EC-WW-045	42.5		AP+PS	28/9/18	1520	1525	35	35	PASS	GB/CM
52 / 53	SEOS	NEOS	1428	5	TB	EC-WW-045	36.5		AP+PS	2/10/18	945	950	35	35	PASS	CM
50 / 51	SEOS	NEOS	1430	5	DH	EC-WW-039	6.8		AP+PS	1/10/18	1617	1622	35	35	PASS	CM
48 / 50	EEOS	WEOS	1441	5	GB	EC-WW-054	11.0		AP+PS	28/9/18	1446	1451	35	35	PASS	GB/CM
49 / 50	EEOS	WEOS	1446	5	GB	EC-WW-054	7.0		AP+PS	28/9/18	1525	1530	35	35	PASS	GB/CM
49 / 51	EEOS	WEOS	1448	5	GB	EC-WW-054	29.5		AP+PS	1/10/18	1615	1620	35	35	PASS	CM
54 / 55	EEOS	WEOS	1450	5	DH	EC-WW-039	6.8		AP+PS	1/10/18	1536	1541	35	35	PASS	CM
55 / 56	SEOS	NEOS	1602	5	GB	EC-WW-054	36.0		AP+PS	1/10/18	1536	1541	35	35	PASS	CM
56 / 57	SEOS	NEOS	1620	5	TB	EC-WW-045	36.0	DS-8	AP+PS	1/10/18	1545	1550	35	35	PASS	CM
46 / 52	SEOS	NEOS	1638	5	GB	EC-WW-054	5.5		AP+PS	1/10/18	1600	1605	35	35	PASS	CM
46 / 52	SEOS	NEOS	1638	5	GB	EC-WW-054	2.5		AP+PS	1/10/18	1645	1650	35	35	PASS	CM
47 / 52	SEOS	NEOS	1641	5	GB	EC-WW-054	8.5		AP+PS	1/10/18	1605	1610	35	35	PASS	CM
49 / 52	SEOS	4M	1644	5	GB	EC-WW-054	2.5		AP+PS	1/10/18	1615	1620	35	35	PASS	CM
49 / 52	4M	NEOS	1644	5	GB	EC-WW-054	6.0		AP+PS	2/10/18	940	945	35	35	PASS	CM
53 / 55	SEOS	NEOS	1645	5	GB	EC-WW-054	30.0		AP+PS	1/10/18	1536	1641	35	35	PASS	CM
51 / 52	SEOS	NEOS	1650	5	GB	EC-WW-054	8.5		AP+PS	2/10/18	940	945	35	35	PASS	CM
53 / 54	SEOS	NEOS	1700	5	GB	EC-WW-054	6.0		AP+PS	1/10/18	1535	1640	35	35	PASS	CM
						PAGE TOTAL	357.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 9 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 21/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1516	GB	21	60.0%	454	102	105	109	106	106	117	117	109	117	118	133	136	133	132	136	DT	SM2SM
8	EC-WW-039	1530	DH	21	60.0%	454	112	122	119	122	115	111	109	112	115	120	138	141	142	144	140	DT	SM2SM
9	EC-WW-039	1535	DH	21	45.0%	454	143	140	146	137	142	136	142	135	126	128	151	156	144	153	143	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
46	50	WEOS	EEOS	1755	5	GB	EC-WW-054	6.5		AP+PS	1/10/18	1645	1650	35	35	PASS	CM
46	43	WEOS	EEOS	1759	5	GB	EC-WW-054	57.5		AP+PS	1/10/18	1600	1605	35	35	PASS	CM
57	31	WEOS	EEOS	1800	5	DH	EC-WW-039	8.5		AP+PS	1/10/18	1550	1555	35	35	PASS	CM
56	32	WEOS	EEOS	1810	5	DH	EC-WW-039	8.5		AP+PS	1/10/18	1550	1555	35	35	PASS	CM
55	33	WEOS	EEOS	1819	5	DH	EC-WW-039	8.5		AP+PS	1/10/18	1550	1555	35	35	PASS	CM
53	34	WEOS	EEOS	1825	5	DH	EC-WW-039	8.5		AP+PS	1/10/18	1550	1555	35	35	PASS	CM
52	35	WEOS	EEOS	1828	5	DH	EC-WW-039	8.5		AP+PS	1/10/18	1600	1605	35	35	PASS	CM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 22/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1100	DH	21	60.0%	454	120	121	122	119	123	118	118	116	116	122	144	141	146	149	149	DT	SM2SM
2	EC-WW-039	1105	DH	21	45.0%	454	135	134	147	138	137	131	139	136	127	125	158	158	162	165	157	DT	TEX2TEX
3	EC-WW-045	1108	TB	21	60.0%	454	121	122	109	111	130	122	117	120	119	116	146	149	143	152	143	DT	SM2SM
4	EC-WW-054	1156	GB	21	60.0%	454	117	117	108	112	116	113	118	108	112	115	146	144	144	147	151	DT	SM2SM
5	EC-WW-054	1200	GB	21	50.0%	454	113	111	109	115	111	105	104	111	110	110	145	146	147	157	148	DT	SM2TEX
6	EC-WW-039	1506	DH	21	60.0%	454	112	116	110	115	117	116	107	109	111	118	142	144	143	136	142	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
60 / 61	SEOS	NEOS	1209	3	DH	EC-WW-039	6.8		AP+PS	1/10/18	1512	1517	35	35	PASS	CM
59 / 60	SEOS	NEOS	1220	3	DH	EC-WW-039	6.8		AP+PS	28/9/18	1445	1550	35	35	PASS	T/GB/C
58 / 59	EEOS	WEOS	1224	3	TB	EC-WW-045	2.0		AP+PS	28/9/18	1500	1505	35	35	PASS	T/GB/C
58 / 60	EEOS	WEOS	1225	3	TB	EC-WW-045	47.0		AP+PS	28/9/18	1459	1504	35	35	PASS	T/GB/C
58 / 50	EEOS	WEOS	1230	3	GB	EC-WW-054	18.0		AP+PS	28/9/18	1503	1508	35	35	PASS	T/GB/C
58 / 51	EEOS	WEOS	1237	3	GB	EC-WW-054	25.0		AP+PS	28/9/18	1522	1527	35	35	PASS	T/GB/C
92 / 62	EEOS	WEOS	1240	3	DH	EC-WW-039	2.0		AP+PS	28/9/18	1436	1441	35	35	PASS	T/GB/C
58 / 61	EEOS	WEOS	1241	3	TB	EC-WW-045	45.0		AP+PS	1/10/18	1512	1517	35	35	PASS	T/GB/C
60 / 62	EEOS	WEOS	1241	3	DH	EC-WW-039	47.0		AP+PS	28/9/18	1444	1449	35	35	PASS	T/GB/C
58 / 52	EEOS	WEOS	1247	3	GB	EC-WW-054	8.5	DS-7	AP+PS	1/10/18	1525	1530	35	35	PASS	T/GB/C
58 / 53	EEOS	WEOS	1256	3	GB	EC-WW-054	8.5		AP+PS	1/10/18	1525	1530	35	35	PASS	T/GB/C
61 / 62	EEOS	WEOS	1257	3	DH	EC-WW-039	45.0		AP+PS	1/10/18	1515	1520	35	35	PASS	T/GB/C
58 / 54	EEOS	WEOS	1259	3	GB	EC-WW-054	8.5		AP+PS	1/10/18	1535	1540	35	35	PASS	T/GB/C
58 / 56	EEOS	WEOS	1302	3	GB	EC-WW-054	8.5		AP+PS	1/10/18	1536	1541	35	35	PASS	T/GB/C
58 / 57	EEOS	WEOS	1305	3	GB	EC-WW-054	8.5		AP+PS	1/10/18	1545	1550	35	35	PASS	T/GB/C
62 / 63	EEOS	WEOS	1522	3	GB	EC-WW-054	87.5	DS-9	AP+PS	28/9/18	1436	1541	35	35	PASS	T/GB/C
64 / 65	SEOS	NEOS	1542	3	DH	EC-WW-039	6.8		AP+PS	28/9/18	1420	1425	35	35	PASS	T/GB/C
64 / 66	EEOS	WEOS	1547	3	TB	EC-WW-045	1.5		VB+PS	28/9/18					PASS	TB
65 / 66	EEOS	WEOS	1548	3	TB	EC-WW-045	74.0		AP+PS	28/9/18	1421	1426	35	35	PASS	T/GB/C
63 / 64	EEOS	WEOS	1555	3	DH	EC-WW-039	0.0		VB+PS	28/9/18					PASS	TB
						PAGE TOTAL	456.9									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 11 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 22/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1506	TB	21	60.0%	454	124	123	117	125	124	111	110	106	107	106	143	135	142	144	144	DT	SM2SM
8	EC-WW-039	1510	DH	21	45.0%	454	133	114	136	126	128	135	126	142	128	144	160	160	164	169	170	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
63	65	EEOS	WEOS	1556	3	DH	EC-WW-039	77.0		AP+PS	28/9/18	1430	1435	35	35	PASS	T/GB/C
66	67	EEOS	WEOS	1623	3	TB	EC-WW-045	69.5		AP+PS	28/9/18	1548	1553	35	35	PASS	T/GB/C

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 23/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1607	TB	21	60.0%	454	110	103	113	116	120	118	115	117	120	120	139	134	139	143	138	DT	SM2SM
2	EC-WW-054	1615	GB	21	60.0%	454	123	116	119	116	125	117	109	118	111	113	143	149	146	148	150	DT	SM2SM
3	EC-WW-054	1630	GB	21	45.0%	454	122	132	133	137	146	140	138	139	112	120	152	153	156	160	162	DT	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
67 / 68	EEOS	WEOS	1635	3	GB	EC-WW-054	71.0		AP+PS	28/9/18	1555	1600	35	35	PASS	T/GB/C
68 / 69	EEOS	WEOS	1643	3	TB	EC-WW-045	65.5	DS-11	AP+PS	28/9/18	845	850	35	35	PASS	T/GB/C
70 / 71	SEOS	NEOS	1700	3	GB	EC-WW-054	6.8		AP+PS	28/9/18	850	855	35	35	PASS	T/GB/C
69 / 70	EEOS	WEOS	1715	3	GB	EC-WW-054	26.0		AP+PS	28/9/18	835	840	35	35	PASS	T/GB/C
69 / 71	EEOS	WEOS	1722	3	GB	EC-WW-054	28.0		AP+PS	28/9/18	855	900	35	35	PASS	T/GB/C
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PAGE TOTAL							197.3									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 13 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 24/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1430	TB	21	60.0%	454	113	115	105	102	117	121	110	110	102	104	131	139	141	137	143	DT	SM2SM
2	EC-WW-054	1441	GB	21	50.0%	454	106	113	113	116	111	127	110	117	122	123	141	147	146	149	142	DT	SM2TEX
3	EC-WW-054	1448	GB	21	60.0%	454	117	113	120	115	110	114	113	110	100	110	138	139	137	146	143	DT	SM2SM
4	EC-WW-045	1515	TB	21	45.0%	454	118	124	126	136	135	120	128	139	125	122	149	145	152	155	152	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
70 / 72	EEOS	WEOS	1510	7	TB	EC-WW-045	26.0		AP+PS	28/9/18	812	817	35	35	PASS	T/GB/C
71 / 72	EEOS	WEOS	1517	7	TB	EC-WW-045	15.0		AP+PS	27/9/18	1812	1817	35	35	PASS	GB
72 / 73	EEOS	WEOS	1522	7	GB	EC-WW-054	27.0		AP+PS	27/9/18	1811	1816	35	35	PASS	GB
76 / 77	EEOS	WEOS	1530	7	GB	EC-WW-054	6.8		AP+PS	27/9/18	1523	1528	35	35	PASS	DT
77 / 75	SEOS	NEOS	1540	7	GB	EC-WW-054	9.5		AP+PS	27/9/18	1801	1806	35	35	PASS	CM
77 / 78	SEOS	NEOS	1542	7	TB	EC-WW-045	14.0		AP+PS	27/9/18	1745	1750	35	35	PASS	DT
76 / 78	SEOS	NEOS	1545	7	TB	EC-WW-045	4.5		AP+PS	27/9/18	1529	1534	35	35	PASS	DT
73 / 74	EEOS	WEOS	1550	7	TB	EC-WW-045	11.5		AP+PS	28/9/18	1857	1902	35	35	PASS	CM
79 / 78	SEOS	NEOS	1615	7	TB	EC-WW-045	25.0		AP+PS	27/9/18	1530	1535	35	35	PASS	DT
79 / 80	SEOS	NEOS	1635	7	GB	EC-WW-054	31.5		AP+PS	27/9/18	1535	1540	35	35	PASS	DT
80 / 81	SEOS	NEOS	1639	7	TB	EC-WW-045	37.5		AP+PS	27/9/18	1536	1541	35	35	PASS	DT
81 / 82	SEOS	NEOS	1654	7	GB	EC-WW-054	42.0		AP+PS	28/9/18	1835	1840	35	35	PASS	CM
82 / 83	SEOS	NEOS	1700	7	TB	EC-WW-045	46.0	DS-12	AP+PS	27/9/18	1554	1559	35	35	PASS	DT
74 / 75	NEEOS	SEEOS	1800	7	TB	EC-WW-045	9.5		AP+PS	28/9/18	1745	1750	35	35	PASS	CM
74 / 77	NEEOS	SEEOS	1805	7	TB	EC-WW-045	1.5		AP+PS	28/9/18	1555	1600	35	35	PASS	T/GB/C
77 / 73	NEEOS	SEEOS	1806	7	TB	EC-WW-045	6.5		AP+PS	28/9/18	1556	1601	35	35	PASS	T/GB/C
73 / 78	NEEOS	SEEOS	1808	7	TB	EC-WW-045	6.5		AP+PS	28/9/18	1845	1850	35	35	PASS	T/GB/C
78 / 72	NEEOS	SEEOS	1811	7	TB	EC-WW-045	1.5		AP+PS	28/9/18	1703	1708	35	35	PASS	T/GB/C
72 / 79	NEEOS	SEEOS	1812	7	TB	EC-WW-045	8.0		AP+PS	28/9/18	1708	1713	35	35	PASS	T/GB/C
72 / 80	NEEOS	SEEOS	1815	7	TB	EC-WW-045	3.5		AP+PS	28/9/18	1709	1714	35	35	PASS	T/GB/C
						PAGE TOTAL	333.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 14 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 24/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
80	71	NEEOS	SEEOS	1817	7	TB	EC-WW-045	4.5		AP+PS	28/9/18	1716	1721	35	35	PASS	T/GB/C
71	81	NEEOS	SEEOS	1819	7	TB	EC-WW-045	8.0		AP+PS	28/9/18	1717	1722	35	35	PASS	T/GB/C
69	82	NEEOS	SEEOS	1822	7	TB	EC-WW-045	8.0		AP+PS	28/9/18	1726	1731	35	35	PASS	T/GB/C
69	83	NEEOS	SEEOS	1825	7	TB	EC-WW-045	4.5		AP+PS	28/9/18	1756	1801	35	35	PASS	T/GB/C
83	68	NEEOS	SEEOS	1827	7	TB	EC-WW-045	2.0		AP+PS	28/9/18	1731	1736	35	35	PASS	T/GB/C

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 26/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1204	GB	21	60.0%	454	109	115	100	119	117	122	115	110	115	111	141	144	145	152	152	DT	SM2SM
2	EC-WW-045	1210	TB	21	60.0%	454	112	127	109	119	114	108	103	110	107	106	144	147	147	150	144	DT	SM2SM
3	EC-WW-054	1215	GB	21	50.0%	454	113	115	113	115	113	116	118	119	114	113	149	159	147	158	152	DT	SM2TEX
4	EC-WW-045	1215	TB	21	45.0%	454	134	148	142	133	135	138	129	118	130	122	157	160	158	165	155	DT	TEX2TEX
5	EC-WW-039	1216	DH	21	60.0%	454	118	121	118	126	125	113	117	122	120	114	138	142	144	146	136	DT	SM2SM
6	EC-WW-054	1543	GB	21	60.0%	454	110	120	116	112	110	114	113	118	111	101	145	139	143	146	146	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
83 / 84	NEOS	SEOS	1315	7	TB	EC-WW-045	50.0		AP+PS	27/9/18	1555	1600	35	35	PASS	DT
85 / 86	SEOS	SEOS	1348	7	GB	EC-WW-054	28.5		AP+PS	28/9/18	1830	1835	35	35	PASS	CM
84 / 85	NEOS	SEOS	1402	7	GB	EC-WW-054	28.5		AP+PS	28/9/18	940	945	35	35	PASS	B/DT/C
84 / 86	NEOS	SEOS	1410	7	GB	EC-WW-054	32.5		AP+PS	28/9/18	950	955	35	35	PASS	B/DT/C
86 / 87	NEOS	SEOS	1429	7	GB	EC-WW-054	33.5		AP+PS	28/9/18	921	926	35	35	PASS	B/DT/C
87 / 88	NEOS	SEOS	1458	7	TB	EC-WW-045	6.8		AP+PS	28/9/18	1835	1840	35	35	PASS	B/DT/C
86 / 88	NEOS	SEOS	1510	7	GB	EC-WW-054	30.0		AP+PS	28/9/18	1005	1010	35	35	PASS	B/DT/C
87 / 89	NEOS	SEOS	1537	7	TB	EC-WW-045	33.5		AP+PS	28/9/18	920	925	35	35	PASS	B/DT/C
89 / 90	NEOS	SEOS	1550	7	GB	EC-WW-054	72.5		AP+PS	28/9/18	911	916	35	35	PASS	B/DT/C
88 / 89	NEOS	SEOS	1600	7	TB	EC-WW-045	35.0		AP+PS	28/9/18	1005	1010	35	35	PASS	B/DT/C
90 / 91	NEOS	SEOS	1636	7	GB	EC-WW-054	46.5	DS-13	AP+PS	28/9/18	1910	1915	35	35	PASS	B/DT/C
90 / 91	NEOS	SEOS	1655	7	GB	EC-WW-054	30.0	DS-13	AP+PS	28/9/18	1845	1850	35	35	PASS	CM
62 / 91	SEEOS	NEEOS	1725	7	TB	EC-WW-045	6.5		AP+PS	27/9/18	1755	1800	35	35	PASS	GB
62 / 90	SEEOS	NEEOS	1728	7	TB	EC-WW-045	1.5		VB+PS	27/9/18					PASS	TB
63 / 90	SEEOS	NEEOS	1729	7	TB	EC-WW-045	6.5		AP+PS	27/9/18	1754	1759	35	35	PASS	GB
89 / 63	SEEOS	NEEOS	1732	7	TB	EC-WW-045	5.0		AP+PS	27/9/18	1749	1754	35	35	PASS	GB
65 / 89	SEEOS	NEEOS	1735	7	TB	EC-WW-045	3.0		VB+PS	27/9/18					PASS	TB
88 / 65	SEEOS	NEEOS	1743	7	TB	EC-WW-045	5.0	DS-10	AP+PS	27/9/18	1747	1752	35	35	PASS	GB
66 / 88	SEEOS	NEEOS	1745	7	TB	EC-WW-045	4.0		AP+PS	28/9/18	1805	1810	35	35	PASS	CM
66 / 86	SEEOS	NEEOS	1747	7	TB	EC-WW-045	5.0		AP+PS	27/9/18	1740	1745	35	35	PASS	GB
						PAGE TOTAL	463.8									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 16 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 26/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1620	TB	21	45.0%	454	147	144	134	133	149	142	129	118	131	132	154	168	167	166	168	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
84 / 67	SEEOS	NEEOS	1749	7	TB	EC-WW-045	8.0		AP+PS	27/9/18	1732	1737	35	35	PASS	GB
68 / 84	SEEOS	NEEOS	1753	7	TB	EC-WW-045	4.5		AP+PS	27/9/18	1731	1736	35	35	PASS	GB
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PAGE TOTAL							12.5									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 17 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 27/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1100	GB	21	45.0%	454	139	152	147	148	146	124	152	139	134	137	163	168	165	169	164	DT	TEX2TEX
2	EC-WW-054	1105	GB	21	50.0%	454	116	154	139	141	144	111	107	117	120	116	163	168	165	169	164	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
59 / 92	WEOS	EEOS	1400	7	GB	EC-WW-054	4.0		AP+PS	28/9/18	1555	1600	35	35	PASS	GB/CM
59 / 46	SEEOS	NWEOS	1410	6.8	GB	EC-WW-054	6.8		AP+PS	1/10/18	1640	1645	35	35	PASS	GB/CM
59 / 47	SEEOS	NWEOS	1412	6.8	GB	EC-WW-054	6.8		AP+PS	28/9/18	1535	1540	35	35	PASS	GB/CM
59 / 48	SEEOS	NWEOS	1415	6.8	GB	EC-WW-054	6.8		AP+PS	28/9/18	1510	1515	35	35	PASS	GB/CM
59 / 50	SEEOS	NWEOS	1417	6.8	GB	EC-WW-054	6.8		AP+PS	28/9/18	1504	1509	35	35	PASS	GB/CM
59 / 58	SEEOS	NWEOS	1420	6.8	GB	EC-WW-054	6.8		AP+PS	28/9/18	1500	1505	35	35	PASS	GB/CM
59 / 60	SEEOS	NWEOS	1422	6.8	GB	EC-WW-054	6.8		AP+PS	28/9/18	1450	1455	35	35	PASS	GB/CM
59 / 62	SEEOS	NWEOS	1425	7	GB	EC-WW-054	6.8		AP+PS	28/9/18	1445	1450	35	35	PASS	GB/CM
92 / 63	SEEOS	NWEOS	1427	7	GB	EC-WW-054	6.8		AP+PS	28/9/18	1436	1441	35	35	PASS	GB/CM
92 / 64	SEEOS	NWEOS	1430	7	GB	EC-WW-054	6.8		AP+PS	28/9/18	1530	1535	35	35	PASS	GB/CM
92 / 66	SEEOS	NWEOS	1432	7	GB	EC-WW-054	2.0		AP+PS	28/9/18	1410	1415	35	35	PASS	GB/CM
93 / 66	SEEOS	NWEOS	1434	7	GB	EC-WW-054	4.8		AP+PS	28/9/18	1535	1540	35	35	PASS	GB/CM
93 / 67	SEEOS	NWEOS	1500	7	GB	EC-WW-054	6.8		AP+PS	28/9/18	1547	1552	35	35	PASS	GB/CM
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PAGE TOTAL							78.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 18 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	950	DH	21	60.0%	454	131	131	132	133	135	131	137	128	133	133	185	190	195	197	197	DT	SM2TEX
2	EC-WW-039	1140	DH	21	40.0%	454	149	152	150	163	168	149	149	142	151	155	185	188	189	196	171	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
94 / 95	SEOS	NEOS	1015	-2	DH	EC-WW-039	6.0		AP+PS	5/10/18	1240	1245	35	35	PASS	DT
94 / 96	SEOS	NEOS	1017	-2	DH	EC-WW-039	10.0		AP+PS	5/10/18	1240	1245	35	35	PASS	DT
95 / 96	WEOS	EEOS	1200	-2	DH	EC-WW-039	6.0		AP+PS	5/10/18	1355	1400	35	35	PASS	DT
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PAGE TOTAL							22.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 19 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/06/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1015	TB	21	55.0%	454	103	108	147	131	148	157	140	116	118	124	166	172	176	184	172	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
97 / 98	SEOS	8E	1040	-3	TB	EC-WW-045	3.0		VB+PS	12/10/18					PASS	DT
97 / 98	8E	8F	1041	-3	TB	EC-WW-045	16.0		AP+PS	12/10/18	1543	1548	35	35	PASS	DT
97 / 98	8F	8G	1041	-3	TB	EC-WW-045	15.0		AP+PS	12/10/18	1600	1605	35	35	PASS	DT
97 / 98	8G	8H	1041	-3	TB	EC-WW-045	22.0		AP+PS	13/10/18	1200	1205	35	35	PASS	DT
97 / 98	8G	NEOS	1041	-3	TB	EC-WW-045	34.0		AP+PS	12/10/18	1800	1805	35	35	PASS	DT
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PAGE TOTAL							90.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 20 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/07/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	855	TB	21	50.0%	454	171	155	180	171	180	171	165	172	153	157	177	182	205	207	202	DT	TEX2TEX
2	EC-WW-045	1030	TB	21	60.0%	454	137	148	120	128	139	133	115	110	130	117	163	165	173	174	176	DT	SM2SM
3	EC-WW-045	1442	TB	21	50.0%	454	152	143	155	156	148	163	144	165	156	147	174	172	177	172	170	CM	TEX2TEX
4	EC-WW-045	1535	TB	21	60.0%	454	120	117	121	127	118	117	118	118	126	127	152	166	157	156	149	CM	SM2SM
5	EC-WW-045	1537	TB	21	50.0%	454	117	118	116	115	117	121	105	111	116	115	143	165	142	148	150	CM	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
98 / 99	SEOS	8J	900	-3	TB	EC-WW-045	7.0		AP+PS	12/10/18	1205	1210	35	35	PASS	DT
98 / 99	8J	8K	902	-3	TB	EC-WW-045	31.0		AP+PS	12/10/18	1520	1525	35	35	PASS	MJ
98 / 99	8K	NEOS	913	-3	TB	EC-WW-045	50.0		AP+PS	13/10/18	1600	1605	35	35	PASS	DT
99 / 100	SEOS	8L	1020	-3	TB	EC-WW-045	45.0		AP+PS	10/10/18	1610	1615	35	35	PASS	DT
99 / 100	8L	NEOS	1035	-3	TB	EC-WW-045	45.0		AP+PS	10/10/18	1600	1605	35	35	PASS	DT
102 / 103	SEOS	NEOS	1200	-3	TB	EC-WW-045	9.0		AP+PS	8/10/18	1745	1750	35	35	PASS	DT
100 / 101	SEOS	NEOS	1738	-3	TB	EC-WW-045	90.0		AP+PS	8/10/18	1722	1727	35	35	PASS	DT
101 / 104	SEOS	NEOS	1820	-3	TB	EC-WW-045	90.0		AP+PS	8/10/18	1721	1726	35	35	PASS	DT
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PAGE TOTAL							367.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 21 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/08/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	940	TB	21	60.0%	454	126	132	147	126	129	123	160	130	135	123	186	190	188	190	186	DT	SM2SM
2	EC-WW-045	942	TB	21	55.0%	454	123	125	123	124	157	151	137	114	148	118	195	200	187	192	191	DT	SM2TEX
3	EC-WW-045	1000	TB	21	50.0%	454	169	172	155	164	156	168	177	177	170	157	207	212	201	210	203	DT	TEX2TEX
4	EC-WW-039	1450	DH	21	60.0%	454	124	128	126	136	118	120	118	107	108	115	167	172	169	178	167	DT	SM2SM
5	EC-WW-045	1458	TB	21	60.0%	454	124	128	126	136	118	120	118	107	108	115	167	172	169	178	167	DT	SM2SM
6	EC-WW-045	1505	TB	21	50.0%	454	131	119	129	117	134	128	126	124	140	114	159	168	167	171	170	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
100	106	WEOS	EEOS	945	-3	TB	EC-WW-045	5.5		AP+PS	8/10/18	1804	1809	35	35	PASS	DT
101	106	WEOS	NEOS	950	-3	TB	EC-WW-045	4.0		AP+PS	8/10/18	1755	1800	35	35	PASS	DT
105	106	SEOS	NEOS	955	-3	TB	EC-WW-045	3.5		AP+PS	8/10/18	1756	1801	35	35	PASS	DT
105	108	EEOS	WEOS	1100	-3	TB	EC-WW-045	1.0		VB+PS	10/10/18			35	35	PASS	DT
106	108	EEOS	WEOS	1101	-3	TB	EC-WW-045	7.0		AP+PS	9/10/18	1240	1245	35	35	PASS	DT
96	108	EEOS	7S	1106	-3	TB	EC-WW-045	4.0		AP+PS	9/10/18	1219	1224	35	35	PASS	DT
96	108	7S	WEOS	1107	-3	TB	EC-WW-045	2.0		AP+PS	9/10/18	1220	1225	35	35	PASS	DT
94	108	EEOS	WEOS	1109	-3	TB	EC-WW-045	6.0		AP+PS	9/10/18	1205	1210	35	35	PASS	DT
29	104	NEEOS	SWEOS	1222	-3	TB	EC-WW-045	7.5		AP+PS	8/10/18	1747	1752	35	35	PASS	DT
30	101	NEEOS	SWEOS	1224	-3	TB	EC-WW-045	6.0		AP+PS	8/10/18	1746	1751	35	35	PASS	DT
30	105	NEOS	SEOS	1226	-3	TB	EC-WW-045	3.5		AP+PS	8/10/18	1757	1802	35	35	PASS	DT
108	107	SEOS	NEOS	1307	-3	TB	EC-WW-045	6.8		AP+PS	9/10/18	948	953	35	35	PASS	DT
94	107	SEOS	NEOS	1310	-3	TB	EC-WW-045	9.0		AP+PS	9/10/18	1204	1209	35	35	PASS	DT
97	107	WEOS	7M	1350	-3	TB	EC-WW-045	2.5		AP+PS	9/10/18	1244	1249	35	35	PASS	DT
97	107	7M	EEOS	1350	-3	TB	EC-WW-045	2.0		AP+PS	9/10/18	1245	1250	35	35	PASS	DT
98	107	WEOS	EEOS	1352	-3	TB	EC-WW-045	2.5		VB+PS	10/10/18					PASS	DT
98	94	WEOS	EEOS	1353	-3	TB	EC-WW-045	4.0		VB+PS	10/10/18					PASS	DT
99	95	WEOS	EEOS	1356	-3	TB	EC-WW-045	6.8		VB+PS	10/10/18					PASS	DT
100	95	WEOS	EEOS	1359	-3	TB	EC-WW-045	1.5		VB+PS	10/10/18					PASS	DT
101	105	WEOS	EEOS	1643	-3	JH	EC-EX-035	1.0		VB+PS	10/10/18					PASS	DT
							PAGE TOTAL	86.1									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 22 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/08/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1558	TB	21	55.0%	454	113	122	129	137	117	134	131	131	134	126	170	167	165	175	179	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
109	58	EEOS	WEOS	1813	-2	TB	EC-WW-045	6.8		AP+PS	15/10/18	1513	1518	35	35	PASS	DT
110	61	EEOS	WEOS	1816	-2	TB	EC-WW-045	6.8		AP+PS	16/10/18	1100	1105	35	35	PASS	MJ

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/09/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1510	DH	21	60.0%	454	116	136	119	120	122	133	126	126	138	127	164	159	164	168	171	DT	SM2SM
2	EC-WW-039	1520	DH	21	53.0%	454	126	128	121	127	132	119	119	133	112	116	162	167	169	162	182	DT	SM2TEX
3	EC-WW-045	1607	TB	21	60.0%	454	116	116	112	121	114	136	128	128	135	123	156	162	161	162	159	DT	SM2SM
4	EC-WW-045	1720	TB	21	50.0%	454	157	158	155	167	155	131	140	144	120	139	181	183	178	180	175	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
108	110	EEOS	WEOS	1000	1	DH	EC-EX-035	6.8	DS-15	VB+PS	27/10/18					PASS	MJ
57	109	SEOS	NEOS	1547	-3	DH	EC-WW-039	34.0		AP+PS	15/10/18	1512	1517	35	35	PASS	DT
57	108	NEOS	SEOS	1601	-3	DH	EC-WW-039	6.8		AP+PS	8/10/18	1750	1755	35	35	PASS	DT
109	110	NEOS	SEOS	1635	-3	TB	EC-WW-045	35.0		AP+PS	15/10/18	1525	1530	35	35	PASS	DT
110	111	NEOS	SEOS	1652	-3	TB	EC-WW-045	36.0		AP+PS	15/10/18	1537	1542	35	35	PASS	DT
91	112	WEOS	EEOS	1730	-3	DH	EC-WW-039	80.0	DS-14	AP+PS	26/10/18	945	950	35	35	PASS	MJ
112	113	WEOS	EEOS	1750	-3	DH	EC-WW-039	81.0		AP+PS	26/10/18	945	950	35	35	PASS	MJ
125	126	NEOS	SEOS	1750	0	TB	EC-WW-045	5.0		AP+PS	24/10/18	1705	1710	35	35	PASS	MJ
108	109	EEOS	WEOS	1800	-3	TB	EC-WW-045	6.8		AP+PS	10/10/18	950	955	35	35	PASS	DT
124	125	NEOS	SEOS	1800	0	TB	EC-WW-045	5.0		AP+PS	24/10/18	1710	1715	35	35	PASS	MJ
124	126	NEOS	SEOS	1801	0	TB	EC-WW-045	9.0		AP+PS	24/10/18	1705	1710	35	35	PASS	MJ
123	124	NEOS	SEOS	1820	0	TB	EC-WW-045	8.0		AP+PS	24/10/18	1715	1720	35	35	PASS	MJ
122	123	NEOS	SEOS	1825	0	DH	EC-WW-039	8.0		AP+PS	24/10/18	1720	1725	35	35	PASS	MJ
122	124	NEOS	SEOS	1828	0	DH	EC-WW-039	6.0		AP+PS	24/10/18	1720	1725	35	35	PASS	MJ

PAGE TOTAL 327.4

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 24 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1000	DH	21	60.0%	454	128	137	125	145	126	115	127	135	127	120	183	174	180	182	185	DT	SM2SM
2	EC-WW-039	1010	DH	21	53.0%	454	165	158	171	158	159	145	144	159	147	142	192	195	191	194	192	DT	SM2TEX
3	EC-WW-045	1015	TB	21	60.0%	454	115	137	124	132	124	132	132	134	147	131	190	186	187	195	190	DT	SM2SM
4	EC-WW-045	1020	TB	21	50.0%	454	162	154	142	151	178	151	140	170	154	153	194	193	188	201	197	DT	TEX2TEX
5	EC-WW-045	1500	TB	21	60.0%	454	124	134	128	141	138	115	116	111	109	125	168	167	172	171	174	DT	SM2SM
6	EC-WW-045	1505	TB	21	53.0%	454	118	128	118	129	101	114	116	114	116	120	159	170	165	167	168	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
141 / 122	NEOS	SEOS	1042	0	TB	EC-WW-045	14.0		AP+PS	24/10/18	1725	1730	35	35	PASS	MJ
120 / 121	NEOS	SEOS	1055	0	TB	EC-WW-045	14.0		AP+PS	24/10/18	1730	1735	35	35	PASS	MJ
119 / 120	NEOS	SEOS	1110	0	TB	EC-WW-045	10.0		AP+PS	27/10/18	1300	1305	35	35	PASS	MJ
119 / 120	NEOS	SEOS	1112	0	TB	EC-WW-045	4.0		AP+PS	27/10/18	1605	1610	35	35	PASS	MJ
118 / 119	NEOS	SEOS	1130	0	TB	EC-WW-045	7.0		AP+PS	27/10/18	1600	1605	35	35	PASS	MJ
118 / 119	NEOS	SEOS	1132	0	TB	EC-WW-045	7.0		AP+PS	27/10/18	1555	1600	35	35	PASS	MJ
116 / 117	NEOS	SEOS	1205	0	TB	EC-WW-045	14.0		AP+PS	14/10/18	1735	1740	35	35	PASS	DT
115 / 116	NEOS	SEOS	1215	0	DH	EC-WW-039	14.0	DS-16	AP+PS	14/10/18	1725	1730	35	35	PASS	DT
114 / 116	WEOS	EEOS	1245	0	DH	EC-WW-039	6.0		AP+PS	14/10/18	1730	1735	35	35	PASS	DT
114 / 117	WEOS	EEOS	1247	0	DH	EC-WW-039	10.0		AP+PS	14/10/18	1730	1735	35	35	PASS	DT
114 / 118	WEOS	EEOS	1250	0	DH	EC-WW-039	10.0		AP+PS	14/10/18	1755	1800	35	35	PASS	DT
117 / 118	NEOS	SEOS	1250	0	DH	EC-WW-039	14.0		AP+PS	14/10/18	1755	1800	35	35	PASS	DT
114 / 119	WEOS	EEOS	1253	0	DH	EC-WW-039	10.0		AP+PS	14/10/18	1800	1805	35	35	PASS	DT
114 / 120	WEOS	EEOS	1256	0	DH	EC-WW-039	10.0		AP+PS	25/10/18	1650	1655	35	35	PASS	MJ
114 / 121	WEOS	EEOS	1258	0	DH	EC-WW-039	10.0		AP+PS	25/10/18	1650	1655	35	35	PASS	MJ
114 / 122	WEOS	EEOS	1301	0	DH	EC-WW-039	10.0		AP+PS	24/10/18	1825	1830	35	35	PASS	MJ
114 / 123	WEOS	EEOS	1304	0	DH	EC-WW-039	10.0		AP+PS	24/10/18	1715	1720	35	35	PASS	MJ
114 / 125	WEOS	EEOS	1305	0	DH	EC-WW-039	5.0		AP+PS	24/10/18	1700	1705	35	35	PASS	MJ
114 / 126	WEOS	EEOS	1306	0	DH	EC-WW-039	5.0		AP+PS	26/10/18	1105	1110	35	35	PASS	MJ
126 / 127	EEOS	WEOS	1600	0	TB	EC-WW-045	5.0		AP+PS	26/10/18	1110	1115	35	35	PASS	MJ
						PAGE TOTAL	189.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 25 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1510	TB	21	50.0%	454	134	134	165	157	143	134	134	131	123	126	181	185	179	181	184	DT	TEX2TEX
8	EC-WW-039	1535	DH	21	60.0%	454	124	142	132	137	141	100	129	126	128	124	165	170	169	177	171	DT	SM2SM
9	EC-WW-039	1700	DH	21	50.0%	454	152	135	146	142	143	148	163	160	165	153	183	187	187	184	193	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
127	122	EEOS	WEOS	1606	0	TB	EC-WW-045	10.0		AP+PS	24/10/18	1725	1730	35	35	PASS	MJ
127	121	EEOS	WEOS	1608	0	TB	EC-WW-045	10.0		AP+PS	24/10/18	1730	1735	35	35	PASS	MJ
127	120	EEOS	WEOS	1610	0	TB	EC-WW-045	10.0		AP+PS	26/10/18	1140	1145	35	35	PASS	MJ
127	119	EEOS	WEOS	1613	0	TB	EC-WW-045	10.0		AP+PS	26/10/18	1140	1145	35	35	PASS	MJ
127	118	EEOS	WEOS	1616	0	TB	EC-WW-045	10.0		AP+PS	24/10/18	1735	1740	35	35	PASS	MJ
127	117	EEOS	WEOS	1620	0	TB	EC-WW-045	10.0		AP+PS	14/10/18	1750	1755	35	35	PASS	DT
127	116	EEOS	WEOS	1622	0	TB	EC-WW-045	10.0		AP+PS	14/10/18	1745	1750	35	35	PASS	DT
127	115	EEOS	WEOS	1625	0	TB	EC-WW-045	10.0		AP+PS	14/10/18	1720	1725	35	35	PASS	DT
114	113	WEOS	EEOS	1657	0	DH	EC-WW-039	87.0		AP+PS	26/10/18	950	955	35	35	PASS	MJ

PAGE TOTAL 167.0

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 26 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/12/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1355	DH	21	60.0%	454	113	117	116	116	117	119	127	121	129	124	156	160	160	165	161	DT	SM2SM
2	EC-WW-039	1400	DH	21	55.0%	454	116	112	118	118	120	117	115	114	116	116	151	161	161	157	164	DT	SM2TEX
3	EC-WW-039	1405	DH	21	50.0%	454	129	145	138	143	135	137	134	141	130	135	169	171	173	177	177	DT	TEX2TEX
4	EC-WW-054	1407	GB	21	60.0%	454	126	126	120	126	126	111	123	112	115	120	157	161	163	163	165	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
131 / 132	NEOS	SEOS	1530	0	DH	EC-WW-039	6.8		AP+PS	16/10/18	1207	1212	35	35	PASS	DT
134 / 135	EEOS	WEOS	1550	0	GB	EC-WW-054	15.0		AP+PS	27/10/18	1235	1240	35	35	PASS	MJ
133 / 135	EEOS	WEOS	1555	0	GB	EC-WW-054	51.0	DS-17 & 17A	AP+PS	26/10/18	1515	1520	35	35	PASS	MJ
128 / 129	NEOS	SEOS	1600	0	DH	EC-WW-039	6.8		AP+PS	14/10/18	1510	1515	35	35	PASS	MJ
133 / 134	NEOS	SEOS	1650	0	DH	EC-WW-039	6.8		AP+PS	26/10/18	1515	1520	35	35	PASS	MJ
133 / 132	EEOS	WEOS	1655	0	GB	EC-WW-054	27.0		AP+PS	27/10/18	1230	1235	35	35	PASS	MJ
133 / 131	EEOS	WEOS	1720	0	GB	EC-WW-054	19.0		AP+PS	16/10/18	1001	1006	35	35	PASS	DT
130 / 129	WEOS	EEOS	1730	0	GB	EC-WW-054	14.0		AP+PS	14/10/18	1705	1710	35	35	PASS	MJ
132 / 130	WEOS	EEOS	1730	0	DH	EC-WW-039	12.0		AP+PS	16/10/18	1206	1211	35	35	PASS	DT
131 / 130	WEOS	EEOS	1740	0	DH	EC-WW-039	19.0		AP+PS	16/10/18	1000	1005	35	35	PASS	DT
127 / 129	EEOS	WEOS	1814	0	DH	EC-WW-039	15.0		AP+PS	14/10/18	1715	1720	35	35	PASS	DT
127 / 130	EEOS	WEOS	1818	0	DH	EC-WW-039	15.0		AP+PS	16/10/18	1211	1216	35	35	PASS	DT
127 / 132	EEOS	WEOS	1820	0	DH	EC-WW-039	15.0		AP+PS	27/10/18	1225	1230	35	35	PASS	MJ
127 / 133	EEOS	WEOS	1829	0	DH	EC-WW-039	1.5		AP+PS	27/10/18	1230	1235	35	35	PASS	MJ
127 / 134	EEOS	WEOS	1830	0	DH	EC-WW-039	13.5		AP+PS	27/10/18	1235	1240	35	35	PASS	MJ
127 / 135	EEOS	WEOS	1835	0	DH	EC-WW-039	12.0		AP+PS	27/10/18	1245	1250	35	35	PASS	MJ
/																
/																
/																
/																

PAGE TOTAL 249.4

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 27 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 13/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	910	GB	21	50.0%	454	148	151	165	150	153	159	147	150	153	137	193	191	189	194	179	DT	TEX2TEX
2	EC-WW-054	945	GB	21	55.0%	454	138	128	131	143	130	112	112	114	145	141	168	173	178	172	186	DT	SM2TEX
3	EC-WW-054	952	GB	21	60.0%	454	132	126	138	136	133	118	115	112	130	122	169	156	174	182	177	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
112	111	NEOS	SEOS	1050	-3	GB	EC-WW-054	6.8		AP+PS	15/10/18	1550	1555	35	35	PASS	DT
113	111	NEOS	SEOS	1053	-3	GB	EC-WW-054	6.8		AP+PS	26/10/18	955	1000	35	35	PASS	MJ
114	111	NEOS	SEOS	1055	0	GB	EC-WW-054	8.0		AP+PS	26/10/18	955	1000	35	35	PASS	MJ
108	111	EEOS	WEOS	1115	-3	GB	EC-WW-054	6.8		AP+PS	24/10/18	948	953	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 21/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1350	GB	21	60.0%	454	123	120	126	124	117	127	113	122	116	105	149	145	145	141	141	DT	SM2SM
2	EC-WW-054	1355	GB	21	50.0%	454	144	151	151	151	144	150	139	142	144	126	167	173				DT	SM2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
136	137	EEOS	WEOS	1555	0	GB	EC-WW-054	87.0	DS-18	AP+PS	24/10/18	850	855	35	35	PASS	MJ
135	136	EEOS	WEOS	1645	0	GB	EC-WW-054	82.0		AP+PS	24/10/18	845	850	35	35	PASS	MJ

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 24/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1200	GB	21	60.0%	454	119	118	126	128	121	114	116	112	129	114	151	153	157	154	151	MJ	SM2SM
2	EC-WW-054	1200	GB	21	55.0%	454	126	122	118	121	114	121	114	118	124	127	170	165	167	166	170	MJ	SM2TEX
3	EC-WW-054	1200	GB	21	50.0%	454	125	124	129	121	125	119	121	121	127	118	175	169	174	179	180	MJ	TEX2TEX
4	EC-WW-054	1500	GB	21	60.0%	454	117	119	120	123	119	114	121	112	127	122	148	147	151	148	145	MJ	SM2SM
5	EC-WW-054	1500	GB	21	50.0%	454	138	137	133	135	139	135	135	129	132	131	159	161	158	159	154	MJ	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
137	140	NEOS	SEOS	1228	2	GB	EC-WW-054	6.8		AP+PS	24/10/18	1535	1540	35	35	PASS	MJ
138	140	EEOS	WEOS	1233	2	GB	EC-WW-054	9.0		AP+PS	24/10/18	1540	1545	35	35	PASS	MJ
137	138	EEOS	WEOS	1236	2	GB	EC-WW-054	87.0		AP+PS	24/10/18	1530	1535	35	35	PASS	MJ
138	139	WEOS	11F	1350	2	GB	EC-WW-054	16.0		AP+PS	24/10/18	1555	1600	35	35	PASS	MJ
138	139	11F	EEOS	1350	2	GB	EC-WW-054	70.0		AP+PS	24/10/18	1545	1550	35	35	PASS	MJ
122	CAP1	NEOS	SEOS	1515	2	GB	EC-WW-054	4.0		AP+PS	26/10/18	1410	1415	35	35	PASS	MJ
124	CAP1	NEOS	SEOS	1518	2	GB	EC-WW-054	4.0		AP+PS	26/10/18	1405	1410	35	35	PASS	MJ
124	CAP1	NEOS	SEOS	1520	2	GB	EC-WW-054	3.0		AP+PS	26/10/18	1405	1410	35	35	PASS	MJ
127	CAP1	SEOS	NEOS	1523	2	GB	EC-WW-054	5.0		AP+PS	26/10/18	1400	1405	35	35	PASS	MJ
127	CAP1	SEOS	NEOS	1526	2	GB	EC-WW-054	6.0		AP+PS	26/10/18	1400	1405	35	35	PASS	MJ
136	141	NEOS	SEOS	1545	2	GB	EC-WW-054	6.8		AP+PS	26/10/18	1310	1315	35	35	PASS	MJ
140	141	EEOS	WEOS	1555	2	GB	EC-WW-054	6.0		AP+PS	26/10/18	1310	1315	35	35	PASS	MJ
142	143	WEOS	EEOS	1740	2	GB	EC-WW-054	6.8		AP+PS	24/10/18	1800	1805	35	35	PASS	MJ
143	97	SEOS	NEOS	1800	2	GB	EC-WW-054	30.0		AP+PS	28/11/18	950	955	35	35	PASS	RL
142	97	SEOS	NEOS	1812	2	GB	EC-WW-054	65.0		AP+PS	28/11/18	950	955	35	35	PASS	RL

PAGE TOTAL: 325.4

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 30 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 25/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	915	GB	21	60.0%	454	128	123	130	135	123	118	119	120	125	114	165	158	163	167	159	MJ	SM2SM
2	EC-WW-054	915	GB	21	55.0%	454	131	122	118	123	119	118	123	123	120	134	162	166	158	165	156	MJ	SM2TEX
3	EC-WW-054	915	GB	21	50.0%	454	128	142	149	149	149	135	144	122	128	124	168	175	174	178	169	MJ	TEX2TEX
4	EC-WW-054	1630	GB	21	50.0%	454	124	134	136	132	149	138	147	151	126	131	168	178	170	179	180	MJ	TEX2TEX
5	EC-WW-054	1630	GB	21	60.0%	454	95	124	118	116	127	110	135	132	129	122	154	160	158	163	156	MJ	SM2SM
6	EC-WW-045	1630	TB	21	60.0%	454	112	126	102	125	129	121	117	120	119	124	149	159	165	170	160	MJ	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
127	135	NEOS	SEOS	1005	2	GB	EC-WW-054	1.7		AP+PS	26/10/18	1300	1305	35	35	PASS	MJ
127	136	NEOS	SEOS	1006	2	GB	EC-WW-054	7.0		AP+PS	26/10/18	1305	1310	35	35	PASS	MJ
127	141	NEOS	SEOS	1009	2	GB	EC-WW-054	4.0		AP+PS	26/10/18	1305	1310	35	35	PASS	MJ
107	141	NEOS	SEOS	1012	2	GB	EC-WW-054	1.2		VB+PS	26/10/18					PASS	MJ
107	140	NEOS	SEOS	1013	2	GB	EC-WW-054	6.8		AP+PS	26/10/18	1310	1315	35	35	PASS	MJ
107	138	NEOS	SEOS	1014	2	GB	EC-WW-054	0.7		VB+PS	26/10/18					PASS	MJ
97	138	EEOS	WEOS	1015	2	GB	EC-WW-054	6.0		AP+PS	26/10/18	1310	1315	35	35	PASS	MJ
143	144	SEOS	NEOS	1156	1	GB	EC-WW-054	30.0		AP+PS	7/11/18	1655	1700	35	35	PASS	DT
142	144	SEOS	NEOS	1208	1	GB	EC-WW-054	65.0		AP+PS	7/11/18	1700	1705	35	35	PASS	DT
147	148	EEOS	WEOS	1715	1	GB	EC-WW-054	6.8		AP+PS	28/10/18	1505	1510	35	35	PASS	MJ
147	149	EEOS	WEOS	1725	1	GB	EC-WW-054	6.8		AP+PS	28/10/18	1225	1230	35	35	PASS	MJ
145	146	EEOS	DESTRUCT	1736	1	GB	EC-WW-054	3.4	DS-20	AP+PS	28/10/18	1150	1155	35	35	PASS	MJ
139	145	NEOS	SEOS	1736	1	TB	EC-WW-045	91.0		AP+PS	31/10/18	1600	1605	35	35	PASS	MJ
145	146	DESTRUCT	WEOS	1737	1	GB	EC-WW-054	3.4	DS-20	AP+PS	28/10/18	1215	1220	35	35	PASS	MJ
145	148	NEOS	SEOS	1750	1	GB	EC-WW-054	5.0	19 & 19A &	VB+PS	26/10/18					PASS	MJ
145	148	DESTRUCT	SEOS	1750	1	GB	EC-WW-054	8.0	19 & 19A &	AP+PS	28/10/18	1515	1520	35	35	PASS	MJ
145	147	NEOS	SEOS	1754	1	GB	EC-WW-054	74.0		AP+PS	28/10/18	1510	1515	35	35	PASS	MJ
139	146	NEOS	SEOS	1804	1	TB	EC-WW-045	6.0		AP+PS	28/10/18	1155	1200	35	35	PASS	MJ
145	149	NEOS	SEOS	1817	1	GB	EC-WW-054	8.0		AP+PS	28/10/18	1220	1225	35	35	PASS	MJ

PAGE TOTAL 334.8

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 31 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 26/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1400	DH	21	60.0%	454	130	134	128	120	133	134	124	128	115	120	159	169	166	167	167	MJ	SM2SM
2	EC-WW-039	1400	DH	21	50.0%	454	158	152	157	153	164	145	142	150	148	146	181	185	179	185	181	MJ	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
150 / 151	EEOS	WEOS	1430	2	DH	EC-WW-039	6.8		AP+PS	28/10/18	1445	1450	35	35	PASS	MJ
148 / 151	NEOS	SEOS	1500	2	DH	EC-WW-039	11.5		AP+PS	28/10/18	1440	1445	35	35	PASS	MJ
148 / 150	NEOS	SEOS	1506	2	DH	EC-WW-039	2.0		AP+PS	28/10/18	1440	1445	35	35	PASS	MJ
147 / 150	NEOS	SEOS	1507	2	DH	EC-WW-039	74.0	DS-21	AP+PS	28/10/18	1500	1505	35	35	PASS	MJ
152 / 153	EEOS	WEOS	1630	2	DH	EC-WW-039	6.8		AP+PS	28/10/18	1450	1455	35	35	PASS	MJ
151 / 153	NEOS	SEOS	1650	2	DH	EC-WW-039	10.0		AP+PS	28/10/18	1435	1440	35	35	PASS	MJ
150 / 153	NEOS	SEOS	1656	2	DH	EC-WW-039	13.0		AP+PS	28/10/18	1445	1450	35	35	PASS	MJ
150 / 152	NEOS	SEOS	1708	2	DH	EC-WW-039	54.0		AP+PS	28/10/18	1455	1500	35	35	PASS	MJ
139 / 142	EEOS	WEOS	1755	2	DH	EC-WW-039	8.0		AP+PS	28/10/18	1150	1155	35	35	PASS	MJ
142 / 146	EEOS	WEOS	1757	2	DH	EC-WW-039	0.5		AP+PS	28/10/18	1205	1210	35	35	PASS	MJ
144 / 146	EEOS	WEOS	1757	2	DH	EC-WW-039	5.0		AP+PS	28/10/18	1205	1210	35	35	PASS	MJ
144 / 149	EEOS	WEOS	1758	2	DH	EC-WW-039	3.5		AP+PS	7/11/18	1235	1240	35	35	PASS	DT
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PAGE TOTAL							195.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 32 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 27/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
62	110	EEOS	WEOS	1035	2	DH	EC-EX-035	1.0		VB+PS	27/10/18					PASS	MJ

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/03/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1040	WP	21	60.0%	454	118	102	108	101	105	102	101	109	104	103	174	176	186	197	221	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
153	154	WEOS	EEOS	1150	-10	WP	EC-WW-054	21.0		AP+PS	7/11/18	920	925	35	35	PASS	DT
152	154	WEOS	12N	1203	-10	WP	EC-WW-054	21.0		AP+PS	7/11/18	1340	1345	35	35	PASS	DT
152	154	12N	EEOS	1203	-10	WP	EC-WW-054	28.0		AP+PS	7/11/18	1345	1350	35	35	PASS	DT
154	155	WEOS	EEOS	1238	-10	WP	EC-WW-054	59.5		AP+PS	3/11/18	1305	1310	35	35	PASS	DT
155	156	WEOS	EEOS	1310	-10	WP	EC-WW-054	47.5		AP+PS	3/11/18	1425	1430	35	35	PASS	DT
156	157	WEOS	EEOS	1330	-10	WP	EC-WW-054	37.5		AP+PS	3/11/18	1434	1439	35	35	PASS	DT
157	158	WEOS	EEOS	1350	-10	WP	EC-WW-054	27.0		AP+PS	3/11/18	1429	1434	35	35	PASS	DT
158	159	WEOS	EEOS	1420	-10	WP	EC-WW-054	16.0	DS-22	AP+PS	3/11/18	1427	1432	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 2018/04/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1215	WP	21	60.0%	454	144	129	130	103	107	117	120	113	121	83	151	172	177	169	164	DT	SM2SM
2	EC-WW-056	1520	WP	21	60.0%	454	123	110	107	115	131	116	102	123	127	134	162	151	182	156	164	DT	SM2SM
3	EC-WW-056	1549	WP	21	50.0%	454	146	151	149	176	151	142	127	150	143	156	202	186	194	178	180	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
144	160	EEOS	WEOS	1342	-10	WP	EC-WW-056	69.0		AP+PS	4/11/18	1705	1710	35	35	PASS	DT
160	161	EEOS	WEOS	1420	-10	WP	EC-WW-056	65.0		AP+PS	4/11/18	1502	1507	35	35	PASS	DT
161	162	EEOS	WEOS	1440	-10	WP	EC-WW-056	61.0		AP+PS	4/11/18	1509	1514	35	35	PASS	DT
162	163	EEOS	WEOS	1500	-10	WP	EC-WW-056	57.0		AP+PS	4/11/18	1519	1524	35	35	PASS	DT
163	164	EEOS	WEOS	1550	-10	WP	EC-WW-056	53.0	DS-23	AP+PS	4/11/18	1625	1630	35	35	PASS	DT
154	164	NEOS	SEOS	1630	-10	WP	EC-WW-056	3.0		AP+PS	7/11/18	915	920	35	35	PASS	DT
154	163	NEOS	SEOS	1631	-10	WP	EC-WW-056	4.0		AP+PS	7/11/18	1125	1130	35	35	PASS	DT
152	163	NEOS	SEOS	1633	-10	WP	EC-WW-056	5.0		AP+PS	7/11/18	1226	1231	35	35	PASS	DT
152	162	NEOS	SEOS	1634	-10	WP	EC-WW-056	3.0		AP+PS	7/11/18	1227	1232	35	35	PASS	DT
150	162	NEOS	SEOS	1636	-10	WP	EC-WW-056	5.0		AP+PS	7/11/18	1228	1233	35	35	PASS	DT
150	161	NEOS	SEOS	1638	-10	WP	EC-WW-056	3.0		AP+PS	7/11/18	1225	1230	35	35	PASS	DT
147	161	NEOS	SEOS	1640	-10	WP	EC-WW-056	6.5		VB+PS	7/11/18					PASS	DT
147	160	NEOS	SEOS	1642	-10	WP	EC-WW-056	1.0		VB+PS	7/11/18					PASS	DT
149	160	NEOS	SEOS	1644	-10	WP	EC-WW-056	1.0		AP+PS	7/11/18	1230	1235	35	35	PASS	DT

PAGE TOTAL: 336.5

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 35 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1630	TB	21	60.0%	454	114	114	122	106	120	126	121	118	120	116	172	178	180	187	184	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
164	165	NEOS	SEOS	1730	-20	TB	EC-WW-054	49.0		AP+PS	6/11/18	1110	1115	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/06/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	940	WP	21	60.0%	454	153	106	151	150	143	153	109	137	128	125	195	197	194	196	192	DT	SM2SM
2	EC-WW-054	1215	WP	21	60.0%	454	147	151	153	158	189	125	117	156	132	159	206	196	214	180	206	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
165 / 166	NEOS	SEOS	1025	-25	WP	EC-WW-054	43.0		AP+PS	6/11/18	1115	1120	35	35	PASS	DT
166 / 167	NEOS	SEOS	1045	-25	WP	EC-WW-054	38.0		AP+PS	6/11/18	1116	1121	35	35	PASS	DT
167 / 168	NEOS	SEOS	1130	-25	WP	EC-WW-054	36.0		AP+PS	6/11/18	1250	1255	35	35	PASS	DT
168 / 169	NEOS	SEOS	1145	-25	WP	EC-WW-054	31.0		AP+PS	6/11/18	1515	1520	35	35	PASS	DT
169 / 170	NEOS	SEOS	1155	-25	WP	EC-WW-054	28.0	DS-24	AP+PS	6/11/18	1510	1515	35	35	PASS	DT
170 / 159	WEOS	EEOS	1255	-25	WP	EC-WW-054	7.0		AP+PS	6/11/18	1635	1640	35	35	PASS	DT
159 / 169	WEOS	EEOS	1257	-25	WP	EC-WW-054	7.0		AP+PS	6/11/18	1640	1645	35	35	PASS	DT
158 / 169	WEOS	EEOS	1259	-25	WP	EC-WW-054	1.0		VB+PS	6/11/18					PASS	DT
158 / 168	WEOS	EEOS	1302	-25	WP	EC-WW-054	8.5		AP+PS	6/11/18	1710	1715	35	35	PASS	DT
157 / 167	WEOS	EEOS	1304	-25	WP	EC-WW-054	7.5		AP+PS	6/11/18	1655	1700	35	35	PASS	DT
157 / 166	WEOS	EEOS	1305	-25	WP	EC-WW-054	1.0		VB+PS	6/11/18					PASS	DT
156 / 166	WEOS	12S	1307	-25	WP	EC-WW-054	3.5		AP+PS	7/11/18	1400	1405	35	35	PASS	DT
156 / 166	12S	EEOS	1307	-25	WP	EC-WW-054	3.5		AP+PS	7/11/18	1410	1415	35	35	PASS	DT
156 / 165	WEOS	EEOS	1308	-25	WP	EC-WW-054	2.0		AP+PS	7/11/18	900	905	35	35	PASS	DT
155 / 165	WEOS	EEOS	1310	-25	WP	EC-WW-054	6.5		AP+PS	7/11/18	905	910	35	35	PASS	DT
155 / 164	WEOS	EEOS	1311	-25	WP	EC-WW-054	2.0		AP+PS	7/11/18	910	915	35	35	PASS	DT
/																
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PAGE TOTAL 225.5

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 37 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1130	DH	-12	60.0%	454	135	148	126	129	135	148	154	134	118	147	174	179	167	165	182	VF	SM2SM
2	EC-WW-054	1250	DH	-12	60.0%	454	170	144	153	145	160	154	130	152	145	143	163	151	161	171	186	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
104	171	SEOS	NEOS	1135	-12	DH	EC-WW-054	30.0		AP+PS	18/11/18	1725	1730	35	35	PASS	IK
104	171	SEOS	NEOS	1145	-12	DH	EC-WW-054	5.0		AP+PS	18/11/18	1740	1745	35	35	PASS	IK
104	171	SEOS	NEOS	1146	-12	DH	EC-WW-054	58.0		AP+PS	18/11/18	1700	1705	35	35	PASS	IK
171	172	SEOS	NEOS	1200	-12	DH	EC-WW-054	92.0	DS-26	AP+PS	18/11/18	1150	1155	35	35	PASS	VF
172	173	SEOS	NEOS	1249	-12	DH	EC-WW-054	91.0	DS-25	AP+PS	10/11/18	1700	1705	35	35	PASS	DT
173	174	SEOS	NEOS	1435	-12	DH	EC-WW-054	90.0		AP+PS	10/11/18	1705	1710	35	35	PASS	DT
174	175	SEOS	NEOS	1530	-12	DH	EC-WW-054	89.0		AP+PS	18/11/18	1000	1005	35	35	PASS	VF
175	176	SEOS	NEOS	1600	-12	DH	EC-WW-054	88.0	DS-27	AP+PS	18/11/18	1122	1127	35	35	PASS	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 13/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1400	DH	-6	50.0%	454	113	119	114	115	118	115	118	120	121	121	145	150	164	148	163	IK	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
28 / 176	EEOS	WEOS	1430	-6	DH	EC-WW-054	7.0		AP+PS	18/11/18					FAIL	VF
28 / 175	EEOS	WEOS	1433	-6	DH	EC-WW-054	7.0	DS-29	AP+PS	18/11/18					FAIL	VF
28 / 174	EEOS	WEOS	1436	-6	DH	EC-WW-054	7.0	DS-28	AP+PS	18/11/18					FAIL	VF
28 / 173	EEOS	WEOS	1439	-6	DH	EC-WW-054	7.0		AP+PS	18/11/18					FAIL	VF
29 / 172	EEOS	WEOS	1442	-6	DH	EC-WW-054	7.0		AP+PS	18/11/18					FAIL	VF
29 / 171	EEOS	WEOS	1445	-6	DH	EC-WW-054	7.0		AP+PS	18/11/18					FAIL	VF
29 / 104	EEOS	WEOS	1448	-6	DH	EC-WW-054	7.0		AP+PS	18/11/18					FAIL	VF
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PAGE TOTAL							49.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:
28/176 FAILED SEAM 28/175 FAILED SEAM
28/174 FAILED SEAM 28/173 FAILED SEAM
29/172 FAILED SEAM 29/171 FAILED SEAM

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 39 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 14/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1230	DH	-15	45.0%	454	133	135	136	131	124	126	134	128	124	117	139	140	135	140	128	CM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
CAP1	CAP2	NEOS	SEOS	1240	-15	DH	EC-WW-045	1.5		AP+PS	18/11/18					FAIL	VF
28	CAP1	WEOS	EEOS	1255	-15	DH	EC-WW-045	6.0		AP+PS	18/11/18					FAIL	VF
28	CAP2	WEOS	EEOS	1257	-15	DH	EC-WW-045	6.0	DS-30	AP+PS	18/11/18					FAIL	VF
176	CAP2	EEOS	WEOS	1317	-15	DH	EC-WW-045	5.0		AP+PS	18/11/18					FAIL	VF
175	CAP1	EEOS	WEOS	1319	-15	DH	EC-WW-045	5.0	DS-31	AP+PS	18/11/18					FAIL	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/03/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	915	DT	-18	2.2%	430	146	142	137	141	147	141	145	136	126	149	170	172	169	167	163	VF	TEX2TEX
2	EC-WW-039	930	WP	-18	50.0%	454	131	129	138	131	135	117	132	122	128	122	149	150	153	148	147	VF	SM2SM
3	EC-WW-039	940	WP	-18	50.0%	454	129	120	130	123	104	121	118	125	113	114	150	148	149	150	152	VF	SM2TEX
4	XL-3573	1010	DT	-18	2.2%	430	125	117	120	128	124	122	124	133	121	121	144	145	146	141	143	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
177	178	SWEOS	NEEOS	940	-18	DT	XL-3573	6.7		AP+PS	4/12/18	1530	1535	35	35	PASS	CM
177	179	NWEOS	SEEOS	1010	-18	WP	EC-WW-039	29.5		AP+PS	4/12/18	1520	1525	35	35	PASS	CM
178	179	NWEOS	SEEOS	1023	-18	WP	EC-WW-039	6.5	DS-32	AP+PS	4/12/18	1615	1620	35	35	PASS	CM
179	180	NWEOS	SEEOS	1030	-18	WP	EC-WW-039	36.0		AP+PS	4/12/18	1625	1630	35	35	PASS	CM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 2018/04/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	1200	DT	-20	2.2%	430	116	108	117	111	112	107	99	105	99	103	119	116	120	116	116	VF	SM2SM
2	XL-3573	1215	DT	-20	2.2%	430	118	104	109	108	112	97	108	117	108	110	120	126	123	119	122	VF	SM2TEX
3	XL-3573	900	DT	-20	2.2%	430	144	140	146	133	141	145	139	128	133	134	170	172	173	169	170	VF	TEX2TEX
4	EC-WW-045	945	WP	-20	55.0%	454	129	119	122	124	122	131	119	128	124	128	152	147	147	150	150	VF	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
181 / 182	SWEOS	NEEOS	940	-20	DT	XL-3573	6.7		AP+PS	4/12/18	1735	1740	35	35	PASS	CM
182 / 183	SWEOS	NEEOS	950	-20	DT	XL-3573	6.7		AP+PS	4/12/18	1525	1530	35	35	PASS	CM
184 / 185	SWEOS	NEEOS	1010	-20	DT	XL-3573	6.7		AP+PS	4/12/18	1505	1510	35	35	PASS	CM
180 / 181	NWEOS	SEEOS	1100	-20	WP	EC-WW-045	36.0		AP+PS	4/12/18	1515	1520	35	35	PASS	CM
180 / 182	NWEOS	SEEOS	1105	-20	WP	EC-WW-045	17.5		AP+PS	4/12/18	1515	1520	35	35	PASS	CM
180 / 183	NWEOS	SEEOS	1115	-20	WP	EC-WW-045	6.0	DS-33	AP+PS	4/12/18	1640	1645	35	35	PASS	CM
186 / 187	SWEOS	NEEOS	1125	-20	DT	XL-3573	6.7		AP+PS	5/12/18	1020	1025	35	35	PASS	VF
181 / 184	NWEOS	SEEOS	1133	-20	WP	EC-WW-045	11.0		AP+PS	4/12/18	1505	1510	35	35	PASS	CM
182 / 184	NWEOS	SEEOS	1138	-20	WP	EC-WW-045	17.0		AP+PS	4/12/18	1505	1510	35	35	PASS	CM
182 / 185	NWEOS	SEEOS	1145	-20	WP	EC-WW-045	0.5		VB+PS	4/12/18					PASS	VF
183 / 185	NWEOS	SEEOS	1145	-20	WP	EC-WW-045	6.0		AP+PS	4/12/18	1645	1650	35	35	PASS	CM
184 / 186	NWEOS	SEEOS	1155	-20	WP	EC-WW-045	18.0		AP+PS	4/12/18	1500	1505	35	35	PASS	CM
184 / 187	NWEOS	SEEOS	1203	-20	WP	EC-WW-045	7.0		AP+PS	4/12/18	1500	1505	35	35	PASS	CM
185 / 187	NWEOS	SEEOS	1208	-20	WP	EC-WW-045	6.8		AP+PS	4/12/18	1650	1655	35	35	PASS	CM
190 / 191	NEOS	SEOS	1240	-20	DT	XL-3573	20.0		AP+PS	5/12/18	1000	1005	35	35	PASS	VF
188 / 189	NEOS	SEOS	1243	-20	WP	EC-WW-045	22.0		AP+PS	5/12/18	950	955	35	35	PASS	VF
189 / 190	NEOS	SEOS	1300	-20	WP	EC-WW-045	21.0		AP+PS	4/12/18	1625	1630	35	35	PASS	CM
191 / 192	NEOS	SEOS	1300	-20	DT	XL-3573	19.0	DS-34	AP+PS	4/12/18	1640	1645	35	35	PASS	CM
192 / 193	NEOS	SEOS	1320	-20	DT	XL-3573	19.0		AP+PS	4/12/18	1645	1650	35	35	PASS	CM
159 / 177	SEEOS	NWEOS	1443	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
						PAGE TOTAL	254.1									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 42 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/04/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
158	177	SEEOS	NWEOS	1443	-20	DT	XL-3573	7.0		AP+PS	4/12/18	1705	1710	35	35	PASS	RL
157	177	SEEOS	NWEOS	1447	-20	DT	XL-3573	7.0		AP+PS	4/12/18	1708	1713	35	35	PASS	RL
156	177	SEEOS	NWEOS	1450	-20	DT	XL-3573	7.0		AP+PS	4/12/18	1708	1713	35	35	PASS	RL
155	177	SEEOS	NWEOS	1453	-20	DT	XL-3573	5.0		AP+PS	4/12/18	1710	1715	35	35	PASS	JH
159	178	NWEOS	SEEOS	1458	-20	DT	XL-3573	6.0		AP+PS	4/12/18	1700	1705	35	35	PASS	CM
170	178	NEOS	SEOS	1459	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
187	193	SWEOS	NEEOS	1509	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1645	1650	35	35	PASS	CM
187	192	SWEOS	NEEOS	1510	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
185	192	SWEOS	NEEOS	1510	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1645	1650	35	35	PASS	CM
185	191	SWEOS	NEEOS	1514	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
183	191	SWEOS	NEEOS	1514	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1635	1640	35	35	PASS	CM
183	190	SWEOS	NEEOS	1519	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
180	190	SWEOS	NEEOS	1519	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1625	1630	35	35	PASS	CM
180	189	SWEOS	NEEOS	1521	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
179	189	SWEOS	NEEOS	1521	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1620	1625	35	35	PASS	CM
179	188	SWEOS	NEEOS	1525	-20	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
178	188	SWEOS	NEEOS	1525	-20	DT	XL-3573	6.5		AP+PS	4/12/18	1615	1620	35	35	PASS	CM
170	188	NEOS	SEOS	1537	-20	DT	XL-3573	23.0		AP+PS	4/12/18	1615	1620	35	35	PASS	CM
							PAGE TOTAL	97.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 43 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: SECONDARY 60MIL
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 2018/07/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	943	DT	-14	2.2%	430	141	131	149	132	139	139	135	142	125	134	155	156	163	157	153	CM	
2	EC-WW-039	1100	WP	-14	50.0%	454	143	139	144	129	142	125	122	129	126	126	160	160	159	160	161	CM	
3	XL-3573	1300	DT	-7	2.2%	430	139	134	137	138	140	145	145	138	146	141	171	166	168	168	164	CM	
4	XL-3573	1300	DT	-7	2.2%	430	122	159	137	135	132	137	116	141	136	127	167	167	167	167	166	CM	
5	EC-WW-039	1400	WP	-7	50.0%	454	131	138	130	142	144	150	143	138	129	136	184	177	183	177	183	CM	
6	XL-3573	1520	DT	-10	2.2%	430	137	128	131	143	129	126	123	144	138	125	175	179	173	179	178	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
195 / 196	NEOS	SEOS	1020	-14	DT	XL-3573	6.7		AP+PS	8/12/18	1505	1510	35	35	PASS	CM
197 / 198	NEOS	SEOS	1028	-14	DT	XL-3573	6.7		AP+PS	8/12/18	1500	1505	35	35	PASS	CM
211 / 212	NEEOS	SWEOS	1115	-8	DT	XL-3573	7.1		AP+PS	8/12/18	1335	1340	35	35	PASS	CM
194 / 195	WEOS	EEOS	1130	-14	WP	EC-WW-039	15.0		AP+PS	8/12/18	1510	1515	35	35	PASS	CM
195 / 197	WEOS	EEOS	1135	-14	WP	EC-WW-039	14.0		AP+PS	8/12/18	1515	1520	35	35	PASS	CM
194 / 196	WEOS	EEOS	1138	-14	WP	EC-WW-039	13.0		AP+PS	8/12/18	1625	1630	35	35	PASS	CM
196 / 197	WEOS	EEOS	1142	-14	WP	EC-WW-039	11.0		AP+PS	8/12/18	1555	1600	35	35	PASS	CM
196 / 198	WEOS	EEOS	1145	-10	WP	EC-WW-039	4.0		AP+PS	8/12/18	1610	1615	35	35	PASS	CM
197 / 199	WEOS	EEOS	1150	-10	WP	EC-WW-039	20.0		AP+PS	8/12/18	1520	1525	35	35	PASS	CM
200 / 201	WEOS	EEOS	1220	-8	WP	EC-WW-039	19.6		AP+PS	7/12/18	1630	1635	35	35	PASS	CM
193 / 200	WEOS	EEOS	1246	-10	WP	EC-WW-039	18.7	DS-39 & 40	AP+PS	8/12/18	1645	1650	0	0	fail	CM
201 / 202	WEOS	EEOS	1300	-8	WP	EC-WW-039	20.0	-35 & 36 &	AP+PS	7/12/18	1635	1640	35	35	PASS	CM
186 / 194	WEOS	EEOS	1312	-8	DT	XL-3573	18.0		AP+PS	7/12/18	1452	1457	35	35	PASS	CM
202 / 203	WEOS	EEOS	1315	-8	WP	EC-WW-039	22.0	DS-38 & 41	AP+PS	8/12/18	1630	1635	35	35	PASS	CM
187 / 194	WEOS	EEOS	1325	-8	DT	XL-3573	17.7		AP+PS	8/12/18	1630	1635	35	35	PASS	CM
203 / 204	WEOS	EEOS	1335	-8	WP	EC-WW-039	22.0		AP+PS	7/12/18	1630	1635	35	35	PASS	CM
204 / 205	WEOS	EEOS	1345	-8	WP	EC-WW-039	19.5		AP+PS	7/12/18	1645	1650	35	35	PASS	CM
206 / 207	WEOS	EEOS	1430	-8	DT	XL-3573	23.0		AP+PS	7/12/18	1645	1650	35	35	PASS	CM
205 / 206	WEOS	EEOS	1450	-8	DT	XL-3573	20.0	DS-42	AP+PS	8/12/18	1645	1650	35	35	PASS	CM
207 / 208	WEOS	EEOS	1451	-8	DT	XL-3573	23.2		AP+PS	8/12/18	1320	1325	35	35	PASS	CM
						PAGE TOTAL	321.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: 200-201, SEAM CAPPED, 193-200, SEAM CAPPED, 201-202, SEAM CAPPED, 201-203, 7M CAPPED WEOS,

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 44 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/07/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
208 / 209	WEOS	EEOS	1508	-8	DT	XL-3573	22.2		AP+PS	8/12/18	1320	1325	35	35	PASS	CM
210 / 211	NEOS	SEOS	1516	-8	DT	XL-3573	13.8		AP+PS	8/12/18	1330	1335	35	35	PASS	CM
209 / 210	NEOS	SEOS	1526	-8	DT	XL-3573	22.3		AP+PS	7/12/18	1650	1655	35	35	PASS	CM
212 / 213	EEOS	WEOS	1545	-8	WP	EC-WW-039	6.6		AP+PS	8/12/18	1335	1340	35	35	PASS	CM
213 / 214	EEOS	WEOS	1625	-8	WP	EC-WW-039	14.7		AP+PS	7/12/18	1705	1710	35	35	PASS	CM
214 / 215	EEOS	WEOS	1635	-8	WP	EC-WW-039	22.0		AP+PS	8/12/18	1645	1650	35	35	PASS	CM
215 / 216	EEOS	WEOS	1645	-8	WP	EC-WW-039	22.0		AP+PS	8/12/18	1530	1535	35	35	PASS	CM
216 / 217	EEOS	WEOS	1700	-8	WP	EC-WW-039	22.4		AP+PS	7/12/18	1720	1725	35	35	PASS	CM
217 / 218	EEOS	WEOS	1710	-8	WP	EC-WW-039	22.6		AP+PS	8/12/18	1510	1515	35	35	PASS	CM
218 / 219	EEOS	WEOS	1711	-8	DT	XL-3573	23.0		AP+PS	8/12/18	1457	1502	35	35	PASS	CM
221 / 222	EEOS	WEOS	1730	-8	WP	EC-WW-039	24.5		AP+PS	8/12/18	1245	1250	35	35	PASS	CM
219 / 220	EEOS	WEOS	1732	-8	DT	XL-3573	23.5		AP+PS	8/12/18	1235	1240	35	35	PASS	CM
222 / 223	EEOS	WEOS	1740	-8	WP	EC-WW-039	25.0		AP+PS	8/12/18	1240	1245	35	35	PASS	CM
220 / 221	EEOS	WEOS	1749	-8	DT	XL-3573	24.0		AP+PS	8/12/18	1250	1255	35	35	PASS	CM
223 / 224	EEOS	WEOS	1755	-8	WP	EC-WW-039	25.0	DS-43	AP+PS	8/12/18	1230	1235	35	35	PASS	CM
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PAGE TOTAL 313.6

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT, MJ & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 45 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/08/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	1000	DT	-4	2.2%	430	138	119	126	132	135	146	145	154	120	131	177	174	173	178	171	CM	
2	XL-3573	1010	DT	-4	2.2%	430	149	144	156	142	161	158	144	161	149	146	182	174	181	182	174	CM	
3	XL-3573	1400	DT	0	2.2%	430	146	136	134	142	122	127	130	134	128	114	140	160	152	159	156	CM	
4	XL-3573	1405	DT	0	2.2%	430	136	127	155	140	130	136	139	125	119	122	160	167	170	164	165	CM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
198	227	WEOS	EEOS	1030	-3	DT	XL-3573	3.0		AP+PS	8/12/18	1536	1541	35	35	PASS	CM
210	214	NEEOS	SWEOS	1111	-3	DT	XL-3573	6.7		AP+PS	9/12/18	1310	1315	35	35	PASS	CM
210	213	NEEOS	SWEOS	1114	-3	DT	XL-3573	6.7		AP+PS	9/12/18	1315	1320	35	35	PASS	CM
211	213	NEEOS	SWEOS	1115	-3	DT	XL-3573	6.7		AP+PS	9/12/18	1330	1335	35	35	PASS	CM
211	212	NEEOS	SWEOS	1118	-3	DT	XL-3573	6.7		AP+PS	9/12/18	1335	1340	35	35	PASS	CM
177	224	EEOS	WEOS	1203	-3	DT	XL-3573	6.7	DS-44	AP+PS	8/12/18	1230	1235	35	35	PASS	CM
179	223	EEOS	WEOS	1207	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1240	1245	35	35	PASS	CM
180	222	EEOS	WEOS	1210	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1245	1250	35	35	PASS	CM
181	221	EEOS	WEOS	1214	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1250	1255	35	35	PASS	CM
184	220	EEOS	WEOS	1217	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1350	1355	35	35	PASS	CM
186	219	EEOS	WEOS	1221	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1452	1457	35	35	PASS	CM
194	218	EEOS	WEOS	1231	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1510	1515	35	35	PASS	CM
195	217	EEOS	WEOS	1234	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1515	1520	35	35	PASS	CM
197	216	EEOS	WEOS	1239	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1520	1525	35	35	PASS	CM
199	215	EEOS	WEOS	1242	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1525	1530	35	35	PASS	CM
199	209	NEOS	SEOS	1245	-3	DT	XL-3573	6.7		VB+PS	8/12/18					PASS	CM
199	207	NEOS	SEOS	1245	-3	DT	XL-3573	2.0		AP+PS	8/12/18	1525	1530	35	35	PASS	CM
199	206	NEOS	SEOS	1250	-3	DT	XL-3573	6.2		AP+PS	8/12/18	1540	1545	35	35	PASS	CM
199	205	NEOS	SEOS	1251	-3	DT	XL-3573	0.2		AP+PS	8/12/18	1540	1545	35	35	PASS	CM
199	204	NEOS	SEOS	1254	-3	DT	XL-3573	5.0		AP+PS	8/12/18	1550	1555	35	35	PASS	CM
							PAGE TOTAL	116.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 46 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/08/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
198 / 203	NEOS	SEOS	1255	-3	DT	XL-3573	0.2		AP+PS	8/12/18	1553	1558	35	35	PASS	CM
227 / 202	WEOS	EEOS	1258	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1605	1610	35	35	PASS	CM
227 / 202	WEOS	EEOS	1258	-3	dt	XL-3573	3.0		AP+PS	8/12/18	1605	1610	35	35	PASS	CM
196 / 202	WEOS	EEOS	1302	-3	DT	XL-3573	4.4		AP+PS	8/12/18	1605	1610	35	35	PASS	CM
196 / 201	WEOS	EEOS	1302	-3	DT	XL-3573	4.0		AP+PS	8/12/18	1620	1625	35	35	PASS	CM
194 / 200	WEOS	EEOS	1303	-3	DT	XL-3573	7.0	DS-45	AP+PS	8/12/18	1645	1650	35	35	PASS	CM
225 / 226	EEOS	WEOS	1520	-3	DT	XL-3573	3.0		AP+PS	9/12/18	1000	1005	35	35	PASS	CM
224 / 225	NEOS	SEOS	1535	-3	DT	XL-3573	8.0		AP+PS	9/12/18	1005	1010	35	35	PASS	CM
224 / 226	EEOS	WEOS	1540	-3	DT	XL-3573	8.0		AP+PS	9/12/18	1005	1010	35	35	PASS	CM
214 / 228	WEOS	EEOS	1640	-3	DT	XL-3573	6.7		AP+PS	8/12/18	1645	1650	35	35	PASS	CM
226 / e1	EEOS	WEOS	1700	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1010	1015	35	35	PASS	CM
226 / e2	EEOS	WEOS	1705	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1015	1020	35	35	PASS	CM
225 / e2	EEOS	WEOS	1715	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1015	1020	35	35	PASS	CM
225 / e3	EEOS	WEOS	1720	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1025	1030	35	35	PASS	CM
224 / e3	EEOS	WEOS	1725	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1025	1030	35	35	PASS	CM
224 / e4	EEOS	WEOS	1730	-3	DT	XL-3573	6.8		AP+PS	9/12/18	1030	1035	35	35	PASS	CM
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PAGE TOTAL 91.8

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 47 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/09/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	1020	DT	0	2.2%	430	126	128	128	128	132	132	134	127	128	135	170	178	167	170	175	CM	
2	XL-3573	1025	DT	0	2.2%	430	128	129	127	132	135	132	126	131	130	132	172	174	178	166	171	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
201 / 230	WEOS	EEOS	1040	0	DT	XL-3573	3.0		AP+PS	8/12/18	1250	1255	35	35	PASS	CM
200 / 230	EEOS	WEOS	1045	0	DT	XL-3573	3.0		AP+PS	8/12/18	1250	1255	35	35	PASS	CM
202 / 231	WEOS	EEOS	1050	0	DT	XL-3573	3.0		AP+PS	8/12/18	1256	1301	35	35	PASS	CM
201 / 231	EEOS	WEOS	1055	0	DT	XL-3573	3.0		AP+PS	8/12/18	1256	1301	35	35	PASS	CM
200 / 229	WEOS	EEOS	1120	0	DT	XL-3573	3.0		AP+PS	8/12/18	1225	1230	35	35	PASS	CM
193 / 229	EEOS	WEOS	1125	0	DT	XL-3573	3.0		AP+PS	8/12/18	1225	1230	35	35	PASS	CM
203 / 232	WEOS	EEOS	1125	0	DT	XL-3573	3.0		AP+PS	8/12/18	1301	1306	35	35	PASS	CM
202 / 232	EEOS	WEOS	1130	0	DT	XL-3573	3.0		AP+PS	8/12/18	1301	1306	35	35	PASS	CM
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PAGE TOTAL							24.0									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 48 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 15/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	920	WP	-19	2.7%	454	131	121	120	123	128	127	128	130	131	123	141	138	140	134	134	CM	
2	XL-3407	1300	WP	-19	2.7%	454	123	129	137	114	115	129	124	121	117	116	144	143	142	142	140	CM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
233	176	NEOS	SEOS	1145	-18	WP	XL-3407	60.0		AP+PS	16/1/19	935	940	40	40	PASS	CM
233	234	NEOS	SEOS	1225	-18	WP	XL-3407	58.0		AP+PS	16/1/19	940	945	40	40	PASS	CM
234	235	NEOS	SEOS	1300	-18	WP	XL-3407	56.0	DS-47	AP+PS	16/1/19	950	955	40	40	PASS	CM
235	236	NEOS	SEOS	1335	-18	WP	XL-3407	50.0		AP+PS	16/1/19	1000	1005	40	40	PASS	CM
236	237	NEOS	SEOS	1403	-18	WP	XL-3407	48.0		AP+PS	16/1/19	1035	1045	40	40	PASS	CM
237	238	NEOS	SEOS	1519	-18	WP	XL-3407	44.0		AP+PS	16/1/19	1040	1045	40	40	PASS	CM
238	239	NEOS	SEOS	1603	-18	WP	XL-3407	40.0	DS-50	AP+PS	16/1/19	1050	1055	40	40	PASS	CM
PAGE TOTAL								356.0									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 49 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 16/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	930	WP	-20	2.7%	454	113	140	130	140	137	114	116	119	118	117	147	145	141	142	144	CM	
2	XL-3407	1230	WP	-20	25.0%	454	129	111	124	122	126	131	131	115	116	125	137	138	143	140	142	CM	
3	XL-3407	1230	WP	-20	25.0%	454	130	126	131	125	128	126	126	129	125	122	162	160	160	154	155	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
239 / 240	NEOS	SEOS	945	-18	WP	XL-3407	35.0		AP+PS	16/1/19	1100	1105	40	40	PASS	CM
240 / 241	NEOS	SEOS	1010	-18	WP	XL-3407	33.5	DS-48	AP+PS	16/1/19	1115	1120	40	40	PASS	CM
241 / 242	NEOS	SEOS	1025	-18	WP	XL-3407	32.0		AP+PS	16/1/19	1150	1155	40	40	PASS	CM
242 / 243	NEOS	SEOS	1130	-18	WP	XL-3407	30.5		AP+PS	16/1/19	1200	1205	40	40	PASS	CM
243 / 244	NEOS	SEOS	1154	-18	WP	XL-3407	29.0		AP+PS	16/1/19	1220	1225	40	40	PASS	CM
244 / 245	NEOS	SEOS	1220	-18	WP	XL-3407	27.5		AP+PS	16/1/19	1235	1240	40	40	PASS	CM
245 / 246	NEOS	SEOS	1240	-18	WP	XL-3407	26.0		AP+PS	16/1/19	1310	1315	40	40	PASS	CM
246 / 247	NEOS	SEOS	1300	-18	WP	XL-3407	24.5		AP+PS	16/1/19	1310	1315	40	40	PASS	CM
247 / 248	NEOS	SEOS	1320	-18	WP	XL-3407	23.0		AP+PS	16/1/19	1510	1515	40	40	PASS	CM
248 / 249	WEOS	EEOS	1347	-18	WP	XL-3407	6.8		AP+PS	16/1/19	1600	1605	40	40	PASS	CM
249 / 250	NEOS	SEOS	1350	-18	WP	XL-3407	6.0		AP+PS	16/1/19	1600	1605	40	40	PASS	CM
250 / 251	NEOS	SEOS	1402	-18	WP	XL-3407	12.9		AP+PS	16/1/19	1600	1605	40	40	PASS	CM
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/																
PAGE TOTAL							286.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 50 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 18/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
9 / 243	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
10 / 243	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
10 / 242	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
14 / 242	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
14 / 241	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
13 / 240	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
13 / 239	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
15 / 239	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
15 / 238	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
16 / 238	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
16 / 237	EEOS	WEOS	930	-18	GB	EC-EX-035	4.0		VB+PS	16/1/19					PASS	CM
18 / 237	EEOS	WEOS	930	-18	GB	EC-EX-035	3.0		VB+PS	16/1/19					PASS	CM
18 / 236	EEOS	WEOS	930	-18	IK	EC-EX-027	4.0		VB+PS	16/1/19					PASS	CM
20 / 236	EEOS	WEOS	930	-18	IK	EC-EX-027	3.0		VB+PS	16/1/19					PASS	CM
20 / 235	EEOS	WEOS	930	-18	IK	EC-EX-027	4.0		VB+PS	16/1/19					PASS	CM
21 / 235	EEOS	WEOS	930	-18	IK	EC-EX-027	3.0		VB+PS	16/1/19					PASS	CM
21 / 234	EEOS	WEOS	930	-18	IK	EC-EX-027	4.0		VB+PS	16/1/19					PASS	CM
44 / 234	EEOS	WEOS	930	-18	IK	EC-EX-027	3.0		VB+PS	16/1/19					PASS	CM
44 / 233	EEOS	WEOS	930	-18	IK	EC-EX-027	4.0		VB+PS	16/1/19					PASS	CM
/																
						PAGE TOTAL	67.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 51 of 52

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond
AREA / LAYER: SECONDARY 60MIL
SEAM DATE: 19/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	945	GB	-25	55.0%	454	128	123	125	119	116	121	129	119	125	128	150	157	145	163	158	CM	
2	XL-3407	1600	WP	-22	2.3%	454	156	152	150	160	143	162	145	159	148	145	193	194	192	189	181	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
251 / 252	NEOS	SEOS	1035	-20	GB	EC-WW-045	6.0		AP+PS	20/1/19	1200	1205	40	40	PASS	CM
252 / 253	NEOS	SEOS	1045	-20	GB	EC-WW-045	12.0		AP+PS	20/1/19	1105	1110	40	40	PASS	CM
253 / 254	NEOS	SEOS	1050	-20	GB	EC-WW-045	8.0		AP+PS	20/1/19	1135	1140	40	40	PASS	CM
249 / 250	NEOS	SEOS	1102	-20	GB	EC-WW-045	11.0		AP+PS	20/1/19	1135	1140	40	40	PASS	CM
1 / 254	EEOS	WEOS	1605	-20	WP	XL-3407	6.8		AP+PS	20/1/19	1300	1305	40	40	PASS	CM
1 / 253	EEOS	WEOS	1607	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1300	1305	40	40	PASS	CM
1 / 252	EEOS	WEOS	1610	-20	WP	XL-3407	3.0		AP+PS	20/1/19	1305	1310	40	40	PASS	CM
2 / 251	EEOS	WEOS	1612	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1305	1310	40	40	PASS	CM
2 / 248	EEOS	WEOS	1615	-20	WP	XL-3407	3.0		AP+PS	20/1/19	1310	1315	40	40	PASS	CM
4 / 248	EEOS	WEOS	1617	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1310	1315	40	40	PASS	CM
4 / 247	EEOS	WEOS	1620	-20	WP	XL-3407	3.0		AP+PS	20/1/19	1315	1320	40	40	PASS	CM
5 / 247	EEOS	WEOS	1622	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1315	1320	40	40	PASS	CM
5 / 246	EEOS	WEOS	1625	-20	WP	XL-3407	3.0		AP+PS	20/1/19	1320	1325	40	40	PASS	CM
8 / 246	EEOS	WEOS	1627	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1320	1325	40	40	PASS	CM
8 / 245	EEOS	WEOS	1630	-20	WP	XL-3407	3.0		AP+PS	20/1/19	1325	1330	40	40	PASS	CM
9 / 244	EEOS	WEOS	1633	-20	WP	XL-3407	4.0		AP+PS	20/1/19	1325	1330	40	40	PASS	CM
/																
/																
/																
/																
						PAGE TOTAL	82.8									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT, MJ & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 31/09/2019
SHEET NUMBER: 52 of 52

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/11	1415	JH	21	237	232	108	115	104	117	113	141	143	139	151	151	DT	
2	EC-EX-035	2018/09/12	940	JH	21	237	232	118	106	100	118	117	160	165	165	172	165	DT	
3	EC-EX-035	2018/09/12	1656	JH	21	237	232	103	97	92	116	119	154	157	152	154	149	DT	
4	EC-EX-035	2018/09/15	1115	JH	21	237	232	118	109	108	113	108	150	152	155	149	149	DT	
5	EC-EX-035	2018/09/15	1430	JH	21	237	232	111	117	113	105	123	149	148	149	148	159	DT	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	1 / 2	12.5 from EEOS	WS	P	EC-EX-035	2018/09/11	1520	JH	4	2018/09/13	VB	DT
1B	3 / 4	Connected to 2	T	G&W	EC-EX-035	2018/09/11	1533	JH	4	2018/09/13	VB	DT
1C	3 / 4	Connected to 5	T	G&W	EC-EX-035	2018/09/11	1520	JH	4	2018/09/13	VB	DT
1D	6 / 7	Connected to 5	T	G&W	EC-EX-035	2018/09/11	1512	JH	4	2018/09/13	VB	DT
1E	6 / 7	Connected to 9	T	G&W	EC-EX-035	2018/09/11	1512	JH	4	2018/09/13	VB	DT
1F	8 / 9	3m from WEOS, South 2.5m	D	P	EC-EX-035	2018/09/11	1458	JH	4	2018/09/13	VB	DT
1G	7 / 8	Connected to 5	T	G&W	EC-EX-035	2018/09/11	1454	JH	4	2018/09/13	VB	DT
1H	11 / 12	Connected to 10	T	P	EC-EX-035	2018/09/12	1111	JH	4	2018/09/13	VB	DT
1I	11 / 12	Connected to 13	T	G&W	EC-EX-035	2018/09/12	1045	JH	4	2018/09/13	VB	DT
1J	12 / 14	Connected to 13	T	G&W	EC-EX-035	2018/09/12	1011	JH	4	2018/09/13	VB	DT
1K	13 / 15	41m from from SEOS	IO	G&W	EC-EX-035	2018/09/12	1125	JH	4	2018/09/13	VB	DT
1L	12 / 14	Connected to 10	IO	G&W	EC-EX-035	2018/09/12	1008	JH	4	2018/09/13	VB	DT
1M	17 / 18	Connected to 16	T	G&W	EC-EX-035	2018/09/12	1730	JH	4	2018/09/15	VB	DT
1N	17 / 18	Connected to 20	T	G&W	EC-EX-035	2018/09/12	1732	JH	4	2018/09/15	VB	DT
1O	19 / 20	Connected to 17	T	G&W	EC-EX-035	2018/09/12	1727	JH	4	2018/09/15	VB	DT
1P	19 / 20	Connected to 21	T	G&W	EC-EX-035	2018/09/12	1725	JH	4	2018/09/15	VB	DT
1Q	23 / 24	Connected to 22	T	G&W	EC-EX-035	2018/09/12	1738	JH	4	2018/09/15	VB	DT
1R	26 / 27	Connected to 25	T	G&W	EC-EX-035	2018/09/12	1722	JH	4	2018/09/15	VB	DT
1S	9 / 10	1m South-West from trench	D	G&W	EC-EX-035	2018/09/15	1300	JH	5	2018/09/15	VB	DT
1T	10 / 11	1m from WEOS, north 2m	D	P	EC-EX-035	2018/09/15	1220	JH	5	2018/09/15	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 1 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/15	1115	JH	21	237	232	118	109	108	113	108	150	152	155	149	149	DT	
2	EC-EX-035	2018/09/15	1430	JH	21	237	232	111	117	113	105	123	149	148	149	148	159	DT	
3	EC-EX-035	2018/09/18	827	DH	21	237	232	116	113	113	113	115	164	170	170	166	161	DT	
4	EC-EX-035	2018/09/20	1125	JH	21	237	232	113	106	120	104	108	155	152	159	166	159	DT	
5	EC-EX-035	2018/09/20	1530	JH	21	226	223	103	121	108	108	98	144	157	151	161	156	DT	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	17 / 19	1m from WEOS, north 2m	D	P	EC-EX-035	2018/09/15	1256	JH	5	2018/09/15	VB	DT
2B	17 / 19	3.5m from WEOS, north 2m	D	G&W	EC-EX-035	2018/09/15	1242	JH	5	2018/09/15	VB	DT
2C	32 / 33	35.5 from EEOS	IO	P	EC-EX-035	2018/09/15	1623	JH	7	2018/09/16	VB	DT
2D	36 / 37	Connected to 35	T	G&W	EC-EX-035	2018/09/15	1458	JH	7	2018/09/16	VB	DT
2E	37 / 38	Connected to 35	T	G&W	EC-EX-035	2018/09/15	1500	JH	7	2018/09/16	VB	DT
2F	38 / 39	Connected to 35	T	G&W	EC-EX-035	2018/09/15	1510	JH	7	2018/09/16	VB	DT
2G	39 / 40	Connected to 35	T	G&W	EC-EX-035	2018/09/15	1528	JH	7	2018/09/16	VB	DT
2H	41 / 42	Connected to 40	T	G&W	EC-EX-035	2018/09/15	1705	JH	7	2018/09/16	VB	DT
2I	42 / 43	Connected to 40	T	G&W	EC-EX-035	2018/09/15	1530	JH	7	2018/09/16	VB	DT
2J	41 / 40	6m from WEOS	T	G&W	EC-EX-035	2018/09/15	1715	JH	7	2018/09/16	VB	DT
2K	30 / 29	2m from WEOS, north .25m	D	G&W	EC-EX-035	2018/09/18	845	DH	21	2018/09/22	VB	DT
2L	30 / 29	1m from WEOS, north 1m	D	G&W	EC-EX-035	2018/09/18	850	DH	21	2018/09/22	VB	DT
2M	30 / 29	on WEOS, north 2m	D	P	EC-EX-035	2018/09/18	855	DH	21	2018/09/22	VB	DT
2N	30 / 29	-2m from WEOS, north 2.25m	D	G&W	EC-EX-035	2018/09/18	900	DH	21	2018/09/22	VB	DT
2O	30 / 29	-3m from WEOS, north 2.5m	D	G&W	EC-EX-035	2018/09/18	905	DH	21	2018/09/22	VB	DT
2P	30 / 29	-6m from WEOS, north 2m	D	G&W	EC-EX-035	2018/09/18	910	DH	21	2018/09/22	VB	DT
2Q	30 / 29	-6m from WEOS, north 3m	D	G&W	EC-EX-035	2018/09/18	915	DH	21	2018/09/22	VB	DT
2R	30 / 29	-9m from WEOS, north 3.5m	D	G&W	EC-EX-035	2018/09/18	920	DH	21	2018/09/22	VB	DT
2S	30 / 29	-10m from WEOS, north 3m	D	P	EC-EX-035	2018/09/18	925	DH	21	2018/09/22	VB	DT
2T	37 / 38	Connected to 44	T	P	EC-EX-035	2018/09/20	1220	JH	6	2018/09/21	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 2 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/20	1125	JH	21	237	232	113	106	120	104	108	155	152	159	166	159	DT	
2	EC-EX-035	2018/09/20	1530	JH	21	226	223	103	121	108	108	98	144	157	151	161	156	DT	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	36 / 37	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1226	JH	6	2018/09/21	VB	DT
3B	35 / 36	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1228	JH	6	2018/09/21	VB	DT
3C	35 / 44	2m from NEOS, .25m West	D	P	EC-EX-035	2018/09/20	1239	JH	6	2018/09/21	VB	DT
3D	35 / 44	3.5m from NEOS, .25m West	D	P	EC-EX-035	2018/09/20	1241	JH	6	2018/09/21	VB	DT
3E	35 / 34	.25m from EEOS, .25m North	D	P	EC-EX-035	2018/09/20	1243	JH	6	2018/09/21	VB	DT
3F	35 / 34	Connected to 44	T	P	EC-EX-035	2018/09/20	1249	JH	6	2018/09/21	VB	DT
3G	34 / 44	2.5m from NEOS, .25m West	D	P	EC-EX-035	2018/09/20	1254	JH	6	2018/09/21	VB	DT
3H	33 / 34	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1300	JH	6	2018/09/21	VB	DT
3I	33 / 32	Connected to 44	T	P	EC-EX-035	2018/09/20	1414	JH	6	2018/09/21	VB	DT
3J	31 / 32	Connected to 44	T	P	EC-EX-035	2018/09/20	1451	JH	6	2018/09/21	VB	DT
3K	30 / 31	Connected to 44	T	P	EC-EX-035	2018/09/20	1458	JH	6	2018/09/21	VB	DT
3L	29 / 30	Connected to 44	T	P	EC-EX-035	2018/09/20	1500	JH	6	2018/09/21	VB	DT
3M	29 / 44	2.5m from NEOS, .5M West	D	P	EC-EX-035	2018/09/20	1604	JH	6	2018/09/21	VB	DT
3N	28 / 29	Connected to 44	T	P	EC-EX-035	2018/09/20	1614	JH	6	2018/09/21	VB	DT
3O	22 / 24	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1653	JH	6	2018/09/21	VB	DT
3P	23 / 24	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1655	JH	6	2018/09/21	VB	DT
3Q	24 / 44	2.5m from SEOS	D	P	EC-EX-035	2018/09/20	1714	JH	6	2018/09/21	VB	DT
3R	23 / 25	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1725	JH	6	2018/09/21	VB	DT
3S	25 / 44	9m from SEOS	IO	G&W	EC-EX-035	2018/09/20	1732	JH	6	2018/09/21	VB	DT
3T	25 / 27	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1730	JH	6	2018/09/21	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 3 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/20	1125	JH	21	237	232	113	106	120	104	108	155	152	159	166	159	DT	
2	EC-EX-035	2018/09/20	1530	JH	21	226	223	103	121	108	108	98	144	157	151	161	156	DT	
3	EC-EX-035	2018/09/21	1105	JH	21	237	232	85	95	80	92	110	151	149	151	164	164	DT	
4	EC-EX-011	2018/09/27	900	DH	21	248	243	97	133	98	86	127	157	176	165	175	181	DT	
5	EC-EX-035	2018/09/27	915	JH	21	246	240	127	109	112	117	117	177	179	175	173	177	DT	
6	EC-EX-011	2018/09/27	1300	DH	21	243	237	126	145	126	131	143	152	166	163	164	153	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	35 / 44	4m from NEOS, West	D	P	EC-EX-035	2018/09/20	1801	JH	6	2018/09/21	VB	DT
4B	26 / 27	Connected to 44	T	G&W	EC-EX-035	2018/09/20	1754	JH	6	2018/09/21	VB	DT
4C	44 / 38	Connected EEOS into trench	P	IO	EC-EX-035	2018/09/21	1130	JH	8	2018/10/02	VB	CM
4D	56 / 57	Connected to 31	T	G&W	EC-EX-035	2018/09/27	925	JH	8	2018/10/02	VB	CM
4E	55 / 56	Connected to 32	T	P	EC-EX-035	2018/09/27	933	JH	8	2018/10/02	VB	CM
4F	53 / 55	Connected to 33	T	P	EC-EX-035	2018/09/27	940	JH	8	2018/10/02	VB	CM
4G	52 / 53	Connected to 34	T	G&W	EC-EX-035	2018/09/27	1100	JH	8	2018/10/02	VB	CM
4H	46 / 52	Connected to 35	T	P	EC-EX-035	2018/09/27	1110	JH	8	2018/10/02	VB	CM
4I	40 / 43	Connected to 46	T	G&W	EC-EX-035	2018/09/27	1115	JH	8	2018/10/02	VB	CM
4J	54 / 55	Connected to 53	T	G&W	EC-EX-035	2018/09/27	1155	JH	8	2018/10/02	VB	CM
4K	46 / 47	Connected to 52	T	G&W	EC-EX-035	2018/09/27	1120	JH	8	2018/10/02	VB	CM
4L	47 / 49	Connected to 52	T	p	EC-EX-035	2018/09/27	1125	JH	8	2018/10/02	VB	CM
4M	49 / 52	2.5m NE of NWEOS	BO	P	EC-EX-035	2018/09/27	1140	JH	8	2018/10/02	VB	CM
4N	49 / 51	Connected to 52	T	G&W	EC-EX-035	2018/09/27	1150	JH	8	2018/10/02	VB	CM
4O	48 / 49	Connected to 47	T	G&W	EC-EX-035	2018/09/27	1645	JH	8	2018/10/02	VB	CM
4P	48 / 49	Connected to 50	T	G&W	EC-EX-035	2018/09/27	1650	JH	8	2018/10/02	VB	CM
4Q	50 / 51	Connected to 49	T	G&W	EC-EX-035	2018/09/27	1659	JH	8	2018/10/02	VB	CM
4R	50 / 51	Connected to 58	T	G&W	EC-EX-035	2018/09/27	1725	JH	8	2018/10/02	VB	CM
4S	60 / 61	Connected to 58	T	G&W	EC-EX-035	2018/09/27	1330	JH	8	2018/10/02	VB	CM
4T	60 / 61	Connected to 62	T	G&W	EC-EX-035	2018/09/27	1345	JH	8	2018/10/02	VB	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 4 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/27	1315	JH	21	237	232	116	119	117	126	120	158	163	146	166	165	DT	
2	EC-EX-035	2018/09/27	1710	JH	21	237	232	124	131	109	125	139	162	172	160	164	165	DT	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 5 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2018/09/27	900	DH	21	248	243	97	133	98	86	127	157	176	165	175	181	DT	
2	EC-EX-035	2018/09/27	915	JH	21	246	240	127	109	112	117	117	177	179	175	173	177	DT	
3	EC-EX-011	2018/09/27	1300	DH	21	243	237	126	145	126	131	143	152	166	163	164	153	DT	
4	EC-EX-035	2018/09/27	1315	JH	21	237	232	116	119	117	126	120	158	163	146	166	165	DT	
5	EC-EX-035	2018/09/27	1710	JH	21	237	232	124	131	109	125	139	162	172	160	164	165	DT	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	70 / 71	Connected to 69	T	G&W	EC-EX-011	2018/09/27	915	DH	8	2018/09/27	VB	TB
5B	70 / 71	Connected to 72	T	G&W	EC-EX-011	2018/09/27	920	DH	8	2018/09/27	VB	TB
5C	60 /	1m NE from 4T	D	P	EC-EX-035	2018/09/27	945	DH	8	2018/09/27	VB	TB
5D	60 /	3m NE 4T	D	P	EC-EX-035	2018/09/27	950	DH	8	2018/09/27	VB	TB
5E	51 / 52	Connected to 58	T	P	EC-EX-035	2018/09/27	1000	DH	8	2018/09/27	VB	TB
5F	52 / 53	Connected to 58	T	P	EC-EX-035	2018/09/27	1004	DH	8	2018/09/27	VB	TB
5G	53 / 54	Connected to 58	T	P	EC-EX-035	2018/09/27	1010	DH	8	2018/09/27	VB	TB
5H	55 / 56	Connected to 58	T	P	EC-EX-035	2018/09/27	1015	DH	8	2018/09/27	VB	TB
5I	56 / 57	Connected to 58	T	P	EC-EX-035	2018/09/27	1026	DH	8	2018/09/27	VB	TB
5J	76 / 77	Connected to 78	T	P	EC-EX-011	2018/09/27	1315	DH	8	2018/09/27	VB	TB
5K	85 / 86	Connected to 84	T	P	EC-EX-011	2018/09/27	1328	DH	8	2018/09/27	VB	TB
5L	87 / 88	Connected to 86	T	P	EC-EX-011	2018/09/27	1345	DH	8	2018/09/27	VB	TB
5M	87 / 88	Connected to 89	T	P	EC-EX-011	2018/09/27	1350	DH	8	2018/09/27	VB	TB
5N	90 / 91	31m NW of NEEOS	BO	P	EC-EX-011	2018/09/27	1356	DH	8	2018/09/27	VB	TB
5O	90 / 91	Connected to 62,63	T	P	EC-EX-011	2018/09/27	1040	DH	8	2018/09/27	VB	TB
5P	89 / 90	Connected to 63	T	G&W	EC-EX-011	2018/09/27	1048	DH	8	2018/09/27	VB	TB
5Q	88 / 89	Connected to 65,63	DS#10	P	EC-EX-011	2018/09/27	1056	DH	8	2018/09/27	VB	TB
5R	84 / 67	3.3m N of SEOS	BO	P	EC-EX-011	2018/09/27	1108	DH	8	2018/09/27	VB	TB
5S	86 /	3.3m N of NEEOS 85,86	D	P	EC-EX-011	2018/09/27	1320	DH	8	2018/09/27	VB	TB
5T	84 / 86	Connected to 66,67	T	P+G&W	EC-EX-011	2018/09/27	1100	DH	8	2018/09/27	VB	TB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 6 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2018/09/27	900	DH	21	248	243	97	133	98	86	127	157	176	165	175	181	DT	
2	EC-EX-035	2018/09/27	915	JH	21	246	240	127	109	112	117	117	177	179	175	173	177	DT	
3	EC-EX-011	2018/09/27	1300	DH	21	243	237	126	145	126	131	143	152	166	163	164	153	DT	
4	EC-EX-035	2018/09/27	1315	JH	21	237	232	116	119	117	126	120	158	163	146	166	165	DT	
5	EC-EX-035	2018/09/27	1710	JH	21	237	232	124	131	109	125	139	162	172	160	164	165	DT	
6	EC-EX-011	2018/09/28	1124	CM	21	251	248	101	121	130	91	83	163	148	184	158	162	CM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
6A	83 / 84	Connected to 67,68	T	P+G&W	EC-EX-011	2018/09/27	1105	DH	8	2018/09/27	VB	TB
6B	82 / 83	Connected to 69	T	G&W	EC-EX-011	2018/09/27	1111	DH	8	2018/09/27	VB	TB
6C	81 / 82	Connected to 69,71	T	P	EC-EX-011	2018/09/27	1120	DH	8	2018/09/27	VB	TB
6D	80 / 81	Connected to 71	T	G&W	EC-EX-011	2018/09/27	1125	DH	8	2018/09/27	VB	TB
6E	71 / 72	Connected to 80	T	G&W	EC-EX-011	2018/09/27	1127	DH	8	2018/09/27	VB	TB
6F	78 / 79	Connected to 72	T	G&W	EC-EX-011	2018/09/27	1130	DH	8	2018/09/27	VB	TB
6G	72 / 73	Connected to 78	T	G&W	EC-EX-011	2018/09/27	1132	DH	8	2018/09/27	VB	TB
6H	77 / 78	Connected to 73	T	G&W	EC-EX-011	2018/09/27	1140	DH	8	2018/09/27	VB	TB
6I	75 / 77	Connected to 74	T	G&W	EC-EX-011	2018/09/27	1143	DH	8	2018/09/27	VB	TB
6J	73 / 74	Connected to 77	T	G&W	EC-EX-011	2018/09/27	1145	DH	8	2018/09/27	VB	TB
6K	70 /	1m NE of 5B	D	P	EC-EX-011	2018/09/27	1500	DH	8	2018/09/27	VB	TB
6L	70 /	3m NE of 5B	D	P	EC-EX-011	2018/09/27	1505	DH	8	2018/09/27	VB	TB
6M	46 / 47	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1135	CM	3	2018/10/02	VB	CM
6N	47 / 48	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1140	CM	3	2018/10/02	VB	CM
6O	48 / 50	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1150	CM	3	2018/10/02	VB	CM
6P	50 / 58	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1155	CM	3	2018/10/02	VB	CM
6Q	58 / 60	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1200	CM	3	2018/10/02	VB	CM
6R	59 / 92	Connected to 62	T	G&W	EC-EX-011	2018/09/28	1205	CM	3	2018/10/02	VB	CM
6S	60 / 62	Connected to 59	T	G&W	EC-EX-011	2018/09/28	1210	CM	3	2018/10/02	VB	CM
6T	62 / 63	Connected to 92	T	G&W	EC-EX-011	2018/09/28	1215	CM	3	2018/10/02	VB	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 7 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2018/09/28	1630	GB	21	251	243	107	108	125	108	133	149	159	157	157	144	CM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
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HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 8 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2018/09/28	1124	CM	21	251	248	101	121	130	91	83	163	148	184	158	162	CM	
2	EC-EX-011	2018/09/28	1630	GB	21	251	243	107	108	125	108	133	149	159	157	157	144	CM	
3	EC-EX-035	2018/10/08	1340	JH	21	237	232	110	108	77	81	106	172	182	172	174	179	DT	
4	EC-EX-035	2018/10/09	915	JH	21	237	232	100	71	86	86	100	198	196	190	199	196	DT	
5	EC-EX-035	2018/10/09	1315	JH	21	237	232	107	116	103	124	134	170	176	180	187	187	DT	
6	EC-EX-035	2018/10/09	1715	JH	21	237	232	108	107	105	131	112	165	162	146	157	169	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
7A	63 / 64	Connected to 92	T	G&W	EC-EX-011	2018/09/28	1245	CM	3	2018/10/02	VB	CM
7B	64 / 65	Connected to 92	T+WS	P	EC-EX-011	2018/09/28	1400	CM	3	2018/10/02	VB	CM
7C	64 / 66	Connected to 92	T	G&W	EC-EX-011	2018/09/28	1410	CM	3	2018/10/02	VB	CM
7D	66 / 93	Connected to 92	T	G&W	EC-EX-011	2018/09/28	1415	CM	3	2018/10/02	VB	CM
7E	66 / 67	Connected to 93	T	G&W	EC-EX-011	2018/09/28	1425	CM	3	2018/10/02	VB	CM
7F	67 / 68	Connected to 93	T	P	EC-EX-011	2018/09/28	1430	CM	3	2018/10/02	VB	CM
7G	101 / 104	Connected to 30	T	G&W	EC-EX-035	2018/10/08	1640	JH	-3	2018/10/10	VB	DT
7H	101 / 105	Connected to 30	T	P	EC-EX-035	2018/10/08	1643	JH	-3	2018/10/10	VB	DT
7I	105 / 108	Connected to 30	T	G&W	EC-EX-035	2018/10/08	1553	JH	-3	2018/10/10	VB	DT
7J	100 / 101	Connected to 106	T	P	EC-EX-035	2018/10/08	1654	JH	-3	2018/10/10	VB	DT
7K	100 / 95	Connected to 99,94,98,107	FS	P	EC-EX-035	2018/10/08	1720	JH	-3	2018/10/10	VB	DT
7L	97 / 98	Connected to 107	T	P	EC-EX-035	2018/10/08	1758	JH	-3	2018/10/10	VB	DT
7M	97 / 107	2.5m from WEOS	FM	G&W	EC-EX-035	2018/10/09	1220	JH	-3	2018/10/10	VB	DT
7N	97 /	.75m S, 2m E of WEOS 97, 107	D	P	EC-EX-035	2018/10/08	1557	JH	-3	2018/10/10	VB	DT
7O	97 /	2m S, 1m E of WEOS 97, 107	D	P	EC-EX-035	2018/10/08	1605	JH	-3	2018/10/10	VB	DT
7P	97 /	2m S of WEOS 97, 107	D	P	EC-EX-035	2018/10/08	1600	JH	-3	2018/10/10	VB	DT
7Q	93 / 108	Connected to 107	T	P	EC-EX-035	2018/10/08	1820	JH	-3	2018/10/10	VB	DT
7R	93 / 96	Connected to 108	T	P	EC-EX-035	2018/10/08	1826	JH	-3	2018/10/10	VB	DT
7S	96 / 108	2m from WEOS	WR	P	EC-EX-035	2018/10/08	1824	JH	-3	2018/10/10	VB	DT
7T	96 / 106	Connected to 108	T	P	EC-EX-035	2018/10/09	930	JH	-3	2018/10/10	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 9 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/05	1115	JH	21	237	232	98	95	87	88	102	180	187	178	181	193	DT	
2	EC-EX-035	2018/10/08	1340	JH	21	237	232	110	108	77	81	106	172	182	172	174	179	DT	
3	EC-EX-035	2018/10/09	915	JH	21	237	232	100	71	86	86	100	198	196	190	199	196	DT	
4	EC-EX-035	2018/10/09	1315	JH	21	237	232	107	116	103	124	134	170	176	180	187	187	DT	
5	EC-EX-035	2018/10/09	1715	JH	21	237	232	108	107	105	131	112	165	162	146	157	169	DT	
6	EC-EX-035	2018/10/10	1315	CM	21	237	232	135	120	103	136	126	175	180	177	175	179	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
8A	96 / 106	2.5m from NEOS	FM	G&W	EC-EX-035	2018/10/09	1453	JH	-3	2018/10/10	VB	DT
8B	95 / 96	Connected to 106	T	G&W	EC-EX-035	2018/10/08	1700	JH	-3	2018/10/10	VB	DT
8C	103 / 102	Seal cap on sump panels 94,95,96		G&W	EC-EX-035	2018/10/07	1600	JH	-3	2018/10/10	VB	DT
8D	96 / 94	Connected to panel 95	P	B	EC-EX-035	2018/10/05	1400	JH	-1	2018/10/05	VB	FC
8E	97 / 98	3m from SEOS	BO	P	EC-EX-035	2018/10/10	1400	CM	-1	2018/10/12	VB	DT
8F	97 / 98	19m from SEOS	BO	P	EC-EX-035	2018/10/12	1732	CM	-1	2018/10/12	VB	DT
8G	97 / 98	34m from SEOS	ATL	G&W	EC-EX-035	2018/10/13	1205	CM	0	2018/10/12	VB	DT
8H	97 / 98	56m from SEOS	ATL	G&W	EC-EX-035	2018/10/12	1805	CM	0	2018/10/12	VB	DT
8I	98 / 99	1m from SEOS	IO	P	EC-EX-035	2018/10/10	1600	CM	0	2018/10/12	VB	DT
8J	98 / 99	6m from SEOS	BO	P	EC-EX-035	2018/10/10	1610	CM	0	2018/10/12	VB	DT
8K	98 / 99	31m from SEOS	BO	P	EC-EX-035	2018/10/13	1540	CM	0	2018/10/14	VB	GB
8L	99 / 100	45m from SEOS	BO	P	EC-EX-035	2018/10/10	1530	CM	0	2018/10/14	VB	DT
8M	57 / 109	Connected to 108	T	G&W	EC-EX-035	2018/10/09	1400	JH	-3	2018/10/10	VB	DT
8N	109 / 110	Connected to 108	T	P	EC-EX-035	2018/10/09	1543	JH	-3	2018/10/10	VB	DT
8O	110 / 111	Connected to 108	T	P	EC-EX-035	2018/10/09	1543	JH	-3	2018/10/10	VB	DT
8P	108 / 110	WEOS-EEOS	FS	G&W	EC-EX-035	2018/10/10	1400	CM	-3	2018/10/10	VB	DT
8Q	107 / 111	Connected to 126	D	P	EC-EX-035	2018/10/09	1600	JH	-3	2018/10/10	VB	DT
8R	57 / 109	Connected to 58	T	P	EC-EX-027	2018/10/14	1529	JH	0	2018/10/14	VB	DT
8S	109 / 110	Connected to 58,61	T	G&W	EC-EX-035	2018/10/15	1225	GB	0	2018/10/26	VB	MJ
8T	110 / 111	Connected to 62	T	G&W	EC-EX-035	2018/10/26	1000	GB	2	2018/10/26	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 10 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/12	1300	CM	21	237	232	127	100	123	119	126	172	164	175	172	174	DT	
2	EC-EX-027	2018/10/12	1715	JH	21	243	237	113	124	104	104	124	165	169	172	164	170	DT	
3	EC-EX-035	2018/10/12	1721	CM	21	237	232	131	114	119	122	101	170	171	168	170	171	DT	
4	EC-EX-027	2018/10/13	1200	JH	21	237	232	115	126	126	115	114	173	180	176	176	178	DT	
5	EC-EX-035	2018/10/13	1245	CM	21	237	232	91	104	88	95	98	169	174	172	168	170	DT	
6	EC-EX-027	2018/10/14	1215	JH	21	237	232	93	88	109	118	109	167	161	169	167	164	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 11 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/10/14	1645	JH	21	243	237	94	89	84	86	95	136	142	144	139	149	DT	
2	EC-EX-035	2018/10/15	1030	GB	21	243	237	110	110	101	117	115	189	180	186	183	189	DT	
3	EC-EX-035	2018/10/15	1412	GB	21	243	237	132	132	145	128	138	152	167	162	164	167	DT	
4	EC-EX-035	2018/10/26	915	GB	21	243	237	131	127	122	120	118	162	177	164	171	174	MJ	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 12 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/12	1300	CM	21	237	232	127	100	123	119	126	172	164	175	172	174	DT	
2	EC-EX-027	2018/10/12	1715	JH	21	243	237	113	124	104	104	124	165	169	172	164	170	DT	
3	EC-EX-035	2018/10/12	1721	CM	21	237	232	131	114	119	122	101	170	171	168	170	171	DT	
4	EC-EX-027	2018/10/14	1215	JH	21	237	232	93	88	109	118	109	167	161	169	167	164	DT	
5	EC-EX-027	2018/10/14	1645	JH	21	243	237	94	89	84	86	95	136	142	144	139	149	DT	
6	EC-EX-035	2018/10/15	1030	GB	21	243	237	110	110	101	117	115	189	180	186	183	189	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
9A	91 / 112	Connected to 111	T	P+G&W	EC-EX-035	2018/10/15	1240	GB	0	2018/10/26	VB	MJ
9B	112 / 113	Connected to 111	T	G&W	EC-EX-035	2018/10/15	1508	GB	0	2018/10/26	VB	MJ
9C	113 / 114	Connected to 111	T	G&W	EC-EX-035	2018/10/26	935	GB	2	2018/10/27	VB	MJ
9D	116 / 117	Connected to 114	T	G&W	EC-EX-027	2018/10/14	1725	JH	0	2018/10/27	VB	MJ
9E	117 / 118	Connected to 114	T	P	EC-EX-027	2018/10/14	1732	JH	0	2018/10/27	VB	MJ
9F	118 / 119	Connected to 114	T	G&W	EC-EX-027	2018/10/14	1740	JH	0	2018/10/27	VB	MJ
9G	119 / 120	Connected to 114	T	G&W	EC-EX-035	2018/10/15	1722	JH	0	2018/10/27	VB	MJ
9H	120 / 121	Connected to 114	T	G&W	EC-EX-027	2018/10/24	1755	JH	2	2018/10/27	VB	MJ
9I	121 / 122	Connected to 114	T	G&W	EC-EX-035	2018/10/15	1708	GB	0	2018/10/27	VB	MJ
9J	123 / 124	Connected to 122	T	G&W	EC-EX-027	2018/10/12	1804	JH	0	2018/10/27	VB	MJ
9K	123 / 124	Connected to 114	T	G&W	EC-EX-027	2018/10/24	1339	JH	0	2018/10/27	VB	MJ
9L	122 / 123	Connected to 114	T	G&W	EC-EX-027	2018/10/12	1806	JH	0	2018/10/27	VB	MJ
9M	125 / 126	Connected to 124	T	G&W	EC-EX-027	2018/10/24	1330	JH	2	2018/10/27	VB	MJ
9N	125 / 126	Connected to 114	T	G&W	EC-EX-027	2018/10/24	1334	JH	2	2018/10/27	VB	MJ
9O	114 / 126	Connected to 111	T	G&W	EC-EX-035	2018/10/26	950	GB	2	2018/10/26	VB	MJ
9P	115 / 116	Connected to 127	T	G&W	EC-EX-027	2018/10/14	1712	JH	0	2018/10/27	VB	MJ
9Q	116 / 117	Connected to 127	T	G&W	EC-EX-027	2018/10/14	1730	JH	0	2018/10/27	VB	MJ
9R	117 / 118	Connected to 127	T	P	EC-EX-027	2018/10/14	1750	JH	0	2018/10/27	VB	MJ
9S	118 / 119	Connected to 127	T	G&W	EC-EX-027	2018/10/14	1754	JH	0	2018/10/27	VB	MJ
9T	119 / 120	Connected to 127	T	G&W	EC-EX-035	2018/10/15	1550	GB	0	2018/10/27	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 13 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/15	1412	GB	21	243	237	132	132	145	128	138	152	167	162	164	167	DT	
2	EC-EX-027	2018/10/24	1300	JH	21	237	232	120	125	121	118		159	165	162	157	160	MJ	
3	EC-EX-035	2018/10/26	915	GB	21	243	237	131	127	122	120	118	162	177	164	171	174	MJ	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 14 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/09	915	JH	21	237	232	100	71	86	86	100	198	196	190	199	196	DT	
2	EC-EX-035	2018/10/09	1315	JH	21	237	232	107	116	103	124	134	170	176	180	187	187	DT	
3	EC-EX-035	2018/10/09	1715	JH	21	237	232	108	107	105	131	112	165	162	146	157	169	DT	
4	EC-EX-027	2018/10/13	1200	JH	21	237	232	115	126	126	115	114	173	180	176	176	178	DT	
5	EC-EX-035	2018/10/13	1245	CM	21	237	232	91	104	88	95	98	169	174	172	168	170	DT	
6	EC-EX-027	2018/10/14	1215	JH	21	237	232	93	88	109	118	109	167	161	169	167	164	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
10A	120 / 121	Connected to 127	T	G&W	EC-EX-035	2018/10/15	1600	GB	0	2018/10/27	VB	MJ
10B	121 / 122	Connected to 127	T	G&W	EC-EX-027	2018/10/24	1312	JH	0	2018/10/27	VB	MJ
10C	124 / 126	Connected to 127	T	G&W	EC-EX-027	2018/10/24	1530	JH	0	2018/10/27	VB	MJ
10D	126 / 127	Connected to 107	T	P	EC-EX-027	2018/10/14	1142	JH	0	2018/10/27	VB	MJ
10E	128 / 129	Connected to 127	T	G&W	EC-EX-027	2018/10/13	1450	JH	0	2018/10/27	VB	MJ
10F	128 / 129	Connected to 130	T	G&W	EC-EX-027	2018/10/13	1458	JH	0	2018/10/27	VB	MJ
10G	129 / 130	Connected to 127	T	G&W	EC-EX-027	2018/10/13	1515	JH	0	2018/10/27	VB	MJ
10H	131 / 132	Connected to 130	T	G&W	EC-EX-035	2018/10/15	1804	GB	0	2018/10/27	VB	MJ
10I	131 / 132	Connected to 133	T	G&W	EC-EX-035	2018/10/15	1808	GB	0	2018/10/27	VB	MJ
10J	130 / 132	Connected to 127	T	G&W	EC-EX-027	2018/10/13	1518	JH	0	2018/10/27	VB	MJ
10K	132 / 133	Connected to 127	T	G&W	EC-EX-035	2018/10/27	1235	DH	2	2018/10/27	VB	MJ
10L	133 / 134	Connected to 127	T	G&W	EC-EX-035	2018/10/26	1002	GB	2	2018/10/27	VB	MJ
10M	133 / 134	Connected to 135	T	G&W	EC-EX-035	2018/10/26	1000	GB	2	2018/10/26	VB	MJ
10N	134 / 135	Connected to 127	T	G&W	EC-EX-035	2018/10/27	1211	DH	2	2018/10/27	VB	MJ
10O	110 / 111	7m N of Seos	IO	G&W	EC-EX-035	2018/10/09	1547	JH	-3	2018/10/10	VB	DT
10P	97 /	4 meters up from S toe	EE	P	EC-EX-027	2018/10/24	1416	JH	2	2018/10/24	PS	MJ
10Q	137 / 138	Connected to 140	T	G&W	EC-EX-027	2018/10/24	1425	JH	2	2018/10/26	VB	MJ
10R	122 / 127	Connected to CAP1	T	G&W	EC-EX-027	2018/10/24	1548	JH	2	2018/10/26	VB	MJ
10S	122 / 127	Extruded seam to T's on CAP1	T	G&W	EC-EX-027	2018/10/24	1555	JH	2	2018/10/26	VB	MJ
10T	122 / 124	Connected to CAP1	T	G&W	EC-EX-027	2018/10/25	1519	JH	2	2018/10/26	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS 10P is Pick test only, floating patch

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 15 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/10/14	1645	JH	21	243	237	94	89	84	86	95	136	142	144	139	149	DT	
2	EC-EX-035	2018/10/15	1030	GB	21	243	237	110	110	101	117	115	189	180	186	183	189	DT	
3	EC-EX-035	2018/10/15	1412	GB	21	243	237	132	132	145	128	138	152	167	162	164	167	DT	
4	EC-EX-027	2018/10/24	1300	JH	21	237	232	120	125	121	118		159	165	162	157	160	MJ	
5	EC-EX-027	2018/10/25	1430	JH	21	232	226	107	119	104	98	126	171	170	177	177	181	MJ	
6	EC-EX-035	2018/10/26	915	GB	21	243	237	131	127	122	120	118	162	177	164	171	174	MJ	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 16 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/27	900	DH	21	243	237	90	98	108	108	101	156	166	158	170	151	MJ	
2	EC-EX-035	2018/10/27	1500	DH	21	243	237	98	134	126	112	126	173	170	175	173	175	MJ	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 17 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/10/25	1430	JH	21	232	226	107	119	104	98	126	171	170	177	177	181	MJ	
2	EC-EX-035	2018/10/26	915	GB	21	243	237	131	127	122	120	118	162	177	164	171	174	MJ	
3	EC-EX-035	2018/10/27	900	DH	21	243	237	90	98	108	108	101	156	166	158	170	151	MJ	
4	EC-EX-035	2018/10/27	1500	DH	21	243	237	98	134	126	112	126	173	170	175	173	175	MJ	
5	EC-EX-035	2018/10/28	1000	DH	21	243	237	95	124	120	125	122	182	185	187	179	185	MJ	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
11A	124 / 127	Extruded seam to T's on CAP1	T	G&W	EC-EX-027	2018/10/25	1524	JH	2	2018/10/26	VB	MJ
11B	124 / 126	Connected to 127, CAP1	T	G&W	EC-EX-027	2018/10/25	1530	JH	2	2018/10/26	VB	MJ
11C	127 / 135	Connected to 136	WS	P	EC-EX-027	2018/10/25	1550	JH	2	2018/10/26	VB	MJ
11D	127 / 136	Connected to 141	T	G&W	EC-EX-027	2018/10/25	1710	JH	2	2018/10/26	VB	MJ
11E	136 / 137	Connected to 141	T	P	EC-EX-027	2018/10/25	1708	JH	2	2018/10/26	VB	MJ
11F	138 / 137	16m NWfrom 10Q	D	P	EC-EX-027	2018/10/25	1726	JH	2	2018/10/26	VB	MJ
11G	113 / 114	35m up from EEOS	ATL	G&W	EC-EX-035	2018/10/26	920	GB	2	2018/10/26	VB	MJ
11H	127 / 141	Connected to 107	T	P	EC-EX-035	2018/10/26	1305	GB	2	2018/10/26	VB	MJ
11I	138 / 140	Connected to 107&97	T	P	EC-EX-035	2018/10/26	1240	GB	2	2018/10/26	VB	MJ
11J	119 /	0.5M NW of south edge	EE	P	EC-EX-035	2018/10/27	1245	DH	2	2018/10/27	VB	MJ
11K	119 / 120	7M from SEOS	FM	G&W	EC-EX-035	2018/10/27	1230	DH	2	2018/10/27	VB	MJ
11L	147 / 148	Connected to 145	T	G&W	EC-EX-035	2018/10/28	1330	DH	2	2018/10/28	VB	MJ
11M	147 / 148	Connected to 150	T	G&W	EC-EX-035	2018/10/28	1335	DH	2	2018/10/28	VB	MJ
11N	150 / 151	Connected to 148	T	G&W	EC-EX-035	2018/10/28	1340	DH	2	2018/10/28	VB	MJ
11O	150 / 151	Connected to 153	T	G&W	EC-EX-035	2018/10/28	1345	DH	2	2018/10/28	VB	MJ
11P	152 / 153	Connected to 150	T	G&W	EC-EX-035	2018/10/28	1355	DH	2	2018/10/28	VB	MJ
11R	118 / 119	9m from SEOS	ATL	P	EC-EX-035	2018/10/28	1359	DH	2	2018/10/28	VB	MJ
11S	61 / 62	Connected to 110, extended to 8T	T	G&W	EC-EX-035	2018/10/26	1000	GB	2	2018/10/28	VB	MJ
11T	140 / 141	Connected to 107	T	P	EC-EX-035	2018/10/26	1250	GB	2	2018/10/26	VB	MJ
12A	145 / 148	Crest at WEOS	DS#21	p	EC-EX-035	2018/10/26	1255	GB	2	2018/10/26	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 18 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/27	900	DH	21	243	237	90	98	108	108	101	156	166	158	170	151	MJ	
2	EC-EX-035	2018/10/27	1500	DH	21	243	237	98	134	126	112	126	173	170	175	173	175	MJ	
3	EC-EX-035	2018/10/31	1500	DH	21	246	240	123	126	123	134	112	187	191	185	194	190	MJ	
4	EC-EX-035	2018/11/06	1400	IK	21	251	248	117	123	124	122	127	169	191	171	194	174	DT	
5	EC-EX-035	2018/11/07	950	IK	21	248	248	129	120	120	124	119	166	169	170	165	169	DT	
6	EC-EX-035	2018/11/07	1445	IK	21	248	248	111	92	104	113	95	179	176	192	105	154	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
12B	138 / 139	Connected to 97	T	G&W	EC-EX-035	2018/10/27	1100	DH	2	2018/10/27	VB	MJ
12C	97 / 142	Connected to 139	T	G&W	EC-EX-035	2018/10/27	1110	DH	2	2018/10/27	VB	MJ
12D	139 / 146	Connected to 142	T	G&W	EC-EX-035	2018/10/27	1115	DH	2	2018/10/27	VB	MJ
12E	145 / 146	Cnnected to 139	T	G&W	EC-EX-035	2018/10/27	1120	DH	2	2018/10/27	VB	MJ
12F	145 / 146	Connected to149	DS#22	P+G&W	EC-EX-035	2018/10/27	1125	DH	2	2018/10/27	VB	MJ
12G	142 / 144	Connected to 146	T	G&W	EC-EX-035	2018/10/27	1140	DH	2	2018/10/27	VB	MJ
12H	147 / 149	Connected to 146	T	G&W	EC-EX-035	2018/10/27	1145	DH	2	2018/10/27	VB	MJ
12I	139 / 145	top of crest WEOS	BO	P	EC-EX-035	2018/10/31	1530	DH	-8	2018/10/31	VB	MJ
12J	145 / 148	5m East from West crest	DS#23	P+G&W	EC-EX-035	2018/10/31	1545	DH	-8	2018/10/31	VB	MJ
12K	148 / 151	top of crest WEOS	BO	P	EC-EX-035	2018/10/31	1725	DH	-8	2018/10/31	VB	MJ
12L	147 / 150	1m East fom WEOS	DS#24	P	EC-EX-035	2018/10/31	1700	DH	-8	2018/10/31	VB	MJ
12M	152 / 153	Connected to 154	T	G&W	EC-EX-035	2018/11/07	1230	IK	-20	2018/11/08	VB	DT
12N	152 / 154	20m from NEOS	ATL	G&W	EC-EX-035	2018/11/07	1240	IK	-20	2018/11/08	VB	DT
12O	169 / 170	Connected to 159	T	G&W	EC-EX-035	2018/11/06	1430	IK	-20	2018/11/08	VB	DT
12P	168 / 169	Connected to 158	T	G&W	EC-EX-035	2018/11/06	1440	IK	-20	2018/11/08	VB	DT
12Q	167 / 168	Connected to 157, 158	T	G&W	EC-EX-035	2018/11/06	1450	IK	-20	2018/11/08	VB	DT
12R	166 / 167	Connected to 157, 156	T	G&W	EC-EX-035	2018/11/06	1520	IK	-20	2018/11/08	VB	DT
12S	156 / 166	3.5m from WEOS	ATL	G&W	EC-EX-035	2018/11/06	1530	IK	-20	2018/11/08	VB	DT
12T	165 / 166	Connected to 156	T	G&W	EC-EX-035	2018/11/06	1600	IK	-20	2018/11/08	VB	DT
13A	164 / 165	Connected to 155	T	P	EC-EX-035	2018/11/06	1700	IK	-20	2018/11/08	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 19 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2018/09/27	900	DH	21	248	243	97	133	98	86	127	157	176	165	175	181	DT	
2	EC-EX-035	2018/09/27	915	JH	21	246	240	127	109	112	117	117	177	179	175	173	177	DT	
3	EC-EX-011	2018/09/27	1300	DH	21	243	237	126	145	126	131	143	152	166	163	164	153	DT	
4	EC-EX-035	2018/09/27	1315	JH	21	237	232	116	119	117	126	120	158	163	146	166	165	DT	
5	EC-EX-035	2018/09/27	1710	JH	21	237	232	124	131	109	125	139	162	172	160	164	165	DT	
6	EC-EX-035	2018/11/07	950	IK	21	248	248	129	120	120	124	119	166	169	170	165	169	DT	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
13A	154 / 155	Connected to 164	T	G&W	EC-EX-035	2018/11/07	1010	IK	-20	2018/11/08	VB	DT
13B	152 / 154	Connected to 163	T	G&W	EC-EX-035	2018/11/07	1100	IK	-20	2018/11/08	VB	DT
13C	150 / 152	Connected to 162	T	G&W	EC-EX-035	2018/11/07	1130	IK	-20	2018/11/08	VB	DT
13D	147 / 150	Connected to 161, 160	T	G&W	EC-EX-035	2018/11/07	1150	IK	-20	2018/11/08	VB	DT
13E	144 / 160	Connected to 149	T	G&W	EC-EX-035	2018/11/07	1330	IK	-20	2018/11/08	VB	DT
13F	163 / 164	Connected to 154	T	G&W	EC-EX-035	2018/11/07	1140	IK	-20	2018/11/08	VB	DT
13G	162 / 163	Connected to 152	T	G&W	EC-EX-035	2018/11/07	1200	IK	-20	2018/11/08	VB	DT
13H	161 / 162	Connected to 150,152	T	G&W	EC-EX-035	2018/11/07	1215	IK	-20	2018/11/08	VB	DT
13I	164 / 165	5m from SEOS	IO	P	EC-EX-035	2018/11/07	1630	IK	-20	2018/11/08	VB	DT
13J	143 / 142	Connected to 144	T	G&W	EC-EX-035	2018/11/07	1700	IK	-20	2018/11/08	VB	DT
13K	65 / 66	Connected to 88	T	G&W	EC-EX-011	2018/09/27	1600	DH	8	2018/09/27	VB	TB
13L	86 / 88	Connected to 66	T	G&W	EC-EX-011	2018/09/27	1605	DH	8	2018/09/27	VB	TB
13M	68 / 69	Connected to 83	T	G&W	EC-EX-011	2018/09/27	1610	DH	8	2018/09/27	VB	TB
13N	79 / 80	Connected to 72	T	G&W	EC-EX-011	2018/09/27	1615	DH	8	2018/09/27	VB	TB
13O	28 / CAP2		FS	G&W	EC-EX-027	2018/11/15	1400	CVM	-23	2018/11/16	VB+PS	VF
13P	28 / CAP1		FS	G&W	EC-EX-027	2018/11/15	1405	CVM	-23	2018/11/16	VB+PS	VF
13Q	176 / CAP2		FS	G&W	EC-EX-027	2018/11/15	1500	CVM	-23	2018/11/16	VB+PS	VF
13R	175 / CAP1		FS	G&W	EC-EX-027	2018/11/15	1505	CVM	-23	2018/11/16	VB+PS	VF
13S	CAP1 / CAP2		FS	G&W	EC-EX-027	2018/11/15	1445	CVM	-23	2018/11/16	VB+PS	VF
13T	175 / CAP 1	1m W from EEOS	DS#31	P	EC-EX-027	2018/11/15	1510	CVM	-23	2018/11/16	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 20 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/11/07	1445	IK	21	248	248	111	92	104	113	95	179	176	192	105	154	DT	
2	EC-EX-027	2018/11/15	1230	CVM	-23	271	268	106	102	118	96	90	125	128	128	130	128	VF	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 21 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/15	1230	CVM	-23	271	268	106	102	118	96	90	125	128	128	130	128	VF	
2	EC-EX-035	2018/11/16	1000	RCL	-24	271	268	121	130	124	136	126	153	145	150	144	146	VF	
3	EC-EX-035	2018/11/16	1445	RCL	-24	271	268	134	126	110	132	124	130	128	136	135	133	VF	
4	EC-EX-035	2018/11/18	900	RCL	-6	271	268	105	96	117	124	113	172	176	174	180	181	VF	
5	EC-EX-035	2018/11/18	1400	RCL	-6	271	268	126	130	139	133	128	141	148	146	149	147	VF	
6	EC-EX-035	2018/11/19	930	RCL	-6	271	268	107	106	119	109	120	144	164	168	164	150	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
14A	28 / CAP 2	2m W from EEOS	DS#30	P	EC-EX-027	2018/11/15	1405	CVM	-23	2018/11/16	VB+PS	VF
14B	174 / 175	connected to 28	T	G&W	EC-EX-027	2018/11/15	1515	CVM	-23	2018/11/16	VB+PS	VF
14C	28 / 174		FS	G&W	EC-EX-035	2018/11/16	1030	RCL	-24	2018/11/16	VB+PS	VF
14D	28 / 174	WEOS	DS#28	P	EC-EX-035	2018/11/16	1115	RCL	-24	2018/11/16	VB+PS	VF
14E	28 / 173		FS	G&W	EC-EX-035	2018/11/16	1125	RCL	-24	2018/11/16	VB+PS	VF
14F	172 / 173	Cap strip #3	BO	P+G&W	EC-EX-035	2018/11/16	1348	RCL	-24	2018/11/16	VB+PS	VF
14G	29 / 172		FS	G&W	EC-EX-035	2018/11/16	1520	RCL	-24	2018/11/16	VB+PS	VF
14H	29 / 171		FS	G&W	EC-EX-035	2018/11/16	1600	RCL	-24	2018/11/16	VB+PS	VF
14I	171 / 172	NEOS	DS#26	P	EC-EX-035	2018/11/16	1555	RCL	-24	2018/11/16	VB+PS	VF
14J	173 / 174	5m S from NEOS	FM	G&W	EC-EX-035	2018/11/16	1120	RCL	-24	2018/11/16	VB+PS	VF
14K	175 / 176	2m S from NEOS	ATL	P+G&W	EC-EX-035	2018/11/18	1530	RCL	-6	2018/11/18	VB+PS	VF
14L	171 /	2m SE from NEOS	WR	P	EC-EX-035	2018/11/18	1440	RCL	-6	2018/11/18	VB+PS	VF
14M	104 / 171	Connected to 28	T	P	EC-EX-035	2018/11/18	1140	RCL	-6	2018/11/18	VB+PS	VF
14N	104 / 171	At North toe	WR	P	EC-EX-035	2018/11/18	1250	RCL	-6	2018/11/18	VB+PS	VF
14O	104 / 171	30m N from SEOS	FM	G&W	EC-EX-035	2018/11/18	1646	RCL	-6	2018/11/18	VB+PS	VF
14P	104 / 171	On South crest	BO	P	EC-EX-035	2018/11/18	1720	RCL	-6	2018/11/18	VB+PS	VF
14Q	104 / 171	In trench	WR	G&W	EC-EX-035	2018/11/18	1733	RCL	-6	2018/11/18	VB+PS	VF
14R	175 / 176	On South crest	BO	P	EC-EX-035	2018/11/19	938	RCL	-4	2018/11/19	VB+PS	VF
14S	177 / 178	Connected to 179	T	G&W	EC-EX-035	2018/12/04	1315	IK	-20	2018/12/04	VB+PS	VF
14T	182 / 183	Connected to 180	T	G&W	EC-EX-035	2018/12/04	1325	IK	-20	2018/12/04	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 22 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/12/04	1300	IK	-20	262	262	91	91	102	108	91	137	125	133	140	141	VF	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 23 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/12/04	1300	IK	-20	262	262	91	91	102	108	91	137	125	133	140	141	VF	
2	EC-EX-027	2018/12/05	905	EA	-18	254	248	85	80	84	83	90	150	159	163	152	150	VF	
3	EC-EX-027	2018/12/08	915	JH	-4	246	243	110	98	116	112	107	174	169	167	173	177	CM	
4	EC-EX-027	2018/12/08	1530	JH	0	237	235	112	97	103	94	112	167	164	165	157	152	CM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
15A	182 / 183	Connected to 184/185	T	G&W	EC-EX-035	2018/12/04	1330	IK	-20	2018/12/04	VB+PS	VF
15B	181 / 182	Connected to 180	T	G&W	EC-EX-035	2018/12/04	1335	IK	-20	2018/12/04	VB+PS	VF
15C	182 / 183	Connected to 184	T	P	EC-EX-035	2018/12/04	1345	IK	-20	2018/12/04	VB+PS	VF
15D	184 / 185	Connected to 187	T	G&W	EC-EX-035	2018/12/04	1355	IK	-20	2018/12/04	VB+PS	VF
15E	186 / 187	Connected to 184	T	G&W	EC-EX-035	2018/12/04	1350	IK	-20	2018/12/04	VB+PS	VF
15F	186 / 187	NEEOS	ATL	G&W	EC-EX-027	2018/12/05	1015	EA	-18	2018/12/05	VB+PS	VF
15G	188 / 189	Connected to 178/179	T	G&W	EC-EX-035	2018/12/04	1535	IK	-20	2018/12/04	VB+PS	VF
15H	189 / 190	Connected to 179/180	T	G&W	EC-EX-035	2018/12/04	1540	IK	-20	2018/12/04	VB+PS	VF
15I	190 / 191	Connected to 180/183	T	G&W	EC-EX-035	2018/12/04	1545	IK	-20	2018/12/04	VB+PS	VF
15J	191 / 192	Connected to 183/185	T	G&W	EC-EX-035	2018/12/04	1550	IK	-20	2018/12/04	VB+PS	VF
15K	192 / 193	Connected to 185/187	T	G&W	EC-EX-035	2018/12/04	1555	IK	-20	2018/12/04	VB+PS	VF
15L	170 / 188	Connected to 178,159	T	P+G&W	EC-EX-035	2018/12/04	1600	IK	-20	2018/12/04	VB+PS	VF
15M	158 / 159	Connected to 177/178	T	P+G&W	EC-EX-035	2018/12/04	1610	IK	-20	2018/12/04	VB+PS	VF
15N	157 / 158	Connected to 177	T	G&W	EC-EX-035	2018/12/04	1615	IK	-20	2018/12/04	VB+PS	VF
15O	156 / 157	Connected to 177	T	G&W	EC-EX-035	2018/12/04	1620	IK	-20	2018/12/04	VB+PS	VF
15P	155 / 156	Connected to 177	T	G&W	EC-EX-035	2018/12/04	1640	IK	-20	2018/12/04	VB+PS	VF
15Q	187 / 186	Connected to 194	T	G&W	EC-EX-027	2018/12/08	1645	JH	-3	2018/12/08	VB+PS	CM
15R	194 / 195	Connected to 196	T	G&W	EC-EX-027	2018/12/08	1650	JH	-3	2018/12/08	VB+PS	CM
15S	195 / 196	Connected to 197	T	G&W	EC-EX-027	2018/12/08	1655	JH	-3	2018/12/08	VB+PS	CM
15T	196 / 197	Connected to198	T	G&W	EC-EX-027	2018/12/08	1658	JH	-3	2018/12/08	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 24 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/08	915	JH	-4	246	243	110	98	116	112	107	174	169	167	173	177	CM	
2	EC-EX-027	2018/12/08	1530	JH	0	237	235	112	97	103	94	112	167	164	165	157	152	CM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
16A	223 / 224	Connected to 177	T	G&W	EC-EX-027	2018/12/08	1700	JH	-3	2018/12/08	VB+PS	CM
16B	222 / 223	Connected to 179	T	G&W	EC-EX-027	2018/12/08	1703	JH	-3	2018/12/08	VB+PS	CM
16C	221 / 222	Connected to 180	T	G&W	EC-EX-027	2018/12/08	1705	JH	-3	2018/12/08	VB+PS	CM
16D	221 /	1.5M N 1M W OF EEOS 220-221	D	P	EC-EX-027	2018/12/08	1708	JH	-3	2018/12/08	VB+PS	CM
16E	220 / 221	Connected to 181	T	P	EC-EX-027	2018/12/08	1710	JH	-3	2018/12/08	VB+PS	CM
16F	184 / 220	3M S OF NEOS	BO	G&W	EC-EX-027	2018/12/08	1713	JH	-3	2018/12/08	VB+PS	CM
16G	186 / 194	Connected to 218&219	T	P	EC-EX-027	2018/12/08	1716	JH	-3	2018/12/08	VB+PS	CM
16H	194 / 195	Connected to 217&218	T	P	EC-EX-027	2018/12/08	1719	JH	-3	2018/12/08	VB+PS	CM
16I	195 / 197	Connected to 216&217	T	P	EC-EX-027	2018/12/08	1722	JH	-3	2018/12/08	VB+PS	CM
16J	197 / 199	Connected to 215&216	T	P	EC-EX-027	2018/12/08	1725	JH	-3	2018/12/08	VB+PS	CM
16K	207 / 208	Connected to 209	T	G&W	EC-EX-027	2018/12/08	1728	JH	-3	2018/12/08	VB+PS	CM
16L	205 / 206	Connected to 199	T	G&W	EC-EX-027	2018/12/08	1732	JH	-3	2018/12/08	VB+PS	CM
16M	204 / 205	Connected to 199	T	G&W	EC-EX-027	2018/12/08	1735	JH	-3	2018/12/08	VB+PS	CM
16N	203 / 204	Connected to 199	T	G&W	EC-EX-027	2018/12/08	1738	JH	-3	2018/12/08	VB+PS	CM
16O	202 / 203	Connected to 199	T	G&W	EC-EX-027	2018/12/08	1741	JH	-3	2018/12/08	VB+PS	CM
16P	198 / 199	Connected to 203	T	G&W	EC-EX-027	2018/12/08	1745	JH	-3	2018/12/08	VB+PS	CM
16Q	202 / 203	Connected to 198	T	G&W	EC-EX-027	2018/12/08	1749	JH	-3	2018/12/08	VB+PS	CM
16R	227 / 198	Connected to 202	T	G&W	EC-EX-027	2018/12/08	1753	JH	-3	2018/12/08	VB+PS	CM
16S	196 / 227	Connected to 202	T	G&W	EC-EX-027	2018/12/08	1758	JH	-3	2018/12/08	VB+PS	CM
16T	202 / 201	Connected to 196	T	G&W	EC-EX-027	2018/12/08	1804	JH	-3	2018/12/08	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 25 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/08	915	JH	-4	246	243	110	98	116	112	107	174	169	167	173	177	CM	
2	EC-EX-027	2018/12/08	1530	JH	0	237	235	112	97	103	94	112	167	164	165	157	152	CM	
3	EC-EX-035	2019/01/17	1030	JH	-21	240	237	89	98	97	95	97	142	141	149	146	142	CM	
4	EC-EX-027	2019/01/17	1630	RL	-20	237	232	98	88	85	85	85	148	147	146	147	149	CM	
5	EC-EX-035	2019/01/17	1635	JH	-20	240	237	95	107	107	94	105	148	146	152	147	146	CM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
17A	194 / 196	Connected to 200&201	T	G&W	EC-EX-027	2018/12/08	1806	JH	-3	2018/12/08	VB+PS	CM
17B	187 / 193	Connected to 194&200	T	G&W	EC-EX-027	2018/12/08	1809	JH	-3	2018/12/08	VB+PS	CM
17C	207 / 208	WEOS	BO	P	EC-EX-027	2018/12/08	1812	JH	-3	2018/12/08	VB+PS	CM
17D	209 / 210	WEOS	BO	P	EC-EX-027	2018/12/08	1816	JH	-3	2018/12/08	VB+PS	CM
17E	212 / 213	Connected to 211	T	G&W	EC-EX-027	2018/12/08	1819	JH	-3	2018/12/08	VB+PS	CM
17F	210 / 211	Connected to 213	T	G&W	EC-EX-027	2018/12/08	1823	JH	-3	2018/12/08	VB+PS	CM
17G	213 / 214	Connected to 210	T	G&W	EC-EX-027	2018/12/08	1828	JH	-3	2018/12/08	VB+PS	CM
17H	209 / 210	Connected to 214&215	T	G&W	EC-EX-027	2018/12/08	1831	JH	-3	2018/12/08	VB+PS	CM
17I	225 / 226	Connected to 224	T	G&W	EC-EX-027	2018/12/08	1835	JH	-3	2018/12/08	VB+PS	CM
17J	176 / 233	Connected to 45	T	G&W	EC-EX-035	2019/01/17	1040	JH	-21	2018/01/17	VB+PS	CM
17K	233 / 234	Connected to 44	T	P	EC-EX-035	2019/01/17	1050	JH	-21	2018/01/17	VB+PS	CM
17L	234 / 235	Connected to 21	T	P	EC-EX-035	2019/01/17	1100	JH	-21	2018/01/17	VB+PS	CM
17M	235 / 236	Connected to 20	T	G&W	EC-EX-035	2019/01/17	1110	JH	-21	2018/01/17	VB+PS	CM
17N	236 / 237	Connected to 18	T	G&W	EC-EX-035	2019/01/17	1120	JH	-21	2018/01/17	VB+PS	CM
17O	237 / 238	Connected to 16	T	G&W	EC-EX-035	2019/01/17	1130	JH	-21	2018/01/17	VB+PS	CM
17P	238 / 239	Connected to 15	T	G&W	EC-EX-035	2019/01/17	1140	JH	-21	2018/01/17	VB+PS	CM
17Q	239 / 240	Connected to 13	T	G&W	EC-EX-035	2019/01/17	1150	JH	-21	2018/01/17	VB+PS	CM
17R	240 / 241	Connected to 13&14	T	G&W	EC-EX-035	2019/01/17	1200	JH	-21	2018/01/17	VB+PS	CM
17S	241 / 242	Connected to 14	T	G&W	EC-EX-035	2019/01/17	1210	JH	-21	2018/01/17	VB+PS	CM
17T	242 / 243	Connected to 10	T	G&W	EC-EX-035	2019/01/17	1220	JH	-21	2018/01/17	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 26 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/01/17	1030	JH	-21	240	237	89	98	97	95	97	142	141	149	146	142	CM	
2	EC-EX-027	2019/01/17	1630	RL	-20	237	232	98	88	85	85	85	148	147	146	147	149	CM	
3	EC-EX-035	2019/01/17	1635	JH	-20	240	237	95	107	107	94	105	148	146	152	147	146	CM	
4	EC-EX-035	2019/01/20	930	RL	-23	243	238	145	151	152	148	147	189	183	192	191	188	CM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
18A	243 / 244	Connected to 9	T	G&W	EC-EX-035	2019/01/17	1230	JH	-21	2018/01/17	VB+PS	CM
18B	244 / 245	Connected to 8&9	T	G&W	EC-EX-035	2019/01/17	1240	JH	-21	2018/01/17	VB+PS	CM
18C	245 / 246	Connected to 8	T	G&W	EC-EX-035	2019/01/20	935	RL	-21	2018/01/17	VB+PS	CM
18D	246 / 247	Connected to 5	T	G&W	EC-EX-035	2019/01/20	945	RL	-21	2018/01/17	VB+PS	CM
18E	247 / 248	Connected to 4	T	G&W	EC-EX-035	2019/01/20	955	RL	-21	2018/01/17	VB+PS	CM
18F	248 / 250	Connected to 2	T	G&W	EC-EX-035	2019/01/20	1005	RL	-21	2018/01/17	VB+PS	CM
18G	249 / 250	Connected to 248	T	G&W	EC-EX-035	2019/01/20	1015	RL	-21	2018/01/17	VB+PS	CM
18H	249 / 250	Connected to 251	T	G&W	EC-EX-035	2019/01/20	1025	RL	-21	2018/01/17	VB+PS	CM
18I	250 / 251	Connected to 2	T	G&W	EC-EX-035	2019/01/20	1035	RL	-23	2019/01/19	VB+PS	CM
18J	251 / 252	Connected to 1	T	G&W	EC-EX-035	2019/01/20	1045	RL	-23	2019/01/19	VB+PS	CM
18K	252 / 253	Connected to 1	T	G&W	EC-EX-035	2019/01/20	1055	RL	-23	2019/01/19	VB+PS	CM
18L	253 / 254	Connected to 1	T	G&W	EC-EX-035	2019/01/20	1105	RL	-23	2019/01/19	VB+PS	CM
18M	44 / 21	Connected to 234	T	G&W	EC-EX-035	2019/01/17	1035	JH	-23	2018/01/17	VB+PS	CM
18N	21 / 20	Connected to 235	T	G&W	EC-EX-035	2019/01/17	1045	JH	-23	2018/01/17	VB+PS	CM
18O	20 / 18	Connected to 236	T	G&W	EC-EX-035	2019/01/17	1055	JH	-23	2018/01/17	VB+PS	CM
18P	18 / 16	Connected to 237	T	G&W	EC-EX-035	2019/01/17	1105	JH	-23	2018/01/17	VB+PS	CM
18Q	16 / 15	Connected to 238	T	G&W	EC-EX-035	2019/01/17	1115	JH	-23	2018/01/17	VB+PS	CM
18R	15 / 13	Connected to 239	T	G&W	EC-EX-035	2019/01/17	1125	JH	-23	2018/01/17	VB+PS	CM
18S	14 / 10	Connected to 242	T	G&W	EC-EX-035	2019/01/20	940	RL	-23	2018/01/17	VB+PS	CM
18T	10 / 9	Connected to 243	T	G&W	EC-EX-035	2019/01/20	950	RL	-23	2018/01/17	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 27 of 28

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER SECONDARY 60MIL

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/01/17	1030	JH	-21	240	237	89	98	97	95	97	142	141	149	146	142	CM	
2	EC-EX-027	2019/01/17	1630	RL	-20	237	232	98	88	85	85	85	148	147	146	147	149	CM	
3	EC-EX-035	2019/01/17	1635	JH	-20	240	237	95	107	107	94	105	148	146	152	147	146	CM	
4	EC-EX-035	2019/01/19	930	RL	-25	243	238	89	80	88	80	89	154	145	142	143	143	CM	
5	EC-EX-035	2019/01/20	930	RL	-23	243	238	145	151	152	148	147	189	183	192	191	188	CM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
19A	8 / 5	Connected to 246	T	G&W	EC-EX-035	2019/01/20	1000	RL	-23	2018/01/17	VB+PS	CM
19B	5 / 4	Connected to 247	T	G&W	EC-EX-035	2019/01/20	1010	RL	-23	2018/01/17	VB+PS	CM
19C	2 / 1	Connected to 251	T	G&W	EC-EX-035	2019/01/20	1020	RL	-23	2018/01/17	VB+PS	CM
19D	176 / 233	SEOS to 14 M N OF SEOS	FS	G&W	EC-EX-027	2019/01/17	1650	RL	-23	2018/01/17	VB+PS	CM
19E	233 / 234	SEOS to 21 M N OF SEOS	FS	G&W	EC-EX-027	2019/01/17	1715	RL	-23	2018/01/17	VB+PS	CM
19F	9 / 244	3M E OF WEOS	BO	P	EC-EX-035	2019/01/19	940	RL	-23	2019/01/19	VB+PS	CM
19G	5 / 247	1m East fom WEOS	WR	P	EC-EX-035	2019/01/19	950	RL	-23	2019/01/19	VB+PS	CM
19H	245 / 246	1M N OF SEOS	BO	P	EC-EX-035	2019/01/19	955	RL	-23	2019/01/19	VB+PS	CM
19I	247 / 248	1M N OF SEOS	BO	P	EC-EX-035	2019/01/19	1100	RL	-23	2019/01/19	VB+PS	CM
	154 / 155	Connected to 177,224	T	P								
	153 / 154	Connected to 226,225,151	T	G&W								
	202 / 203	Connected to 232	T	G&W								
	214 / 215	3M S OF NEOS	IO	G&W								
	/											
	/											
	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT, MJ & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 31/09/2019

SHEET NUMBER 28 of 28

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS			INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	1/2	2018/09/13	21	SD	PASS		110	119	115	119	109	115	115	123	128	111	141	148	136	148	145
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK
DS-2	SPF	6/9	2018/09/13	21	SD	PASS		121	118	109	119	113	112	116	112	114	114	136	141	141	147	149
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	SE1	SE1	SE1
DS-3	SPF	16/17	2018/09/13	21	SD	PASS		119	119	121	127	126	123	117	108	120	117	145	148	149	153	153
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-4	SPF	29/30	2018/09/15	21	SD	PASS		131	128	122	121	129	110	123	112	118	115	143	152	154	145	155
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-5	SPF	38/39	2018/09/16	21	SD	PASS		143	128	137	129	130	120	117	115	118	122	162	159	156	162	158
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-6	SPF	40/41	2018/09/16	21	SD	PASS		132	122	150	129	120	132	134	134	125	123	165	165	160	168	167
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-7	SPF	52/58	2018/09/23	21	SD	PASS		136	138	120	136	127	119	122	115	120	115	141	145	144	142	141
0.5m from EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-8	SPF	56/57	2018/09/23	21	SD	PASS		115	117	114	113	113	116	116	115	121	121	136	143	144	147	147
0.5m from NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 1 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS			INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-9	SPF	62/63	2018/09/23	21	SD	PASS		124	123	121	122	123	119	118	122	113	118	148	150	150	155	154
EEOS cutoff								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK
DS-10	SPF	65/88	2018/09/27	21	SD	PASS		133	135	142	132	141	132	143	137	132	118	163	167	160	168	157
NEEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-11	SPF	68/69	2018/09/27	21	SD	PASS		118	123	124	119	126	117	113	118	117	114	142	149	146	149	148
EEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-12	SPF	82/83	2018/09/27	21	SD	PASS		148	124	130	124	151	116	114	116	101	115	156	163	154	163	154
NEOS								BRK	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-13	SPF	90/91	2018/09/27	21	SD	PASS		130	129	130	134	129	127	107	119	111	117	144	154	153	155	152
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1
DS-14	SPF	91/112	2018/10/26	21	SD	PASS		125	129	125	132	128	112	103	112	112	114	164	166	159	160	156
WEOS at crest								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	SE1	SE1	SE1	SE1
DS-15	SPF	108/110	2018/10/26	21	SD	FAIL		124	131	127	131	127	129	128	117	137	121	158	138	156	163	156
WEOS								SE1	SE1	SE1	AD-BRK	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-16	SPF	115/116	2018/10/26	21	SD	PASS		124	134	127	129	122	109	109	124	123	122	165	164	163	166	159
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 2 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | 3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-17	SPF	135/133	2018/10/26	21	SD	FAIL		120	121	113	107		117	117	95	123	SE1					
In West trench								SE1	SE1	SE1	SE1		SE1	AD-BRK	SE1							
DS-18	SPF	137/136	2018/10/26	21	SD	PASS		127	128	124	121	118	137	141	134	132	126	158	166	161	161	158
In West trench								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-19	SPF	145/148	2018/10/26	21	SD	FAIL		112	117				30									
In West trench								AD-BRK	AD-BRK				AD-BRK									
DS-20	SPF	145/146	2018/10/27	21	SD	PASS		148	171	159	170	158	155	113	114	136	147	164	196	173	195	190
SEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-21	SPF	147/150	2018/10/31	21	SD	PASS		139	141	120	122	121	135	142	102	123	125	169	147	174	168	181
1m East from WEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-22	SPF	158/159	2018/11/05	21	KR	PASS		137	141	126	147	143	146	162	143	174	108	179	187	178	194	193
WEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-23	SPF	163/164	2018/11/05	21	KR	PASS		117	121	119	119	131	117	105	114	132	130	189	170	183	168	172
In South trench								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-24	SPF	169/170	2018/11/06	21	KR	PASS		129	129	123	131	122	126	119	130	128	136	175	172	180	160	178
In South trench								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 3 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | 3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-25	SPF	172/173	2018/11/10	21	KR	PASS			170	144	153	145	160	154	130	152	145	143	163	151	161	171	180
In South trench									SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK
DS-26	SPF	171/172	2018/11/12	21	KR	PASS			112	130	128	118	121	129	112	131	113	122	148	151	149	153	151
NEOS									SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK
DS-27	SPF	175/176	2018/11/12	21	KR	PASS			128	135	144	131	124	125	131	136	136	131	151	153	151	153	151
NEOS									SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK
DS-28	SPF	28/174	2018/11/13	21	KR	FAIL			137	110				128	85								
WEOS									SE1	SE1	AD-BRK	AD-BRK	AD-BRK	SE1	AD-BRK								
DS-29	SPF	28/175	2018/11/13	21	KR	FAIL			117	130				112	100								
WEOS									SE1	AD-BRK	AD-BRK	AD-BRK	AD-BRK	SE1	SE1								
DS-30	SPF	28/CAP2	2018/11/14	21	KR	FAIL			121	136	125	124	123	119	132	122	136	127	136	150	138	144	132
EEOS									SE1	AD-BRK	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	SE1
DS-31	SPF	175/CAP1	2018/11/14	21	KR	FAIL			116	119	127	126		124	114								
EEOS									SE1	AD-BRK	SE1	SE1		SE1	SE1								
DS-32	SPF	178/179	2018/12/04	21	KR	PASS			110	106	109	104	107	112	108	110	107	111	117	117	117	116	115
SWEOS									SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 4 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS			INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-33	SPF	180/183	2018/12/04	21	KR	PASS		101	101	98	102	95	106	110	102	105	107	116	117	116	116	113
SWEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	SE1	SE1	SE1	SE1	SE1	SE1
DS-34	SPF	191/192	2018/12/04	21	KR	PASS		104	98	103	101	94	104	99	102	99	90	111	112	110	110	111
NEEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	SE1	BRK	BRK	SE1
DS-35	SPF	201/202	2018/12/08	21	KR	FAIL		21	34													
EEOS								AD	AD													
DS-36	SPF	201/202	2018/12/09	21	KR	FAIL		11														
3M W OF EEOS(Tracked from 35)								AD											SE1	SE1	SE1	SE1
DS-37	SPF	201/202	2018/12/09	21	KR	FAIL		109	118	116	71		115	115								
6M W OF EEOS(Tracked from 35)								SE1	SE1	SE1	AD		SE1	SE1					BRK	SE1	BRK	SE1
DS-38	SPF	202/203	2018/12/09	21	KR	FAIL		110	109	114	111	89	109	109	111	117						
0.5M E OF WEOS(Tracked from 35)								SE1	SE1	SE1	SE1	AD	SE1	SE1	SE1	SE1	AD-BRK					
DS-39	SPF	193/200	2018/12/09	21	KR	FAIL																
2M W OF EEOS(Tracked from 35)																						
DS-40	SPF	193/200	2018/12/09	21	KR	FAIL		124	112	127	95		124	122								
5 M W OF EEOS(Tracked from 35)								SE1	SE1	SE1	AD		SE1	SE1					BRK	BRK	BRK	BRK

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 5 of 7

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER SECONDARY 60MIL
3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS			INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-41	SPF	202/203	2018/12/09	21	KR	PASS		121	116	123	115	125	130	124	117	101	108	141	134	140	132	134
4M E OF WEOS(Tracked from 35)								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-42	SPF	205/206	2018/12/08	21	KR	PASS		126	112	142	117	130	118	94	118	120	111	149	141	152	139	136
SEEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	K BRK E			BRK	BRK
DS-43	SPF	223/224	2018/12/08	21	KR	PASS		130	123	134	127	132	128	136	114	113	123	149	142	148	138	127
WEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	K BRK E			BRK	BRK
DS-44	SPF	177/224	2018/12/08	21	KR	PASS		138	134	121	124	129	132	126	133	126	116	160	161	155	158	157
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	K BRK E			BRK	BRK
DS-45	SPF	194/200	2018/12/08	21	KR	PASS		140	122	138	145	143	130	115	131	119	131	153	156	164	163	164
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	K BRK E			BRK	BRK
DS-46	SPF	176/227	2019/01/16	21	KR	PASS		124	139	120	125	133	124	134	115	123	124	159	156	156	157	151
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-47	SPF	234/235	2019/01/16	21	KR	PASS		120	113	112	112	113	129	121	120	130	119	141	140	146	136	140
SEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-48	SPF	240/241	2019/01/19	21	KR	PASS		137	123	134	124	120	123	120	120	114	111	145	141	146	135	140
SEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 6 of 7

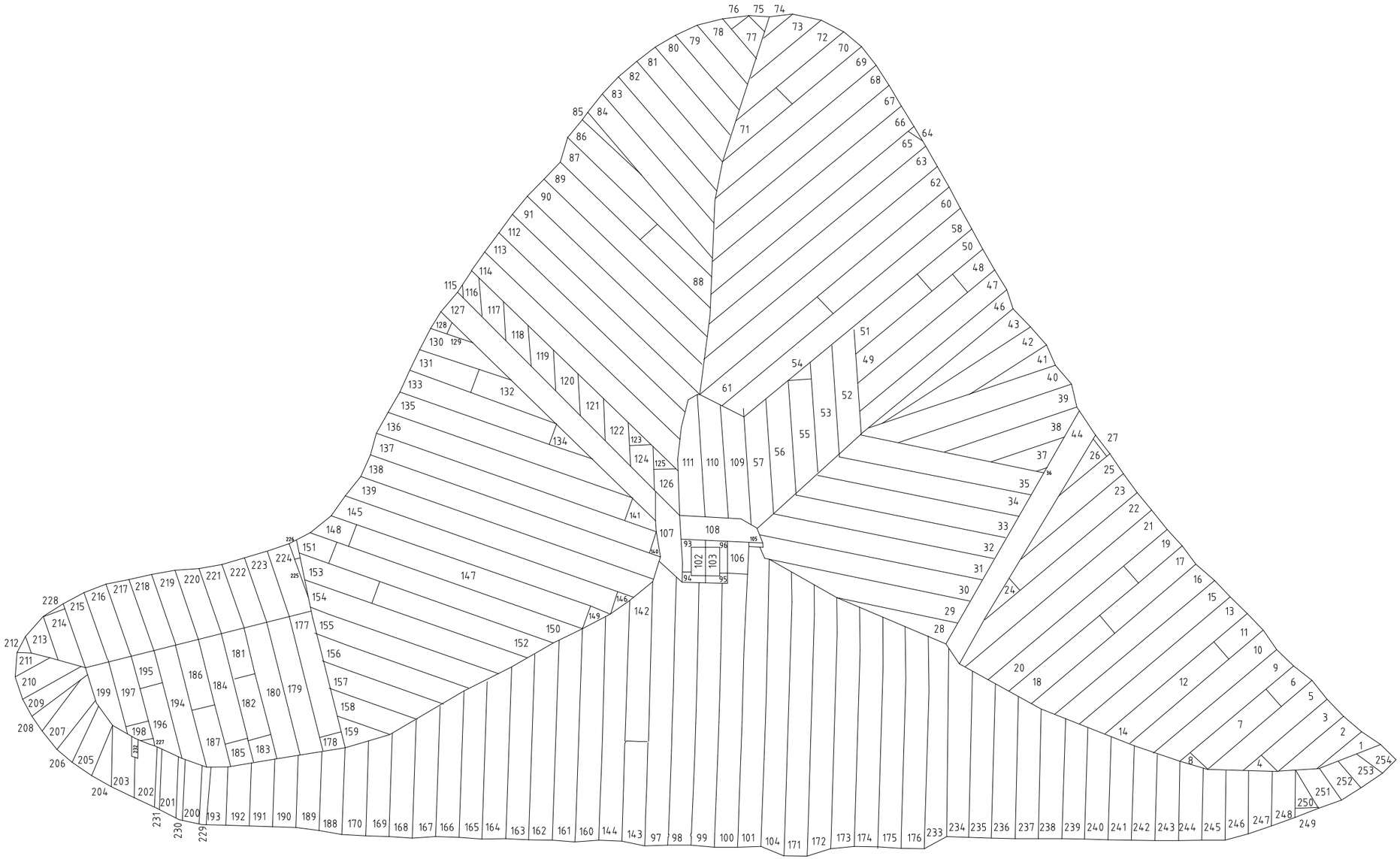
GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143 | AREA / LAYER SECONDARY 60MIL
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | 3RD PARTY TETRA TECH
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-49	SPF	230/231	2019/01/19	21	KR	PASS		125	121	122	116	130	115	116	119	131	105	143	140	143	130	139
NEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-50	SPF	238/239	2019/01/16	21	KR	PASS		120	121	118	119	130	114	119	121	118	120	141	142	139	151	150
SEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-17A	SPF	135/133	2018/10/26	21	SD	PASS		128	136	116	126	130	105	112	110	109	107	160	158	158	159	156
1m East from WEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK				
DS-19A	SPF	145/148	2018/10/26	21	SD	FAIL		112	131	125	130		121	117	112	120						
3m East from WEOS								SE1	SE1	SE1	SE1		SE1	SE1	AD-BRK	SE1						
DS-19B	SPF	145/148	2018/10/27	21	SD	PASS		134	132	147	133	128	124	136	123	126	122	161	176	169	166	171
5M from WEOS								SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK				
DS-																						
DS-																						
DS-																						

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH DT, MJ & VF
SUBMITTED BY Chad Messervey
SUBMISSION DATE 31/09/2019
SHEET NUMBER 7 of 7



LEGEND

Liner Field Seam

P2 Panel Number

NOTES

REV.	RECORD OF CHANGES	DATE	BY

LAYFIELD

Heap Pond 60 mil

DWG. NUMBER

Quote No.	PROJECT No. CT001143
DWG : 1 OF 1	SCALE : NTS
DWN: BM / CHKD: / APP'D:	
DATE: 2019-09-12	REVISION:

In Heap Pond
Primary

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 18/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-37997	14.5	6.7	9	GOOD	DT	GOOD
2	5-38032	19.5	6.7	9	GOOD	DT	GOOD
3	5-38032	52.5	6.7	9	GOOD	DT	GOOD
4	5-38032	72.5	6.7	9	GOOD	DT	GOOD
5	5-37997	74	6.7	9	GOOD	DT	GOOD
6	5-38001	72	6.7	9	GOOD	DT	GOOD
7	5-38003	66.5	6.7	9	GOOD	DT	GOOD
8	5-38003	63	6.7	9	GOOD	DT	GOOD
9	5-38001	57.5	6.7	9	GOOD	DT	GOOD

TOTAL PAGE AREA 3296.4 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 1 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 19/09/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
10	5-38026	3.5	6.7	9	GOOD	DT	GOOD
11	5-38026	16	6.7	9	GOOD	DT	GOOD
12	5-38026	11	6.7	9	GOOD	DT	GOOD
13	5-38026	46	6.7	9	GOOD	DT	GOOD
14	5-37996	46	6.7	9	GOOD	DT	GOOD
15	5-37996	10.5	6.7	9	GOOD	DT	GOOD
16	5-37996	64	6.7	9	GOOD	DT	GOOD
17	5-38007	29	6.7	9	GOOD	DT	GOOD
18	5-38007	64.5	6.7	9	GOOD	DT	GOOD
19	5-37996	55.5	6.7	9	GOOD	DT	GOOD
20	5-37996	9	6.7	9	GOOD	DT	GOOD

TOTAL PAGE AREA 2378.5 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 2 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/04/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
21	5-37986	78	6.7	21	GOOD	CM	GOOD
22	5-37986	45.5	6.7	21	GOOD	CM	GOOD
23	5-37995	4.5	6.7	21	GOOD	CM	GOOD
24	5-38083	22.5	6.7	21	GOOD	CM	GOOD
25	5-38083	30	3.5	21	GOOD	CM	GOOD
26	5-37986	17.5	6.7	21	GOOD	CM	GOOD
27	5-37986	30	6.7	21	GOOD	CM	GOOD
28	5-37986	67	6.7	21	GOOD	CM	GOOD
29	5-37986	27	6.7	21	GOOD	CM	GOOD
30	5-37995	43	6.7	21	GOOD	CM	GOOD
31	5-37995	70	6.7	21	GOOD	CM	GOOD
32	5-37995	13	6.7	21	GOOD	CM	GOOD
33	5-37930	55	6.7	21	GOOD	CM	GOOD
34	5-37930	64	6.7	21	GOOD	CM	GOOD
35	5-38083	61	6.7	21	GOOD	CM	GOOD
36	5-37930	6	6.7	21	GOOD	CM	GOOD
37	5-38002	53	6.7	21	GOOD	CM	GOOD
38	5-38002	53	6.7	21	GOOD	CM	GOOD
39	5-38002	18	6.7	21	GOOD	CM	GOOD
40	5-37911	30	6.7	21	GOOD	CM	GOOD

TOTAL PAGE AREA 5183.6 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 3 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/04/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
41	5-37911	42	6.7	21	GOOD	CM	GOOD
42	5-37911	36	6.7	21	GOOD	CM	GOOD
43	5-37911	16	6.7	21	GOOD	CM	GOOD
44	5-37983	15	6.7	21	GOOD	CM	GOOD
45	5-37983	24	6.7	21	GOOD	CM	GOOD
46	5-37983	19.5	4	21	GOOD	CM	GOOD
47	5-37983	8	4	21	GOOD	CM	GOOD
48	5-38083	11.5	6.7	21	GOOD	CM	GOOD
49	5-38083	14	6.7	21	GOOD	CM	GOOD

TOTAL PAGE AREA 1171.95 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 4 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 16/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
50	5-38025	100	6.7	3	GOOD	DT	GOOD
51	5-38028	100	6.7	3	GOOD	DT	GOOD
52	5-38033	92	6.7	3	GOOD	DT	GOOD
53	5-38009	92	6.7	3	GOOD	DT	GOOD
54	5-37994	87.5	6.7	3	GOOD	DT	GOOD
55	5-38033	10	6.7	3	GOOD	DT	GOOD
56	5-38033	37.5	6.7	3	GOOD	DT	GOOD
57	5-37994	30	6.7	3	GOOD	DT	GOOD

TOTAL PAGE AREA 3678.3 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 5 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 17/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
58	5-38029	87.5	6.7	3	GOOD	DT	GOOD
59	5-38034	28	6.7	3	GOOD	DT	GOOD
60	5-38033	26	6.7	3	GOOD	DT	GOOD
61	5-38029	34	6.7	3	GOOD	DT	GOOD
62	5-38034	87.5	6.7	3	GOOD	DT	GOOD
63	5-37983	43.5	6.7	3	GOOD	DT	GOOD
64	5-38028	30	6.7	3	GOOD	DT	GOOD
65	5-38040	8	6.7	3	GOOD	DT	GOOD
66	5-38040	73.5	6.7	3	GOOD	DT	GOOD
67	5-38037	16.5	6.7	3	GOOD	DT	GOOD
68	5-38040	50	6.7	3	GOOD	DT	GOOD
69	5-38037	60	6.7	3	GOOD	DT	GOOD
70	5-38037	50	6.7	3	GOOD	DT	GOOD
70A	5-38040	3	3	3	GOOD	DT	GOOD
71	5-38004	40	7	3	GOOD	DT	GOOD
72	5-38004	30	6.7	3	GOOD	DT	GOOD
73	5-38004	17.5	6.7	3	GOOD	DT	GOOD
74	5-38004	3	3	3	GOOD	DT	GOOD

TOTAL PAGE AREA 4599.4 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 6 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 18/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
75	5-38004	7	7	0	GOOD	DT	GOOD
76	5-38004	16	0.7	0	GOOD	DT	GOOD
77	5-38004	25	6.7	0	GOOD	DT	GOOD
78	5-38005	32	6.7	0	GOOD	DT	GOOD
79	5-38005	40	6.7	0	GOOD	DT	GOOD
80	5-37984	14.5	6.7	0	GOOD	DT	GOOD
81	5-38005	29.5	6.7	0	GOOD	DT	GOOD
82	5-37984	49	6.7	0	GOOD	DT	GOOD
83	5-37984	54	6.7	0	GOOD	DT	GOOD
84	5-37912	58	6.7	0	GOOD	DT	GOOD
85	5-37912	63	6.7	0	GOOD	DT	GOOD
86	5-38030	66.5	6.7	0	GOOD	DT	GOOD
87		25	6.7	0	GOOD	DT	GOOD
88		34.5	6.7	0	GOOD	DT	GOOD
89		11.5	6.7	0	GOOD	DT	GOOD
90		77	6.7	0	GOOD	DT	GOOD

TOTAL PAGE AREA 3942.85 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 7 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 25/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
91		35.5	5.8	3	GOOD	MJ	GOOD

TOTAL PAGE AREA 205.9 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 8 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 27/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
92	5-37931	62	6.7	-1	GOOD	MJ	GOOD
93	5-37931	40	6.7	-1	GOOD	MJ	GOOD
94	5-38007	28.5	6.7	-1	GOOD	MJ	GOOD
95	5-38007	24	6.7	-1	GOOD	MJ	GOOD
96	5-35025	27.5	6.7	-1	GOOD	MJ	GOOD
97	5-37997	24	6.7	-1	GOOD	MJ	GOOD

TOTAL PAGE AREA 1380.2 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 9 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 29/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
98	5-38035	86	6.7	-5	GOOD	MJ	GOOD
99	5-38022	86	6.7	-5	GOOD	MJ	GOOD
100	5-37966	86	6.7	-5	GOOD	MJ	GOOD
101	5-37957	86	6.7	-5	GOOD	MJ	GOOD
102	5-38035	8	6.7	-5	GOOD	MJ	GOOD
103	5-38035	22	6.7	-5	GOOD	MJ	GOOD
104	5-37987	40	6.7	-5	GOOD	MJ	GOOD
105	5-38024	55.5	6.7	-5	GOOD	MJ	GOOD
106	5-38024	71	6.7	-5	GOOD	MJ	GOOD
107	5-38987	88	6.7	-5	GOOD	MJ	GOOD
108	5-37955	91	6.7	-5	GOOD	MJ	GOOD
109	5-37988	91	6.7	-5	GOOD	MJ	GOOD

TOTAL PAGE AREA 5430.35 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 10 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 30/10/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
113	5-37931	2.5	2	-4	GOOD	MJ	GOOD
114	5-37988	7	3	-4	GOOD	MJ	GOOD
115	5-37988	5	6.7	-4	GOOD	MJ	GOOD
116	5-37955	13	6.7	-4	GOOD	MJ	GOOD

TOTAL PAGE AREA 146.6 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 11 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/01/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
110	5-38027	93	6.7	-12	GOOD	MJ	GOOD
111	5-38023	89	6.7	-12	GOOD	MJ	GOOD
112	5-38000	83	6.7	-12	GOOD	MJ	GOOD
117		84	6.7	-10	GOOD	DT	GOOD

TOTAL PAGE AREA 2338.3 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 12 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/05/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
118	5-38027	30	6.7	-10	GOOD	DT	GOOD
119	5-38023	21	6.7	-10	GOOD	DT	GOOD

TOTAL PAGE AREA 341.7 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 13 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/08/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
120	5-37952	27	6.7	-11	GOOD	VF	GOOD
121	5-37952	32	6.7	-11	GOOD	VF	GOOD
122	5-37952	32	6.7	-11	GOOD	VF	GOOD
123	5-37982	32	6.7	-11	GOOD	VF	GOOD
124	5-37952	15	6.7	-11	GOOD	VF	GOOD

TOTAL PAGE AREA 924.6 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 14 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/09/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
125	5-37982	9	3.5	-9	GOOD	VF	GOOD
126	5-37982	14	6.7	-9	GOOD	VF	GOOD
127	5-37982	32	6.7	-9	GOOD	VF	GOOD
128	5-37982	29	6.7	-9	GOOD	VF	GOOD
129	5-37952	3	6.7	-9	GOOD	VF	GOOD

TOTAL PAGE AREA 554.1 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 15 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/10/11

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
CAP 1	5-37952	4	1.5	-12	GOOD	VF	GOOD
CAP 2	5-37952	5	1.5	-12	GOOD	VF	GOOD

TOTAL PAGE AREA 13.5 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 16 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 16/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
CAP 3	5-37952	6	1.5	-24	GOOD	VF	GOOD
CAP 4	5-37952	2.5	1.5	-24	GOOD	VF	GOOD
CAP 5	5-37952	6	1.5	-24	GOOD	VF	GOOD
CAP 6	5-37952	3.5	1.5	-24	GOOD	VF	GOOD
CAP7	5-37952	6	1.5	-24	GOOD	VF	GOOD
CAP 8	5-37952	6	1.5	-24	GOOD	VF	GOOD
CAP 9	5-37964	16	1.5	-24	GOOD	VF	GOOD
CAP 10	5-37964	15	1.5	-24	GOOD	VF	GOOD

TOTAL PAGE AREA 91.5 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 17 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 17/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
CAP 11	5-37964	32	1.5	-17	GOOD	VF	GOOD

TOTAL PAGE AREA 48 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 18 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 18/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
CAP 12	5-37964	18	1.5	-6	GOOD	VF	GOOD

TOTAL PAGE AREA 27 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 19 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 19/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
130	5-37953	85	6.7	-4	GOOD	VF	GOOD
131	5-37956	83	6.7	-4	GOOD	VF	GOOD

TOTAL PAGE AREA 1125.6 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 20 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 20/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
132	5-37989	80	6.7	0	GOOD	VF	GOOD
133	5-38039	74	6.7	0	GOOD	VF	GOOD
134	5-37934	68	6.7	0	GOOD	VF	GOOD
135	5-37974	66	6.7	0	GOOD	VF	GOOD

TOTAL PAGE AREA 1929.6 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 21 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 26/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
136	5-37910	80	6.7	-6	GOOD	VF	GOOD

TOTAL PAGE AREA 536 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 22 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 27/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
137	5-37954	69.5	6.7	1	GOOD	VF	GOOD
138	5-37954	58	6.7	1	GOOD	VF	GOOD
139	5-37971	48	6.7	1	GOOD	VF	GOOD

TOTAL PAGE AREA 1175.85 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 23 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 28/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
140	5-37971	41	6.7	1	GOOD	VF	GOOD
141	5-37971	30	6.7	1	GOOD	VF	GOOD
142	5-37971	7.5	6.7	1	GOOD	VF	GOOD
143	5-37954	7	6.7	1	GOOD	VF	GOOD

TOTAL PAGE AREA 572.85 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 24 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 30/11/2018

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
144	5-37958	80	6.7	-5	GOOD	VF	GOOD
145	5-37976	78	6.7	-5	GOOD	VF	GOOD
146	5-37961	74	6.7	-5	GOOD	VF	GOOD
147	5-37935	70	6.7	-5	GOOD	VF	GOOD
148	5-37935	64	6.7	-5	GOOD	VF	GOOD
149	5-37935	54	6.7	-5	GOOD	VF	GOOD
150	5-37962	50	6.7	-5	GOOD	VF	GOOD
151	5-37962	46	6.7	-5	GOOD	VF	GOOD

TOTAL PAGE AREA 3457.2 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 25 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/01/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
152	5-37909	43	6.7	-8	GOOD	VF	GOOD
153	5-37909	40	6.7	-8	GOOD	VF	GOOD
154	5-37909	36	6.7	-8	GOOD	VF	GOOD
155	5-37976	32	6.7	-8	GOOD	VF	GOOD

TOTAL PAGE AREA 1011.7 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 26 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/03/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
156	5-38012	15.5	6.7	-18	GOOD	VF	GOOD
157	5-38012	15.5	6.7	-18	GOOD	VF	GOOD
158	5-38012	15.5	6.7	-18	GOOD	VF	GOOD
159	5-38012	15.5	6.7	-18	GOOD	VF	GOOD
160	5-38012	15.5	6.7	-18	GOOD	VF	GOOD
161	5-38012	15.5	6.7	-18	GOOD	VF	GOOD

TOTAL PAGE AREA 623.1 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 27 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/05/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
162	5-38012	34	6.7	-18	GOOD	VF	GOOD
163	5-37961	2.5	6.7	-18	GOOD	VF	GOOD
164	5-38035	14	6.7	-18	GOOD	VF	GOOD
165	5-37961	20.5	6.7	-18	GOOD	VF	GOOD
166	5-37961	25.5	6.7	-18	GOOD	VF	GOOD
167	5-37985	7	6.7	-18	GOOD	VF	GOOD
168	5-37985	28	6.7	-18	GOOD	VF	GOOD
169	5-37962	2.5	6.7	-18	GOOD	VF	GOOD
170	5-37976	15	6.7	-18	GOOD	VF	GOOD
171	5-37962	16	6.7	-18	GOOD	VF	GOOD
172	5-37901	26	6.7	-18	GOOD	VF	GOOD
173	5-37901	24.5	6.7	-18	GOOD	VF	GOOD
174	5-37958	23	6.7	-18	GOOD	VF	GOOD
175	5-37989	21.5	6.7	-18	GOOD	VF	GOOD
176	5-37989	20	6.7	-18	GOOD	VF	GOOD
177	5-37934	19	6.7	-18	GOOD	VF	GOOD

TOTAL PAGE AREA 2003.3 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 28 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/10/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
178	5-37934	33.1	6.7	-18	GOOD	VF	GOOD
179	5-38022	32.7	6.7	-18	GOOD	VF	GOOD
180	5-37960	27.3	6.7	-18	GOOD	VF	GOOD
181	5-37953	27.3	6.7	-18	GOOD	VF	GOOD
182	5-37960	4.4	6.7	-18	GOOD	VF	GOOD
183	5-37953	8.8	6.7	-18	GOOD	VF	GOOD
184	5-37957	9.7	6.7	-18	GOOD	VF	GOOD
185	5-38039	19.7	6.7	-18	GOOD	VF	GOOD
186	5-38039	19.8	6.7	-18	GOOD	VF	GOOD
187	5-37457	20	6.7	-18	GOOD	VF	GOOD
188	5-37956	19	6.7	-18	GOOD	VF	GOOD
189	5-37956	20	6.7	-18	GOOD	VF	GOOD
190	5-37910	20	6.7	-18	GOOD	VF	GOOD
191	5-37910	20	6.7	-18	GOOD	VF	GOOD
192	5-37974	12.4	6.7	-18	GOOD	VF	GOOD
193	5-37974	19.2	6.7	-18	GOOD	VF	GOOD
194	5-38013	19.8	6.7	-18	GOOD	VF	GOOD
194	5-38013	19.6	6.7	-18	GOOD	VF	GOOD
196	5-38013	17	6.7	-18	GOOD	VF	GOOD
197	5-38013	12	6.7	-18	GOOD	VF	GOOD

TOTAL PAGE AREA 2558.06 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 29 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2018/12/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
198	5-37973	26	6.7	-18	GOOD	VF	GOOD
199	5-37973	26	6.7	-18	GOOD	VF	GOOD
200	5-37973	26	6.7	-18	GOOD	VF	GOOD
201	5-37973	26	6.7	-18	GOOD	VF	GOOD
202	5-37973	26	6.7	-18	GOOD	VF	GOOD
203	5-38019	26	6.7	-18	GOOD	VF	GOOD
204	5-38019	26	6.7	-18	GOOD	VF	GOOD
205	5-38019	25	6.7	-18	GOOD	VF	GOOD
206	5-38019	25	6.7	-18	GOOD	VF	GOOD
207	5-38008	25	6.7	-18	GOOD	VF	GOOD
208	5-38008	25	6.7	-18	GOOD	VF	GOOD
209	5-38008	20	6.7	-18	GOOD	VF	GOOD
210	5-38008	12	6.7	-18	GOOD	VF	GOOD

TOTAL PAGE AREA 2103.8 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 30 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2019/01/20

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
211	5-37979	62	6.8	-20	GOOD	CM	GOOD
212	5-37979	61	6.8	-20	GOOD	CM	GOOD
213	5-38013	58	6.8	-20	GOOD	CM	GOOD
214	5-37965	46	6.8	-20	GOOD	CM	GOOD
215	5-37965	44.5	6.8	-20	GOOD	CM	GOOD
216	5-37969	41	6.8	-20	GOOD	CM	GOOD
217	5-37969	39	6.8	-20	GOOD	CM	GOOD
218	5-37968	38	6.8	-20	GOOD	CM	GOOD
219	5-37968	36.5	6.8	-20	GOOD	CM	GOOD
220	5-37968	35	6.8	-20	GOOD	CM	GOOD

TOTAL PAGE AREA 3134.8 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 31 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2019/01/21

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
221	5-37980	33.7	6.8	-20	GOOD	CM	GOOD
222	5-37966	33.4	6.8	-20	GOOD	CM	GOOD
223	5-37966	31	6.8	-20	GOOD	CM	GOOD
224	5-37966	29	6.8	-20	GOOD	CM	GOOD
225	5-37966	26	6.8	-20	GOOD	CM	GOOD
226	5-37980	23.7	6.8	-20	GOOD	CM	GOOD

TOTAL PAGE AREA 1202.24 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 32 of 33

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Victoria Gold HDL Heap Leach Pond
AREA / LAYER 80mil Primary
DEPLOYMENT DATE 2019/01/23

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
227	5-37980	23	6.8	-20	GOOD	CM	GOOD
228	5-37980	20	6.8	-20	GOOD	CM	GOOD
229	5-37980	18	6.8	-20	GOOD	CM	GOOD
230	5-37969	15	6.8	-20	GOOD	CM	GOOD
47	5-37980	12	6.8	-20	GOOD	CM	GOOD
48	5-37980	8	6.8	-20	GOOD	CM	GOOD

TOTAL PAGE AREA 652.8 m²

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 33 of 33

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 18/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-052	1226	GB	21	50.0%	454	135	135	141	143	142	132	128	130	133	129	163	163	165	168	169	DT	SM2SM
2	EC-WW-056	1230	DH	21	50.0%	454	148	147	149	148	150	142	143	137	144	138	173	170	180	178	183	DT	SM2SM
3	EC-WW-052	1300	GB	21	40.0%	454	156	161	157	164	172	157	162	165	166	162	192	196	184	187	200	DT	TEX2TEX
4	EC-WW-052	1628	GB	21	50.0%	454	144	153	139	149	144	141	136	148	143	137	173	175	175	180	180	DT	SM2SM
5	EC-WW-052	1630	GB	21	45.0%	454	148	148	149	147	148	150	149	145	141	154	184	184	189	192	188	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
3 / 4	EEOS	WEOS	1300	8	DH	EC-WW-056	52.5		AP+PS	19/9/18	1446	1451	35	35	PASS	DT
1 / 2	NEOS	SEOS	1330	8	GB	EC-WW-052	6.7		AP+PS	21/9/18	1713	1718	35	35	PASS	DT
1 / 3	EEOS	WEOS	1340	8	GB	EC-WW-052	13.5		AP+PS	21/9/18	1703	1708	35	35	PASS	DT
2 / 3	EEOS	WEOS	1353	8	GB	EC-WW-052	19.5		AP+PS	21/9/18	1708	1713	35	35	PASS	DT
4 / 5	EEOS	2Q	1430	8	GB	EC-WW-052	30.0		AP+PS	21/9/18	1700	1705	35	35	PASS	DT
4 / 5	2Q	WEOS	1440	8	GB	EC-WW-052	42.5		AP+PS	21/9/18	1701	1706	35	35	PASS	DT
5 / 6	EEOS	WEOS	1505	8	DH	EC-WW-056	69.5		AP+PS	19/9/18	1425	1430	35	35	PASS	DT
6 / 7	EEOS	WEOS	1538	8	GB	EC-WW-052	64.5		AP+PS	19/9/18	1424	1429	35	35	PASS	DT
7 / 8	EEOS	WEOS	1600	8	DH	EC-WW-056	61.0		AP+PS	19/9/18	1551	1556	35	35	PASS	DT
8 / 9	EEOS	WEOS	1727	8	GB	EC-WW-052	56.0	DS-10	AP+PS	19/9/18	1550	1555	35	35	PASS	DT
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PAGE TOTAL							415.7									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 1 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 19/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-052	1135	GB	21	45.0%	454	142	152	143	143	154	159	156	167	162	157	191	194	192	196	194	DT	SM2TEX
2	EC-WW-056	1137	DH	21	50.0%	454	137	140	146	142	147	145	143	141	136	141	186	174	183	189	180	DT	SM2SM
3	EC-WW-052	1142	GB	21	50.0%	454	152	143	141	145	146	124	136	127	134	140	174	174	181	186	190	DT	SM2SM
4	EC-WW-056	1230	DH	21	40.0%	454	168	162	172	170	169	170	160	148	165	163	204	207	201	209	207	DT	TEX2TEX
5	EC-WW-056	1500	DH	21	50.0%	454	140	142	142	143	141	144	141	130	137	135	172	176	178	176	178	DT	SM2SM
6	EC-WW-056	1510	DH	21	40.0%	454	175	178	171	175	173	169	170	163	167	173	197	212	197	207	200	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
14 / 15	SEOS	NEOS	1237	8	DH	EC-WW-056	6.7		AP+PS	21/9/18	1650	1655	35	35	PASS	DT
14 / 16	EEOS	WEOS	1248	8	GB	EC-WW-052	44.0		AP+PS	6/10/18	1413	1418	35	35	PASS	DT
11 / 12	SEOS	NEOS	1249	8	DH	EC-WW-056	6.7		AP+PS	21/9/18	1514	1519	35	35	PASS	DT
10 / 11	EEOS	WEOS	1255	8	DH	EC-WW-056	6.0		AP+PS	21/9/18	1513	1518	35	35	PASS	DT
12 / 13	EEOS	WEOS	1304	8	DH	EC-WW-056	11.0		AP+PS	21/9/18	1634	1639	35	35	PASS	DT
15 / 16	EEOS	WEOS	1308	8	GB	EC-WW-052	10.5		AP+PS	21/9/18	1649	1654	35	35	PASS	DT
11 / 13	EEOS	WEOS	1310	8	DH	EC-WW-056	16.0		AP+PS	6/10/18	1427	1432	35	35	PASS	DT
13 / 14	EEOS	WEOS	1315	8	DH	EC-WW-056	46.0		AP+PS	6/10/18	1419	1424	35	35	PASS	DT
9 / 10	EEOS	WEOS	1429	8	GB	EC-WW-052	3.5		AP+PS	6/10/18	1433	1438	35	35	PASS	DT
9 / 12	EEOS	WEOS	1432	8	GB	EC-WW-052	14.0		AP+PS	21/9/18	1633	1638	35	35	PASS	DT
9 / 13	EEOS	WEOS	1440	8	GB	EC-WW-052	13.5		AP+PS	21/9/18	1642	1647	35	35	PASS	DT
9 / 15	EEOS	WEOS	1448	8	GB	EC-WW-052	12.5		AP+PS	21/9/18	1643	1648	35	35	PASS	DT
9 / 16	EEOS	2R	1454	8	GB	EC-WW-052	3.0		AP+PS	24/11/18	1540	1545	35	35	PASS	EA
9 / 16	2R	WEOS	1455	8	GB	EC-WW-052	10.0		AP+PS	24/11/18	1540	1545	35	35	PASS	EA
17 / 18	NEOS	SEOS	1500	8	DH	EC-WW-056	29.0	DS-2	AP+PS	6/10/18	1419	1924	35	35	PASS	DT
19 / 20	EEOS	WEOS	1600	8	DH	EC-WW-056	6.7		AP+PS	17/10/18	1712	1717	35	35	PASS	DT
18 / 19	WEOS	4K	1627	8	DH	EC-WW-056	40.5		AP+PS	24/11/18	1450	1455	35	35	PASS	EA
18 / 20	WEOS	EEOS	1640	8	DH	EC-WW-056	9.0		AP+PS	6/10/18	1413	1418	35	35	PASS	DT
18 / 19	4K	EEOS	1640	8	DH	EC-WW-056	15.0		AP+PS	24/11/18	1450	1455	35	35	PASS	EA
16 / 17	EEOS	WEOS	1658	8	GB	EC-WW-052	29.0		AP+PS	6/10/18	1410	1415	35	35	PASS	DT
						PAGE TOTAL	332.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 2 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 19/09/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-052	1515	GB	21	50.0%	454	146	146	150	148	144	137	142	136	147	146	178	174	178	174	172	DT	SM2SM
8	EC-WW-052	1520	GB	21	45.0%	454	144	140	145	146	133	149	156	135	155	127	182	181	175	177	175	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
16	18	EEOS	WEOS	1710	8	GB	EC-WW-052	35.0		AP+PS	21/9/18	1643	1648	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/03/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-052	1555	GB	21	45.0%	454	129	149	141	145	148	114	119	124	121	115	169	166	170	184	178	CM	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 21	SEOS	NEOS	1635	4	GB	EC-WW-052	3.0		AP+PS	25/11/18	1127	1132	35	35	PASS	DT
3 / 21	SEOS	NEOS	1636	4	GB	EC-WW-052	7.0		AP+PS	25/11/18	1125	1130	35	35	PASS	EA
4 / 21	SEOS	2M	1641	4	GB	EC-WW-052	5.0		AP+PS	25/11/18	1125	1130	35	35	PASS	EA
4 / 21	2M	NEOS	1642	4	GB	EC-WW-052	2.0		AP+PS	6/10/18	1500	1505	35	35	PASS	DT
5 / 21	SEOS	NEOS	1653	4	GB	EC-WW-052	7.0		AP+PS	6/10/18	1459	1504	35	35	PASS	DT
6 / 21	SEOS	NEOS	1658	4	GB	EC-WW-052	7.0		AP+PS	6/10/18	1454	1459	35	35	PASS	DT
7 / 21	SEOS	NEOS	1702	4	GB	EC-WW-052	7.0		AP+PS	6/10/18	1453	1458	35	35	PASS	DT
8 / 21	SEOS	2I	1705	4	GB	EC-WW-052	5.0		AP+PS	6/10/18	1443	1448	35	35	PASS	DT
8 / 21	2I	NEOS	1706	4	GB	EC-WW-052	2.0		AP+PS	6/10/18	1436	1441	35	35	PASS	DT
9 / 21	SEOS	NEOS	1709	4	GB	EC-WW-052	7.0		AP+PS	6/10/18	1434	1439	35	35	PASS	DT
10 / 21	SEOS	NEOS	1713	4	GB	EC-WW-052	2.0		AP+PS	6/10/18	1432	1437	35	35	PASS	DT
11 / 21	SEOS	NEOS	1714	4	GB	EC-WW-052	11.0		AP+PS	6/10/18	1426	1431	35	35	PASS	DT
21 / 22	SEOS	2C	1719	4	GB	EC-WW-052	21.0	DS-1	AP+PS	6/10/18	1515	1520	35	35	PASS	DT
13 / 21	SEOS	NEOS	1719	4	GB	EC-WW-052	10.0		AP+PS	6/10/18	1420	1425	35	35	PASS	DT
21 / 22	2C	NEOS	1726	4	GB	EC-WW-052	24.5	DS-1	AP+PS	25/11/18	1500	1505	35	35	PASS	JH
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PAGE TOTAL 120.5

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 4 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/04/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-052	922	GB	21	40.0%	454	180	185	181	205	185	170	180	175	188	168	213	226	224	221	209	CM	TEX2TEX
2	EC-WW-052	1000	GB	21	50.0%	454	158	143	156	165	150	151	150	149	149	151	196	206	199	194	200	CM	SM2SM
3	EC-WW-056	1200	IK	21	50.0%	454	141	144	132	134	141	137	143	144	136	144	180	193	195	193	194	CM	SM2SM
4	EC-WW-052	1400	GB	21	40.0%	454	174	182	195	184	186	153	161	176	166	160	204	203	207	206	199	CM	TEX2TEX
5	EC-WW-052	1410	GB	21	50.0%	454	153	157	150	118	142	146	142	152	131	145	187	176	189	186	182	CM	SM2SM
6	EC-WW-056	1600	IK	21	50.0%	454	142	134	140	145	149	139	135	133	140	137	174	173	178	184	179	CM	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
26 / 27	EEOS	WEOS	1035	4	GB	EC-WW-052	6.7		AP+PS	6/10/18	1630	1635	35	35	PASS	DT
29 / 30	EEOS	WEOS	1045	8	GB	EC-WW-052	6.7		AP+PS	6/10/18	1651	1656	35	35	PASS	DT
27 / 28	NEEOS	SWEOS	1130	4	GB	EC-WW-052	30.0	DS-3	AP+PS	6/10/18	1702	1707	35	35	PASS	DT
26 / 28	NEEOS	SWEOS	1147	4	GB	EC-WW-052	17.5		AP+PS	6/10/18	1640	1645	35	35	PASS	DT
22 / 23	EEOS	WEOS	1207	4	GB	EC-WW-052	6.7		AP+PS	6/10/18	1539	1544	35	35	PASS	DT
49 / 25	SWEOS	NEEOS	1215	4	IK	EC-WW-056	10.0		AP+PS	6/10/18	1610	1615	35	35	PASS	DT
23 / 24	EEOS	WEOS	1226	4	GB	EC-WW-052	6.7		AP+PS	6/10/18	1525	1530	35	35	PASS	DT
25 / 27	NEEOS	SWEOS	1230	4	IK	EC-WW-056	30.0		AP+PS	6/10/18	1629	1634	35	35	PASS	DT
21 / 23	SEOS	NEOS	1242	4	GB	EC-WW-052	4.5		AP+PS	6/10/18	1525	1530	35	35	PASS	DT
21 / 24	SEOS	NEOS	1244	4	GB	EC-WW-052	22.5		AP+PS	6/10/18	1526	1531	35	35	PASS	DT
28 / 29	SWEOS	NEEOS	1250	4	IK	EC-WW-056	22.0		AP+PS	8/10/18	1626	1631	35	35	PASS	DT
28 / 30	SWEOS	NEEOS	1300	8	IK	EC-WW-056	43.0		AP+PS	6/10/18	1652	1657	35	35	PASS	DT
32 / 33	EEOS	WEOS	1311	8	GB	EC-WW-052	6.7		AP+PS	6/10/18	1416	1421	35	35	PASS	DT
29 / 31	SWEOS	NEEOS	1320	8	IK	EC-WW-056	27.0		AP+PS	8/10/18	1425	1430	35	35	PASS	DT
31 / 32	SWEOS	NEEOS	1325	8	GB	EC-WW-052	13.0		AP+PS	6/10/18	1417	1422	35	35	PASS	DT
31 / 33	SWEOS	NEEOS	1331	8	GB	EC-WW-052	55.0		AP+PS	6/10/18	1159	1204	35	35	PASS	DT
30 / 31	SWEOS	NEEOS	1335	8	IK	EC-WW-056	43.0		AP+PS	6/10/18	1200	1205	35	35	PASS	DT
32 / 34	SWEOS	NEEOS	1440	8	IK	EC-WW-056	9.0		AP+PS	6/10/18	1415	1420	35	35	PASS	DT
33 / 34	SWEOS	NEEOS	1445	8	IK	EC-WW-056	55.0		AP+PS	6/10/18	1200	1205	35	35	PASS	DT
34 / 35	SWEOS	NEEOS	1520	8	IK	EC-WW-056	61.0		AP+PS	6/10/18	1145	1150	35	35	PASS	DT
						PAGE TOTAL	476.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 5 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/04/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-052	1755	GB	21	45.0%	454	140	135	139	138	131	141	146	156	144	151	177	166	187	157	188	CM	SM2TEX
8	EC-WW-056	1815	IK	21	50.0%	454	134	133	137	145	142	129	131	135	130	141	171	177	176	174	176	CM	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
36 / 37	EEOS	WEOS	1600	8	GB	EC-WW-052	6.7		AP+PS	6/10/18	1405	1410	35	35	PASS	DT
39 / 40	EEOS	WEOS	1601	8	GB	EC-WW-052	6.7		AP+PS	6/10/18	1350	1355	35	35	PASS	DT
35 / 36	SWEOS	NEEOS	1610	8	IK	EC-WW-056	6.0		AP+PS	6/10/18	1404	1409	35	35	PASS	DT
35 / 37	SWEOS	NEEOS	1614	8	IK	EC-WW-056	53.0		AP+PS	6/10/18	1144	1149	35	35	PASS	DT
39 / 41	SWEOS	NEEOS	1636	8	GB	EC-WW-052	12.0		AP+PS	6/10/18	1349	1354	35	35	PASS	DT
37 / 38	SWEOS	NEEOS	1638	8	IK	EC-WW-056	53.0		AP+PS	6/10/18	1143	1148	35	35	PASS	DT
38 / 39	SWEOS	NEEOS	1638	8	GB	EC-WW-052	18.0		AP+PS	6/10/18	1351	1356	35	35	PASS	DT
38 / 40	SWEOS	1G	1647	8	GB	EC-WW-052	15.0	DS-4	AP+PS	6/10/18	1400	1405	35	35	PASS	DT
38 / 40	1G	NEEOS	1652	8	GB	EC-WW-052	14.0	DS-4	AP+PS	6/10/18	1129	1134	35	35	PASS	DT
41 / 42	SWEOS	NEEOS	1715	8	IK	EC-WW-056	36.0		AP+PS	6/10/18	1127	1132	35	35	PASS	DT
40 / 41	SWEOS	NEEOS	1716	8	GB	EC-WW-052	29.0		AP+PS	6/10/18	1128	1133	35	35	PASS	DT
43 / 44	SWEOS	NEEOS	1730	8	GB	EC-WW-052	6.7		AP+PS	6/10/18	1253	1258	35	35	PASS	DT
42 / 43	SWEOS	NEEOS	1734	8	GB	EC-WW-052	16.0		AP+PS	6/10/18	1247	1252	35	35	PASS	DT
43 / 45	SWEOS	NEEOS	1736	8	IK	EC-WW-056	9.0		AP+PS	6/10/18	1252	1257	35	35	PASS	DT
44 / 45	SWEOS	NEEOS	1740	8	IK	EC-WW-056	15.0		AP+PS	6/10/18	1116	1121	35	35	PASS	DT
42 / 44	SWEOS	NEEOS	1742	8	GB	EC-WW-052	15.0		AP+PS	6/10/18	1117	1122	35	35	PASS	DT
45 / 46	SWEOS	NEEOS	1756	8	IK	EC-WW-056	19.5		AP+PS	6/10/18	1115	1120	35	35	PASS	DT
47 / 48	EEOS	WEOS	1758	8	IK	EC-WW-056	4.0		AP+PS	6/10/18	1120	1125	35	35	PASS	DT
46 / 48	SWEOS	NEEOS	1759	8	IK	EC-WW-056	11.5		AP+PS	6/10/18	1125	1130	35	35	PASS	DT
46 / 47	SWEOS	NEEOS	1800	8	IK	EC-WW-056	8.0		AP+PS	6/10/18	1130	1135	35	35	PASS	DT
						PAGE TOTAL	354.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 6 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/04/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
22	28	SEOS	NEOS	1830	4	GB	EC-WW-052	18.0		AP+PS	8/10/18	1625	1630	35	35	PASS	DT
22	26	SEOS	NEOS	1842	4	GB	EC-WW-052	18.5		AP+PS	6/10/18	1631	1636	35	35	PASS	DT
22	25	SEOS	NEOS	1853	4	GB	EC-WW-052	9.0		AP+PS	25/11/18	1530	1535	35	35	PASS	EA
23	25	SEOS	NEOS	1858	4	GB	EC-WW-052	4.5		AP+PS	6/10/18	1615	1620	35	35	PASS	DT
24	25	SEOS	NEOS	1900	4	GB	EC-WW-052	5.0		AP+PS	6/10/18	1614	1619	35	35	PASS	DT
24	49	SEOS	NEOS	1903	4	GB	EC-WW-052	10.0		AP+PS	6/10/18	1609	1614	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 16/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	900	GB	21	50.0%	454	157	166	153	153	169	145	151	140	144	146	206	210	206	204	204	DT	SM2SM
2	EC-WW-056	905	GB	21	45.0%	454	150	150	156	153	157	151	149	145	160	144	199	199	207	200	195	DT	SM2TX
3	EC-WW-056	907	GB	21	40.0%	454	160	167	162	177	176	162	167	160	166	172	216	219	210	210	224	DT	TEX2TEX
4	EC-WW-056	1300	GB	21	50.0%	454	158	158	144	152	154	148	154	149	154	152	193	196	198	194	201	DT	SM2SM
5	EC-WW-056	1400	GB	21	45.0%	454	138	147	153	157	157	160	167	164	161	140	195	189	192	192	196	DT	SM2TX
6	EC-WW-056	1400	GB	21	50.0%	454	168	167	157	161	173	171	176	164	173	172	214	216	204	212	209	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
50 / 51	NEOS	SEOS	1110	1	GB	EC-WW-056	100.0	DS-5	AP+PS	16/10/18	1524	1529	35	35	PASS	DT
51 / 52	NEOS	SEOS	1210	1	GB	EC-WW-056	92.0		AP+PS	16/10/18	1550	1555	35	35	PASS	DT
52 / 53	SEOS	3N	1300	1	GB	EC-WW-056	67.0		AP+PS	17/10/18	1541	1546	35	35	PASS	DT
52 / 53	3N	NEOS	1322	1	GB	EC-WW-056	25.0		AP+PS	17/10/18	1545	1550	35	35	PASS	DT
19 / 50	SEOS	3L	1425	1	GB	EC-WW-056	19.0		AP+PS	17/10/18	1711	1716	35	35	PASS	DT
19 / 50	3L	NEOS	1425	1	GB	EC-WW-056	14.0		AP+PS	17/10/18	1705	1710	35	35	PASS	DT
20 / 50	SEOS	NEOS	1440	1	GB	EC-WW-056	9.0		AP+PS	17/10/18	1710	1715	35	35	PASS	DT
53 / 54	NEOS	3O	1527	1	GB	EC-WW-056	36.0		AP+PS	17/10/18	1654	1659	35	35	PASS	DT
53 / 54	3O	SEOS	1539	1	GB	EC-WW-056	51.5		AP+PS	17/10/18	1652	1657	35	35	PASS	DT
56 / 57	EEOS	WEOS	1615	1	GB	EC-WW-056	6.7		AP+PS	17/10/18	1206	1211	35	35	PASS	DT
55 / 56	EEOS	WEOS	1658	1	GB	EC-WW-056	6.7		AP+PS	17/10/18	1146	1151	35	35	PASS	DT
54 / 55	NEOS	SEOS	1659	1	GB	EC-WW-056	10.0	DS-6	AP+PS	17/10/18	1130	1135	35	35	PASS	DT
54 / 56	NEOS	SEOS	1705	1	GB	EC-WW-056	37.5		AP+PS	17/10/18	1145	1150	35	35	PASS	DT
54 / 57	NEOS	SEOS	1717	1	GB	EC-WW-056	30.0		AP+PS	18/10/18	1715	1720	35	35	PASS	DT
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PAGE TOTAL 504.4

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 8 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 17/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	846	GB	21	50.0%	454	157	178	158	157	153	152	153	150	153	139	197	195	199	207	199	DT	SM2SM
2	EC-WW-056	855	GB	21	45.0%	454	176	184	158	182	151	156	157	141	157	159	203	209	201	209	230	DT	SM2TEX
3	EC-WW-050	900	TB	21	50.0%	454	159	174	169	175	153	165	166	155	148	163	212	215	213	215	211	DT	SM2SM
4	EC-WW-056	1255	GB	21	40.0%	454	180	201	180	188	178	182	188	163	185	183	218	217	219	210	202	DT	TEX2TEX
5	EC-WW-050	1415	TB	21	50.0%	454	139	146	145	153	151	138	139	160	147	141	187	182	183	187	184	DT	SM2SM
6	EC-WW-056	1415	GB	21	50.0%	454	140	144	144	147	143	132	138	136	136	138	180	178	183	189	180	DT	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
60 / 61	EEOS	WEOS	1056	0	GB	EC-WW-056	6.7		AP+PS	17/10/18	1219	1224	35	35	PASS	DT
59 / 60	EEOS	WEOS	1126	0	GB	EC-WW-056	6.7		AP+PS	17/10/18	1211	1216	35	35	PASS	DT
58 / 59	NEOS	SEOS	1130	0	TB	EC-WW-050	28.0	DS-12	AP+PS	18/10/18	1128	1133	35	35	PASS	DT
58 / 60	NEOS	SEOS	1140	0	TB	EC-WW-050	26.0		AP+PS	18/10/18	1225	1230	35	35	PASS	DT
58 / 61	NEOS	SEOS	1150	0	TB	EC-WW-050	34.0		AP+PS	18/10/18	1210	1215	35	35	PASS	DT
59 / 62	NEOS	SEOS	1155	0	GB	EC-WW-056	28.0		AP+PS	18/10/18	1120	1125	35	35	PASS	DT
60 / 62	NEOS	SEOS	1205	0	GB	EC-WW-056	26.0		AP+PS	18/10/18	1223	1228	35	35	PASS	DT
61 / 62	NEOS	SEOS	1215	0	GB	EC-WW-056	34.0		AP+PS	18/10/18	1212	1217	35	35	PASS	DT
64 / 65	EEOS	WEOS	1252	0	GB	EC-WW-056	6.7		AP+PS	18/10/18	1815	1820	35	35	PASS	MJ
63 / 64	EEOS	WEOS	1304	0	GB	EC-WW-056	6.7		AP+PS	18/10/18	1259	1304	35	35	PASS	DT
62 / 63	NEOS	SEOS	1514	0	GB	EC-WW-056	43.5		AP+PS	18/10/18	925	930	35	35	PASS	DT
57 / 58	SEOS	NEOS	1515	0	TB	EC-WW-050	30.0		AP+PS	18/10/18	1720	1725	35	35	PASS	DT
56 / 58	SEOS	NEOS	1527	0	TB	EC-WW-050	37.5		AP+PS	18/10/18	1147	1152	35	35	PASS	DT
62 / 64	NEOS	SEOS	1530	0	GB	EC-WW-056	30.0		AP+PS	18/10/18	1825	1830	35	35	PASS	MJ
55 / 58	SEOS	NEOS	1533	0	TB	EC-WW-050	10.0		AP+PS	18/10/18	1129	1134	35	35	PASS	DT
62 / 65	NEOS	SEOS	1540	0	GB	EC-WW-056	8.0		AP+PS	18/10/18	1825	1830	35	35	PASS	MJ
63 / 66	NEOS	SEOS	1600	0	TB	EC-WW-050	43.5		AP+PS	18/10/18	1700	1705	35	35	PASS	DT
67 / 68	EEOS	WEOS	1607	0	GB	EC-WW-056	6.7		AP+PS	18/10/18	1234	1239	35	35	PASS	DT
64 / 66	NEOS	SEOS	1615	0	TB	EC-WW-050	30.0		AP+PS	18/10/18	1815	1820	35	35	PASS	MJ
66 / 67	NEOS	SEOS	1638	0	GB	EC-WW-056	16.5		AP+PS	18/10/18	1102	1107	35	35	PASS	DT
						PAGE TOTAL	458.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 9 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 17/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1415	GB	21	45.0%	454	173	177	163	166	175	159	144	165	158	170	188	191	196	184	190	DT	SM2TEX
8	EC-WW-056	1620	GB	21	40.0%	454	176	188	171	168	176	164	179	170	170	167	205	199	203	203	206	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
66 / 68	NEOS	4J	1645	0	GB	EC-WW-056	1.0		AP+PS	18/10/18	1640	1645	35	35	PASS	DT
66 / 68	4J	4G	1645	0	GB	EC-WW-056	56.5		AP+PS	18/10/18	1640	1645	35	35	PASS	DT
66 / 68	4G	SEOS	1653	0	GB	EC-WW-056	16.0		AP+PS	18/10/18	1639	1644	35	35	PASS	DT
67 / 69	NEOS	SEOS	1710	0	TB	EC-WW-050	16.5		AP+PS	18/10/18	1101	1106	35	35	PASS	DT
68 / 69	NEOS	SEOS	1717	0	TB	EC-WW-050	50.0		AP+PS	18/10/18	1236	1241	35	35	PASS	DT
70 / 70A	NEOS	SEOS	1720	0	GB	EC-WW-056	4.0		AP+PS	18/10/18	1100	1105	35	35	PASS	DT
69 / 70	NEOS	SEOS	1724	0	GB	EC-WW-056	50.0	DS-11	AP+PS	18/10/18	1100	1105	35	35	PASS	DT
69 / 70A	NEOS	SEOS	1735	0	GB	EC-WW-056	3.0		AP+PS	28/10/18	1825	1830	35	35	PASS	MJ
70 / 71	NEOS	SEOS	1740	0	TB	EC-WW-050	40.0		AP+PS	19/10/18	936	941	35	35	PASS	DT
71 / 72	NEOS	SEOS	1755	0	GB	EC-WW-056	30.0		AP+PS	18/10/18	1030	1035	35	35	PASS	DT
72 / 73	NEOS	SEOS	1810	0	TB	EC-WW-050	17.5		AP+PS	19/10/18	937	942	35	35	PASS	DT
73 / 74	NEOS	SEOS	1822	0	GB	EC-WW-056	2.0		AP+PS	28/10/18	1845	1850	35	35	PASS	CM
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PAGE TOTAL							286.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 10 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 18/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	900	TB	21	50.0%	454	161	166	171	170	167	146	150	173	168	173	222	222	213	223	221	DT	SM2SM
2	EC-WW-056	900	GB	21	50.0%	454	162	166	160	167	157	162	167	158	157	145	220	219	219	224	218	DT	SM2SM
3	EC-WW-056	905	GB	21	40.0%	454	242	254	243	243	249	178	180	173	199	181	207	194	190	196	201	DT	TEX2TEX
4	EC-WW-050	1400	TB	21	50.0%	454	153	154	157	152	155	130	128	143	148	151	186	192	193	193	196	DT	SM2SM
5	EC-WW-056	1400	GB	21	50.0%	454	153	154	157	152	155	145	155	143	147	151	189	190	191	187	189	DT	SM2SM
6	EC-WW-056	1405	GB	21	45.0%	454	156	147	162	147	149	140	145	147	148	151	201	203	203	204	195	DT	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
75 / 76	EEOS	WEOS	1041	0	GB	EC-WW-056	7.0		AP+PS	18/10/18	1600	1605	35	35	PASS	DT
76 / 77	EEOS	WEOS	1050	0	TB	EC-WW-050	16.0		AP+PS	18/10/18	1559	1604	35	35	PASS	DT
77 / 78	EEOS	WEOS	1100	0	GB	EC-WW-056	25.0		AP+PS	18/10/18	1609	1614	35	35	PASS	DT
78 / 79	EEOS	WEOS	1140	0	GB	EC-WW-056	32.0		AP+PS	19/10/18	1615	1620	35	35	PASS	DT
80 / 81	NEOS	SEOS	1205	0	GB	EC-WW-056	6.7		AP+PS	18/10/18	1739	1744	35	35	PASS	DT
79 / 81	EEOS	WEOS	1215	0	GB	EC-WW-056	25.5		AP+PS	18/10/18	1732	1737	35	35	PASS	DT
79 / 80	EEOS	WEOS	1225	0	GB	EC-WW-056	14.5	DS-13	AP+PS	18/10/18	1743	1748	35	35	PASS	DT
81 / 82	EEOS	WEOS	1240	0	GB	EC-WW-056	29.5		AP+PS	18/10/18	1733	1738	35	35	PASS	DT
80 / 82	EEOS	WEOS	1250	0	GB	EC-WW-056	14.5		AP+PS	18/10/18	1745	1750	35	35	PASS	DT
83 / 84	EEOS	WEOS	1408	0	TB	EC-WW-050	54.0		AP+PS	18/10/18	1750	1755	35	35	PASS	DT
82 / 83	EEOS	4O	1429	0	GB	EC-WW-056	39.0		AP+PS	18/10/18	1733	1738	35	35	PASS	DT
82 / 83	4O	WEOS	1442	0	GB	EC-WW-056	10.0		AP+PS	18/10/18	1733	1738	35	35	PASS	DT
84 / 85	EEOS	WEOS	1524	0	GB	EC-WW-056	58.0		AP+PS	28/10/18	1805	1810	35	35	PASS	MJ
85 / 86	EEOS	WEOS	1537	0	TB	EC-WW-050	63.0	DS-17 & 16-A	AP+PS	29/10/18	935	940	35	35	PASS	MJ
87 / 88	NEOS	SEOS	1630	0	GB	EC-WW-056	6.7		AP+PS	28/10/18	1840	1845	35	35	PASS	MJ
88 / 89	NEOS	SEOS	1645	0	GB	EC-WW-056	6.7		AP+PS	29/10/18	925	930	35	35	PASS	MJ
86 / 89	EEOS	WEOS	1705	0	TB	EC-WW-050	7.0	DS-18	AP+PS	28/10/18	1835	1840	35	35	PASS	MJ
86 / 88	EEOS	WEOS	1707	0	TB	EC-WW-050	34.5		AP+PS	28/10/18	1835	1840	35	35	PASS	MJ
86 / 87	EEOS	WEOS	1720	0	TB	EC-WW-050	25.0		AP+PS	28/10/18	1835	1840	35	35	PASS	MJ
74 / 75	NEOS	SEOS	1729	21	GB	EC-WW-056	1.0		AP+PS	28/10/18	1745	1750	35	35	PASS	GB
						PAGE TOTAL	475.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 11 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: 80mil Primary
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 18/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1410	GB	21	40.0%	454	176	176	172	173	171	165	168	173	174	169	224	212	218	222	221	DT	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
73 / 75	NEOS	SEOS	1729	21	GB	EC-WW-056	1.0		VB+PS	28/10/18					PASS	GB
90 / 89	EEOS	WEOS	1730	0	TB	EC-WW-050	11.5		AP+PS	29/10/18	925	930	35	35	PASS	MJ
73 / 76	NEOS	SEOS	1731	21	GB	EC-WW-056	4.0		AP+PS	19/10/18	942	947	35	35	PASS	MJ
72 / 77	NEOS	SEOS	1733	21	GB	EC-WW-056	3.0		AP+PS	19/10/18	948	953	35	35	PASS	MJ
72 / 78	NEOS	SEOS	1734	21	GB	EC-WW-056	2.0		AP+PS	19/10/18	946	951	35	35	PASS	MJ
90 / 88	EEOS	WEOS	1735	0	TB	EC-WW-050	34.5		AP+PS	28/10/18	1840	1845	35	35	PASS	MJ
71 / 78	NEOS	SEOS	1735	21	GB	EC-WW-056	2.0		AP+PS	19/10/18	952	957	35	35	PASS	MJ
71 / 79	NEOS	SEOS	1738	21	GB	EC-WW-056	4.0		AP+PS	19/10/18	955	1000	35	35	PASS	MJ
70 / 79	NEOS	SEOS	1739	21	GB	EC-WW-056	2.0		AP+PS	28/10/18	1635	1640	35	35	PASS	MJ
70 / 81	NEOS	SEOS	1742	21	GB	EC-WW-056	4.0		AP+PS	28/10/18	1640	1645	35	35	PASS	MJ
70A / 81	NEOS	SEOS	1744	21	GB	EC-WW-056	3.0		AP+PS	28/10/18	1640	1645	35	35	PASS	MJ
69 / 81	NEOS	SEOS	1744	21	GB	EC-WW-056	1.0		AP+PS	28/10/18	1735	1740	35	35	PASS	MJ
69 / 82	NEOS	5G	1746	21	GB	EC-WW-056	2.0		AP+PS	28/10/18	1740	1745	35	35	PASS	MJ
69 / 82	5G	SEOS	1746	21	GB	EC-WW-056	2.0		AP+PS	28/10/18	1740	1745	35	35	PASS	MJ
68 / 83	NEOS	SEOS	1748	21	GB	EC-WW-056	2.0		AP+PS	29/10/18	940	945	35	35	PASS	MJ
68 / 84	NEOS	SEOS	1749	21	GB	EC-WW-056	1.0		AP+PS	28/10/18	1745	1750	35	35	PASS	MJ
66 / 84	NEOS	SEOS	1749	21	GB	EC-WW-056	3.0		AP+PS	28/10/18	1750	1755	35	35	PASS	MJ
90 / 87	EEOS	WEOS	1750	0	TB	EC-WW-050	25.0		AP+PS	28/10/18	1840	1845	35	35	PASS	MJ
66 / 85	NEOS	SEOS	1751	21	GB	EC-WW-056	1.0		AP+PS	28/10/18	1810	1815	35	35	PASS	MJ
65 / 85	NEOS	SEOS	1751	21	GB	EC-WW-056	2.0		AP+PS	28/10/18	1820	1825	35	35	PASS	MJ
						PAGE TOTAL	110.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: Seam 73/75 in trench

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 12 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 18/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
65	86	NEOS	SEOS	1752	21	GB	EC-WW-056	4.0		AP+PS	28/10/18	1830	1835	35	35	PASS	MJ
62	86	NEOS	SEOS	1752	21	GB	EC-WW-056	1.0		AP+PS	28/10/18	1830	1835	35	35	PASS	MJ
62	89	NEOS	SEOS	1754	21	GB	EC-WW-056	4.0		AP+PS	29/10/18	915	920	35	35	PASS	MJ
61	90	NEOS	SEOS	1758	21	GB	EC-WW-056	4.0		AP+PS	24/11/18	1640	1645	35	35	PASS	EA

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 25/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1245	TB	21	50.0%	454	144	152	147	153	149	139	134	143	152	150	196	198	197	194	201	MJ	SM2SM
2	EC-WW-056	1245	TB	21	40.0%	454	185	180	176	190	189	162	165	171	169	162	215	212	218	216	215	MJ	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
50 / 91	NEOS	SEOS	1402	3	TB	EC-WW-056	35.5		AP+PS	29/10/18	1815	1820	35	35	PASS	MJ
5 / 91	SEOS	NEOS	1530	3	TB	EC-WW-056	3.0		AP+PS	29/11/18	1810	1815	35	35	PASS	MJ
6 / 91	SEOS	NEOS	1531	3	TB	EC-WW-056	8.0		AP+PS	24/11/18	1620	1625	35	35	PASS	EA
7 / 91	SEOS	NEOS	1535	3	TB	EC-WW-056	8.0		AP+PS	26/10/18	1155	1200	35	35	PASS	MJ
8 / 91	SEOS	NEOS	1539	3	TB	EC-WW-056	8.0		AP+PS	29/10/18	1820	1825	35	35	PASS	MJ
9 / 91	SEOS	NEOS	1543	3	TB	EC-WW-056	8.5		AP+PS	29/10/18	1810	1815	35	35	PASS	MJ
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PAGE TOTAL							71.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 14 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 27/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1430	GB	21	50.0%	454	123	117	122	127	12	130	129	131	140	132	186	189	191	187	184	MJ	SM2SM
2	EC-WW-056	1500	GB	21	40.0%	454	168	172	172	160	153	163	181	154	186	174	217	224	214	222	222	MJ	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
90 / 92	WEOS	EEOS	1521	-1	GB	EC-WW-056	62.0		AP+PS	29/10/18	920	925	35	35	PASS	MJ
93 / 94	NEOS	SEOS	1610	-1	GB	EC-WW-056	6.7		AP+PS	3/11/18	1740	1745	35	35	PASS	MJ
95 / 96	SEOS	6D	1623	-1	GB	EC-WW-056	4.7		AP+PS	29/10/18	900	905	35	35	PASS	MJ
95 / 96	6D	SEOS	1624	-1	GB	EC-WW-056	4.7		AP+PS	29/10/18	900	905	35	35	PASS	MJ
96 / 97	NEOS	SEOS	1630	-1	GB	EC-WW-056	6.7		AP+PS	29/10/18	840	845	35	35	PASS	MJ
92 / 93	WEOS	EEOS	1640	-1	GB	EC-WW-056	40.0		AP+PS	29/10/18	910	915	35	35	PASS	MJ
92 / 94	WEOS	EEOS	1640	-1	GB	EC-WW-056	28.5		AP+PS	26/11/18	1410	1415	35	35	PASS	JH
94 / 97	WEOS	EEOS	1720	-1	GB	EC-WW-056	24.0	DS-14	AP+PS	29/10/18	840	845	35	35	PASS	MJ
94 / 96	WEOS	EEOS	1720	-1	GB	EC-WW-056	4.5		AP+PS	29/10/18	845	850	35	35	PASS	MJ
93 / 96	WEOS	EEOS	1720	-1	GB	EC-WW-056	23.0		AP+PS	29/10/18	850	855	35	35	PASS	MJ
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PAGE TOTAL							204.8									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 15 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 29/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1200	GB	21	60.0%	454	143	150	150	165	149	141	139	149	169	154	209	216	221	216	216	MJ	SM2SM
2	EC-WW-050	1200	CM	21	60.0%	454	163	183	186	175	173	167	168	150	157	170	218	222	221	218	224	MJ	SM2SM
3	EC-WW-056	1450	GB	21	45.0%	454	143	132	133	137	132	128	125	130	166	125	184	182	176	188	172	MJ	TEX2TEX
4	EC-WW-050	1545	CM	21	60.0%	454	160	154	162	147	160	155	159	161	152	173	204	211	210	202	197	MJ	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
98 / 99	WEOS	6E	1238	-5	GB	EC-WW-056	71.0		AP+PS	29/11/18	1657	1702	35	35	PASS	RL
98 / 99	6E	EEOS	1301	-5	GB	EC-WW-056	15.0		AP+PS	29/11/18	1657	1702	35	35	PASS	RL
108 / 109	EEOS	WEOS	1317	-5	CM	EC-WW-050	91.0	DS-7	AP+PS	1/11/18	1225	1230	35	35	PASS	DT
99 / 100	WEOS	EEOS	1325	-5	GB	EC-WW-056	86.0	DS-15	AP+PS	24/11/18	1742	1747	35	35	PASS	RL
107 / 108	WEOS	EEOS	1438	-5	CM	EC-WW-050	88.0		AP+PS	1/11/18	1210	1215	35	35	PASS	DT
93 / 95	WEOS	EEOS	1447	-5	GB	EC-WW-056	24.0		AP+PS	30/10/18	850	855	35	35	PASS	MJ
106 / 107	EEOS	WEOS	1516	-5	CM	EC-WW-050	71.0		AP+PS	1/11/18	1205	1210	35	35	PASS	DT
97 / 98	WEOS	EEOS	1517	-5	GB	EC-WW-056	22.5		AP+PS	3/11/18	1700	1705	35	35	PASS	MJ
96 / 98	WEOS	EEOS	1527	-5	GB	EC-WW-056	27.5		AP+PS	3/11/18	1750	1755	35	35	PASS	MJ
104 / 105	EEOS	WEOS	1530	-5	CM	EC-WW-050	40.0	DS-8 & 9	AP+PS	1/11/18	1155	1200	35	35	PASS	DT
105 / 106	WEOS	EEOS	1530	-5	CM	EC-WW-050	55.5	DS-16	AP+PS	1/11/18	1200	1205	35	35	PASS	DT
95 / 98	WEOS	EEOS	1538	-5	GB	EC-WW-056	33.0		AP+PS	24/11/18	1712	1717	35	35	PASS	RL
103 / 104	EEOS	WEOS	1625	-5	CM	EC-WW-050	22.0		AP+PS	1/11/18	1150	1155	35	35	PASS	DT
19 / 91	EEOS	WEOS	1630	-5	DH	EC-EX-035	1.0		VB	29/10/18					PASS	MJ
16 / 91	EEOS	WEOS	1630	-5	DH	EC-EX-035	0.1		VB	29/10/18					PASS	MJ
102 / 103	EEOS	WEOS	1640	-5	CM	EC-WW-050	8.0		AP+PS	1/11/18	1140	1145	35	35	PASS	DT
100 / 101	WEOS	6F	1703	-5	CM	EC-WW-050	15.0		AP+PS	24/11/18	1650	1655	35	35	PASS	RL
101 / 102	WEOS	EEOS	1703	-5	GB	EC-WW-056	8.0		AP+PS	1/11/18	1130	1135	35	35	PASS	DT
101 / 103	WEOS	EEOS	1708	-5	GB	EC-WW-056	15.4		AP+PS	1/11/18	1110	1115	35	35	PASS	DT
100 / 101	6F	6G	1708	-5	CM	EC-WW-050	61.0		AP+PS	24/11/18	1715	1720	35	35	PASS	RL
						PAGE TOTAL	755.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 16 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 29/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
101	104	WEOS	EEOS	1717	-5	GB	EC-WW-056	16.0		AP+PS	1/11/18	1110	1115	35	35	PASS	DT
101	105	WEOS	EEOS	1726	-5	GB	EC-WW-056	16.5		AP+PS	1/11/18	1105	1110	35	35	PASS	DT
100	101	6G	EEOS	1728	-5	CM	EC-WW-050	10.0		AP+PS	24/11/18	1715	1720	35	35	PASS	RL
101	106	WEOS	EEOS	1735	-5	GB	EC-WW-056	16.5		AP+PS	1/11/18	1105	1110	35	35	PASS	DT
101	107	WEOS	EEOS	1745	-5	GB	EC-WW-056	16.5		AP+PS	1/11/18	1100	1105	35	35	PASS	DT
101	108	WEOS	EEOS	1755	-5	GB	EC-WW-056	3.0		AP+PS	24/11/18	1715	1720	35	35	PASS	RL

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 30/10/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1215	MJ	21	50.0%	454	149	138	149	154	151	146	165	159	150	150	216	206	209	202	204	MJ	SM2SM
2	EC-WW-056	1220	MJ	21	40.0%	454	179	157	185	168	188	166	191	183	178	201	249	251	248	250	252	MJ	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
113 / 92	SEOS	NEOS	1235	-4	MJ	EC-WW-056	2.0		AP+PS	24/11/18	1727	1732	35	35	PASS	RL
113 / 93	WEOS	EEOS	1240	-4	MJ	EC-WW-056	2.5		VB+PS	24/11/18					PASS	VF
114 / 115	SEOS	NEOS	1300	-4	MJ	EC-WW-056	3.0		AP+PS	24/11/18	1241	1246	35	35	PASS	RL
115 / 116	SEOS	NEOS	1340	-4	MJ	EC-WW-056	5.0		AP+PS	24/11/18	1237	1242	35	35	PASS	RL
54 / 116	EEOS	WEOS	1430	-4	MJ	EC-WW-056	4.0		AP+PS	23/11/18	1430	1435	35	35	PASS	EA
57 / 116	EEOS	WEOS	1432	-4	MJ	EC-WW-056	3.0		AP+PS	24/11/18	1127	1132	35	35	PASS	EA
57 / 115	EEOS	WEOS	1434	-4	MJ	EC-WW-056	4.0		AP+PS	24/11/18	1249	1254	35	35	PASS	RL
58 / 115	EEOS	WEOS	1436	-4	MJ	EC-WW-056	3.0		VB+PS	23/11/18					PASS	VF
58 / 114	EEOS	WEOS	1438	-4	MJ	EC-WW-056	4.0		AP+PS	24/11/18	1240	1245	35	35	PASS	RL
61 / 114	EEOS	WEOS	1439	-4	MJ	EC-WW-056	3.0		VB+PS	23/11/18					PASS	VF
/																
/																
/																
/																
/																
/																
/																
/																
/																
PAGE TOTAL							33.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 18 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/01/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1350	GB	21	60.0%	454	169	175	165	167	161	166	141	176	152	141	237	228	233	247	240	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
109	110	WEOS	6S	1450	-12	GB	EC-WW-056	12.0		AP+PS	3/11/18	930	935	35	35	PASS	CVM
110	111	WEOS	EEOS	1510	-12	GB	EC-WW-056	89.0		AP+PS	2/11/18	1030	1035	35	35	PASS	CVM
111	112	WEOS	13D	1535	-12	GB	EC-WW-056	10.0		AP+PS	26/11/18	1310	1315	35	35	PASS	VF
111	112	13D	EEOS	1538	-12	GB	EC-WW-056	73.0		AP+PS	26/11/18	1124	1129	35	35	PASS	RL
112	117	EEOS	WEOS	1615	-12	GB	EC-WW-056	84.0		AP+PS	2/11/18	1705	1710	35	35	PASS	CVM
109	110	6S	12Q	1700	-12	GB	EC-WW-056	11.0		AP+PS	25/11/18	1605	1610	35	35	PASS	CM
109	110	12Q	12R	1707	-12	GB	EC-WW-056	4.0		AP+PS	25/11/18	1610	1615	35	35	PASS	CM
109	110	12R	12S	1708	-12	GB	EC-WW-056	6.0		AP+PS	25/11/18	1620	1625	35	35	PASS	CM
109	110	12S	12T	1710	-12	GB	EC-WW-056	4.0		AP+PS	25/11/18	1630	1635	35	35	PASS	CM
109	110	12T	13A	1711	-12	GB	EC-WW-056	4.0		AP+PS	25/11/18	1650	1655	35	35	PASS	CM
109	110	13A	13B	1712	-12	GB	EC-WW-056	4.0		AP+PS	25/11/18	1712	1717	35	35	PASS	CM
109	110	13B	13C	1713	-12	GB	EC-WW-056	2.0		AP+PS	25/11/18	1718	1723	35	35	PASS	CM
109	110	13C	13G	1713	-12	GB	EC-WW-056	10.0		AP+PS	25/11/18	1725	1730	35	35	PASS	CM
109	110	13G	13F	1716	-12	GB	EC-WW-056	10.0		AP+PS	26/11/18	1115	1120	35	35	PASS	RL
109	110	13F	EEOS	1719	-12	GB	EC-WW-056	6.0		AP+PS	26/11/18	1115	1120	35	35	PASS	RL

PAGE TOTAL 329.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH DT & VF
SUPERVISOR Chad Messervey
SUBMISSION DATE 2019/01/31
SHEET NUMBER 19 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1430	TB	21	60.0%	454	114	114	122	106	120	126	121	118	120	116	172	178	180	187	184	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
118	119	SEOS	10S	1430	-8	TB	EC-WW-054	20.0	DS-19 & 18-A	AP+PS	5/11/18	1455	1500	35	35	PASS	DT
118	119	10S	NEOS	1436	-8	TB	EC-WW-054	1.0	DS-19 & 18-A	AP+PS	23/11/18	1455	1500	35	35	PASS	EA
54	118	NEOS	SEOS	1500	-8	TB	EC-WW-054	1.0	DS-24	VB+PS	24/11/18					PASS	VF
53	118	NEOS	SEOS	1502	-8	TB	EC-WW-054	7.0		VB+PS	24/11/18					FAIL	VF
52	118	NEOS	SEOS	1506	-8	TB	EC-WW-054	7.0		VB+PS	24/11/18					FAIL	VF
51	118	NEOS	SEOS	1509	-8	TB	EC-WW-054	6.0		AP+PS	24/11/18					FAIL	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/08/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1410	WP	-10	60.0%	454	127	130	150	139	156	115	151	142	151	139	213	209	210	207	213	DT	SM2SM
2	EC-WW-039	1500	WP	-10	60.0%	454	176	173	167	156	149	146	129	142	151	148	223	202	216	208	202	DT	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
120	121	SEOS	9D	1500	-10	WP	EC-WW-039	25.5	DS-27 & 28	AP+PS	8/11/18	1705	1710	35	35	PASS	VF
120	121	9D	NEOS	1508	-10	WP	EC-WW-039	1.5	DS-27 & 28	AP+PS	23/11/18	1235	1240	35	35	PASS	EA
121	122	SEOS	9C	1600	-10	WP	EC-WW-039	12.0	DS-20 & 21	AP+PS	23/11/18	1220	1225	35	35	PASS	EA
121	122	9C	NEOS	1604	-10	WP	EC-WW-039	26.0	DS-20 & 21	AP+PS	22/11/18	1020	1025	35	35	PASS	DT
122	123	SEOS	7M	1625	-10	WP	EC-WW-039	4.0	DS-29 & 30	AP+PS	23/11/18	1230	1235	35	35	PASS	EA
122	123	7M	7K	1626	-10	WP	EC-WW-039	20.0	DS-29 & 30	AP+PS	23/11/18	1225	1230	35	35	PASS	EA
122	123	7K	NEOS	1632	-10	WP	EC-WW-039	8.0	DS-29 & 30	AP+PS	23/11/18	1228	1233	35	35	PASS	EA
119	124	NEOS	SEOS	1700	-10	WP	EC-WW-039	15.0		AP+PS	9/11/18	1605	1610	35	35	PASS	DT

PAGE TOTAL 112.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 21 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/09/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	945	FC	-9	60.0%	454	182	181	192	190	174	140	164	155	156	144	239	230	248	234	233	DT	SM2SM
2	EC-WW-039	950	FC	-9	50.0%	454	197	201	185	187	203	186	214	164	201	180	236	243	243	230	243	DT	SM2TEX
3	EC-WW-039	1105	FC	-9	60.0%	454	184	200	213	207	199	207	207	212	180	211	272	267	274	263	270	VF	TEX2TEX
4	EC-WW-039	1350	FC	-9	60.0%	454	181	191	190	180	179	178	179	180	180	230	220	250	254	260	249	vf	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
124 / 125	NEOS	SEOS	1050	-9	FC	EC-WW-039	8.0	DS-25	AP+PS	23/11/18	1730	1735	35	35	PASS	EA
118 / 123	EEOS	WEOS	1154	-9	FC	EC-WW-039	1.0		VB	18/11/18					PASS	VF
119 / 123	EEOS	WEOS	1155	-9	FC	EC-WW-039	4.0	DS-33	AP+PS	23/11/18	1710	1715	35	35	PASS	EA
119 / 122	EEOS	WEOS	1156	-9	FC	EC-WW-039	2.0		AP+PS	23/11/18	1720	1725	35	35	PASS	EA
122 / 124	EEOS	WEOS	1157	-9	FC	EC-WW-039	4.0		AP+PS	23/11/18	1735	1740	35	35	PASS	VF
121 / 124	EEOS	WEOS	1159	-9	FC	EC-WW-039	2.0		AP+PS	23/11/18	1722	1727	35	35	PASS	EA
121 / 125	EEOS	WEOS	1200	-9	FC	EC-WW-039	4.0		AP+PS	24/11/18	1730	1735	35	35	PASS	EA
125 / 126	NEOS	SEOS	1208	-9	FC	EC-WW-039	9.0		AP+PS	23/11/18					PASS	EA
121 / 126	NEOS	SEOS	1215	-9	FC	EC-WW-039	5.0		AP+PS	23/11/18					PASS	EA
120 / 126	EEOS	WEOS	1220	-9	FC	EC-WW-039	6.7		AP+PS	24/11/18	1155	1200	35	35	PASS	EA
123 / 127	SEOS	NEOS	1235	-9	FC	EC-WW-039	32.0	2 & 21-A &	AP+PS	9/11/18	1445	1450	35	35	PASS	DT
128 / 129	WEOS	EEOS	1425	-9	FC	EC-WW-039	6.7		AP+PS	22/11/18	1555	1600	35	35	PASS	DT
127 / 128	SEOS	11G	1440	-9	FC	EC-WW-039	2.0	DS-31	AP+PS	23/11/18	1600	1605	35	35	PASS	EA
127 / 128	11G	NEOS	1440	-9	FC	EC-WW-039	27.0	DS-31	AP+PS	23/11/18	1535	1540	35	35	PASS	VF
127 / 129	SEOS	NEOS	1455	-9	FC	EC-WW-039	3.0		AP+PS	23/11/18	1530	1535	35	35	PASS	VF
91 / 129	EEOS	WEOS	1555	-9	CVM	EC-WW-039	0.5		VB+PS	24/11/18					PASS	VF
50 / 129	EEOS	WEOS	1556	-9	CVM	EC-WW-039	4.0		AP+PS	23/11/18	1637	1642	35	35	PASS	EA
50 / 127	EEOS	WEOS	1600	-9	CVM	EC-WW-039	3.0		VB+PS	23/11/18					PASS	VF
51 / 127	EEOS	WEOS	1603	-9	CVM	EC-WW-039	2.5		AP+PS	24/11/18	1637	1642	35	35	PASS	RL
118 / 127	EEOS	WEOS	1607	-9	CVM	EC-WW-039	3.0		AP+PS	24/11/18	1218	1223	35	35	PASS	RL
						PAGE TOTAL	129.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: 125/126 covered by cap strip #1,2 121/126 covered by Cap strip #1,2

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 22 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/09/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
118	CAP 8	EEOS	WEOS	1608	-9	CVM	EC-WW-039	1.5		VB+PS	23/11/18					PASS	VF
116	125	SWEOS	NEEOS	1707	-9	CVM	EC-WW-039	4.5		VB+PS	23/11/18					PASS	VF
116	124	SWEOS	NEEOS	1708	-9	CVM	EC-WW-039	7.0		AP+PS	24/11/18	1630	1635	35	35	PASS	EA
116	119	SWEOS	NEEOS	1712	-9	CVM	EC-WW-039	7.0		AP+PS	23/11/18	1240	1245	35	35	PASS	EA
116	118	SWEOS	NEEOS	1718	-9	CVM	EC-WW-039	4.0		AP+PS	23/11/18	1455	1500	35	35	PASS	EA
98	116	SEOS	NEOS	1740	-9	CVM	EC-WW-039	2.0		AP+PS	23/11/18					FAIL	VF
95	116	SEOS	NEOS	1744	-9	CVM	EC-WW-039	5.0		AP+PS	23/11/18					FAIL	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	900	WP	-12	50.0%	454	206	170	177	176	220	193	209	199	170	199	263	273	250	268	257	VF	TEXT2TEX
2	EC-WW-039	1115	WP	-12	45.0%	454	136	107	143	139	139	171	160	160	153	147	224	208	239	246	221	VF	SM2TEX
3	EC-WW-039	1500	WP	-12	45.0%	454	140	164	155	156	144	127	130	150	139	156	220	250	254	260	249	VF	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
95 / 115	SEOS	NEOS	1003	-12	WP	EC-WW-039	2.0		AP+PS	23/11/18					FAIL	VF
93 / 115	SEOS	NEOS	1004	-12	WP	EC-WW-039	7.0		AP+PS	23/11/18					FAIL	VF
113 / 115	SEOS	NEOS	1010	-12	WP	EC-WW-039	0.2		AP+PS	23/11/18					FAIL	VF
113 / 114	SEOS	NEOS	1010	-12	WP	EC-WW-039	3.0		AP+PS	23/11/18					FAIL	VF
92 / 114	SEOS	NEOS	1012	-12	WP	EC-WW-039	3.5		AP+PS	23/11/18					FAIL	VF
90 / 114	SEOS	NEOS	1014	-12	WP	EC-WW-039	1.5		AP+PS	23/11/18					FAIL	VF
CAP 1 / CAP 2	EEOS	WEOS	1200	-12	WP	EC-WW-039	1.5		VB+PS	10/11/18					PASS	VF
125 / CAP 1	NEOS	SEOS	1205	-12	WP	EC-WW-039	4.0		VB+PS	10/11/18					PASS	VF
125 / CAP 2	NEOS	SEOS	1208	-12	WP	EC-WW-039	1.5		VB+PS	10/11/18					PASS	VF
121 / CAP 2	NEOS	SEOS	1210	-12	WP	EC-WW-039	4.0		VB+PS	10/11/18					PASS	VF
120 / CAP 2	EEOS	WEOS	1212	-12	WP	EC-WW-039	1.5		VB+PS	10/11/18					PASS	VF
126 / CAP 1	SEOS	NEOS	1213	-12	WP	EC-WW-039	4.0		VB+PS	10/11/18					PASS	VF
126 / CAP 2	SEOS	NEOS	1216	-12	WP	EC-WW-039	4.0		VB+PS	10/11/18					PASS	VF
98 / CAP 1	EEOS	WEOS	1300	-12	WP	EC-WW-039	2.5		VB+PS	10/11/18					PASS	VF
98 / 126	EEOS	WEOS	1301	-12	WP	EC-WW-039	2.5		VB+PS	10/11/18					PASS	VF
99 / 126	EEOS	WEOS	1303	-12	WP	EC-WW-039	3.5		VB+PS	10/11/18					PASS	VF
100 / 126	NEOS	SEOS	1410	-12	WP	EC-WW-039	4.5	DS-23	VB+PS	10/11/18					PASS	VF
101 / 120	NEOS	SEOS	1425	-12	WP	EC-WW-039	7.0		AP+PS	10/11/18					FAIL	VF
108 / 120	NEOS	SEOS	1438	-12	WP	EC-WW-039	3.0		AP+PS	10/11/18					FAIL	VF
109 / 120	NEOS	SEOS	1440	-12	WP	EC-WW-039	2.0		AP+PS	10/11/18					FAIL	VF
						PAGE TOTAL	62.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: 95/115 COVERED BY CAP #11 93/115 COVERED BY CAP 11 113/115 COVERED BY CAP 11 113/114 COVERED BY CAP 11 92/114 COVERED

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 24 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/11

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
4 / 128	SEOS	NEOS	1525	-12	WP	EC-WW-039	3.0	DS-26	AP+PS	10/11/18					FAIL	VF
5 / 128	NEOS	SEOS	1545	-12	WP	EC-WW-039	6.7		AP+PS	10/11/18					FAIL	VF
6 / 128	NEOS	SEOS	1547	-12	WP	EC-WW-039	2.0		AP+PS	10/11/18					FAIL	VF
91 / 128	NEOS	SEOS	1548	-12	WP	EC-WW-039	2.0		AP+PS	10/11/18					FAIL	VF
/																
/																
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/																
/																
PAGE TOTAL							13.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS: 4/128 COVERED BY CAP #9 5/128 COVERED BY CAP 9 6/128 COVERED BY CAP 9 91/128 COVERED BY CAP 9

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 25 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 16/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	900	RC	-24	1.7%	454	166	153	133	163	147	147	147	143	145	158	184	192	186	179	185	VF	TEX2TEX
2	XL-3573	1440	RC	-24	1.6%	454	148	147	150	149	156	141	156	147	143	147	180	180	176	173	178	VF	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
123 / CAP 5	SEOS	NEOS	945	-24	RL	XL-3573	6.0	DS-32	AP+PS	18/11/18	1655	1700	35	35	PASS	IK
CAP 5 / CAP 6	EEOS	WEOS	1117	-24	RL	XL-3573	0.8		VB+PS	18/11/18					PASS	DT
CAP 6 / CAP 7	WEOS	EEOS	1119	-24	RL	XL-3573	0.8		VB+PS	18/11/18					PASS	DT
CAP 7 / CAP 8	EEOS	WEOS	1120	-24	RL	XL-3573	0.8		VB+PS	18/11/18					PASS	DT
CAP 4 / CAP 5	WEOS	EEOS	1124	-24	RL	XL-3573	0.8		VB+PS	18/11/18					PASS	DT
CAP 3 / CAP 4	WEOS	EEOS	1126	-24	RL	XL-3573	0.8		VB+PS	18/11/18					PASS	DT
123 / CAP 3	SEOS	NEOS	1202	-24	RL	XL-3573	6.0		AP+PS	23/11/18	1501	1506	35	35	PASS	EA
123 / CAP 4	SEOS	NEOS	1204	-24	RL	XL-3573	2.5		AP+PS	23/11/18	1505	1510	35	35	PASS	VF
123 / CAP 6	SEOS	NEOS	1225	-24	RL	XL-3573	3.5		AP+PS	18/11/18	1650	1655	35	35	PASS	IK
123 / CAP 7	SEOS	NEOS	1227	-24	RL	XL-3573	6.0		AP+PS	23/11/18	1605	1610	35	35	PASS	EA
123 / CAP 8	SEOS	NEOS	1230	-24	RL	XL-3573	6.0		AP+PS	23/11/18	1632	1637	35	35	PASS	RL
127 / CAP 8	NEOS	SEOS	1251	-24	RL	XL-3573	6.0		VB+PS	18/11/18					PASS	DT
127 / CAP 7	NEOS	SEOS	1514	-24	RL	XL-3573	6.0		AP+PS	23/11/18	1605	1610	35	35	PASS	EA
127 / CAP 6	NEOS	SEOS	1516	-24	RL	XL-3573	3.5		AP+PS	18/11/18	1650	1655	35	35	PASS	IK
127 / CAP 5	NEOS	SEOS	1520	-24	RL	XL-3573	6.0		AP+PS	18/11/18	1655	1700	35	35	PASS	IK
127 / CAP 4	NEOS	SEOS	1525	-24	RL	XL-3573	2.5		AP+PS	23/11/18	1506	1511	35	35	PASS	VF
127 / CAP 3	NEOS	SEOS	1528	-24	RL	XL-3573	6.0		AP+PS	23/11/18	1500	1505	35	35	PASS	EA
91 / CAP 9	NEOS	SEOS	1535	-24	RL	XL-3573	5.0		AP+PS	22/11/18	1550	1555	35	35	PASS	DT
6 / CAP 9	NEOS	SEOS	1539	-24	RL	XL-3573	2.0		VB+PS	18/11/18					PASS	VF
5 / CAP 9	NEOS	SEOS	1540	-24	RL	XL-3573	6.7		AP+PS	22/11/18	1355	1400	35	35	PASS	DT
						PAGE TOTAL	77.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 26 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 16/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
128	CAP 9	SEOS	NEOS	1554	-24	RL	XL-3573	9.0		AP+PS	22/11/18	1740	1745	35	35	PASS	DT
129	CAP 9	SEOS	NEOS	1600	-24	RL	XL-3573	3.0		VB+PS	18/11/18					PASS	VF
109	CAP 10	SEOS	NEOS	1645	-24	RL	XL-3573	2.0		AP+PS	21/11/18	1250	1255	35	35	PASS	VF
108	CAP 10	SEOS	NEOS	1655	-24	RL	XL-3573	3.0		AP+PS	21/11/18	1257	1302	35	35	PASS	VF
101	CAP 10	SEOS	NEOS	1700	-24	RL	XL-3573	7.0		AP+PS	21/11/18	1302	1307	35	35	PASS	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 17/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	900	WP	-16	1.9%	454	131	133	136	134	137	138	141	137	141	139	152	155	150	155	150	VF	TEX2TEX
2	XL-3573	1300	WP	-16	1.9%	454	170	170	174	174	172	171	180	164	165	191	239	235	224	230	226	VF	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
CAP 10	120	NEOS	SEOS	955	-16	WP	XL-3573	15.0		AP+PS	21/11/18	1252	1257	35	35	PASS	VF
61	CAP 11	NEOS	SEOS	1215	-16	WP	XL-3573	3.0		VB+PS	18/11/18					PASS	VF
114	CAP 11	NEOS	SEOS	1220	-16	WP	XL-3573	7.5		AP+PS	24/11/18	1637	1642	35	35	PASS	EA
115	CAP 11	NEOS	12M	1225	-16	WP	XL-3573	3.0		AP+PS	24/11/18	1607	1612	35	35	PASS	EA
115	CAP 11	12M	SEOS	1226	-16	WP	XL-3573	4.0		AP+PS	24/11/18	1605	1610	35	35	PASS	EA
116	CAP 11	NEOS	SEOS	1230	-16	WP	XL-3573	12.0	DS-34	AP+PS	23/11/18	1615	1620	35	35	PASS	EA
98	CAP 11	SEOS	NEOS	1255	-16	WP	XL-3573	3.0		AP+PS	23/11/18	1610	1615	35	35	PASS	EA
95	CAP 11	SEOS	NEOS	1258	-16	WP	XL-3573	7.0		AP+PS	23/11/18	1645	1650	35	35	PASS	EA
93	CAP 11	SEOS	NEOS	1305	-16	WP	XL-3573	7.0		AP+PS	24/11/18	1510	1515	35	35	PASS	EA
113	CAP 11	SEOS	NEOS	1310	-16	WP	XL-3573	2.5		AP+PS	24/11/18	1511	1516	35	35	PASS	EA
92	CAP 11	SEOS	NEOS	1314	-16	WP	XL-3573	4.5		AP+PS	24/11/18	1635	1640	35	35	PASS	EA
90	CAP 11	SEOS	NEOS	1319	-16	WP	XL-3573	5.0		AP+PS	24/11/18	1734	1739	35	35	PASS	EA
							PAGE TOTAL	73.5									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 28 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 18/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	855	WP	-6	1.9%	454	162	159	161	156	172	151	161	160	162	164	216	218	209	213	213	VF	TEX2TEX
2	XL-3573	1200	WP	-6	1.9%	454	127	133	137	131	143	146	129	142	151	148	200	206	200	203	210	VF	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
53	CAP 12	NEOS	SEOS	940	-6	WP	XL-3573	2.0		VB+PS	22/11/18					PASS	VF
52	CAP 12	NEOS	SEOS	943	-6	WP	XL-3573	7.0		AP+PS	24/11/18	1221	1226	35	35	PASS	RL
51	CAP 12	NEOS	SEOS	954	-6	WP	XL-3573	5.0		AP+PS	24/11/18	1221	1226	35	35	PASS	RL
118	CAP 12	SEOS	NEOS	1135	-6	WP	XL-3573	14.0	DS-35	AP+PS	24/11/18	1206	1211	35	35	PASS	RL

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 19/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1540	WP	-4	50.0%	454	126	125	134	130	140	129	130	131	124	131	177	170	171	173	170	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
130	131	SEOS	NEOS	1600	-4	WP	EC-WW-056	83.0		AP+PS	22/11/18	1130	1135	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 20/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	940	WP	0	50.0%	454	132	124	135	134	141	134	133	132	140	137	180	185	181	183	182	VF	SM2SM
2	EC-WW-056	1330	WP	0	50.0%	454	133	134	140	133	142	123	127	124	126	127	163	161	163	162	156	VF	SM2SM
3	EC-WW-045	1410	EA	0	55.0%	454	127	133	137	131	143	131	129	136	127	145	165	168	170	169	173	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
131	132	SEOS	NEOS	1020	0	WP	EC-WW-056	80.0	DS-36	AP+PS	22/11/18	1150	1155	35	35	PASS	VF
132	133	SEOS	10A	1400	0	WP	EC-WW-056	66.0		AP+PS	22/11/18	1202	1207	35	35	PASS	DT
132	133	10A	NEOS	1422	0	WP	EC-WW-056	8.0		AP+PS	22/11/18	1200	1205	35	35	PASS	DT
133	134	SEOS	NEOS	1445	0	EA	EC-WW-045	60.0	DS-37	AP+PS	22/11/18	1205	1210	35	35	PASS	DT
133	134	SEOS	NEOS	1505	0	EA	EC-WW-045	8.0	DS-37	AP+PS	22/11/18	1215	1220	35	35	PASS	DT
134	135	SEOS	NEOS	1524	0	EA	EC-WW-045	66.0		AP+PS	22/11/18	1505	1510	35	35	PASS	DT

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 21/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	1015	WP	-2	1.9%	454	168	164	161	157	179	150	173	164	169	161	200	206	200	203	210	VF	TEX2TEX
2	XL-3573	1530	WP	-2	1.9%	454	180	155	163	164	169	171	151	159	145	160	191	195	187	215	208	VF	SM2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
4	130	WEOS	EEOS	1245	-2	WP	XL-3573	1.0		AP+PS	22/11/18	1132	1137	35	35	PASS	DT
3	130	WEOS	EEOS	1246	-2	WP	XL-3573	0.5		AP+PS	22/11/18	1130	1135	35	35	PASS	VF
3	131	WEOS	EEOS	1247	-2	WP	XL-3573	6.7		AP+PS	22/11/18	1135	1140	35	35	PASS	VF
3	132	WEOS	EEOS	1253	-2	WP	XL-3573	6.7		AP+PS	22/11/18	1157	1202	35	35	PASS	DT
3	133	WEOS	EEOS	1258	-2	WP	XL-3573	1.0	DS-38	AP+PS	22/11/18	1210	1215	35	35	PASS	DT
2	133	WEOS	EEOS	1259	-2	WP	XL-3573	5.7		AP+PS	22/11/18	1216	1221	35	35	PASS	DT
2	134	WEOS	EEOS	1304	-2	WP	XL-3573	6.7		AP+PS	22/11/18	1240	1245	35	35	PASS	DT
2	135	WEOS	EEOS	1308	-2	WP	XL-3573	6.7		AP+PS	22/11/18	1245	1250	35	35	PASS	DT
128	130	NEOS	10T	1600	-2	WP	XL-3573	2.0		AP+PS	22/11/18	1535	1540	35	35	PASS	DT
128	130	10T	SEOS	1600	-2	WP	XL-3573	8.0		AP+PS	22/11/18	1530	1535	35	35	PASS	DT
				PAGE TOTAL				45.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 32 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 24/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
93	113	EEOS	WEOS	1655	-10	EA	EC-EX-027	2.5		VB+PS	24/11/18					PASS	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 26/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1455	EA	-6	55.0%	454	128	117	134	133	140	137	132	141	137	145	167	180	177	177	178	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
117	136	WEOS	EEOS	1600	-6	EA	EC-WW-045	80.0	DS-39	AP+PS	26/11/18	1650	1655	35	35	PASS	RL

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 27/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1000	EA	1	55.0%	454	128	131	136	122	133	131	122	120	127	125	155	155	152	155	154	VF	SM2SM
2	EC-WW-045	1400	EA	1	55.0%	454	136	130	133	129	129	128	128	137	133	127	151	154	153	147	151	VF	SM2SM

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
136	137	WEOS	EEOS	1105	1	EA	EC-WW-045	69.5		AP+PS	27/11/18	1145	1150	35	35	PASS	EA
137	138	WEOS	EEOS	1443	1	EA	EC-WW-045	58.0	DS-40	AP+PS	27/11/18	1510	1515	35	35	PASS	RL
138	139	WEOS	EEOS	1635	1	EA	EC-WW-045	48.0		AP+PS	27/11/18	1730	1735	35	35	PASS	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 28/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	930	EA	1	55.0%	454	148	152	148	168	155	177	133	161	157	155	204	194	204	199	199	EA	SM2SM
2	EC-WW-045	1115	EA	1	50.0%	454	168	180	184	167	169	169	158	160	160	152	184	186	184	186	183	VF	TEX2TEX

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
139	140	WEOS	EEOS	954	1	EA	EC-WW-045	41.0		AP+PS	28/11/18	1045	1050	35	35	PASS	EA
140	141	WEOS	EEOS	1059	1	EA	EC-WW-045	30.0		AP+PS	28/11/18	1115	1120	35	35	PASS	EA
142	143	NEOS	SEOS	1130	1	EA	EC-WW-045	6.7	DS-41	AP+PS	28/11/18	1215	1220	35	35	PASS	EA
141	143	WEOS	EEOS	1131	1	EA	EC-WW-045	7.5		AP+PS	28/11/18	1210	1215	35	35	PASS	EA
141	142	WEOS	EEOS	1133	1	EA	EC-WW-045	7.0		AP+PS	28/11/18	1218	1223	35	35	PASS	EA

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 30/11/2018

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1330	WP	-5	55.0%	454	160	147	158	156	162	150	151	142	141	143	185	183	183	182	183	VF	SM2SM
2	XL-3573	1330	DT	-5	7M/MIN%	454	149	145	157	142	150	166	139	144	142	151	179	178	170	179	180	VF	SM2SM

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
144 / 145	SEOS	NEOS	1452	-5	WP	EC-WW-045	80.0		AP+PS	30/11/18	1520	1525	35	35	PASS	EA
145 / 146	NEOS	13N	1505	-5	WP	EC-WW-045	12.0	DS-42	AP+PS	2/12/18	840	845	35	35	PASS	VF
145 / 146	13N	SEOS	1509	-5	WP	EC-WW-045	66.0	DS-42	AP+PS	2/12/18	845	850	35	35	PASS	VF
146 / 147	SEOS	NEOS	1535	-5	DT	XL-3573	74.0		AP+PS	30/11/18	1615	1620	35	35	PASS	EA
147 / 148	NEOS	SEOS	1610	-5	DT	XL-3573	70.0	DS-43	AP+PS	30/11/18	1702	1707	35	35	PASS	EA
148 / 149	NEOS	SEOS	1610	-5	WP	EC-WW-045	64.0		AP+PS	30/11/18	1700	1705	35	35	PASS	EA
150 / 151	NEOS	SEOS	1635	-5	DT	XL-3573	50.0		AP+PS	30/11/18	1725	1730	35	35	PASS	EA
149 / 150	NEOS	SEOS	1640	-5	WP	EC-WW-045	54.0	DS-44	AP+PS	30/11/18	1705	1710	35	35	PASS	EA
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PAGE TOTAL							470.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 37 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER: CT001143 | AREA / LAYER: 80mil Primary
PROJECT TITLE: Victoria Gold HDL Heap Leach Pond | SEAM DATE: 2018/01/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	820	WP	-8	55.0%	454	170	167	166	168	181	161	146	176	149	170	235	225	236	231	240	VF	SM2SM
2	XL-3573	830	DT	-8	2M%	454	158	151	167	159	161	170	145	166	150	163	211	210	216	203	218	VF	SM2SM
3	XL-3573	1130	DT	-8	1.6M%	454	167	154	163	142	158	151	149	167	144	155	201	195	195	203	202	VF	TEXT2TEX
4	XL-3573	1315	DT	-8	1.9%	454	145	164	152	152	143	153	137	158	159	150	168	174	177	176	175	VF	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
151 / 152	NEOS	SEOS	842	-8	DT	XL-3573	46.0		AP+PS	1/12/18	920	925	35	35	PASS	EA
152 / 153	NEOS	SEOS	850	-8	WP	EC-WW-045	40.0		AP+PS	1/12/18	935	940	35	35	PASS	EA
153 / 154	NEOS	SEOS	915	-8	WP	EC-WW-045	36.0		AP+PS	1/12/18	937	942	35	35	PASS	EA
154 / 155	NEOS	SEOS	920	-8	DT	XL-3573	32.0	DS-45	AP+PS	1/12/18	955	1000	35	35	PASS	EA
109 / 144	EEOS	SWEOS	1315	-8	DT	XL-3573	3.0		VB+PS	1/12/18					PASS	VF
110 / 144	EEOS	SWEOS	1318	-8	DT	XL-3573	3.0		AP+PS	2/12/18	830	835	35	35	PASS	VF
110 / 145	EEOS	SWEOS	1320	-8	DT	XL-3573	5.0		AP+PS	2/12/18	832	837	35	35	PASS	VF
111 / 145	EEOS	SWEOS	1327	-8	DT	XL-3573	3.4		AP+PS	2/12/18	840	845	35	35	PASS	VF
111 / 146	EEOS	SWEOS	1331	-8	DT	XL-3573	4.6		AP+PS	2/12/18	840	845	35	35	PASS	VF
112 / 146	EEOS	SWEOS	1335	-8	DT	XL-3573	4.0		AP+PS	2/12/18	848	853	35	35	PASS	VF
112 / 147	EEOS	SWEOS	1338	-8	DT	XL-3573	4.0		AP+PS	2/12/18	848	853	35	35	PASS	VF
117 / 147	EEOS	SWEOS	1343	-8	DT	XL-3573	6.3		AP+PS	2/12/18	850	855	35	35	PASS	VF
117 / 148	EEOS	SWEOS	1345	-8	DT	XL-3573	0.5		VB+PS	2/12/18					PASS	VF
136 / 148	EEOS	SWEOS	1345	-8	DT	XL-3573	6.9		AP+PS	2/12/18	900	905	35	35	PASS	VF
136 / 149	EEOS	SWEOS	1351	-8	DT	XL-3573	2.0		AP+PS	2/12/18	900	905	35	35	PASS	VF
137 / 149	EEOS	SWEOS	1352	-8	DT	XL-3573	6.0		AP+PS	2/12/18	1209	1214	35	35	PASS	IK
137 / 150	EEOS	SWEOS	1355	-8	DT	XL-3573	2.8		AP+PS	2/12/18	910	915	35	35	PASS	VF
138 / 150	EEOS	SWEOS	1357	-8	DT	XL-3573	5.0	DS-46	AP+PS	2/12/18	910	915	35	35	PASS	VF
138 / 151	EEOS	SWEOS	1359	-8	DT	XL-3573	4.4		AP+PS	2/12/18	1235	1240	35	35	PASS	IK
139 / 151	EEOS	SWEOS	1401	-8	DT	XL-3573	3.8		AP+PS	2/12/18	915	920	35	35	PASS	VF
						PAGE TOTAL	218.7									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 38 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/01/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
139	152	EEOS	SWEOS	1403	-8	DT	XL-3573	4.6		AP+PS	2/12/18	917	922	35	35	PASS	VF
140	152	EEOS	SWEOS	1405	-8	DT	XL-3573	3.7		AP+PS	2/12/18	930	935	35	35	PASS	VF
140	153	EEOS	SWEOS	1407	-8	DT	XL-3573	5.0		AP+PS	2/12/18	1255	1300	35	35	PASS	IK
141	153	EEOS	SWEOS	1409	-8	DT	XL-3573	2.0		AP+PS	2/12/18	937	942	35	35	PASS	VF
141	154	EEOS	SWEOS	1412	-8	DT	XL-3573	6.8		AP+PS	2/12/18	939	944	35	35	PASS	VF
141	155	EEOS	SWEOS	1413	-8	DT	XL-3573	1.3		VB+PS	2/12/18					PASS	VF
142	155	EEOS	SWEOS	1414	-8	DT	XL-3573	4.7		AP+PS	2/12/18	945	950	35	35	PASS	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/03/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1230	WP	-18	55.0%	454	162	144	156	150	148	161	147	154	151	154	188	186	184	182	183	VF	SM2SM
2	XL-3573	1330	DT	-18	2.2%	454	169	171	176	142	161	153	148	155	147	152	185	192	189	183	188	VF	SM2SM
3	XL-3573	1335	DT	-18	2.2%	454	177	165	178	178	173	170	171	172	162	166	212	208	211	212	210	VF	TEX2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
156 / 157	SEOS	15G	1345	-18	DT	XL-3573	7.5		AP+PS	4/12/18	1420	1425	35	35	PASS	EA
156 / 157	15G	NEOS	1347	-18	DT	XL-3573	8.0		AP+PS	4/12/18	1425	1430	35	35	PASS	EA
144 / 156	SEOS	NEOS	1350	-18	WP	EC-WW-045	15.5		AP+PS	3/12/18	1542	1547	35	35	PASS	VF
157 / 158	SEOS	NEOS	1356	-18	DT	XL-3573	15.5		AP+PS	4/12/18	942	947	35	35	PASS	VF
158 / 159	NEOS	SEOS	1410	-18	WP	EC-WW-045	15.5	DS-47	AP+PS	4/12/18	952	957	35	35	PASS	VF
159 / 160	SEOS	NEOS	1505	-18	WP	EC-WW-045	15.5		AP+PS	4/12/18	1100	1105	35	35	PASS	VF
160 / 161	SEOS	NEOS	1510	-18	DT	XL-3573	15.5		AP+PS	4/12/18	1250	1255	35	35	PASS	CM
130 / 161	NEOS	SEOS	1526	-18	WP	EC-WW-045	15.5		AP+PS	4/12/18	1255	1300	35	35	PASS	CM
120 / 156	WEOS	EEOS	1610	-18	DT	XL-3573	6.0		AP+PS	4/12/18	1355	1400	35	35	PASS	CM
121 / 156	WEOS	EEOS	1611	-18	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
121 / 157	WEOS	15D	1611	-18	DT	XL-3573	2.0		AP+PS	4/12/18	1405	1410	35	35	PASS	CM
121 / 157	15D	EEOS	1611	-18	DT	XL-3573	4.0		AP+PS	4/12/18	1410	1415	35	35	PASS	CM
122 / 157	WEOS	EEOS	1614	-18	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
122 / 158	WEOS	EEOS	1614	-18	DT	XL-3573	6.0		AP+PS	4/12/18	944	949	35	35	PASS	VF
123 / 158	WEOS	EEOS	1618	-18	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
123 / 159	WEOS	EEOS	1618	-18	DT	XL-3573	6.0		AP+PS	4/12/18	1200	1205	35	35	PASS	CM
127 / 159	WEOS	EEOS	1623	-18	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
127 / 160	WEOS	EEOS	1623	-18	DT	XL-3573	4.0		AP+PS	4/12/18	1245	1250	35	35	PASS	CM
127 / 161	WEOS	EEOS	1626	-18	DT	XL-3573	0.5		VB+PS	4/12/18					PASS	VF
128 / 161	WEOS	EEOS	1626	-18	DT	XL-3573	4.0		VB+PS	4/12/18					PASS	VF
						PAGE TOTAL	143.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 40 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1215	WP	-18	50.0%	454	160	154	159	163	152	165	152	156	164	164	193	191	192	192	192	VF	SM2SM
2	XL-3573	1230	DT	-18	2.2%	454	165	184	166	166	161	178	178	158	163	187	206	202	200	204	204	VF	TEXT2TEX
3	XL-3573	1425	DT	-18	2.2%	454	137	134	136	136	138	139	138	141	120	135	163	156	163	164	165	VF	SM2SM
4	XL-3573	1515	DT	-18	2.2%	454	133	133	132	130	131	147	150	146	136	133	160	159	161	162	170	VF	SM2TEX

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
162 / 164	NWEOS	SEEOS	1305	-18	WP	EC-WW-039	14.0		AP+PS	6/12/18	1636	1641	35	35	PASS	VF
164 / 165	SWEOS	NEEOS	1305	-18	DT	XL-3573	6.7		AP+PS	5/12/18	1636	1641	35	35	PASS	VF
162 / 165	NWEOS	SEEOS	1312	-18	WP	EC-WW-039	20.5		AP+PS	5/12/18	1641	1646	35	35	PASS	VF
162 / 163	SWEOS	NEEOS	1315	-18	DT	XL-3573	6.7		AP+PS	5/12/18	1641	1646	35	35	PASS	VF
163 / 165	NWEOS	SEEOS	1322	-18	WP	EC-WW-039	2.5		AP+PS	5/12/18	1641	1646	35	35	PASS	VF
166 / 167	SWEOS	NEEOS	1327	-18	DT	XL-3573	6.7		AP+PS	5/12/18	1645	1650	35	35	PASS	VF
164 / 166	NWEOS	SEEOS	1330	-18	WP	EC-WW-039	14.0		AP+PS	5/12/18	1646	1651	35	35	PASS	VF
165 / 166	NWEOS	SEEOS	1340	-18	WP	EC-WW-039	11.5		AP+PS	5/12/18	1646	1651	35	35	PASS	VF
165 / 167	NWEOS	SEEOS	1340	-18	WP	EC-WW-039	7.0		AP+PS	5/12/18	1646	1651	35	35	PASS	VF
166 / 168	NWEOS	SEEOS	1350	-18	WP	EC-WW-039	25.5		AP+PS	5/12/18	1645	1650	35	35	PASS	VF
168 / 169	SWEOS	NEEOS	1351	-18	DT	XL-3573	6.7		AP+PS	5/12/18	1648	1653	35	35	PASS	VF
170 / 171	SWEOS	NEEOS	1400	-18	DT	XL-3573	6.7		AP+PS	5/12/18	1655	1700	35	35	PASS	VF
167 / 168	NWEOS	SEEOS	1400	-18	WP	EC-WW-039	4.5		AP+PS	5/12/18	1651	1656	35	35	PASS	VF
167 / 169	NWEOS	SEEOS	1402	-18	WP	EC-WW-039	2.5	DS-48	AP+PS	5/12/18	1651	1656	35	35	PASS	VF
168 / 170	NWEOS	SEEOS	1410	-18	WP	EC-WW-039	15.0		AP+PS	5/12/18	1655	1700	35	35	PASS	VF
168 / 171	NWEOS	SEEOS	1418	-18	WP	EC-WW-039	13.0		AP+PS	5/12/18	1652	1657	35	35	PASS	VF
169 / 171	NWEOS	SEEOS	1418	-18	WP	EC-WW-039	2.5		AP+PS	5/12/18	1655	1700	35	35	PASS	VF
172 / 173	NEOS	SEOS	1523	-18	WP	EC-WW-039	24.5		AP+PS	5/12/18	1700	1705	35	35	PASS	VF
173 / 174	NEOS	SEOS	1537	-18	WP	EC-WW-039	23.0	3-B & 48-C &	AP+PS	5/12/18	1705	1710	35	35	PASS	VF
155 / 172	NWEOS	SEEOS	1555	-18	DT	XL-3573	26.0		AP+PS	5/12/18	1710	1715	35	35	PASS	VF
						PAGE TOTAL	239.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 41 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
174 / 175	NEOS	SEOS	1555	-18	WP	EC-WW-039	21.5	DS-49 & 48-A	AP+PS	5/12/18	1715	1720	35	35	PASS	VF
175 / 176	NEOS	SEOS	1607	-18	WP	EC-WW-039	20.0	DS-51	AP+PS	5/12/18	1720	1725	35	35	PASS	VF
176 / 177	NEOS	SEOS	1615	-18	DT	XL-3573	19.0	DS-52	AP+PS	5/12/18	1725	1730	35	35	PASS	VF
143 / 162	SEEOS	NWEOS	1627	-18	DT	XL-3573	5.0		AP+PS	5/12/18	1730	1735	35	35	PASS	VF
141 / 162	SEEOS	NWEOS	1630	-18	DT	XL-3573	7.0		AP+PS	5/12/18	1735	1740	35	35	PASS	VF
140 / 162	SEEOS	NWEOS	1633	-18	DT	XL-3573	7.0		AP+PS	5/12/18	1718	1723	35	35	PASS	VF
139 / 162	SEEOS	NWEOS	1636	-18	DT	XL-3573	7.0	DS-49-A	AP+PS	5/12/18	1710	1715	35	35	PASS	VF
138 / 162	SEEOS	NWEOS	1639	-18	DT	XL-3573	2.5	DS-50	AP+PS	5/12/18	1710	1715	35	35	PASS	VF
171 / 177	SWEOS	NEEOS	1648	-18	DT	XL-3573	5.0		AP+PS	6/12/18	900	905	35	35	PASS	VF
171 / 176	SWEOS	NEEOS	1652	-18	DT	XL-3573	2.0		AP+PS	6/12/18	905	910	35	35	PASS	VF
169 / 176	SWEOS	NEEOS	1654	-18	DT	XL-3573	5.0		AP+PS	6/12/18	910	915	35	35	PASS	VF
169 / 175	SWEOS	NEEOS	1658	-18	DT	XL-3573	2.0		AP+PS	6/12/18	915	920	35	35	PASS	VF
167 / 175	SWEOS	NEEOS	1700	-18	DT	XL-3573	5.0		AP+PS	6/12/18	920	925	35	35	PASS	VF
167 / 174	SWEOS	NEEOS	1702	-18	DT	XL-3573	2.0		AP+PS	6/12/18	925	930	35	35	PASS	VF
165 / 174	SWEOS	NEEOS	1704	-18	DT	XL-3573	5.0		AP+PS	6/12/18	930	935	35	35	PASS	VF
165 / 173	SWEOS	NEEOS	1706	-18	DT	XL-3573	2.0		AP+PS	6/12/18	935	940	35	35	PASS	VF
163 / 173	SWEOS	NEEOS	1708	-18	DT	XL-3573	5.0		AP+PS	6/12/18	940	945	35	35	PASS	VF
163 / 172	SWEOS	NEEOS	1710	-18	DT	XL-3573	2.0		AP+PS	6/12/18	945	950	35	35	PASS	VF
142 / 172	NEEOS	SWEOS	1712	-18	DT	XL-3573	4.0	DS-49-B	AP+PS	6/12/18	950	955	35	35	PASS	VF
143 / 172	NEEOS	SWEOS	1714	-18	DT	XL-3573	3.0		AP+PS	6/12/18	955	1000	35	35	PASS	VF
						PAGE TOTAL	131.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 42 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/05/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
163	172	NWEOS	SEEOS	1717	-18	DT	XL-3573	4.0		VB+PS	6/12/18	1000	1005	35	25	FAIL	VF

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3573	1030	DT	0	2.2%	454	181	185	169	171	155	177	149	167	169	170	200	189	200	194	195	CM	TEX/TEX
2	XL-3407	1115	WP	0	2.2%	454	143	152	161	155	141	152	153	148	146	144	172	171	171	170	175	CM	
3	XL-3407	1120	WP	0	2.2%	454	176	170	159	166	159	171	180	157	160	163	197	192	202	193	197	CM	TEX/TEX
4	XL-3573	1145	DT	0	2.2%	454	142	154	128	140	149	142	149	132	150	137	164	158	164	155	161	CM	
5	XL-3573	1400	DT	0	2.2%	454	150	150	158	148	154	143	145	151	149	141	169	169	151	164	164	CM	TEX/SM
6	XL-3407	1500	WP	0	2.2%	454	176	168	170	165	171	145	150	142	132	152	198	198	193	192	198	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
178 / 179	WEOS	EEOS	1145	-2	WP	XL-3407	33.1		AP+PS	10/12/18	1235	1240	40	40	PASS	CM
179 / 180	WEOS	EEOS	1215	-2	WP	XL-3407	32.7		AP+PS	10/12/18	1240	1245	40	40	PASS	CM
180 / 181	WEOS	EEOS	1217	-2	DT	XL-3573	27.3	DS-54	AP+PS	10/12/18	1255	1300	40	40	PASS	CM
183 / 184	NEOS	SEOS	1252	-2	DT	XL-3573	6.7		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
170 / 178	WEOS	EEOS	1255	-2	WP	XL-3407	16.0		AP+PS	10/12/18	1600	1605	35	35	PASS	CM
171 / 178	WEOS	EEOS	1305	-2	WP	XL-3407	17.6		AP+PS	10/12/18	1605	1610	35	35	PASS	CM
182 / 183	NEOS	SEOS	1310	-2	DT	XL-3573	6.7		AP+PS	10/12/18	1715	1720	40	40	PASS	CM
185 / 186	WEOS	SEOS	1320	-2	DT	XL-3573	19.7		AP+PS	10/12/18	1330	1335	40	40	PASS	CM
181 / 182	WEOS	SEOS	1321	-2	DT	XL-3573	4.4		AP+PS	10/12/18	1610	1615	40	40	PASS	CM
181 / 183	WEOS	SEOS	1326	-2	DT	XL-3573	8.8		AP+PS	10/12/18	1610	1615	40	40	PASS	CM
181 / 184	WEOS	SEOS	1334	-2	DT	XL-3573	9.7		AP+PS	10/12/18	1615	1620	40	40	PASS	CM
187 / 188	WEOS	SEOS	1340	-2	WP	XL-3407	19.0		AP+PS	10/12/18	1400	1405	40	40	PASS	CM
189 / 190	WEOS	SEOS	1355	-2	WP	XL-3407	20.0	DS-55	AP+PS	10/12/18	1610	1615	40	40	PASS	CM
190 / 191	WEOS	SEOS	1410	-2	WP	XL-3407	20.0		AP+PS	11/12/18	1410	1415	40	40	PASS	CM
186 / 187	WEOS	SEOS	1413	-2	WP	XL-3407	20.0		AP+PS	10/12/18	1745	1750	40	40	PASS	CM
188 / 189	WEOS	SEOS	1430	-2	WP	XL-3407	20.0		AP+PS	10/12/18	1445	1450	40	40	PASS	CM
192 / 193	NEOS	SEOS	1520	-2	WP	XL-3407	12.4		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
193 / 194	NEOS	SEOS	1530	-2	WP	XL-3407	19.5		AP+PS	10/12/18	1715	1720	40	40	PASS	CM
196 / 197	NEOS	SEOS	1625	-2	WP	XL-3407	12.0		AP+PS	10/12/18	1630	1635	40	40	PASS	CM
182 / 195	WEOS	EEOS	1633	-2	DT	XL-3573	6.7		AP+PS	10/12/18	1715	1720	40	40	PASS	CM
						PAGE TOTAL	332.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 44 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/10/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	XL-3573	1600	DT	0	2.2%	454	145	150	142	132	152	137	148	147	154	149	176	178	175	176	174	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
183 / 195	WEOS	EEOS	1636	-2	DT	XL-3573	1.0		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
183 / 194	WEOS	EEOS	1638	-2	DT	XL-3573	67.0		AP+PS	10/12/18	1730	1735	40	40	PASS	CM
183 / 193	WEOS	EEOS	1643	-2	DT	XL-3573	1.0		VB+PS	10/12/18					PASS	CM
184 / 191	WEOS	EEOS	1643	-2	DT	XL-3573	9.1		AP+PS	10/12/18	1730	1735	40	40	PASS	CM
194 / 195	NEOS	SEOS	1645	-2	WP	XL-3407	19.5		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
194 / 191	WEOS	EEOS	1645	-2	DT	XL-3573	6.9		AP+PS	10/12/18	1730	1735	40	40	PASS	CM
194 / 190	NEOS	SEOS	1649	-2	DT	XL-3573	3.0		AP+PS	10/12/18	1740	1745	40	40	PASS	CM
195 / 196	NEOS	SEOS	1650	-2	WP	XL-3407	19.6		AP+PS	11/12/18	1635	1640	40	40	PASS	CM
184 / 189	NEOS	SEOS	1653	-2	DT	XL-3573	3.9		AP+PS	10/12/18	1740	1745	40	40	PASS	CM
181 / 189	NEOS	SEOS	1656	-2	DT	XL-3573	1.0		AP+PS	10/12/18	1745	1750	40	40	PASS	CM
181 / 188	NEOS	SEOS	1658	-2	DT	XL-3573	5.9		AP+PS	10/12/18	1745	1750	40	40	PASS	CM
180 / 188	NEOS	SEOS	1701	-2	DT	XL-3573	1.0		VB+PS	10/12/18					PASS	CM
180 / 187	NEOS	SEOS	1703	-2	DT	XL-3573	6.9		AP+PS	10/12/18	1750	1755	40	40	PASS	CM
180 / 186	NEOS	SEOS	1705	-2	DT	XL-3573	6.9		AP+PS	10/12/18	1750	1755	40	40	PASS	CM
191 / 193	NEOS	SEOS	1707	-2	DT	XL-3573	9.9		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
179 / 185	NEOS	SEOS	1707	-2	DT	XL-3573	6.9		AP+PS	10/12/18	1750	1755	40	40	PASS	CM
185 / 178	NEOS	SEOS	1707	-2	DT	XL-3573	6.9		VB+PS	10/12/18					PASS	CM
191 / 192	NEOS	SEOS	1710	-2	DT	XL-3573	9.9		AP+PS	10/12/18	1720	1725	40	40	PASS	CM
177 / 185	WEOS	SEOS	1717	-2	WP	XL-3407	19.7		AP+PS	10/12/18	1750	1755	40	40	PASS	CM
/																

PAGE TOTAL 206.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 45 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/12/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	900	WP	-14	2.2%	454	145	133	138	140	143	151	130	136	122	134	179	175	170	176	165	CM	
2	XL-3573	920	DT	-14	2.2%	454	153	147	163	153	148	185	157	146	148	146	179	165	174	171	169	CM	
3	XL-3573	1130	DT	-14	2.2%	454	187	188	196	160	169	176	168	170	165	171	209	220	200	214	215	CM	TX/TX
4	XL-3573	1315	DT	-14	2.2%	454	162	152	162	156	173	150	163	161	161	160	201	192	193	196	191	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
198 / 199	SEOS	NEOS	920	-14	WP	XL-3407	26.0	DS-56	AP+PS	12/12/18	1115	1120	40	40	PASS	CM
200 / 201	SEOS	NEOS	940	-14	DT	XL-3573	26.0		AP+PS	12/12/18	1110	1115	40	40	PASS	CM
199 / 200	SEOS	NEOS	945	-14	WP	XL-3407	26.0		AP+PS	12/12/18	1110	1115	40	40	PASS	CM
201 / 202	SEOS	NEOS	1000	-14	DT	XL-3573	26.0		AP+PS	12/12/18	1110	1115	40	40	PASS	CM
203 / 204	SEOS	NEOS	1010	-14	WP	XL-3407	26.0		AP+PS	12/12/18	1125	1130	40	40	PASS	CM
202 / 203	SEOS	NEOS	1030	-14	DT	XL-3573	26.0		AP+PS	12/12/18	1120	1125	40	40	PASS	CM
204 / 205	SEOS	NEOS	1035	-14	WP	XL-3407	26.0		AP+PS	12/12/18	1140	1145	40	40	PASS	CM
205 / 206	SEOS	NEOS	1100	-14	WP	XL-3407	25.0		AP+PS	12/12/18	1125	1130	40	40	PASS	CM
206 / 207	SEOS	NEOS	1130	-2	WP	XL-3407	25.0		AP+PS	12/12/18	1400	1405	40	40	PASS	CM
207 / 208	SEOS	NEOS	1150	-2	DT	XL-3573	25.0		AP+PS	12/12/18	1400	1405	40	40	PASS	CM
207 / 208	SEOS	NEOS	1150	-2	WP	XL-3407	22.0		AP+PS	13/12/18	1145	1150	40	40	PASS	CM
207 / 208	SEOS	NEOS	1155	-2	WP	XL-3407	22.0		AP+PS	13/12/18	1150	1155	40	40	PASS	CM
208 / 209	SEOS	NEOS	1200	-2	DT	XL-3407	20.0		AP+PS	12/12/18	1405	1410	40	40	PASS	CM
209 / 210	SEOS	NEOS	1235	-2	DT	XL-3407	12.0		AP+PS	12/12/18	1405	1410	40	40	PASS	CM
197 / 209	EEOS	WEOS	1354	-2	DT	XL-3573	3.0		AP+PS	13/12/18	1135	1140	40	40	PASS	CM
209 / 210	SEOS	NEOS	1356	-2	DT	XL-3573	6.0		AP+PS	13/12/18	1140	1145	40	40	PASS	CM
196 / 209	EEOS	WEOS	1358	-2	DT	XL-3573	6.0		AP+PS	13/12/18	1100	1105	40	40	PASS	CM
208 / 209	EEOS	WEOS	1358	-2	DT	XL-3573	18.0		AP+PS	13/12/18	1130	1135	40	40	PASS	CM
198 / 162	EEOS	WEOS	1422	-2	DT	XL-3573	5.9	DS-57	AP+PS	13/12/18	1000	1005	40	40	PASS	CM
199 / 162	EEOS	WEOS	1430	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1000	1005	40	40	PASS	CM
						PAGE TOTAL	375.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 46 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 2018/12/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
199 / 164	EEOS	WEOS	1431	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1005	1010	40	40	PASS	CM
200 / 164	EEOS	WEOS	1433	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1010	1015	40	40	PASS	CM
200 / 166	EEOS	WEOS	1434	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1010	1015	40	40	PASS	CM
201 / 166	EEOS	WEOS	1435	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1015	1020	40	40	PASS	CM
201 / 168	EEOS	WEOS	1436	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1015	1020	40	40	PASS	CM
202 / 168	EEOS	WEOS	1440	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1020	1025	40	40	PASS	CM
202 / 170	EEOS	WEOS	1441	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1020	1025	40	40	PASS	CM
203 / 170	EEOS	WEOS	1442	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1025	1030	40	40	PASS	CM
203 / 178	EEOS	WEOS	1445	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1025	1030	40	40	PASS	CM
204 / 178	EEOS	WEOS	1446	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1030	1035	40	40	PASS	CM
204 / 179	EEOS	WEOS	1447	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1030	1035	40	40	PASS	CM
205 / 179	EEOS	WEOS	1450	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1035	1040	40	40	PASS	CM
205 / 180	EEOS	WEOS	1453	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1035	1040	40	40	PASS	CM
206 / 180	EEOS	WEOS	1454	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1040	1045	40	40	PASS	CM
207 / 181	EEOS	WEOS	1456	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1040	1045	40	40	PASS	CM
207 / 182	EEOS	WEOS	1457	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1050	1055	40	40	PASS	CM
208 / 182	EEOS	WEOS	1500	-2	DT	XL-3573	3.4		AP+PS	13/12/18	1055	1100	40	40	PASS	CM
195 / 182	NEOS	SEOS	1501	-2	DT	XL-3573	4.0		AP+PS	13/12/18	1055	1100	40	40	PASS	CM
195 / 208	EEOS	WEOS	1503	-2	DT	XL-3573	4.0		AP+PS	13/12/18	1100	1105	40	40	PASS	CM
/																
						PAGE TOTAL	65.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 47 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 19/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	1600	WP	-22	2.3%	454	156	152	150	160	143	162	145	159	148	145	193	194	192	189	181	CM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
211	135	NEOS	SEOS	1630	-21	WP	XL-3407	62.0		AP+PS	21/1/19	935	940	40	40	PASS	CM
211	212	NEOS	SEOS	1715	-21	WP	XL-3407	61.0		AP+PS	21/1/19	935	940	40	40	PASS	CM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 20/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	845	WP	-25	2.3%	454	155	154	166	161	158	158	159	152	149	160	198	194	196	193	199	CM	
2	XL-3407	1425	WP	-22	2.3%	454	172	170	160	162	156	165	168	165	152	154	194	185	191	184	190	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
212 / 213	NEOS	SEOS	907	-21	WP	XL-3407	58.0		AP+PS	21/1/19	1355	1400	40	40	PASS	CM
213 / 214	NEOS	SEOS	1057	-21	WP	XL-3407	46.0		AP+PS	21/1/19	1340	1345	40	40	PASS	CM
214 / 215	NEOS	SEOS	1135	-21	WP	XL-3407	44.0		AP+PS	21/1/19	1340	1345	40	40	PASS	CM
215 / 216	NEOS	SEOS	1205	-21	WP	XL-3407	41.0		AP+PS	21/1/19	1347	1352	40	40	PASS	CM
216 / 217	NEOS	SEOS	1233	-21	WP	XL-3407	39.0		AP+PS	21/1/19	1347	1352	40	40	PASS	CM
217 / 218	NEOS	SEOS	1445	-21	WP	XL-3407	38.0		AP+PS	21/1/19	1530	1535	40	40	PASS	CM
218 / 219	NEOS	SEOS	1515	-21	WP	XL-3407	36.5		AP+PS	21/1/19	1540	1545	40	40	PASS	CM
219 / 220	NEOS	SEOS	1538	-21	WP	XL-3407	35.0		AP+PS	21/1/19	1600	1605	40	40	PASS	CM
220 / 221	NEOS	SEOS	1604	-21	WP	XL-3407	33.7		AP+PS	21/1/19	1625	1630	40	40	PASS	CM
/																
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/																
PAGE TOTAL							371.2									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 49 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 21/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	XL-3407	940	WP	-19	2.3%	454	144	145	147	146	150	148	147	146	137	146	198	198	193	192	198	CM	
2	EC-WW-045	1230	GB	-19	2.2%	454	137	147	164	143	160	136	137	147	136	142	184	178	186	170	179	CM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
221 / 222	NEOS	SEOS	955	-19	WP	XL-3407	33.0		AP+PS	21/1/19	1040	1045	40	40	PASS	CM
222 / 223	NEOS	SEOS	1020	-19	WP	XL-3407	31.0		AP+PS	21/1/19	1045	1050	40	40	PASS	CM
223 / 224	NEOS	SEOS	1050	-19	WP	XL-3407	29.0		AP+PS	21/1/19	1135	1140	40	40	PASS	CM
224 / 225	NEOS	SEOS	1115	-19	WP	XL-3407	26.0		AP+PS	23/1/19	1140	1145	40	40	PASS	CM
225 / 226	NEOS	SEOS	1142	-19	WP	XL-3407	23.7		AP+PS	23/1/19	1200	1205	40	40	PASS	CM
43 / 224	EEOS	WEOS	1240	-20	GB	EC-WW-045	3.0		VB+PS	24/1/19	935	940	40	40	PASS	CM
43 / 223	EEOS	WEOS	1242	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	930	935	40	40	PASS	CM
43 / 222	EEOS	WEOS	1245	-20	GB	EC-WW-045	3.0		VB+PS	24/1/19	930	935	40	40	PASS	CM
42 / 222	EEOS	WEOS	1248	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	925	930	40	40	PASS	CM
42 / 221	EEOS	WEOS	1250	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	925	930	40	40	PASS	CM
42 / 220	EEOS	WEOS	1253	-20	GB	EC-WW-045	4.0		VB+PS	24/1/19	920	925	40	40	PASS	CM
41 / 220	EEOS	WEOS	1255	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	920	925	40	40	PASS	CM
41 / 219	EEOS	WEOS	1258	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	915	920	40	40	PASS	CM
41 / 218	EEOS	WEOS	1301	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	915	920	40	40	PASS	CM
41 / 217	EEOS	WEOS	1304	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	910	915	40	40	PASS	CM
39 / 216	EEOS	WEOS	1307	-20	GB	EC-WW-045	3.0		VB+PS	24/1/19	910	915	40	40	PASS	CM
39 / 215	EEOS	WEOS	1309	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	905	910	40	40	PASS	CM
39 / 214	EEOS	WEOS	1312	-20	GB	EC-WW-045	3.0		VB+PS	24/1/19	905	910	40	40	PASS	CM
38 / 214	EEOS	WEOS	1315	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	900	905	40	40	PASS	CM
38 / 213	EEOS	WEOS	1317	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	900	905	40	40	PASS	CM
						PAGE TOTAL	194.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 50 of 51

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER 80mil Primary
PROJECT TITLE Victoria Gold HDL Heap Leach Pond | SEAM DATE 23/01/2019

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1300	GB	-20	45.0%	454	195	172	194	185	167	155	142	157	154	154	197	196	197	198	196	CM	
2	EC-WW-045	1525	GB	-23	55.0%	454	127	131	147	147	142	141	142	151	139	142	169	172	177	173	170	CM	
3	EC-WW-045	1600	GB	-23	45.0%	454	177	163	165	171	170	181	183	173	169	179	222	222	221	223	222	CM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
46	47	WEOS	EEOS	1300	-20	GB	EC-WW-045	8.0		AP+PS	23/1/19	1605	1610	40	40	PASS	CM
47	48	WEOS	EEOS	1310	-20	GB	EC-WW-045	12.0		AP+PS	23/1/19	1555	1600	40	40	PASS	CM
226	227	NEOS	SEOS	1335	-19	GB	EC-WW-045	23.0		AP+PS	23/1/19	1400	1405	40	40	PASS	CM
227	228	NEOS	SEOS	1345	-19	GB	EC-WW-045	20.0		AP+PS	23/1/19	1410	1415	40	40	PASS	CM
228	229	NEOS	SEOS	1400	-19	GB	EC-WW-045	18.0		AP+PS	23/1/19	1425	1430	40	40	PASS	CM
229	230	NEOS	SEOS	1503	-19	GB	EC-WW-045	15.0		AP+PS	24/1/19	1430	1435	40	40	PASS	CM
48	229	EEOS	WEOS	1605	-20	GB	EC-WW-045	4.0		VB+PS	24/1/19	955	1000	40	40	PASS	CM
47	229	EEOS	WEOS	1607	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	955	1000	40	40	PASS	CM
47	228	EEOS	WEOS	1609	-20	GB	EC-WW-045	4.0		VB+PS	24/1/19	950	955	40	40	PASS	CM
48	230	EEOS	WEOS	1610	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	1000	1005	40	40	PASS	CM
46	228	EEOS	WEOS	1611	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	950	955	40	40	PASS	CM
46	227	EEOS	WEOS	1615	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	945	950	40	40	PASS	CM
46	226	EEOS	WEOS	1618	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	945	950	40	40	PASS	CM
45	226	EEOS	WEOS	1621	-20	GB	EC-WW-045	4.0		AP+PS	24/1/19	940	945	40	40	PASS	CM
45	225	EEOS	WEOS	1624	-20	GB	EC-WW-045	3.0		AP+PS	24/1/19	940	945	40	40	PASS	CM
45	224	EEOS	WEOS	1628	-20	GB	EC-WW-045	4.0		VB+PS	24/1/19	935	940	40	40	PASS	CM
							PAGE TOTAL	131.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: DT & VF
SUPERVISOR: Chad Messervey
SUBMISSION DATE: 2019/01/31
SHEET NUMBER: 51 of 51

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/06	1030	DH	21	243	237	108	130	127	128	108	210	215	221	217	213	DT	
2	EC-EX-035	2018/10/06	1545	DH	21	243	237	118	149	129	141	105	220	224	225	227	231	DT	
3	EC-EX-027	2018/10/21	930	MJ	21	246	240	108	105	105	110	99	187	189	192	185	187	MJ	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	43 / 44	Connected to 45	T	G&W	EC-EX-035	2018/10/06	1040	DH	0	2018/10/06	VB	DT
1B	43 / 44	Connected to 42	T	G&W	EC-EX-035	2018/10/06	1045	DH	0	2018/10/06	VB	DT
1C	41 / 42	NEOS into trench	D	P	EC-EX-027	2018/10/21	1000	MJ	0	2018/10/21	VB	DT
1D	41 / 42	8m from NEOS	FM	G&W	EC-EX-035	2018/10/06	1100	DH	0	2018/10/06	VB	DT
1E	39 / 40	Connected to 41	T	G&W	EC-EX-035	2018/10/06	1110	DH	0	2018/10/06	VB	DT
1F	39 / 40	Connected to 38	T	G&W	EC-EX-035	2018/10/06	1115	DH	0	2018/10/06	VB	DT
1G	38 / 40	14m from NEOS	BO	P	EC-EX-035	2018/10/06	1125	DH	0	2018/10/06	VB	DT
1H	36 / 37	Connected to 35	T	G&W	EC-EX-035	2018/10/06	1135	DH	0	2018/10/06	VB	DT
1I	32 / 33	Connected to 34	T	G&W	EC-EX-035	2018/10/06	1145	DH	0	2018/10/06	VB	DT
1J	32 / 33	Connected to 31	T	G&W	EC-EX-035	2018/10/06	1150	DH	0	2018/10/06	VB	DT
1K	29 / 30	Connected to 31	T	G&W	EC-EX-035	2018/10/06	1220	DH	0	2018/10/06	VB	DT
1L	29 / 30	Connected to 28	T	P	EC-EX-035	2018/10/06	1225	DH	0	2018/10/06	VB	DT
1M	26 / 27	Connected to 28	T	G&W	EC-EX-035	2018/10/06	1235	DH	0	2018/10/06	VB	DT
1N	26 / 27	Connected to 22, 25	T	P	EC-EX-035	2018/10/06	1245	DH	0	2018/10/06	VB	DT
1O	25 / 49	4m from NEOS	BO	P	EC-EX-035	2018/10/06	1300	DH	0	2018/10/06	VB	DT
1P	24 / 49	3m from NEOS	BO	P	EC-EX-035	2018/10/06	1315	DH	0	2018/10/06	VB	DT
1Q	25 / 49	Connected to 24	T	G&W	EC-EX-035	2018/10/06	1320	DH	0	2018/10/06	VB	DT
1R	23 / 49	Connected to 25	T	G&W	EC-EX-035	2018/10/06	1325	DH	0	2018/10/06	VB	DT
1S	22 / 23	Connected to 25	T	G&W	EC-EX-035	2018/10/06	1330	DH	0	2018/10/06	VB	DT
1T	26 / 28	Connected to 22	T	G&W	EC-EX-035	2018/10/06	1335	DH	0	2018/10/06	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 1 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/21	1100	JH	21	254	248	127	157	156	123	132	204	195	221	220	208	DT	
2	EC-EX-035	2018/09/21	1536	JH	21	254	248	161	163	155	154	161	195	200	194	192	188	DT	
3	EC-EX-035	2018/10/06	1030	DH	21	243	237	108	130	127	128	108	210	215	221	217	213	DT	
4	EC-EX-035	2018/10/06	1545	DH	21	243	237	118	149	129	141	105	220	224	225	227	231	DT	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	23 / 49	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1400	DH	0	2018/10/06	VB	DT
2B	22 / 23	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1405	DH	0	2018/10/06	VB	DT
2C	21 / 22	24.5m from NEOS	FM	G&W	EC-EX-035	2018/10/06	1415	DH	0	2018/10/06	VB	DT
2D	13 / 14	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1555	DH	0	2018/10/06	VB	DT
2E	11 / 13	Connected to 21	T	P	EC-EX-035	2018/10/06	1600	DH	0	2018/10/06	VB	DT
2F	10 / 11	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1610	DH	0	2018/10/06	VB	DT
2G	10 / 9	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1615	DH	0	2018/10/06	VB	DT
2H	8 / 9	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1620	DH	0	2018/10/06	VB	DT
2I	8 / 21	2m from NEOS	WR	G&W	EC-EX-035	2018/10/06	1625	DH	0	2018/10/06	VB	DT
2J	7 / 8	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1630	DH	0	2018/10/06	VB	DT
2K	6 / 7	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1640	DH	0	2018/10/06	VB	DT
2L	5 / 6	Connected to 21	T	P	EC-EX-035	2018/10/06	1645	DH	0	2018/10/06	VB	DT
2M	4 / 21	2m from NEOS	BO	P	EC-EX-035	2018/10/06	1700	DH	0	2018/10/06	VB	DT
2N	3 / 4	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1715	DH	0	2018/10/06	VB	DT
2O	1 / 3	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1720	DH	0	2018/10/06	VB	DT
2P	1 / 2	Connected 3	T	G&W	EC-EX-035	2018/09/21	1702	JH	7	2018/09/21	VB	DT
2Q	4 / 5	20m from EEOS	IO	P	EC-EX-035	2018/09/21	1655	JH	7	2018/09/22	VB	DT
2R	9 / 16	3m W from 15/16/9 T	BO	P	EC-EX-035	2018/09/21	1750	JH	7	2018/09/22	VB	DT
2S	15 / 16	Connected to 9	T	P	EC-EX-035	2018/09/21	1451	JH	7	2018/09/22	VB	DT
2T	14 / 15	Connected to 16	T	G&W	EC-EX-035	2018/09/21	1443	JH	7	2018/09/22	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 2 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/09/21	1100	JH	21	254	248	127	157	156	123	132	204	195	221	220	208	DT	
2	EC-EX-035	2018/09/21	1536	JH	21	254	248	161	163	155	154	161	195	200	194	192	188	DT	
3	EC-EX-027	2018/10/17	1300	JH	21	246	240	93	95	139	127	122	204	209	202	209	208	DT	
4	EC-EX-027	2018/10/17	1700	JH	21	246	240	144	142	155	142	113	183	192	183	178	198	DT	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	13 / 14	Connected to 9,15	T	G&W	EC-EX-035	2018/09/21	1336	JH	7	2018/09/22	VB	DT
3B	12 / 13	Connected to 9	T	G&W	EC-EX-035	2018/09/21	1254	JH	7	2018/09/22	VB	DT
3C	13 /	2.5m NE from 3A	D	P	EC-EX-035	2018/09/21	1330	JH	7	2018/09/22	VB	DT
3D	13 /	4.5m NE from 3A	D	P	EC-EX-035	2018/09/21	1326	JH	7	2018/09/22	VB	DT
3E	13 /	6.5m NE from 3A	D	P	EC-EX-035	2018/09/21	1321	JH	7	2018/09/22	VB	DT
3F	11 / 12	Connected to 13	T	G&W	EC-EX-035	2018/09/21	1248	JH	7	2018/09/22	VB	DT
3G	10 / 11	Connected to 9, 12	T	P	EC-EX-035	2018/09/21	1254	JH	7	2018/09/22	VB	DT
3H	17 / 18	Connected to 16	T	G&W	EC-EX-035	2018/09/21	1455	JH	7	2018/09/22	VB	DT
3I	16 / 17	3m East from WEOS	FM	G&W	EC-EX-035	2018/09/21	1456	JH	7	2018/09/22	VB	DT
3J	19 / 20	Connected to 18	T	G&W	EC-EX-027	2018/10/17	1520	JH	1	2018/10/17	VB	DT
3K	19 / 20	Connected to 50	T	G&W	EC-EX-027	2018/10/17	1515	JH	1	2018/10/17	VB	DT
3L	19 / 50	14m from NEOS	BO	P	EC-EX-027	2018/10/17	1455	JH	1	2018/10/17	VB	DT
3M	51 / 52	3m from NEOS	BO	P	EC-EX-027	2018/10/17	1529	JH	1	2018/10/17	VB	DT
3N	52 / 53	25m from NEOS	BO	P	EC-EX-027	2018/10/17	1540	JH	1	2018/10/17	VB	DT
3O	53 / 54	36m from NEOS	FM	G&W	EC-EX-027	2018/10/17	1543	JH	1	2018/10/17	VB	DT
3P	55 / 56	Connected to 54	T	G&W	EC-EX-027	2018/10/17	1720	JH	1	2018/10/17	VB	DT
3Q	55 / 56	Connected to 58	T	G&W	EC-EX-027	2018/10/17	1722	JH	1	2018/10/17	VB	DT
3R	56 / 57	Connected to 54	T	G&W	EC-EX-027	2018/10/17	1733	JH	1	2018/10/17	VB	DT
3S	56 / 57	Connected to 58	T	G&W	EC-EX-027	2018/10/17	1734	JH	1	2018/10/17	VB	DT
3T	59 / 60	Connected to 58	T	G&W	EC-EX-027	2018/10/17	1726	JH	1	2018/10/17	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS: 16/17 Air channel undisturbed

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 3 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/10/17	1300	JH	21	246	240	93	95	139	127	122	204	209	202	209	208	DT	
2	EC-EX-027	2018/10/17	1700	JH	21	246	240	144	142	155	142	113	183	192	183	178	198	DT	
3	EC-EX-027	2018/10/18	1630	JH	21	246	240	123	119	124	124	130	201	210	215	219	220	DT	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	59 / 60	Connected to 62	T	G&W	EC-EX-027	2018/10/17	1728	JH	1	2018/10/17	VB	DT
4B	60 / 61	Connected to 58	T	G&W	EC-EX-027	2018/10/17	1820	JH	1	2018/10/17	VB	DT
4C	60 / 61	Connected to 62	T	P	EC-EX-027	2018/10/17	1822	JH	1	2018/10/17	VB	DT
4D	59 / 62	2m from NEOS	BO	P	EC-EX-027	2018/10/17	1747	JH	1	2018/10/17	VB	DT
4E	63 / 64	Connected to 62	T	G&W	EC-EX-027	2018/10/17	1445	JH	1	2018/10/18	VB	DT
4F	63 / 64	Connected to 66	T	G&W	EC-EX-027	2018/10/17	1500	JH	1	2018/10/18	VB	DT
4G	66 / 68	16m SW of seam	IO	G&W	EC-EX-027	2018/10/17	1600	JH	1	2018/10/18	VB	DT
4H	67 / 68	Connected to 66	T	G&W	EC-EX-027	2018/10/17	1753	JH	1	2018/10/17	VB	DT
4I	67 / 68	Connected to 69	T	G&W	EC-EX-027	2018/10/17	1755	JH	1	2018/10/17	VB	DT
4J	66 / 68	1m from NEOS	WS	P	EC-EX-027	2018/10/17	1758	JH	1	2018/10/17	VB	DT
4K	18 / 19	15m West from EEOS	BO	P	EC-EX-027	2018/10/17	1450	JH	1	2018/10/17	VB	DT
4L	70 /	11.5m NE tie in seam	D	P	EC-EX-027	2018/10/17	1812	JH	1	2018/10/17	VB	DT
4M	80 / 81	Connected to 79	T	G&W	EC-EX-027	2018/10/18	1645	JH	1	2018/10/18	VB	DT
4N	80 / 81	Connected to 82	T	G&W	EC-EX-027	2018/10/18	1645	JH	1	2018/10/18	VB	DT
4O	82 / 83	10m from WEOS	WR	P	EC-EX-027	2018/10/18	1710	JH	1	2018/10/18	VB	DT
4P	75 / 76	Connected to 73	T	G&W	EC-EX-027	2018/10/18	1738	JH	1	2018/10/29	VB	MJ
4Q	76 / 77	Connected to 72 & 73	T	G&W	EC-EX-027	2018/10/18	1740	JH	1	2018/10/29	VB	MJ
4R	77 / 78	Connected to 72	T	G&W	EC-EX-027	2018/10/18	1753	JH	1	2018/10/29	VB	MJ
4S	71 / 72	Connected to 78	T	G&W	EC-EX-027	2018/10/18	1803	JH	1	2018/10/29	VB	MJ
4T	78 / 79	Conneced to 71	T	G&W	EC-EX-027	2018/10/18	1805	JH	1	2018/10/29	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 4 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/10/18	1630	JH	21	246	240	123	119	124	124	130	201	210	215	219	220	DT	
2	EC-EX-027	2018/10/19	900	CM	21	246	240	153	136	138	160	125	214	217	212	216	208	CM	
3	EC-EX-035	2018/10/28	1000	DH	21	243	237	109	108	132	138	129	195	212	204	198	206	MJ	
4	EC-EX-035	2018/10/28	1330	DH	21	246	240	120	132	139	146	135	215	209	216	208	211	MJ	
5	EC-EX-035	2018/10/28	1430	DH	21	243	237	107	107	100	143	97	189	197	202	187	199	MJ	
6	EC-EX-027	2018/10/28	1730	IK	21	248	246	114	139	120	144	136	216	212	208	210	216	MJ	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	70 / 71	Connected to 79	T	G&W	EC-EX-027	2018/10/18	1810	JH	1	2018/10/29	VB	MJ
5B	79 / 81	Connected to 70	T	G&W	EC-EX-027	2018/10/18	1812	JH	1	2018/10/29	VB	MJ
5C	70 / 70A	Connected to 69	T	G&W	EC-EX-027	2018/10/18	1814	JH	1	2018/10/29	VB	MJ
5D	69 / 70A	Connected to 81	T	G&W	EC-EX-027	2018/10/18	1823	JH	1	2018/10/29	VB	MJ
5E	81 / 82	Connected to 69	T	G&W	EC-EX-035	2018/10/28	1545	DH	-2	2018/10/29	VB	MJ
5F	82 / 83	Connected to 68 & 69	T	P	EC-EX-027	2018/10/19	1000	CM	0	2018/10/29	VB	MJ
5G	69 / 82	2m from NEOS	WR	P	EC-EX-035	2018/10/28	1645	DH	-2	2018/10/29	VB	MJ
5H	83 / 84	Connected to 68	T	G&W	EC-EX-035	2018/10/28	1730	DH	-2	2018/10/29	VB	MJ
5I	66 / 68	Connected to 84	T	G&W	EC-EX-035	2018/10/28	1735	DH	-2	2018/10/29	VB	MJ
5J	84 / 85	Connected to 66	T	G&W	EC-EX-035	2018/10/28	1740	DH	-2	2018/10/29	VB	MJ
5K	64 / 65	Connected to 66 & 85	T	G&W	EC-EX-035	2018/10/28	1745	DH	-2	2018/10/29	VB	MJ
5L	64 / 65	Connected to 62	T	G&W	EC-EX-035	2018/10/28	1750	DH	-2	2018/10/29	VB	MJ
5M	85 / 86	Connected to 65	T	G&W	EC-EX-035	2018/10/28	1755	DH	-2	2018/10/29	VB	MJ
5N	62 / 65	Connected to 86	T	G&W	EC-EX-035	2018/10/28	1800	DH	-2	2018/10/29	VB	MJ
5O	86 / 89	Connected to 62	T	G&W	EC-EX-035	2018/10/28	1805	DH	-2	2018/10/29	VB	MJ
5P	61 / 62	Connected to 89 & 90	T	G&W	EC-EX-035	2018/10/28	1810	DH	-2	2018/10/29	VB	MJ
5Q	88 / 89	Connected to 86	T	G&W	EC-EX-027	2018/10/28	1815	IK	-2	2018/10/28	VB	MJ
5R	88 / 89	Connected to 90	T	G&W	EC-EX-027	2018/10/28	1820	IK	-2	2018/10/28	VB	MJ
5S	87 / 88	Connected to 86	T	G&W	EC-EX-027	2018/10/28	1825	IK	-2	2018/10/28	VB	MJ
5T	87 / 88	Connected to 90	T	G&W	EC-EX-027	2018/10/28	1830	IK	-2	2018/10/28	VB	MJ

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 5 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/06	1030	DH	21	243	237	108	130	127	128	108	210	215	221	217	213	DT	
2	EC-EX-035	2018/10/06	1545	DH	21	243	237	118	149	129	141	105	220	224	225	227	231	DT	
3	EC-EX-035	2018/10/28	1000	DH	21	243	237	109	108	132	138	129	195	212	204	198	206	MJ	
4	EC-EX-035	2018/10/28	1330	DH	21	246	240	120	132	139	146	135	215	209	216	208	211	MJ	
5	EC-EX-035	2018/10/28	1430	DH	21	243	237	107	107	100	143	97	189	197	202	187	199	MJ	
6	EC-EX-027	2018/10/28	1730	IK	21	248	246	114	139	120	144	136	216	212	208	210	216	MJ	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
6A	93 / 94	Connected to 92	T	G&W	EC-EX-027	2018/10/28	1835	IK	-2	2018/10/28	VB	MJ
6B	93 / 94	Connected to 96	T	G&W	EC-EX-027	2018/10/28	1840	IK	-2	2018/10/28	VB	MJ
6C	96 / 97	Connected to 94	T	G&W	EC-EX-027	2018/10/28	1845	IK	-2	2018/10/28	VB	MJ
6D	95 / 96	2M from WEOS	BO	P	EC-EX-027	2018/10/28	1845	IK	-2	2018/10/28	VB	MJ
6E	98 / 99	15m from EEOS	BO	P	EC-EX-027	2018/10/28	1850	IK	-2	2018/10/28	VB	MJ
6F	100 / 101	15m East from WEOS	BO	P	EC-EX-035	2018/11/24	1605	RL	-10	2018/11/24	VB	CM
6G	100 / 101	10m West from EEOS	BO	P	EC-EX-035	2018/11/24	1615	RL	-10	2018/11/24	VB	CM
6H	5 / 6	Connected to 91	T	G&W	EC-EX-035	2018/10/29	1300	DH	-1	2018/10/29	VB	MJ
6I	6 / 7	Connected to 91	T	G&W	EC-EX-035	2018/10/29	1310	DH	-1	2018/10/29	VB	MJ
6J	7 / 8	Connected to 91	T+WR	P+G&W	EC-EX-035	2018/10/29	1345	DH	-1	2018/10/29	VB	MJ
6K	8 / 9	Connected to 91	T+DS	P	EC-EX-035	2018/10/29	1420	DH	-1	2018/10/29	VB	MJ
6L	19 / 18	Connected to 91, 16, 9	T+WS	P	EC-EX-035	2018/10/29	1445	DH	-1	2018/10/29	VB	MJ
6M	102 / 103	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1740	IK	-1	2018/10/29	VB	MJ
6N	103 / 104	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1745	IK	-1	2018/10/29	VB	MJ
6O	104 / 105	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1750	IK	-1	2018/10/29	VB	MJ
6P	105 / 106	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1755	IK	-1	2018/10/29	VB	MJ
6Q	106 / 107	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1800	IK	-1	2018/10/29	VB	MJ
6R	107 / 108	Connected to 101	T	G&W	EC-EX-027	2018/10/29	1805	IK	-1	2018/10/29	VB	MJ
6S	109 / 110	12m from WEOS	WS	P	EC-EX-027	2018/10/29	1815	IK	-1	2018/10/29	VB	MJ
6T	36 / 37	Connected to 38	T	G&W	EC-EX-035	2018/10/06	1136	DH	0	2018/10/06	VB	DT

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 6 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/29	1245	DH	21	246	240	120	132	139	146	135	215	209	216	208	211	MJ	
2	EC-EX-027	2018/10/29	1730	IK	21	248	246	114	139	120	144	136	216	212	208	210	216	MJ	
3	EC-EX-027	2018/11/24	1000	EA	-10	265	260	156	133	147	123	148	192	189	181	186	188	VF	
4	EC-EX-027	2018/11/24	1400	EA	-10	265	260	101	133	127	110	149	173	190	194	200	194	VF	
5	EC-EX-035	2018/11/24	1500	RL	-10	260	251	135	132	125	130	130	188	190	192	173	190	VF	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 7 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/10/06	1030	DH	21	243	237	108	130	127	128	108	210	215	221	217	213	DT	
2	EC-EX-035	2018/10/06	1545	DH	21	243	237	118	149	129	141	105	220	224	225	227	231	DT	
3	EC-EX-027	2018/11/12	1330	CVM	-4	248	246	163	165	144	160	136	230	245	240	235	242	IK	
4	EC-EX-035	2018/11/12	1330	DH	-4	248	248	144	143	157	135	143	230	245	242	233	242	IK	
5	EC-EX-035	2018/11/17	930	RCL	-16	271	268	124	131	133	134	137	156	160	158	165	156	VF	
6	EC-EX-027	2018/11/17	930	RL	-16	268	262	88	99	102	105	103	152	150	147	150	150	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
7A	28 / 29	Connected to 22	T	G&W	EC-EX-035	2018/10/06	1230	DH	0	2018/10/06	VB	DT
7B	4 / 5	Connected to 21	T	G&W	EC-EX-035	2018/10/06	1650	DH	0	2018/10/06	VB	DT
7C	50 / 91	Connected to 129	T	P+G&W	EC-EX-027	2018/11/12	1512	CVM	-4	2018/11/15	VB	VF
7D	127 / 129	Connected to 50	T	G&W	EC-EX-027	2018/11/12	1515	CVM	-4	2018/11/15	VB	VF
7E	128 / 129	Connected to 127	T	G&W	EC-EX-027	2018/11/12	1517	CVM	-4	2018/11/15	VB	VF
7F	50 / 51	Connected to 127	T	G&W	EC-EX-027	2018/11/12	1545	CVM	-4	2018/11/15	VB	VF
7G	51 / 118	Connected to 127	T	P+G&W	EC-EX-027	2018/11/12	1600	CVM	-4	2018/11/15	VB	VF
7H	122 / 123	At North Toe	DS#29	P	EC-EX-027	2018/11/17	1000	RL	-16	2018/11/18	VB	VF
7I	CAP 5 / CAP 6	Connected to 123	DS#31	P	EC-EX-035	2018/11/17	1140	RCL	-16	2018/11/18	VB	VF
7J	122 / 123	4m N from SEOS	DS#20	P	EC-EX-027	2018/11/18	945	RL	-6	2018/11/18	VB	VF
7K	118 / 119	Connected to123	DS#32	P+G&W	EC-EX-027	2018/11/18	1110	RL	-6	2018/11/18	VB	VF
7L	123 / CAP 8	Connected to 118	T	G&W	EC-EX-027	2018/11/18	1113	RL	-6	2018/11/18	VB	VF
7M	122 / 123	Connected to119	T	G&W	EC-EX-027	2018/11/18	1121	RL	-6	2018/11/18	VB	VF
7N	CAP 3 / CAP 4	Connected to 123	T	G&W	EC-EX-027	2018/11/18	1125	RL	-6	2018/11/18	VB	VF
7O	CAP 3 / CAP 4	WEOS TO EEOS	ATL	G&W	EC-EX-027	2018/11/18	1126	RL	-6	2018/11/18	VB	VF
7P	CAP 3 / CAP 4	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1127	RL	-6	2018/11/18	VB	VF
7Q	123 / CAP 8	NEOS	WR	P	EC-EX-027	2018/11/18	1159	RL	-6	2018/11/23	VB	VF
7R	127 / CAP 8	NEOS TO SEOS	ATL	G&W	EC-EX-027	2018/11/18	1218	RL	-6	2018/11/23	VB	VF
7S	CAP 7 / CAP 8	WEOS TO EEOS	ATL	G&W	EC-EX-027	2018/11/18	1230	RL	-6	2018/11/23	VB	VF
7T	CAP 7 / CAP 8	Connected to 123	T	G&W	EC-EX-027	2018/11/18	1231	RL	-6	2018/11/23	VB	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 8 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/18	900	RL	-6	268	262	164	156	162	181	164	263	206	199	210	212	VF	
2	EC-EX-027	2018/11/18	1425	RL	-6	268	262	156	150	146	153	146	167	176	165	168	165	VF	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 9 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/18	900	RL	-6	268	262	164	156	162	181	164	263	206	199	210	212	VF	
2	EC-EX-027	2018/11/18	1425	RL	-6	268	262	156	150	146	153	146	167	176	165	168	165	VF	
3	EC-EX-027	2018/11/19	915	RL	-4	265	260	136	138	176	157	111	184	187	186	191	192	VF	
4	EC-EX-035	2018/11/19	935	RCL	-4	271	268	117	118	119	109	126	144	165	150	153	151	VF	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
8A	CAP 7 / CAP 8	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1232	RL	-6	2018/11/23	VB	VF
8B	118 / 51	Connected to CAP 12 & 127	FS+T	P+G&W	EC-EX-027	2018/11/18	1430	RL	-6	2018/11/24	VB	VF
8C	CAP 6 / CAP 7	WEOS TO EEOS	ATL	G&W	EC-EX-027	2018/11/18	1443	RL	-6	2018/11/23	VB	VF
8D	CAP 5 / CAP 6	WEOS TO EEOS	ATL	G&W	EC-EX-027	2018/11/18	1450	RL	-6	2018/11/23	VB	VF
8E	CAP 5 / CAP 6	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1451	RL	-6	2018/11/23	VB	VF
8F	CAP 4 / CAP 5	Connected to 123	T	P	EC-EX-027	2018/11/18	1514	RL	-6	2018/11/23	VB	VF
8G	CAP 4 / CAP 5	WEOS TO EEOS	ATL	G&W	EC-EX-027	2018/11/18	1515	RL	-6	2018/11/23	VB	VF
8H	CAP 4 / CAP 5	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1517	RL	-6	2018/11/23	VB	VF
8I	123 / CAP 3	SEOS	IO	G&W	EC-EX-027	2018/11/18	1536	RL	-6	2018/11/23	VB	VF
8J	CAP 6 / CAP 7	Connected to 123	T	G&W	EC-EX-027	2018/11/18	1559	RL	-6	2018/11/23	VB	VF
8K	CAP 6 / CAP 7	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1601	RL	-6	2018/11/23	VB	VF
8L	127 / CAP 3	SEOS	BO	P+G&W	EC-EX-027	2018/11/18	1647	RL	-6	2018/11/23	VB	VF
8M	50 / 91	Connected to 129/CAP 9	FS	P+G&W	EC-EX-027	2018/11/18	1651	RL	-6	2018/11/23	VB	VF
8N	128 / 129	Connected to CAP 9	T	G&W	EC-EX-027	2018/11/18	1655	RL	-6	2018/11/23	VB	VF
8O	119 / 124	Connected to 122	T	P	EC-EX-027	2018/11/19	1128	JH	-4	2018/11/23	VB	VF
8P	4 / 5	Connected to CAP 9	T	G&W	EC-EX-027	2018/11/19	1200	JH	-4	2018/11/23	VB	VF
8Q	128 / CAP 9	SEOS	ATL	G&W	EC-EX-027	2018/11/19	1201	JH	-4	2018/11/23	VB	VF
8R	5 / 6	Connected to CAP 9	T	G&W	EC-EX-027	2018/11/19	1212	JH	-4	2018/11/23	VB	VF
8S	6 / 91	Connected to CAP 9	T	G&W	EC-EX-027	2018/11/19	1215	JH	-4	2018/11/23	VB	VF
8T	121 / 122	4m N from South toe	DS#20	P	EC-EX-027	2018/11/19	1245	JH	-4	2018/11/23	VB	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 10 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/19	915	RL	-4	265	260	136	138	176	157	111	184	187	186	191	192	VF	
2	EC-EX-035	2018/11/19	935	RCL	-4	271	268	117	118	119	109	126	144	165	150	153	151	VF	
3	EC-EX-027	2018/11/21	1000	RL	-2	265	260	136	152	140	141	147	174	174	172	176	176	VF	
4	EC-EX-027	2018/11/21	1405	RL	-2	265	260	158	164	141	160	158	196	201	200	203	198	VF	
5	EC-EX-035	2018/11/21	1535	JH	-2	268	265	106	96	117	116	104	213	209	213	209	212	VF	
6	EC-EX-027	2018/11/22	930	RL	-10	265	260	129	129	126	110	112	165	168	165	164	158	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
9A	120 / 121	At North toe	DS#27	P	EC-EX-027	2018/11/19	1250	JH	-4	2018/11/23	VB	VF
9B	120 / 121	Connected to Cap 1	T	G&W	EC-EX-027	2018/11/19	1300	JH	-4	2018/11/24	VB	VF
9C	54 / 118	North of Cap 12	DS#23	P+G&W	EC-EX-035	2018/11/19	1233	RCL	-4	2018/11/25	VB	VF
9D	116 / 118	Connected to 54	T	P+G&W	EC-EX-035	2018/11/19	1235	RCL	-4	2018/11/23	VB	VF
9E	53 / 118	Connected to CAP 12	T	G&W	EC-EX-035	2018/11/19	1237	RCL	-4	2018/11/23	VB	VF
9F	53 / CAP 12	NEOS	WR	P+G&W	EC-EX-035	2018/11/19	1247	RCL	-4	2018/11/23	VB	VF
9G	53 / CAP 12	2m North from SEOS	WS	P+G&W	EC-EX-035	2018/11/19	1255	RCL	-4	2018/11/23	VB	VF
9H	108 / 109	Connected to CAP 10	EXT	P	EC-EX-027	2018/11/21	1010	RL	-2	2018/11/22	VB	VF
9I	101 / 108	Connected to CAP 10	T	P	EC-EX-027	2018/11/21	1150	RL	-2	2018/11/22	VB	VF
9J	100 / 101	Connected toCAP 10/126	EXT	P	EC-EX-027	2018/11/21	1231	RL	-2	2018/11/22	VB	VF
9K	100 / 101	2m NW from EEOS	WR	P	EC-EX-027	2018/11/21	1435	RL	-2	2018/11/22	VB	VF
9L	100 / 126	Entire Seam	FS	G&W	EC-EX-027	2018/11/21	1522	RL	-2	2018/11/22	VB	VF
9M	99 / 100	Connected to 126	DS#22	P	EC-EX-027	2018/11/21	1602	RL	-2	2018/11/22	VB	TB
9N	99 / 126	2m East from WEOS	WR	P	EC-EX-027	2018/11/21	1615	RL	-2	2018/11/23	VB	VF
9O	134 / 135	Connected to 2	T	G&W	EC-EX-035	2018/11/21	1610	JH	-2	2018/11/22	VB	TB
9P	133 / 134	Connected to 2	DS#36	G&W	EC-EX-035	2018/11/21	1615	JH	-2	2018/11/22	VB	TB
9Q	2 / 3	Connected to 133	DS#37	P	EC-EX-035	2018/11/21	1620	JH	-2	2018/11/22	VB	TB
9R	132 / 133	Connected to 3	T	G&W	EC-EX-035	2018/11/21	1625	JH	-2	2018/11/22	VB	TB
9S	98 / 125	Connected to CAP 1	T	P	EC-EX-027	2018/11/22	945	RL	-10	2018/11/23	VB+PS	VF
9T	126 / CAP 1	Connected to 98	T	G&W	EC-EX-027	2018/11/22	955	RL	-10	2018/11/23	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS: DS#36 DOES NOT REQUIRE A PATCH

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 11 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/11/22	940	JH	-10	265	262	140	124	134	113	120	171	171	167	176	173	VF	
2	EC-EX-027	2018/11/22	1430	RL	-10	265	260	158	156	161	147	137	180	160	178	180	178	VF	
3	EC-EX-035	2018/11/22	1440	JH	-10	265	262	147	160	145	146	144	191	189	190	189	187	VF	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 12 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/22	930	RL	-10	265	260	129	129	126	110	112	165	168	165	164	158	VF	
2	EC-EX-035	2018/11/22	940	JH	-10	265	262	140	124	134	113	120	171	171	167	176	173	VF	
3	EC-EX-027	2018/11/22	1430	RL	-10	265	260	158	156	161	147	137	180	160	178	180	178	VF	
4	EC-EX-035	2018/11/22	1440	JH	-10	265	262	147	160	145	146	144	191	189	190	189	187	VF	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
10A	98 / 99	Connected to 126	T	G&W	EC-EX-027	2018/11/22	1000	RL	-10	2018/11/23	VB+PS	VF
10B	CAP 1 / CAP 2	SEAM	ATL	G&W	EC-EX-027	2018/11/22	1120	RL	-10	2018/11/23	VB+PS	VF
10C	CAP 1 / CAP 2	Connected to 126	T	G&W	EC-EX-027	2018/11/22	1132	RL	-10	2018/11/23	VB+PS	VF
10D	120 / 126	Connected to CAP 2	T	G&W	EC-EX-027	2018/11/22	1135	RL	-10	2018/11/23	VB+PS	VF
10E	CAP 1 / CAP 2	Connected to 125	T	G&W	EC-EX-027	2018/11/22	1215	RL	-10	2018/11/23	VB+PS	VF
10F	121 / 125	Connected to CAP 2	T	G&W	EC-EX-027	2018/11/22	1450	RL	-10	2018/11/23	VB+PS	VF
10G	124 / 125	Connected to CAP 11 & 116	T	P	EC-EX-027	2018/11/22	1454	RL	-10	2018/11/23	VB+PS	VF
10H	125 / CAP 11	WEOS	WR	P+G&W	EC-EX-027	2018/11/22	1456	RL	-10	2018/11/23	VB+PS	VF
10I	121 / 125	1m EAST from WEOS	BO	P	EC-EX-027	2018/11/22	1450	RL	-10	2018/11/23	VB+PS	VF
10J	124 / 125	Connected to 116	DS#24	P+G&W	EC-EX-027	2018/11/22	1512	RL	-10	2018/11/23	VB+PS	VF
10K	124 / 125	Connected to 121	T	G&W	EC-EX-027	2018/11/22	1527	RL	-10	2018/11/23	VB+PS	VF
10L	61 / 62	Connected to 89	T	G&W	EC-EX-027	2018/11/22	1732	RL	-10	2018/11/23	VB+PS	VF
10M	86 / 89	EEOS	DS#17	P+G&W	EC-EX-027	2018/11/22	1730	RL	-10	2018/11/23	VB+PS	VF
10N	119 / 124	Connected to 116	T	G&W	EC-EX-027	2018/11/22	1535	RL	-10	2018/11/23	VB+PS	VF
10O	118 / 119	Connected to 116	DS#18	G&W	EC-EX-027	2018/11/22	1541	RL	-10	2018/11/23	VB+PS	VF
10P	118 / 119	1m South from NEOS	DS#18A	P+G&W	EC-EX-027	2018/11/22	1549	RL	-10	2018/11/23	VB+PS	VF
10Q	128 / 130	1m South from NEOS	WR	G&W	EC-EX-035	2018/11/22	1010	JH	-10	2018/11/22	VB+PS	TB
10R	3 / 4	Connected to 130	T	G&W	EC-EX-035	2018/11/22	1020	JH	-10	2018/11/22	VB+PS	TB
10S	130 / 131	Connected to 3	T	G&W	EC-EX-035	2018/11/22	1030	JH	-10	2018/11/22	VB+PS	TB
10T	131 / 132	Connected to 3	DS#35	G&W	EC-EX-035	2018/11/22	1130	JH	-10	2018/11/22	VB+PS	TB

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS: DS#35 DOES NOT REQUIRE A PATCH

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 13 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/22	930	RL	-10	265	260	129	129	126	110	112	165	168	165	164	158	VF	
2	EC-EX-035	2018/11/22	940	JH	-10	265	262	140	124	134	113	120	171	171	167	176	173	VF	
3	EC-EX-027	2018/11/22	1430	RL	-10	265	260	158	156	161	147	137	180	160	178	180	178	VF	
4	EC-EX-035	2018/11/22	1440	JH	-10	265	262	147	160	145	146	144	191	189	190	189	187	VF	
5	EC-EX-027	2018/11/23	930	JH	-10	265	260	120	161	124	142	147	199	195	202	199	177	VF	
6	EC-EX-027	2018/11/23	1330	JH	-10	265	260	120	138	115	114	115	186	193	183	179	181	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
11A	132 / 133	8m South from NEOS	BO	P	EC-EX-035	2018/11/22	1200	JH	-10	2018/11/22	VB+PS	TB
11B	4 / 128	Connected to CAP 9 & 130	EXT+T	P	EC-EX-035	2018/11/22	1530	JH	-10	2018/11/22	VB+PS	TB
11C	121 / 122	Connected to 124	T	G&W	EC-EX-035	2018/11/22	1535	JH	-10	2018/11/23	VB+PS	VF
11D	127 / 128	2m North from SEOS	DS#30	P	EC-EX-035	2018/11/22	1620	JH	-10	2018/11/23	VB+PS	VF
11E	125 / CAP1	Connected to 98	T	P	EC-EX-027	2018/11/22	1645	JH	-10	2018/11/23	VB+PS	VF
11F	118 / CAP 12	NEOS	DS#34	P+G&W	EC-EX-027	2018/11/23	940	JH	-10	2018/11/24	VB+PS	VF
11G	54 / 57	Connected to 116	T	G&W	EC-EX-027	2018/11/23	945	JH	-10	2018/11/24	VB+PS	VF
11H	115 / 116	Connected to 57	T	G&W	EC-EX-027	2018/11/23	955	JH	-10	2018/11/24	VB+PS	VF
11I	57 / 58	Connected to 115	T	G&W	EC-EX-027	2018/11/23	1005	JH	-10	2018/11/24	VB+PS	VF
11J	58 / 115	Center of seam	BO	P+G&W	EC-EX-027	2018/11/23	1010	JH	-10	2018/11/24	VB+PS	VF
11K	114 / 115	Connected to 58	T	G&W	EC-EX-027	2018/11/23	1035	JH	-10	2018/11/24	VB+PS	VF
11L	58 / 61	Connected to 114	T	G&W	EC-EX-027	2018/11/23	1140	JH	-10	2018/11/24	VB+PS	VF
11M	61 / 114	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1141	JH	-10	2018/11/24	VB+PS	VF
11N	61 / 89	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1155	JH	-10	2018/11/24	VB+PS	VF
11O	61 / CAP 11	EEOS	BO	P	EC-EX-027	2018/11/23	1158	JH	-10	2018/11/24	VB+PS	VF
11P	90 / 92	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1200	JH	-10	2018/11/24	VB+PS	VF
11Q	92 / 113	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1202	JH	-10	2018/11/24	VB+PS	VF
11R	114 / 115	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1204	JH	-10	2018/11/24	VB+PS	VF
11S	93 / 113	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1210	JH	-10	2018/11/24	VB+PS	VF
11T	93 / 95	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1212	JH	-10	2018/11/24	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 14 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/23	930	JH	-10	265	260	120	161	124	142	147	199	195	202	199	177	VF	
2	EC-EX-027	2018/11/23	1330	JH	-10	265	260	120	138	115	114	115	186	193	183	179	181	VF	
3	EC-EX-027	2018/11/24	1000	EA	-10	265	260	156	133	147	123	148	192	189	181	186	188	VF	
4	EC-EX-027	2018/11/24	1400	EA	-10	265	260	101	133	127	110	149	173	190	194	200	194	VF	
5	EC-EX-035	2018/11/24	1500	RL	-10	260	251	135	132	125	130	130	188	190	192	173	190	VF	
6	EC-EX-035	2018/11/25	1400	JH	-7	262	254	91	96	100	101	100	174	176	178	183	180	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
12A	115 / 116	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1214	JH	-10	2018/11/24	VB+PS	VF
12B	95 / 98	Connected to CAP 11	T	G&W	EC-EX-027	2018/11/23	1216	JH	-10	2018/11/24	VB+PS	VF
12C	CAP 7 / 127	NEOS	ATL	G&W	EC-EX-027	2018/11/23	1452	JH	-10	2018/11/23	VB+PS	CM
12D	CAP 3 / 127	NEOS	ATL	G&W	EC-EX-027	2018/11/23	1455	JH	-10	2018/11/23	VB+PS	CM
12E	CAP 7 / 123	NEOS	ATL	G&W	EC-EX-027	2018/11/23	1550	JH	-10	2018/11/23	VB+PS	CM
12F	CAP 7 / 127	SEOS	ATL	G&W	EC-EX-027	2018/11/23	1558	JH	-10	2018/11/23	VB+PS	CM
12G	CAP 7 / 123	SEOS	ATL	G&W	EC-EX-027	2018/11/23	1600	JH	-10	2018/11/23	VB+PS	CM
12H	CAP 8 / 123	SEOS	ATL	G&W	EC-EX-027	2018/11/23	1620	JH	-10	2018/11/23	VB+PS	CM
12I	51 / 52	Connected to CAP 12	T	G&W	EC-EX-027	2018/11/24	1200	EA	-10	2018/11/24	VB+PS	VF
12J	115 / CAP 11	3m North from SEOS	FM	G&W	EC-EX-027	2018/11/24	1600	EA	-10	2018/11/24	VB+PS	VF
12K	115 / CAP 11	3m South from NEOS	FM	G&W	EC-EX-027	2018/11/24	1602	EA	-10	2018/11/24	VB+PS	VF
12L	92 / 93	Connected to 113	T	P	EC-EX-027	2018/11/24	1655	EA	-10	2018/11/24	VB+PS	VF
12M	90 / CAP 11	2m bead SEOS	ATL	G&W	EC-EX-027	2018/11/24	1715	EA	-10	2018/11/24	VB+PS	VF
12N	109 / 110	23m East from WEOS	BO	P	EC-EX-027	2018/11/25	1530	RL	-7	2018/11/25	VB+PS	CM
12O	109 / 110	27m East from WEOS	WS	P	EC-EX-027	2018/11/25	1538	RL	-7	2018/11/25	VB+PS	CM
12P	109 / 110	33m East from WEOS	FM	G&W	EC-EX-027	2018/11/25	1545	RL	-7	2018/11/25	VB+PS	CM
12Q	109 / 110	37m East from WEOS	WS	P	EC-EX-027	2018/11/25	1550	RL	-7	2018/11/25	VB+PS	CM
12R	109 / 110	41m East from WEOS	BO	P	EC-EX-027	2018/11/25	1620	RL	-7	2018/11/25	VB+PS	CM
12S	109 / 110	45m East from WEOS	FM	G&W	EC-EX-027	2018/11/25	1705	RL	-7	2018/11/25	VB+PS	CM
12T	109 / 110	47m East from WEOS	FM	G&W	EC-EX-027	2018/11/25	1708	RL	-7	2018/11/25	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 15 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/25	1430	RL	-7	260	254	129	119	124	111	117	182	187	193	188	192	VF	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 16 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/11/25	1400	JH	-7	262	254	91	96	100	101	100	174	176	178	183	180	VF	
2	EC-EX-027	2018/11/25	1430	RL	-7	260	254	129	119	124	111	117	182	187	193	188	192	VF	
3	EC-EX-027	2018/11/26	1000	JH	-6	260	254	139	156	145	151	138	212	206	215	206	207	RL	
4	EC-EX-027	2018/11/28	930	JH	1	248	246	97	101	104	110	105	178	169	168	171	169	JH	
5	EC-EX-027	2018/11/30	1345	IK	-5	260	262	161	175	162	162	158	195	197	204	200	200	VF	
6	EC-EX-035	2018/12/01	1330	IK	-8	260	262	116	120	133	129	115	190	186	187	188	190	VF	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
13A	111 / 112	10m east from WEOS	BO	P	EC-EX-027	2018/11/25	1735	RL	-7	2018/11/25	VB+PS	VF
13B	111 / 112	West crest	ATL	G&W	EC-EX-027	2018/11/25	1740	RL	-7	2018/11/25	VB+PS	VF
13C	109 / 110	67m East from WEOS	FM	G&W	EC-EX-027	2018/11/26	1110	JH	-6	2018/11/26	VB+PS	RL
13D	109 / 110	57m East from WEOS	BO	P	EC-EX-027	2018/11/26	1135	JH	-6	2018/11/26	VB+PS	RL
13E	142 / 143	Connected to 141	DS#40	P	EC-EX-027	2018/11/28	1155	JH	1	2018/11/28	VB+PS	VF
13F	124 /	0.5m North from T	EE	P	EC-EX-027	2018/11/30	1430	IK	-5	2018/11/30	VB+PS	VF
13G	118 /	5m N from south of panel	EE	P	EC-EX-027	2018/11/30	1445	IK	-5	2018/11/30	VB+PS	VF
13H	109 / 144	EEOS	BO	P	EC-EX-035	2018/12/01	1402	IK	-8	2018/12/01	VB+PS	VF
13I	144 / 145	Connected to 110	BO+T	P+G&W	EC-EX-035	2018/12/01	1517	IK	-8	2018/12/01	VB+PS	VF
13J	110 / 111	Connected to 145	T	G&W	EC-EX-035	2018/12/01	1520	IK	-8	2018/12/01	VB+PS	VF
13K	145 / 146	12m South from NEOS	ATL	G&W	EC-EX-035	2018/12/01	1530	IK	-8	2018/12/01	VB+PS	VF
13L	145 / 146	Connected to 111	T	G&W	EC-EX-035	2018/12/01	1536	IK	-8	2018/12/01	VB+PS	VF
13M	111 / 112	Connected to 146	T	G&W	EC-EX-035	2018/12/01	1552	IK	-8	2018/12/01	VB+PS	VF
13N	146 / 147	Connected to 112	T	G&W	EC-EX-035	2018/12/01	1557	IK	-8	2018/12/01	VB+PS	VF
13O	112 / 117	Connected to 147	T	G&W	EC-EX-035	2018/12/01	1604	IK	-8	2018/12/01	VB+PS	VF
13P	147 / 148	Connected to 117/136	T	G&W	EC-EX-035	2018/12/01	1615	IK	-8	2018/12/01	VB+PS	VF
13Q	148 / 149	Connected to 136	T	G&W	EC-EX-035	2018/12/01	1620	IK	-8	2018/12/01	VB+PS	VF
13R	136 / 137	Connected to 149	T	G&W	EC-EX-035	2018/12/01	1622	IK	-8	2018/12/01	VB+PS	VF
13S	149 / 150	Connected to 137	T	G&W	EC-EX-035	2018/12/01	1635	IK	-8	2018/12/01	VB+PS	VF
13T	137 / 138	Connected to 150	T	G&W	EC-EX-035	2018/12/01	1648	IK	-8	2018/12/01	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 17 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/01	1600	RL	-8	261	256	102	134	102	112	153	192	198	188	197	190	VF	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 18 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2018/12/01	1330	IK	-8	260	262	116	120	133	129	115	190	186	187	188	190	VF	
2	EC-EX-027	2018/12/01	1600	RL	-8	261	256	102	134	102	112	153	192	198	188	197	190	VF	
3	EC-EX-027	2018/12/02	840	IK	-16	268	265	100	127	97	97	144	203	208	208	212	197	VF	
4	EC-EX-027	2018/12/04	905	JH	-20	265	260	123	98	150	109	134	211	199	210	209	213	VF	
5	EC-EX-027	2018/12/04	1300	JH	-18	265	260	117	115	109	105	110	201	211	209	200	199	VF	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
14A	150 / 151	Connected to 138	DS#45	P+G&W	EC-EX-027	2018/12/01	1700	RL	-8	2018/12/01	VB+PS	VF
14B	138 / 139	Connected to 151	T	G&W	EC-EX-027	2018/12/01	1642	RL	-8	2018/12/01	VB+PS	VF
14C	151 / 152	Connected to 139	T	G&W	EC-EX-027	2018/12/01	1640	RL	-8	2018/12/01	VB+PS	VF
14D	139 / 140	Connected to 152	T	G&W	EC-EX-027	2018/12/01	1637	RL	-8	2018/12/01	VB+PS	VF
14E	152 / 153	Connected to 140	T	G&W	EC-EX-027	2018/12/01	1635	RL	-8	2018/12/01	VB+PS	VF
14F	140 / 141	Connected to 153	T	G&W	EC-EX-027	2018/12/01	1627	RL	-8	2018/12/01	VB+PS	VF
14G	154 / 155	Connected to 141/142	T	G&W	EC-EX-027	2018/12/01	1623	RL	-8	2018/12/01	VB+PS	VF
14H	109 / CAP 10	Connected to 144	T	P	EC-EX-027	2018/12/02	900	IK	-16	2018/12/02	VB+PS	IK
14I	120 / CAP 10	Connected to 144	T	P	EC-EX-027	2018/12/02	930	IK	-16	2018/12/02	VB+PS	IK
14J	120 / 144	2m South from NEOS	WS	P	EC-EX-027	2018/12/02	955	IK	-16	2018/12/02	VB+PS	IK
14K	117 /	0.5m NW from tie-in seam	D	P	EC-EX-027	2018/12/02	1140	IK	-16	2018/12/02	VB+PS	VF
14L	117 /	1.5m NW from tie-in seam	D	P	EC-EX-027	2018/12/02	1135	IK	-16	2018/12/02	VB+PS	VF
14M	117 /	2.5m NW from tie-in seam	D	P	EC-EX-027	2018/12/02	1126	IK	-16	2018/12/02	VB+PS	VF
14N	117 /	4.5m NW from tie-in seam	D	P	EC-EX-027	2018/12/02	1121	IK	-16	2018/12/02	VB+PS	VF
14O	130 / 161	2m South from NEOS	IO	G&W	EC-EX-027	2018/12/04	1226	JH	-20	2018/12/04	VB+PS	VF
14P	128 / 130	Connected to 161	T	P+G&W	EC-EX-027	2018/12/04	1230	JH	-20	2018/12/04	VB+PS	VF
14Q	127 / 128	Connected to 161	T	P+G&W	EC-EX-027	2018/12/04	1240	JH	-20	2018/12/04	VB+PS	VF
14R	123 / 127	Connected to 159/160	T	P+G&W	EC-EX-027	2018/12/04	1002	JH	-20	2018/12/04	VB+PS	VF
14S	122 / 123	Connected to 158/159	T	G&W	EC-EX-027	2018/12/04	925	JH	-20	2018/12/04	VB+PS	VF
14T	121 / 122	Connected to 157/158	T	G&W	EC-EX-027	2018/12/04	915	JH	-20	2018/12/04	VB+PS	VF

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 19 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/04	905	JH	-20	265	260	123	98	150	109	134	211	199	210	209	213	VF	
2	EC-EX-027	2018/12/04	1300	JH	-18	265	260	117	115	109	105	110	201	211	209	200	199	VF	
3	EC-EX-027	2018/12/05	900	EA	-18	265	260	93	91	91	90	91	161	187	195	205	188	VF	
4	EC-EX-027	2018/12/05	1400	EA	-18	265	260	84	83	81	80	113	174	184	183	188	183	VF	
5	EC-EX-027	2018/12/10	900	JH	0	235	240	72	77	83	96	106	150	148	136	135	142	CM	
6	EC-EX-027	2018/12/10	1510	JH	0	257	254	101	93	104	101	104	181	179	183	179	178	CM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
15A	121 / 157	2m west from EEOS	ATL	G&W	EC-EX-027	2018/12/04	1315	JH	-20	2018/12/04	VB+PS	VF
15B	120 / 121	Connected to 156	T	P+G&W	EC-EX-027	2018/12/04	1300	JH	-20	2018/12/04	VB+PS	VF
15C	120 / 156	Connected to 144	T	P	EC-EX-027	2018/12/04	1340	JH	-20	2018/12/04	VB+PS	VF
15D	156 / 157	8m South from NEOS	FM	G&W	EC-EX-027	2018/12/04	1345	JH	-20	2018/12/04	VB+PS	VF
15E	110 /	2m NE from tie-in seam	EE	P	EC-EX-027	2018/12/05	930	EA	-18	2018/12/05	VB+PS	VF
15F	162 / 163	Connected to 165	T	G&W	EC-EX-027	2018/12/05	1533	EA	-18	2018/12/05	VB+PS	VF
15G	164 / 165	Connected to 162	T	G&W	EC-EX-027	2018/12/05	1535	EA	-18	2018/12/05	VB+PS	VF
15H	164 / 165	Connected to 166	T	G&W	EC-EX-027	2018/12/05	1538	EA	-18	2018/12/05	VB+PS	VF
15I	166 / 167	Connected to 165	T	G&W	EC-EX-027	2018/12/05	1540	EA	-18	2018/12/05	VB+PS	VF
15J	166 / 167	Connected to 168	T	G&W	EC-EX-027	2018/12/05	1600	EA	-18	2018/12/05	VB+PS	VF
15K	167 /	Top center of panel	D	P	EC-EX-027	2018/12/05	1550	EA	-18	2018/12/05	VB+PS	VF
15L	178 / 169	Connected to 179	T	G&W	EC-EX-027	2018/12/05	1640	EA	-18	2018/12/05	VB+PS	VF
15M	178 / 169	Connected to 171	T	G&W	EC-EX-027	2018/12/05	1642	EA	-18	2018/12/05	VB+PS	VF
15N	170 / 171	Connected to 168	T	G&W	EC-EX-027	2018/12/05	1602	EA	-18	2018/12/05	VB+PS	VF
15O	138 / 139	Connected to 162	T	G&W	EC-EX-027	2018/12/05	1639	EA	-18	2018/12/05	VB+PS	VF
15P	139 / 140	Connected to 162	T	G&W	EC-EX-027	2018/12/05	1636	EA	-18	2018/12/05	VB+PS	VF
15Q	140 / 141	Connected to 162	T	G&W	EC-EX-027	2018/12/05	1702	EA	-18	2018/12/05	VB+PS	VF
15R	141 / 143	Connected to 162	T	G&W	EC-EX-027	2018/12/05	1710	EA	-18	2018/12/05	VB+PS	VF
15S	170 / 171	Connected to 178	T	G&W	EC-EX-027	2018/12/10	1515	JH	-2	2018/12/10	VB+PS	CM
15T	182 / 183	Connected to 181	T	G&W	EC-EX-027	2018/12/10	1520	JH	-2	2018/12/10	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 20 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/10	900	JH	0	235	240	72	77	83	96	106	150	148	136	135	142	CM	
2	EC-EX-027	2018/12/10	1510	JH	0	257	254	101	93	104	101	104	181	179	183	179	178	CM	
3	EC-EX-027	2018/12/12	1212	RL	-14	258	253	91	94	101	111	106	186	186	195	187	189	CM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
16A	183 / 184	Connected to 181	T	G&W	EC-EX-027	2018/12/10	1525	JH	-2	2018/12/10	VB+PS	CM
16B	192 / 193	Connected to 191	T	G&W	EC-EX-027	2018/12/10	1530	JH	-2	2018/12/10	VB+PS	CM
16C	182 / 183	Connected to 194&195	T	P	EC-EX-027	2018/12/10	1535	JH	-2	2018/12/10	VB+PS	CM
16D	183 / 184	Connected to 193&194	T	G&W	EC-EX-027	2018/12/10	1540	JH	-2	2018/12/10	VB+PS	CM
16E	191 / 190	Connected to 184	T	G&W	EC-EX-027	2018/12/10	1545	JH	-2	2018/12/10	VB+PS	CM
16F	181 / 184	Connected to 189	T	G&W	EC-EX-027	2018/12/10	1550	JH	-2	2018/12/10	VB+PS	CM
16G	188 / 189	Connected to 181	T	G&W	EC-EX-027	2018/12/10	1555	JH	-2	2018/12/10	VB+PS	CM
16H	180 / 181	Connected to 188	T	G&W	EC-EX-027	2018/12/10	1600	JH	-2	2018/12/10	VB+PS	CM
16I	187 / 188	Connected to 181	T	G&W	EC-EX-027	2018/12/10	1605	JH	-2	2018/12/10	VB+PS	CM
16J	186 / 187	Connected to 181	T	G&W	EC-EX-027	2018/12/10	1610	JH	-2	2018/12/10	VB+PS	CM
16K	179 / 180	Connected to 186	T	G&W	EC-EX-027	2018/12/10	1615	JH	-2	2018/12/10	VB+PS	CM
16L	185 / 186	Connected to 169	T	G&W	EC-EX-027	2018/12/10	1620	JH	-2	2018/12/10	VB+PS	CM
16M	177 / 185	Connected to 171&169	T+DS	P	EC-EX-027	2018/12/10	1625	JH	-2	2018/12/10	VB+PS	CM
16N	198 / 199	Connected to 162	T	G&W	EC-EX-027	2018/12/12	1220	RL	-14	2018/12/12	VB+PS	CM
16O	162 / 164	Connected to 199	T	G&W	EC-EX-027	2018/12/12	1225	RL	-14	2018/12/12	VB+PS	CM
16P	199 / 200	Connected to 164	T	G&W	EC-EX-027	2018/12/12	1230	RL	-14	2018/12/12	VB+PS	CM
16Q	164 / 166	Connected to 200	T	G&W	EC-EX-027	2018/12/12	1235	RL	-14	2018/12/12	VB+PS	CM
16R	200 / 201	Connected to 166	T	G&W	EC-EX-027	2018/12/12	1240	RL	-14	2018/12/12	VB+PS	CM
16S	166 / 168	Connected to 201	T	G&W	EC-EX-027	2018/12/12	1245	RL	-14	2018/12/12	VB+PS	CM
16T	201 / 202	Connected to 168	T	G&W	EC-EX-027	2018/12/12	1250	RL	-14	2018/12/12	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 21 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/12	1212	RL	-14	258	253	91	94	101	111	106	186	186	195	187	189	CM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
17A	168 / 170	Connected to 202	T	G&W	EC-EX-027	2018/12/12	1255	RL	-14	2018/12/12	VB+PS	CM
17B	202 / 203	Connected to 170	T	G&W	EC-EX-027	2018/12/12	1300	RL	-14	2018/12/12	VB+PS	CM
17C	170 / 178	Connected to 203	T	G&W	EC-EX-027	2018/12/12	1305	RL	-14	2018/12/12	VB+PS	CM
17D	203 / 204	Connected to 178	T	G&W	EC-EX-027	2018/12/12	1310	RL	-14	2018/12/12	VB+PS	CM
17E	178 / 179	Connected to 204	T	G&W	EC-EX-027	2018/12/12	1315	RL	-14	2018/12/12	VB+PS	CM
17F	204 / 205	Connected to 179	T	G&W	EC-EX-027	2018/12/12	1320	RL	-14	2018/12/12	VB+PS	CM
17G	179 / 180	Connected to 205	T	G&W	EC-EX-027	2018/12/12	1325	RL	-14	2018/12/12	VB+PS	CM
17H	205 / 206	Connected to 180	T	G&W	EC-EX-027	2018/12/12	1330	RL	-14	2018/12/12	VB+PS	CM
17I	180 / 181	Connected to 206	T	G&W	EC-EX-027	2018/12/12	1340	RL	-14	2018/12/12	VB+PS	CM
17J	206 / 207	Connected to 181	T	G&W	EC-EX-027	2018/12/12	1345	RL	-14	2018/12/12	VB+PS	CM
17K	181 / 182	Connected to 207	T	G&W	EC-EX-027	2018/12/12	1350	RL	-14	2018/12/12	VB+PS	CM
17L	207 / 208	Connected to 182	T	G&W	EC-EX-027	2018/12/12	1355	RL	-14	2018/12/12	VB+PS	CM
17M	182 / 195	Connected to 208	T	G&W	EC-EX-027	2018/12/12	1400	RL	-14	2018/12/12	VB+PS	CM
17N	195 / 196	Connected to 209	T	G&W	EC-EX-027	2018/12/12	1405	RL	-14	2018/12/12	VB+PS	CM
17O	208 / 209	Connected to 195	T	G&W	EC-EX-027	2018/12/12	1410	RL	-14	2018/12/12	VB+PS	CM
17P	196 / 197	Connected to 210	T	G&W	EC-EX-027	2018/12/12	1415	RL	-14	2018/12/12	VB+PS	CM
17Q	209 / 210	Connected to 196	T	G&W	EC-EX-027	2018/12/12	1420	RL	-14	2018/12/12	VB+PS	CM
17R	162 / 198	EEOS	s/s+ds	G&W	EC-EX-027	2018/12/12	1425	RL	-14	2018/12/12	VB+PS	CM
17S	198 / 199	SEOS	DS	P	EC-EX-027	2018/12/12	1430	RL	-14	2018/12/12	VB+PS	CM
17T	166 / 201	WEOS	BO	G&W	EC-EX-027	2018/12/12	1435	RL	-14	2018/12/12	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 22 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/12/12	1212	RL	-14	258	253	91	94	101	111	106	186	186	195	187	189	CM	
2	EC-EX-027	2019/01/23	1415	IK	-20	262	257	120	93	102	117	115	222	219	220	211	222	CM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
18A	168 / 202	WEOS	BO	G&W	EC-EX-027	2018/12/12	1440	RL	-14	2018/12/12	VB+PS	CM
18B	203 / 204	3M N OF SEOS	BO	G&W	EC-EX-027	2018/12/12	1445	RL	-14	2018/12/12	VB+PS	CM
18C	205 / 206	4M N OF SEOS	BO	P	EC-EX-027	2018/12/12	1450	RL	-14	2018/12/12	VB+PS	CM
18D	214 / 215	Connected to 38	T	G&W	EC-EX-027	2019/01/23	1420	IK	-23	2019/01/23	VB+PS	CM
18E	215 / 216	Connected to 39	T	G&W	EC-EX-027	2019/01/23	1425	IK	-23	2019/01/23	VB+PS	CM
18F	216 / 217	Connected to 39	T	G&W	EC-EX-027	2019/01/23	1429	IK	-23	2019/01/23	VB+PS	CM
18G	217 / 218	Connected to 41	T	G&W	EC-EX-027	2019/01/23	1431	IK	-23	2019/01/23	VB+PS	CM
18H	218 / 219	Connected to 41	T	G&W	EC-EX-027	2019/01/23	1435	IK	-23	2019/01/23	VB+PS	CM
18I	219 / 220	Connected to 41	T	G&W	EC-EX-027	2019/01/23	1438	IK	-23	2019/01/23	VB+PS	CM
18J	220 / 221	Connected to 42	T	G&W	EC-EX-027	2019/01/23	1445	IK	-23	2019/01/23	VB+PS	CM
18K	221 / 222	Connected to 42	T	G&W	EC-EX-027	2019/01/23	1450	IK	-23	2019/01/23	VB+PS	CM
18L	222 / 223	Connected to 43	T	G&W	EC-EX-027	2019/01/23	1455	IK	-23	2019/01/23	VB+PS	CM
18M	223 / 224	Connected to 43	T	G&W	EC-EX-027	2019/01/23	1500	IK	-23	2019/01/23	VB+PS	CM
18N	224 / 225	Connected to 45	T	G&W	EC-EX-027	2019/01/23	1505	IK	-23	2019/01/23	VB+PS	CM
18O	225 / 226	Connected to 45	T	G&W	EC-EX-027	2019/01/23	1510	IK	-23	2019/01/23	VB+PS	CM
18P	226 / 227	Connected to 46	T	G&W	EC-EX-027	2019/01/23	1515	IK	-23	2019/01/23	VB+PS	CM
18Q	227 / 228	Connected to 46	T	G&W	EC-EX-027	2019/01/23	1520	IK	-23	2019/01/23	VB+PS	CM
18R	228 / 229	Connected to 47	T	G&W	EC-EX-027	2019/01/23	1525	IK	-23	2019/01/23	VB+PS	CM
18S	229 / 230	Connected to 48	T	G&W	EC-EX-027	2019/01/23	1530	IK	-23	2019/01/23	VB+PS	CM
18T	38 / 39	Connected to 215	T	G&W	EC-EX-027	2019/01/23	1535	IK	-23	2019/01/23	VB+PS	CM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH: DT & VF

SUPERVISOR: Chad Messervey

SUBMISSION DATE: 2019/01/31

SHEET NUMBER: 23 of 24

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER 80mil Primary

PROJECT TITLE Victoria Gold HDL Heap Leach Pond

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-027	2018/11/18	900	RL	-6	268	262	164	156	162	181	164	263	206	199	210	212	VF	
2	EC-EX-027	2018/11/18	1425	RL	-6	268	262	156	150	146	153	146	167	176	165	168	165	VF	
3	EC-EX-027	2019/01/23	1415	IK	-20	262	257	120	93	102	117	115	222	219	220	211	222	CM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
19A	39 / 41	Connected to 217	T	G&W	EC-EX-027	2019/01/23	1540	IK	-23	2019/01/23	VB+PS	CM
19B	41 / 42	Connected to 220	T	G&W	EC-EX-027	2019/01/23	1545	IK	-23	2019/01/23	VB+PS	CM
19C	42 / 43	Connected to 222	T	G&W	EC-EX-027	2019/01/23	1550	IK	-23	2019/01/23	VB+PS	CM
19D	43 / 45	Connected to 224	T	G&W	EC-EX-027	2019/01/23	1555	IK	-23	2019/01/23	VB+PS	CM
19E	45 / 46	Connected to 226	T	G&W	EC-EX-027	2019/01/23	1600	IK	-23	2019/01/23	VB+PS	CM
19F	46 / 47	Connected to 228	T	G&W	EC-EX-027	2019/01/23	1605	IK	-23	2019/01/23	VB+PS	CM
19G	47 / 48	Connected to 229	T	G&W	EC-EX-027	2019/01/23	1610	IK	-23	2019/01/23	VB+PS	CM
19H	211 / 212	Connected to 2	T	G&W	EC-EX-027	2019/01/23	1615	IK	-23	2019/01/23	VB+PS	CM
19I	212 / 213	Connected to 2	T	G&W	EC-EX-027	2019/01/23	1620	IK	-23	2019/01/23	VB+PS	CM
19J	213 / 214	Connected to 2	T	G&W	EC-EX-027	2019/01/23	1625	IK	-23	2019/01/23	VB+PS	CM
19K	135 / 211	Connected to 2	T	G&W	EC-EX-027	2019/01/23	1627	IK	-23	2019/01/23	VB+PS	CM
19L	128 / 129	Connected to 127	T	G&W	EC-EX-027	2018/11/18	1657	RL	-6	2018/11/23	VB	VF
	/											
	/											
	/											
	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

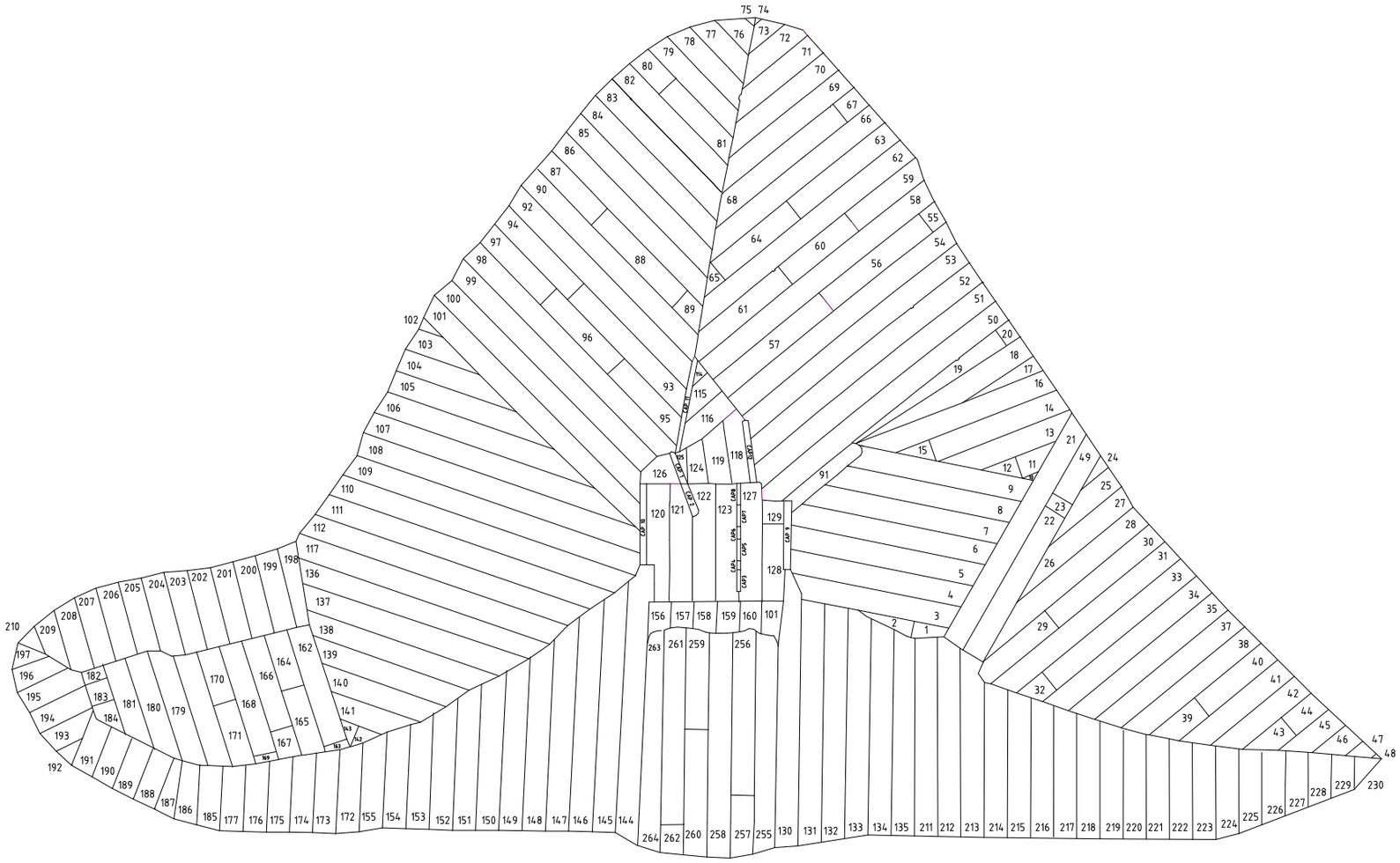
REMARKS

QC TECH DT & VF

SUPERVISOR Chad Messervey

SUBMISSION DATE 2019/01/31

SHEET NUMBER 24 of 24



LEGEND

Liner Field Seam

P2 Panel Number

NOTES

REV.	RECORD OF CHANGES	DATE	BY

LAYFIELD

HEAP Pond 80 mil

DWG. NUMBER

Quote No.	PROJECT No. CT001143
DWG : 1 OF 1	SCALE : NTS
DWN: BM CHKD:	APP'D:
DATE: 2019-09-10	REVISION:

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Eagle Gold In Heap Pond
PROJECT NUMBER: CT001143 **DATE:** June 30, 2019
OWNER: Victoria Gold
LOCATION: Eagle Gold Yukon

Scope of Installation(s): **THE WORK**
Area/Layer: In heap pond Area Inspected: ☐ Partial or ☑ Complete
Dimensions: 62,000 m2 of GCL, 60 mil LLDPE, Geocomposite and 80 mil LLDPE

Part 1 – LAYFIELD CANADA LTD.

I, Chad Messervey, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: Chad Messervey
Title: Project Supervisor
Date: June 30, 201[illegible] **Signature:**

Part 2 – OWNER (or Representative)

I, _____, a duly appointed representative of _____, do hereby accept and receive the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms and conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Dinsdale
Title: QA Monitor
Company: TetraTech
Date: Aug 8, 2019 **Signature:**

Comments: _____

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as In Heap Pond will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (May 18, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will not be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

In Heap Pond Culverts

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____ DEPLOYMENT DATE 2019/06/25

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
265	5-38985	16	6	20	Okay	TH	Okay
266	5-38985	15.5	6.8	20	Okay	TH	Okay
267	5-38985	15	6.8	20	Okay	TH	Okay
268	5-38998	14.5	6.8	20	Okay	TH	Okay
269	5-38998	14	6.8	20	Okay	TH	Okay

TOTAL PAGE AREA 497.2 m²

QC TECH _____

SUPERVISOR _____

SUBMISSION DATE _____

SHEET NUMBER 1 of 1

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____ SEAM DATE 2019/06/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1430	TW	20	40.0%	454	135	131	146	138	138	129	138	138	146	141	167	178	168	172	172	TH	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
268	269	NEOS	SEOS	1450	20	TW	EC-WW-045	13.5		AP+PS	26/6/19	925	930	40	40	Pass	TH
267	268	NEOS	SEOS	1505	20	TW	EC-WW-045	14.5		AP+PS	26/6/19	930	935	40	40	Pass	TH
266	267	NEOS	SEOS	1518	20	TW	EC-WW-045	15.0		AP+PS	26/6/19	730	735	40	40	Pass	TH
265	266	NEOS	SEOS	1530	20	TW	EC-WW-045	15.7		AP+PS	26/6/19	730	735	40	40	Pass	TH
265	Existin	EEOS	1B	1608	20	TW	EC-WW-045	3.0		AP+PS	26/6/19	910	915	40	40	Pass	TH
265	Existin	1B	WEOS	1609	20	TW	EC-WW-045	3.0		VB+PS	26/6/19					Pass	TH
266	Existin	EEOS	1D	1611	20	TW	EC-WW-045	2.0		AP+PS	26/6/19	910	915	40	40	Pass	TH
266	Existin	1D	WEOS	1612	20	TW	EC-WW-045	4.5		AP+PS	26/6/19	915	920	40	40	Pass	TH
267	Existin	EEOS	1F	1614	20	TW	EC-WW-045	2.0		VB+PS	26/6/19					Pass	TH
267	Existin	1F	1G	1615	20	TW	EC-WW-045	2.0		AP+PS	26/6/19	915	920	40	40	Pass	TH
267	Existin	1G	WEOS	1616	20	TW	EC-WW-045	2.5		AP+PS	26/6/19	920	925	40	40	Pass	TH
268	Existin	EEOS	1I	1617	20	TW	EC-WW-045	4.0		VB+PS	26/6/19					Pass	TH
268	Existin	1I	WEOS	1619	20	TW	EC-WW-045	2.5		AP+PS	26/6/19	925	930	40	40	Pass	TH

PAGE TOTAL 84.2

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED
PS - POINT STRESS	& VAC BOX

REMARKS:

QC TECH _____

SUPERVISOR _____

SUBMISSION DATE _____

LS-10-QF-004

www.layfieldcontainment.com

SHEET NUMBER 1 of 1

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER _____ AREA / LAYER _____

PROJECT TITLE _____

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/25	1430	FG	20	246	243	111	103	107	123	134	143	154	138	129	134	TH	
2	EC-EX-035	2019/06/26	800	FG	20	246	243	100	101	101	122	101	151	146	162	146	151	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	Exist / 265	East Seam	FS	G&W	EC-EX-035	2019/06/26	1115	FG	20	2019/06/26	VB+PS	TH
1B	265 / 266	6m South of NEOS, 3m East	P	B	EC-EX-035	2019/06/25	1718	FG	20	2019/06/26	VB+PS	TH
1C	265 / 266	Existing to 1B	T	G&W	EC-EX-035	2019/06/25	1710	FG	20	2019/06/26	VB+PS	TH
1D	Exist / 266	2m West of EEOS	T	G&W	EC-EX-035	2019/06/25	1820	FG	20	2019/06/26	VB+PS	TH
1E	266 / 267	5m South of NEOS, 0.5m West	P	B	EC-EX-035	2019/06/25	1743	FG	20	2019/06/26	VB+PS	TH
1F	266 / 267	Existing to 1E	T	G&W	EC-EX-035	2019/06/25	1725	FG	20	2019/06/26	VB+PS	TH
1G	266 / 267	5m South of NEOS, 5m West	P	B	EC-EX-035	2019/06/25	1815	FG	20	2019/06/26	VB+PS	TH
1H	267 / 268	5m South of NEOS, 3.5m West	P	B	EC-EX-035	2019/06/26	929	FG	20	2019/06/26	VB+PS	TH
1I	267 / 268	Existing to 1H	T	G&W	EC-EX-035	2019/06/26	945	FG	20	2019/06/26	VB+PS	TH
1J	268 / 269	1m North of SEOS, 1.5m East	D	G&W	EC-EX-035	2019/06/26	805	FG	20	2019/06/26	VB+PS	TH
1K	Exist / 269	West Seam	FS	G&W	EC-EX-035	2019/06/26	840	FG	20	2019/06/26	VB+PS	TH
	/											
	/											
	/											
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	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH _____

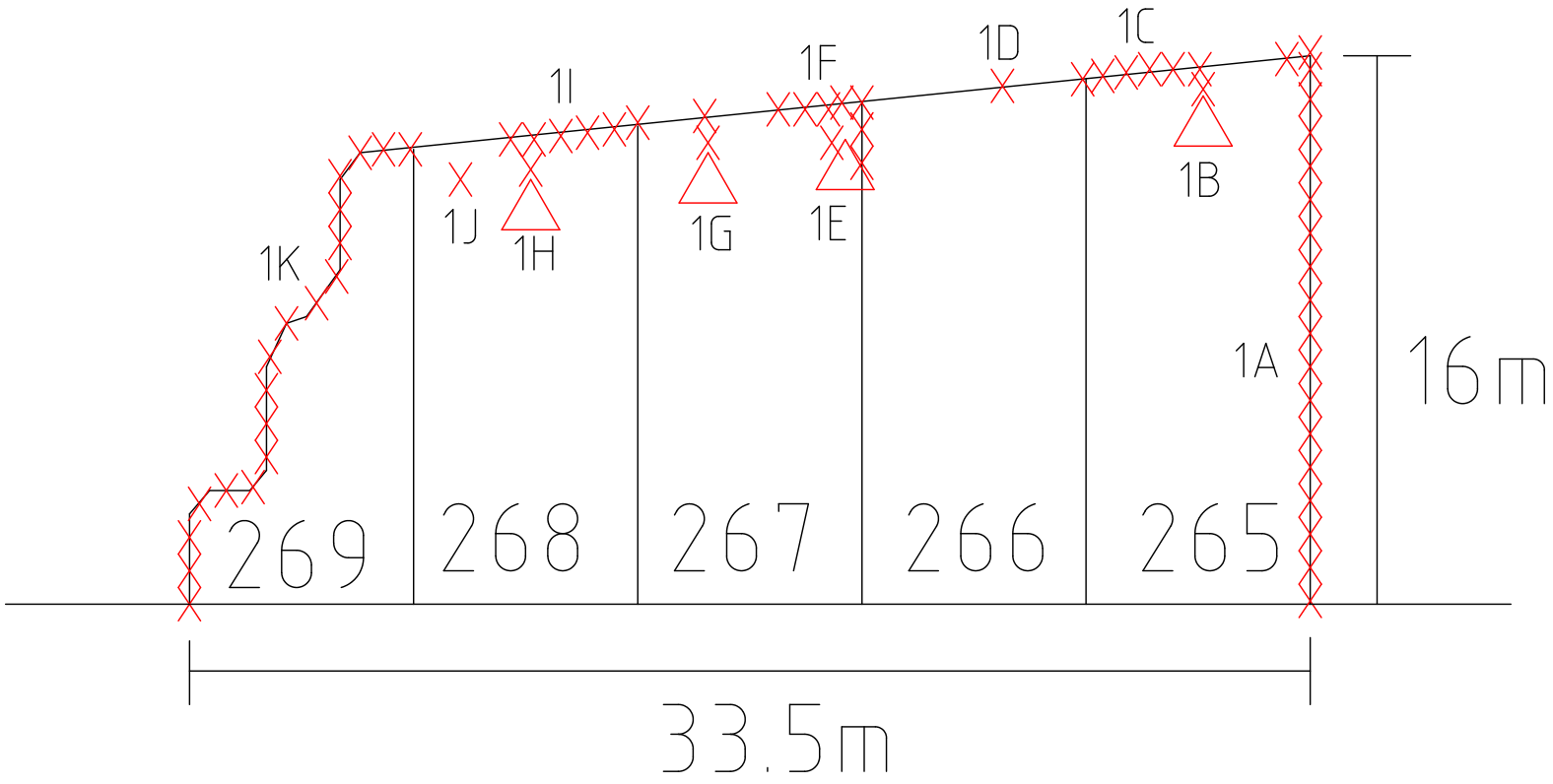
SUPERVISOR _____

SUBMISSION DATE _____

SHEET NUMBER 1 of 1

Heap Pond Culvert

Existing



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No

Project No
CT001143

DWG:
DWN: BM
APPD:
DATE: 2019-07-09

SCALE: NTS

CMKD:
REV.: 1

N

In Heap Pond
Embankment Pipe Completion

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Heap Pond Pipe Cover
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/05

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
255	5-39078	70	6.8	13	Okay	BM	Okay
256	5-39078	51	6.8	13	Okay	BM	Okay
257	5-39076	19	6.8	13	Okay	BM	Okay
258	5-39076	69	6.8	13	Okay	BM	Okay
259	5-39076	31	6.8	13	Okay	BM	Okay
260	5-39065	39	6.8	13	Okay	BM	Okay
261	5-39065	60	6.8	13	Okay	BM	Okay
262	5-39065	10	6.8	13	Okay	BM	Okay
263	5-39062	60	5.5	13	Okay	BM	Okay
264	5-39065	10	5.5	13	Okay	BM	Okay

TOTAL PAGE AREA 2758.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/06/09
SHEET NUMBER 1 of 1

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Heap Pond Pipe Cover | SEAM DATE 2019/06/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1000	EE	10	40.0%	454	162	155	158	158	163	152	150	151	145	147	184	181	191	181	187		
2	EC-WW-054	1000	EE	10	50.0%	454	154	14	153	149	139	133	129	133	125	127	178	168	176	173	174		
3	EC-WW-050	1000	RW	10	40.0%	454	130	133	141	138	133	141	138	144	140	123	167	173	166	164	179		
4	EC-WW-050	1000	RW	10	50.0%	454	133	132	133	137	131	126	128	131	140	126	151	149	152	154	152		
5	EC-WW-050	1415	RW	16	50.0%	454	128	131	130	126	129	143	129	122	118	138	153	161	155	153	153		
6	EC-WW-054	1420	EE	16	50.0%	454	121	121	123	128	127	125	123	123	134	126	155	149	155	152	149		

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
256 / 257	WEOS	EEOS	1212	16	RW	EC-WW-050	6.7		AP+PS	4/6/19	1236	1241	40	40	Pass	BM
259 / 260	WEOS	EEOS	1225	16	RW	EC-WW-050	6.7		AP+PS	4/6/19	1330	1335	40	40	Pass	BM
255 / 256	NEOS	SEOS	1248	16	RW	EC-WW-050	51.0		AP+PS	4/6/19	1230	1235	40	40	Pass	BM
130 / 255	NEOS	SEOS	1300	16	EE	EC-WW-054	68.0		AP+PS	4/6/19	1220	1225	40	40	Pass	BM
255 / 257	NEOS	SEOS	1305	16	RW	EC-WW-050	19.0		AP+PS	4/6/19	1222	1227	40	40	Pass	BM
256 / 258	NEOS	SEOS	1330	16	RW	EC-WW-050	51.0		AP+PS	4/6/19	1239	1244	40	40	Pass	BM
257 / 258	NEOS	1E	1347	16	RW	EC-WW-050	12.0	DS-1	AP+PS	4/6/19	1236	1241	40	40	Pass	BM
257 / 258	1E	SEOS	1351	16	RW	EC-WW-050	7.0	DS-1	AP+PS	4/6/19	1243	1248	40	40	Pass	BM
259 / 261	NEOS	SEOS	1500	16	EE	EC-WW-054	31.0		AP+PS	4/6/19	1338	1343	40	40	Pass	BM
260 / 261	NEOS	1Q	1510	16	EE	EC-WW-054	28.0	DS-3	AP+PS	4/6/19	1338	1343	40	40	Pass	BM
260 / 261	1Q	SEOS	1520	16	EE	EC-WW-054	2.0	DS-3	VB+PS	7/6/19					Pass	BM
258 / 259	NEOS	SEOS	1528	16	RW	EC-WW-050	31.0		AP+PS	4/6/19	1330	1335	40	40	Pass	BM
258 / 260	NEOS	1T	1538	16	RW	EC-WW-050	30.0		AP+PS	4/6/19	1300	1305	40	40	Pass	BM
258 / 260	1T	1T	1548	16	RW	EC-WW-050	3.0		VB+PS	7/6/19					Pass	BM
258 / 260	1T	SEOS	1549	16	RW	EC-WW-050	7.0		AP+PS	4/6/19	1255	1300	40	40	Pass	BM
261 / 263	SEOS	NEOS	1552	16	EE	EC-WW-054	60.0		AP+PS	4/6/19	1350	1355	40	40	Pass	BM
260 / 262	NEOS	SEOS	1640	16	RW	EC-WW-050	10.0		VB+PS	7/6/19					Pass	BM
262 / 264	NEOS	SEOS	1652	16	RW	EC-WW-050	10.0		AP+PS	4/6/19	1320	1325	40	40	Pass	BM
263 / 264	WEOS	EEOS	1705	16	RW	EC-WW-050	5.5		AP+PS	7/6/19	1705	1710	40	40	Pass	BM
261 / 262	WEOS	EEOS	1708	16	RW	EC-WW-050	6.7	DS-2	AP+PS	7/6/19	1710	1715	40	40	Pass	BM
						PAGE TOTAL	445.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/06/09
SHEET NUMBER: 1 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Heap Pond Pipe Cover | SEAM DATE 2019/06/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
144	264	SEOS	NEOS	1720	16	RW	EC-WW-050	9.0		AP+PS	7/6/19	1705	1710	40	40	Pass	BM
144	263	SEOS	1N	1740	16	RW	EC-WW-050	34.0		AP+PS	7/6/19	1735	1740	40	40	Pass	BM
144	263	1N	1M	1751	16	RW	EC-WW-050	9.0		AP+PS	4/6/19	1410	1415	40	40	Pass	BM
144	263	NEOS	1L	1755	16	RW	EC-WW-050	7.0		AP+PS	4/6/19	1353	1358	40	40	Pass	BM
144	263	1L	1M	1757	16	RW	EC-WW-050	9.0		AP+PS	4/6/19	1410	1415	40	40	Pass	BM

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Heap Pond Pipe Cover

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/04	1410	EA	16	246	243	155	150	140	148	147	178	179	173	175	177		
2	EC-EX-011	2019/06/07	900	JH	9	246	243	106	107	104	105	108	171	168	172	170	177		
3	EC-EX-011	2019/06/07	1300	EA	19	246	243	140	143	144	126	148	153	155	171	164	165		
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	255 / 257	7m North of SEOS	FS	G&W	EC-EX-035	2019/06/04	1550	EA	16	2019/06/03	VB+PS	BM
1B	255 / 257	10.5m North of SEOS	FS	G&W	EC-EX-035	2019/06/04	1537	EA	16	2019/06/03	VB+PS	BM
1C	256 / 257	Connected to 255	T	G&W	EC-EX-035	2019/06/04	1528	EA	16	2019/06/03	VB+PS	BM
1D	256 / 257	Connected to 258	T	G&W	EC-EX-035	2019/06/04	1525	EA	16	2019/06/03	VB+PS	BM
1E	257 / 258	7m North of SEOS	DS	P	EC-EX-035	2019/06/04	1521	EA	16	2019/06/03	VB+PS	BM
1F	257 / 258	9m North of SEOS	FS	G&W	EC-EX-035	2019/06/04	1523	EA	16	2019/06/03	VB+PS	BM
1G	259 / 260	Connected to 258	T	G&W	EC-EX-035	2019/06/04	1637	EA	16	2019/06/03	VB+PS	BM
1H	259 / 260	Connected to 261	T	G&W	EC-EX-035	2019/06/04	1634	EA	16	2019/06/03	VB+PS	BM
1I	255 / 130	2m South of NE Corner	WR	P	EC-EX-035	2019/06/04	1730	EA	16	2019/06/03	VB+PS	BM
1J	Existing /	Connected to 263, 261, 259, 258, 256, 25	T	G&W	EC-EX-035	2019/06/04	1800	EA	16	2019/06/03	VB+PS	BM
1K	259 / 261	1m South of NEOS	BO	P	EC-EX-011	2019/06/04	1500	EA	16	2019/06/04	VB+PS	BM
1L	144 / 163	6m South of NE Panel	WR	P	EC-EX-011	2019/06/07	955	JH	9	2019/06/07	VB+PS	BM
1M	144 / 163	14m South of NE Panel	WR	P	EC-EX-011	2019/06/07	1010	JH	9	2019/06/07	VB+PS	BM
1N	144 / 163	22m South of NE Panel	WR	P	EC-EX-011	2019/06/07	1023	JH	9	2019/06/07	VB+PS	BM
1O	263 / 264	Connected to 144	T	G&W	EC-EX-011	2019/06/07	1625	EA	19	2019/06/07	VB+PS	BM
1P	263 / 264	Connected to 261, 262	T	P	EC-EX-011	2019/06/07	1623	EA	19	2019/06/07	VB+PS	BM
1Q	260 / 261	2m North of SEOS	DS	P	EC-EX-011	2019/06/07	1500	EA	19	2019/06/07	VB+PS	BM
1R	261 / 262	1m West of EEOS, 1m South	P	B	EC-EX-011	2019/06/07	1530	EA	19	2019/06/07	VB+PS	BM
1S	258 / 260	8m North of SEOS, 2.5m West	P	B	EC-EX-011	2019/06/07	1550	EA	19	2019/06/07	VB+PS	BM
1T	258 / 260	8m North of SEOS, 2m West	P	B	EC-EX-011	2019/06/07	1600	EA	19	2019/06/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/06/09

SHEET NUMBER 1 of 2

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Heap Pond Pipe Cover

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/07	900	JH	9	246	243	106	107	104	105	108	171	168	172	170	177		
2	EC-EX-011	2019/06/07	1300	EA	19	246	243	140	143	144	126	148	153	155	171	164	165		
3	EC-EX-035	2019/06/15	1130	TH	12	246	243	125	123	115	117	116	162	161	167	165	162		
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	257 / 258	8m North of SEOS, 3m West	P	B	EC-EX-011	2019/06/07	1158	JH	9	2019/06/07	VB+PS	BM
2B	260 / 262	1R to SEOS	FS	G&W	EC-EX-035	2019/06/15	1135	TH	12	2019/06/15	VB+PS	BM
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DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/06/09

SHEET NUMBER 2 of 2

GEOMEMBRANE DESTRUCT LOG

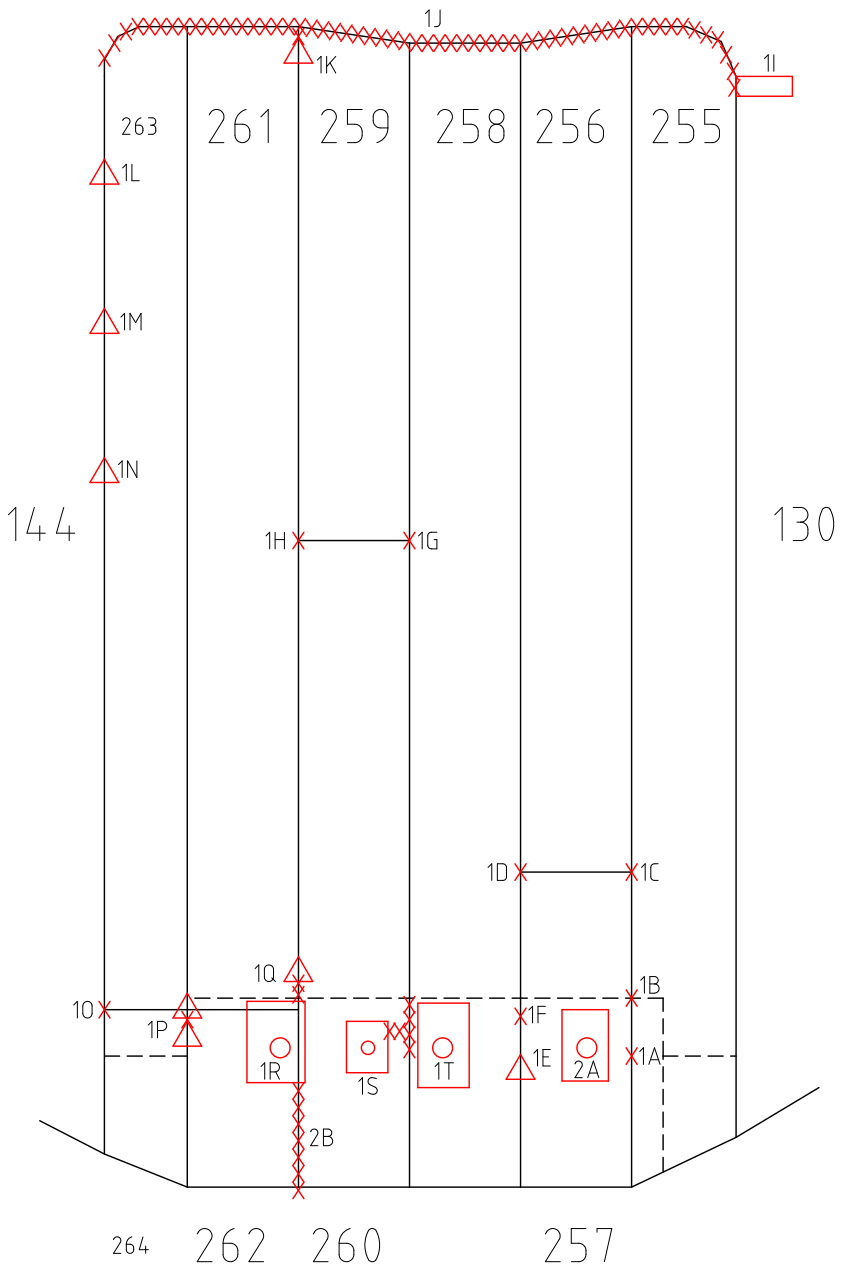
PROJECT NUMBER: CT001143
PROJECT TITLE: Heap Pond Pipe Cover
AREA / LAYER: Primary
3RD PARTY: Tetratech
ARCHIVE: LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	257/258	2019/06/05	20	Yes	Pass			136	132	148	133	142	131	134	128	135	133	158	152	157	160	158
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-2	SPF	261/262	2019/06/05	20	Yes	Pass			142	167	153	153	157	155	155	145	164	155	177	170	178	175	173
5m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-3	SPF	260/261	2019/06/05	20	Yes	Pass			134	136	129	140	137	133	136	143	146	146	153	145	148	143	143
2.5m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH: Bradley McLeod
SUBMITTED BY: Chad Messervy
SUBMISSION DATE: 2019/06/09
SHEET NUMBER: 1 of 1

HEAP Pond (Pipe Section)
LLDPE 80mil DST



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No

Project No
CT001143

DWG:
DWN: BM
APPD:
DATE: 2019-06-09

SCALE: NTS

CMKD:
REV.: 1

N

Phase 1A – Heap Pad

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

PROJECT NAME: EAGLE GOLD HEAP LEACH
PROJECT NUMBER: CT001143
OWNER/CONTRACTOR: VICTORIA GOLD / JDS MINING
LOCATION: EAGLE GOLD MINE, YT.

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

☑ *found it to be an acceptable surface on which to install geomembrane; OR*

☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial or ☑ Complete):
Dimensions of Subgrade Inspection: APPROX 172000 m²
Anchor Trench Dimensions: 0.5m x 0.5 m
Comments: AREA IS ACCEPTABLE FOR INSTALL & WILL BE REPAIRED AS NECESSARY THROUGHOUT CONSTRUCTION.

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date:
Signature:
Name: Austin Green
Title: Field Supervisor.

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: June 9, 2019
Signature:
Name: Scott Dittrich
Title: QA monitor
Company: Tetra Tech

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/30

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-38888	38.5	6.8		Good	BM	Okay
2	5-38888	8	6.8		Good	BM	Okay
3	5-38888	28.5	6.8		Good	BM	Okay
4	5-38888	33	6.8		Good	BM	Okay
5	5-38888	5.5	6.8		Good	BM	Okay
6	5-38977	24	6.8		Good	BM	Okay
7	5-38888	7	6.8		Good	BM	Okay
8	5-38977	20	6.8		Good	BM	Okay
9	5-38888	6.5	6.8		Good	BM	Okay
10	5-38977	16	6.8		Good	BM	Okay
11	5-38977	18	6.8		Good	BM	Okay
12	5-38977	12.5	6.8		Good	BM	Okay
13	5-38977	4.5	4.5		Good	BM	Okay
14	5-38877	83.5	6.8		Good	BM	Okay
15	5-38877	19.5	6.8		Good	BM	Okay
16	5-38877	28	6.8		Good	BM	Okay
17	5-38977	23	6.8		Good	BM	Okay
18	5-38907	41.5	6.8		Good	BM	Okay
19	5-38907	74.5	6.8		Good	BM	Okay
20	5-38890	9	6.8		Good	BM	Okay

TOTAL PAGE AREA 3396.45 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 1 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/30

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
21	5-38907	15.5	6.8		Good	BM	Okay
22	5-38890	58	6.8		Good	BM	Okay
23	5-38890	51	6.8		Good	BM	Okay
24	5-38878	13	6.8		Good	BM	Okay
25	5-38890	16	6.8		Good	BM	Okay
26	5-38878	34	6.8		Good	BM	Okay
27	5-38977	10	4.5		Good	BM	Okay
28	5-38878	25	6.8		Good	BM	Okay
29	5-38878	20.5	6.8		Good	BM	Okay
30	5-38878	4	4		Good	BM	Okay
31	5-38878	6	6.8		Good	BM	Okay
32	5-38878	24.5	6.8		Good	BM	Okay
33	5-39075	11.5	6.8		Good	BM	Okay
34	5-39075	45.5	6.8		Good	BM	Okay
35	5-39075	5.5	6.8		Good	BM	Okay
36	5-39075	44.5	6.8		Good	BM	Okay
37	5-39075	12.5	6.8		Good	BM	Okay
38	5-38883	41	6.8		Good	BM	Okay
39	5-39075	3.3	6.8		Good	BM	Okay
40	5-38883	52.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 3323.64 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 2 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/30

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
41	5-38883	26	6.8		Good	BM	Okay
42	5-38882	35.5	6.8		Good	BM	Okay
43	5-38883	3.7	6.8		Good	BM	Okay
44	5-38882	60.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 854.76 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 3 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/01

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
45	5-38882	24	6.8		Good	BM	Okay
46	5-38933	89	6.8		Good	BM	Okay
47	5-38882	12.5	6.8		Good	BM	Okay
48	5-38933	34	6.8		Good	BM	Okay
49	5-38875	78	6.8		Good	BM	Okay
50	5-38875	42	6.8		Good	BM	Okay
51	5-38876	92	6.8		Good	BM	Okay
52	5-38875	12.5	6.8		Good	BM	Okay
53	5-38876	31	6.8		Good	BM	Okay
54	5-38884	101.5	6.8		Good	BM	Okay
55	5-38884	19	6.8		Good	BM	Okay
56	5-38873	122	6.8		Good	BM	Okay
57	5-38930	13.5	6.8		Good	BM	Okay
58	5-38884	12	6.8		Good	BM	Okay
59	5-38930	109	6.8		Good	BM	Okay
60	5-38910	44.5	6.8		Good	BM	Okay
61	5-38910	75.5	6.8		Good	BM	Okay
62	5-38886	99	6.8		Good	BM	Okay
63	5-38910	10.4	6.8		Good	BM	Okay
64	5-38886	22.6	6.8		Good	BM	Okay

TOTAL PAGE AREA 7099.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 4 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/01

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
65	5-38915	122.5	6.8		Good	BM	Okay
66	5-38881	30	6.8		Good	BM	Okay

TOTAL PAGE AREA 1037 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 5 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/02

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
67	5-38881	69	6.8		Good	BM	Okay
68	5-38831	5	6.8		Good	BM	Okay
69	5-38881	19.5	6.8		Good	BM	Okay
70	5-38939	48.5	6.8		Good	BM	Okay
71	5-38939	74	6.8		Good	BM	Okay
72	5-38874	3.5	6.8		Good	BM	Okay
73	5-38939	6	6.8		Good	BM	Okay
74	5-38874	74	6.8		Good	BM	Okay
75	5-38874	44	6.8		Good	BM	Okay
76	5-38880	40.5	6.8		Good	BM	Okay
77	5-38880	6	6.8		Good	BM	Okay
78	5-38880	83	6.8		Good	BM	Okay
79	5-38879	93.5	6.8		Good	BM	Okay
80	5-38879	26	6.8		Good	BM	Okay
81	5-38931	72.5	6.8		Good	BM	Okay
82	5-38879	5.5	6.8		Good	BM	Okay
83	5-38931	52	6.8		Good	BM	Okay
84	5-38932	46	6.8		Good	BM	Okay

TOTAL PAGE AREA 5225.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 6 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/03

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
85	5-38925	54.5	6.8		Good	BM	Okay
86	5-38925	105.5	6.8		Good	BM	Okay
87	5-38932	74.5	6.8		Good	BM	Okay
88	5-38925	17	6.8		Good	BM	Okay
89	5-38954	104.5	6.8		Good	BM	Okay
90	5-38932	9	6.8		Good	BM	Okay
91	5-38954	14.5	6.8		Good	BM	Okay
92	5-38934	123.5	6.8		Good	BM	Okay
93	5-38893	57	6.8		Good	BM	Okay
94	5-38893	24.5	6.8		Good	BM	Okay
95	5-38936	121	6.8		Good	BM	Okay
96	5-38935	66	6.8		Good	BM	Okay
97	5-38924	54	6.8		Good	BM	Okay
98	5-38924	105.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 6330.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 7 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/04

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
99	5-38893	9.5	6.8		Good	BM	Okay
100	5-38893	55.5	6.8		Good	BM	Okay
101	5-38924	17	6.8		Good	BM	Okay
102	5-38946	122	6.8		Good	BM	Okay
103	5-38928	14	6.8		Good	BM	Okay
104	5-38928	107	6.8		Good	BM	Okay
105	5-38953	120	6.8		Good	BM	Okay
106	5-38928	10	6.8		Good	BM	Okay
107	5-38941	121.5	6.8		Good	BM	Okay
108	5-38926	104	6.8		Good	BM	Okay
109	5-38926	8.5	6.8		Good	BM	Okay
110	5-38917	121.5	6.8		Good	BM	Okay
111	5-38906	105.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 6228.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 8 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/07

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
112	5-38906	21	6.8		Good	BM	Okay
113	5-38938	113.5	6.8		Good	BM	Okay
114	5-38929	115.5	6.8		Good	BM	Okay
115	5-38929	17	6.8		Good	BM	Okay
116	5-38908	113	6.8		Good	BM	Okay
117	5-38937	119.5	6.8		Good	BM	Okay
118	5-38952	12.5	6.8		Good	BM	Okay
119	5-38927	113	6.8		Good	BM	Okay
120	5-38909	124	6.8		Good	BM	Okay

TOTAL PAGE AREA 5093.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 9 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/08

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
121	5-38909	5	6.8		Good	BM	Okay
122	5-38951	103.5	6.8		Good	BM	Okay
123	5-38944	122	6.8		Good	BM	Okay
124	5-38591	10.5	6.8		Good	BM	Okay
125	5-38968	112	6.8		Good	BM	Okay
126	5-38955	122	6.8		Good	BM	Okay
127	5-38591	7	6.8		Good	BM	Okay
128	5-38956	117.5	6.8		Good	BM	Okay
129	5-38911	123.5	6.8		Good	BM	Okay
130	5-38945	119	6.8		Good	BM	Okay
131	5-38966	122	6.8		Good	BM	Okay

TOTAL PAGE AREA 6555.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 10 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/09

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
132	5-38947	119	6.8		Good	BM	Okay
133	5-38957	122	6.8		Good	BM	Okay
134	5-38969	120.5	6.8		Good	BM	Okay
135	5-38973	120.5	6.8		Good	BM	Okay
136	5-38970	119	6.8		Good	BM	Okay
137	5-38964	122	6.8		Good	BM	Okay
138	5-38967	121	6.8		Good	BM	Okay
139	5-38965	120	6.8		Good	BM	Okay
369	5-39056	79.5	7.4		Good	TH	Okay
370	5-38901	89.3	8.1		Good	TH	Okay
371	5-39056	74.6	5.6		Good	TH	Okay
372	1-143499	73.5	5.3		Good	TH	Okay
373	1-143499	113.3	6.7		Good	TH	Okay
374	5-39056	44.2	7.4		Good	TH	Okay
375	1-143499	6.8	6.8		Good	TH	Okay

TOTAL PAGE AREA 9806.57 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 11 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/10

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
140	5-38943	120.5	6.8		Good	BM	Okay
141	5-38996	120.5	6.8		Good	BM	Okay
142	5-39097	120.5	6.8		Good	BM	Okay
143	5-38885	120.5	6.8		Good	BM	Okay
144	5-38887	120.5	6.8		Good	BM	Okay
145	5-39020	120.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 4916.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 12 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/12

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
146	5-39028	120.5	6.8		Good	BM	Okay
147	5-38920	119	6.8		Good	BM	Okay
148	5-38995	120.5	6.8		Good	BM	Okay
149	5-38980	116	6.8		Good	BM	Okay

TOTAL PAGE AREA 3236.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 13 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/13

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
150	5-38988	120.5	6.8		Good	BM	Okay
151	5-38889	113	6.8		Good	BM	Okay
152	5-38889	18.5	6.8		Good	BM	Okay
153	5-39091	122	6.8		Good	BM	Okay
154	5-39095	90	6.8		Good	BM	Okay
155	5-39095	36	6.8		Good	BM	Okay
156	5-39098	122	6.8		Good	BM	Okay
157	5-38960	67.5	6.8		Good	BM	Okay
158	5-38960	55	6.8		Good	BM	Okay
159	5-39099	122	6.8		Good	BM	Okay
160	5-39003	42	6.8		Good	BM	Okay

TOTAL PAGE AREA 6177.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 14 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/14

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
161	5-39003	80	6.8		Good	BM	Okay
162	5-38958	122	6.8		Good	BM	Okay
163	5-39029	9.5	6.8		Good	BM	Okay
164	5-39029	113	6.8		Good	BM	Okay
165	5-39094	94	6.8		Good	BM	Okay
166	5-39094	27	6.8		Good	BM	Okay
167	5-38891	122	6.8		Good	BM	Okay
168	5-39012	53	6.8		Good	BM	Okay

TOTAL PAGE AREA 4219.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 15 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/16

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
169	5-39012	65.2	6.8		Good	BM	Okay
170	5-39013	122.9	6.8		Good	BM	Okay
171	5-39085	7.6	6.8		Good	BM	Okay
172	5-39085	114	6.8		Good	BM	Okay
173	5-39018	85	6.8		Good	BM	Okay
174	5-39018	32.1	6.8		Good	BM	Okay
175	5-39093	124	6.8		Good	BM	Okay
176	5-39069	43.1	6.8		Good	BM	Okay

TOTAL PAGE AREA 4038.52 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 16 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/17

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
177	5-39069	78.4	6.8		Good	TH	Okay
178	5-39014	114.5	6.8		Good	TH	Okay
179	5-39030	122.4	6.8		Good	TH	Okay
180	5-39052	70.5	6.8		Good	TH	Okay

TOTAL PAGE AREA 2623.44 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 17 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/18

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
181	5-39062	119.5	6.8		Good	TH	Okay
182	5-39072	101.5	6.8		Good	TH	Okay
183	5-38999	28	6.8		Good	TH	Okay
184	5-38999	27.7	6.8		Good	TH	Okay
185	5-38999	25.4	6.8		Good	TH	Okay
186	5-38999	17.3	6.8		Good	TH	Okay

TOTAL PAGE AREA 2171.92 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 18 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/19

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
187	5-39088	21.1	6.8		Good	TH	Okay
188	5-39088	22.2	6.8		Good	TH	Okay
189	5-39088	23.3	6.8		Good	TH	Okay
190	5-39088	23.3	6.8		Good	TH	Okay
191	5-39088	22.6	6.8		Good	TH	Okay
192	5-39024	21.2	6.8		Good	TH	Okay
193	5-39024	19.3	6.8		Good	TH	Okay
194	5-39024	18.8	6.8		Good	TH	Okay
195	5-39024	17.2	6.8		Good	TH	Okay
196	5-39024	15.8	6.8		Good	TH	Okay
197	5-39024	14.8	6.8		Good	TH	Okay
198	5-39047	12	6.8		Good	TH	Okay
199	5-39047	12.8	6.8		Good	TH	Okay
200	5-39047	12.7	6.8		Good	TH	Okay
201	5-39047	12.6	6.8		Good	TH	Okay
202	5-39047	12.4	6.8		Good	TH	Okay
203	5-39047	12.4	6.8		Good	TH	Okay
204	5-39047	12.6	6.8		Good	TH	Okay
205	5-38976	12.8	6.8		Good	TH	Okay
206	5-38976	13	6.8		Good	TH	Okay

TOTAL PAGE AREA 2263.72 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 19 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/19

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
207	5-38976	13	6.8		Good	TH	Okay
208	5-38976	13	6.8		Good	TH	Okay
209	5-38976	13	6.8		Good	TH	Okay
210	5-38976	13	6.8		Good	TH	Okay
211	5-38976	13.1	6.8		Good	TH	Okay
212	5-38976	13.1	6.8		Good	TH	Okay
213	5-38976	13.1	6.8		Good	TH	Okay
214	5-39026	13	6.8		Good	TH	Okay
215	5-39026	12.8	1.2		Good	TH	Okay
216	5-39026	13.2	6.8		Good	TH	Okay

TOTAL PAGE AREA 814.36 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 20 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/20

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
217	5-39026	75.9	6.8		Good	TH	Okay
218	5-39054	117.4	6.8		Good	TH	Okay
219	5-39068	26	6.8		Good	TH	Okay
220	5-39068	93.1	6.8		Good	TH	Okay
221	5-39092	120.3	6.8		Good	TH	Okay
222	5-39057	3.6	6.8		Good	TH	Okay
223	5-39057	118.1	6.8		Good	TH	Okay
224	5-38903	96.5	6.8		Good	TH	Okay

TOTAL PAGE AREA 4426.12 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 21 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/21

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
225	5-38903	20.6	6.8		Good	TH	Okay
226	5-39089	119.6	6.8		Good	TH	Okay
227	5-39052	47.5	6.8		Good	TH	Okay
228	5-38898	27.1	6.8		Good	TH	Okay
229	5-38898	90.8	6.8		Good	TH	Okay
230	5-39086	118.3	6.8		Good	TH	Okay
231	5-38999	6.6	6.8		Good	TH	Okay

TOTAL PAGE AREA 2927.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 22 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/23

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
232	5-39055	108	6.8		Good	BM	Okay
233	5-39055	4	6.8		Good	BM	Okay
234	5-38892	104	6.8		Good	BM	Okay
235	5-39055	12	6.8		Good	BM	Okay
236	5-38892	15.5	6.8		Good	BM	Okay
237	5-39070	81	6.8		Good	BM	Okay
238	5-39055	5	6.8		Good	BM	Okay
239	5-39070	36	6.8		Good	BM	Okay
240	5-39061	70	6.8		Good	BM	Okay
241	5-39061	48.5	6.8		Good	BM	Okay
242	5-39036	66	6.8		Good	BM	Okay
243	5-39061	3	6.8		Good	BM	Okay
244	5-39036	56	6.8		Good	BM	Okay
245	5-39096	58.5	6.8		Good	BM	Okay
246	5-39096	62.5	6.8		Good	BM	Okay
247	5-39100	58	6.8		Good	BM	Okay

TOTAL PAGE AREA 5358.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 23 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/24

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
248	5-39100	63.5	6.8		Good	BM	Okay
249	5-39019	61	6.8		Good	BM	Okay
250	5-39100	4.5	6.8		Good	BM	Okay
251	5-39019	60.5	6.8		Good	BM	Okay
252	5-39023	63	6.8		Good	BM	Okay
253	5-39023	56.5	6.8		Good	BM	Okay
254	5-38940	75	6.8		Good	BM	Okay
255	5-39023	5.2	6.8		Good	BM	Okay
256	5-38940	45	6.8		Good	BM	Okay
257	5-38900	87.5	6.8		Good	BM	Okay
258	5-38900	33.5	6.8		Good	BM	Okay
259	5-39053	104.5	6.8		Good	BM	Okay
260	5-38900	2.7	6.8		Good	BM	Okay
261	5-39053	15.2	6.8		Good	BM	Okay
262	5-38895	122.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 5440.68 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 24 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/25

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
263	5-38975	122	6.8		Good	BM	Okay
264	5-38912	23.5	6.8		Good	BM	Okay
265	5-38975	5	5.7		Good	BM	Okay
266	5-38996	1.6	5.7		Good	BM	Okay
267	5-38921	52.5	5.7		Good	BM	Okay
267A	5-38921	18.5	1.6		Good	BM	Okay
268	5-38912	97.5	6.8		Good	BM	Okay
269	5-38921	52	5.2		Good	BM	Okay
270	5-38921	65.5	6.8		Good	BM	Okay
271	5-39066	84.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 3309.27 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 25 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/26

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
272	5-39066	37	6.8		Good	BM	Okay
273	5-38959	112	6.8		Good	BM	Okay
274	5-38972	122	6.8		Good	BM	Okay
275	5-38919	27.1	6.8		Good	BM	Okay
276	5-38919	93	6.8		Good	BM	Okay
277	5-38979	69	6.8		Good	BM	Okay
278	5-38919	3.8	6.8		Good	BM	Okay
279	5-38979	52.5	6.8		Good	BM	Okay
280	5-39049	102.5	6.8		Good	BM	Okay
281	5-39043	122	6.8		Good	BM	Okay
282	5-38918	31.5	6.8		Good	BM	Okay
283	5-39022	27	6.8		Good	BM	Okay
284	5-39022	27	6.8		Good	BM	Okay
285	5-39022	27	6.8		Good	BM	Okay
286	5-39022	4.5	6.8		Good	BM	Okay
287	5-39022	15	6.8		Good	BM	Okay

TOTAL PAGE AREA 5935.72 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 26 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/27

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
288	5-38918	50	6.8		Good	BM	Okay
289	5-38918	38.5	6.8		Good	BM	Okay
290	5-38974	11.5	6.8		Good	BM	Okay
291	5-38974	100.5	6.8		Good	BM	Okay
292	5-39071	100.5	6.8		Good	BM	Okay
293	5-39071	18.5	5.6		Good	BM	Okay
294	5-39033	82	6.8		Good	BM	Okay

TOTAL PAGE AREA 2708 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 27 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/28

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
295	5-39032	122	6.8		Good	BM	Okay
296	5-38942	88	6.8		Good	BM	Okay
297	5-38942	31.4	6.8		Good	BM	Okay
298	5-39033	36.2	6.8		Good	BM	Okay
299	5-39045	122	6.8		Good	BM	Okay
300	5-39041	21.2	6.8		Good	BM	Okay
301	5-39041	99	6.8		Good	BM	Okay
302	5-39021	111	6.8		Good	BM	Okay

TOTAL PAGE AREA 4289.44 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 28 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/29

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
303	5-39021	10	6.8		Good	BM	Okay
304	5-39042	122	6.8		Good	BM	Okay
305	5-39015	19.5	6.8		Good	BM	Okay
306	5-39015	98	6.8		Good	BM	Okay
307	5-38916	51	6.8		Good	BM	Okay
308	5-38916	69	6.8		Good	BM	Okay
309	5-39044	80	6.8		Good	BM	Okay
310	5-39044	41.5	6.8		Good	BM	Okay
311	5-39419	18	6.8		Good	BM	Okay
312	5-38902	89.5	6.8		Good	BM	Okay
313	5-38902	32.5	6.8		Good	BM	Okay
314	5-39063	116	6.8		Good	BM	Okay

TOTAL PAGE AREA 5079.6 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 29 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/30

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
315	5-39059	123	6.8		Good	BM	Okay
316	5-39035	27	6.8		Good	BM	Okay
317	5-39035	95	6.8		Good	BM	Okay
318	5-39058	56	6.8		Good	BM	Okay
319	5-39058	65	6.8		Good	BM	Okay
320	5-39060	86	6.8		Good	BM	Okay
321	5-39060	32.5	6.8		Good	BM	Okay
322	5-38922	118.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 4100.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 30 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/05/31

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
323	5-39074	122	6.8		Good	BM	Okay
324	1-143500	36.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 1077.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 31 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/02

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
325	1-143500	87	6.8		Good	BM	Okay
326	5-38971	74	6.8		Good	BM	Okay
327	5-38971	50	6.8		Good	BM	Okay
328	1-143489	111	6.8		Good	BM	Okay
329	1-143489	10.5	6.8		Good	BM	Okay
330	1-143498	118.5	6.8		Good	BM	Okay
331	1-143492	33	6.8		Good	BM	Okay
332	1-143492	87.5	6.8		Good	BM	Okay
333	1-143494	74.5	6.8		Good	BM	Okay
334	1-143494	44	6.8		Good	BM	Okay
335	1-143495	118	6.8		Good	BM	Okay

TOTAL PAGE AREA 5494.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 32 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/05

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
336	1-143487	121	6.8		Good	BM	Okay
337	5-39067	42	6.8		Good	BM	Okay
338	5-39067	78	6.8		Good	BM	Okay
339	1-143488	85.5	6.8		Good	BM	Okay
340	1-143488	27.5	6.8		Good	BM	Okay
341	1-143490	121	6.8		Good	BM	Okay
342	1-143497	13.5	6.8		Good	BM	Okay

TOTAL PAGE AREA 3321.8 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 33 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/06

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
343	1-143497	103	6.8		Good	BM	Okay
344	1-143496	65	6.8		Good	BM	Okay
345	1-143496	48	6.8		Good	BM	Okay
346	5-39034	118	6.8		Good	BM	Okay
347	5-38914	114	6.8		Good	BM	Okay
348	5-39017	55	6.8		Good	BM	Okay

TOTAL PAGE AREA 3420.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 34 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/07

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
349	5-39017	61.5	6.8		Good	BM	Okay
350	5-38948	112	6.8		Good	BM	Okay
351	5-38948	7	6.8		Good	BM	Okay
352	5-39048	122	6.8		Good	BM	Okay
353	5-39073	45.5	6.8		Good	BM	Okay
354	5-39073	75	6.8		Good	BM	Okay
355	5-39027	102	6.8		Good	BM	Okay
356	5-39027	18	6.8		Good	BM	Okay
357	5-39051	122	6.8		Good	BM	Okay
358	5-39037	39	6.8		Good	BM	Okay

TOTAL PAGE AREA 4787.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 35 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/08

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
359	5-39037	81	6.8		Good	BM	Okay
360	5-38963	97.5	6.8		Good	BM	Okay
361	5-38963	19.5	6.8		Good	BM	Okay
362	5-38941	120	6.8		Good	BM	Okay
363	1-143493	37	6.8		Good	BM	Okay
364	1-143493	77.5	6.8		Good	BM	Okay
365	5-38961	95.5	6.8		Good	BM	Okay
366	5-38961	21.5	6.8		Good	BM	Okay
367	5-39040	119	6.8		Good	TH	Okay
368	5-38901	28.5	6.8		Good	TH	Okay

TOTAL PAGE AREA 4739.6 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 36 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/14

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
376	5-39082	105.6	6.9		Good	TH	Okay
377	5-38905	44.6	6.7		Good	TH	Okay
378	5-39082	30	2.2		Good	TH	Okay
379	5-38905	43.7	4.2		Good	TH	Okay
380	5-39082	12.4	7.2		Good	TH	Okay
381	5-38905	75.6	6.8		Good	TH	Okay

TOTAL PAGE AREA 1880.36 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 37 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/15

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
382	5-39081	73.1	6.7		Good	TH	Okay
383	5-38987	122.2	6.7		Good	TH	Okay
384	5-39081	25.3	6.7		Good	TH	Okay
385	5-38989	122.2	6.7		Good	TH	Okay
386	5-39083	25.9	6.7		Good	TH	Okay
387	5-39083	93.9	6.7		Good	TH	Okay
388	5-39084	42.2	6.7		Good	TH	Okay
389	5-39084	29	6.7		Good	TH	Okay
390	5-39084	27.4	8.2		Good	TH	Okay
391	5-39006	25.2	8.1		Good	TH	Okay
392	5-39006	23.7	8.1		Good	TH	Okay
393	5-39006	22.2	8.5		Good	TH	Okay
394	5-39006	20.9	8.4		Good	TH	Okay
395	5-39006	19.9	8.4		Good	TH	Okay
396	5-39009	19.2	7.2		Good	TH	Okay
397	5-39009	19.2	8.7		Good	TH	Okay
398	5-39009	17.8	8.6		Good	TH	Okay
399	5-39009	16.3	8.6		Good	TH	Okay
400	5-39009	13.1	8.8		Good	TH	Okay
401	5-39009	10.1	8.7		Good	TH	Okay

TOTAL PAGE AREA 5530.34 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 38 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/15

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
402	5-39009	6.9	11.7		Good	TH	Okay
403	5-39009	3	11.9		Good	TH	Okay
404	5-39009	5.4	4.3		Good	TH	Okay

TOTAL PAGE AREA 139.65 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 39 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/17

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
405	5-38915	119.1	6.7		Good	TH	Okay
406	5-38899	90.7	6.7		Good	TH	Okay
407	5-38899	29.1	6.7		Good	TH	Okay
408	5-38897	119.6	6.7		Good	TH	Okay
409	5-38990	61.7	6.7		Good	TH	Okay
410	5-38990	58.6	6.7		Good	TH	Okay
411	5-38914	120.5	6.7		Good	TH	Okay
412	5-38991	28	6.7		Good	TH	Okay
413	5-38991	86.5	6.7		Good	TH	Okay
414	5-38896	120.6	6.7		Good	TH	Okay
415	5-38997	4.6	6.7		Good	TH	Okay

TOTAL PAGE AREA 5621.3 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 40 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/18

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
416	5-38997	97	3.2		Good	TH	Okay
417	5-38997	115	2.8		Good	TH	Okay

TOTAL PAGE AREA 632.4 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 41 of 42

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/29

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
418	NA	10	6.8		Good	TW	Okay
419	NA	10	6.8		Good	TW	Okay
420	NA	5	2		Good	TW	Okay

TOTAL PAGE AREA 146 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 42 of 42

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/04/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	820	WP	20	55.0%	454	141	150	146	154	147	141	139	143	145	140	177	176	177	175	178	BM	Smooth/Smooth
2	EC-WW-050	830	MZ	20	55.0%	454	149	146	157	145	145	137	135	133	124	147	161	160	165	163	162	BM	Smooth/Smooth
3	EC-WW-054	915	WP	20	40.0%	454	137	154	157	130	154	167	162	170	166	155	180	182	183	186	188	BM	Textured/Textured
4	EC-WW-054	1330	WP	20	40.0%	454	145	141	159	171	163	161	153	161	171	160	188	188	188	190	181	BM	Textured/Textured
5	EC-WW-056	1330	DH	20	65.0%	454	138	136	132	147	143	132	130	135	144	143	144	149	156	148	160	BM	Smooth/Smooth
6	EC-WW-050	1330	MZ	20	55.0%	454	132	134	141	145	144	145	142	138	142	146	168	179	172	162	168	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 3	SEOS	NEOS	920	20	MZ	EC-WW-050	28.5		AP+PS	1/5/19	1755	1800	40	40	Pass	BM
1 / 2	SEOS	NEOS	930	20	MZ	EC-WW-050	8.0		AP+PS	1/5/19	1751	1756	40	40	Pass	BM
2 / 3	EEOS	WEOS	935	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1550	1555	40	40	Pass	BM
5 / 6	EEOS	WEOS	945	20	WP	EC-WW-054	6.7		VB+PS	7/5/19					Pass	BM
7 / 8	EEOS	WEOS	950	20	WP	EC-WW-054	6.7		AP+PS	30/4/19	1002	1007	40	40	Pass	BM
3 / 4	SEOS	NEOS	950	20	WP	EC-WW-054	28.5		VB+PS	7/5/19					Pass	BM
9 / 10	EEOS	WEOS	1000	20	WP	EC-WW-054	6.7		AP+PS	30/4/19	1000	1005	40	39	Pass	BM
2 / 4	SEOS	NEOS	1000	20	WP	EC-WW-054	4.5		VB+PS	7/5/19					Pass	BM
4 / 5	SEOS	NEOS	1005	20	MZ	EC-WW-050	5.5		AP+PS	1/5/19	1725	1730	40	40	Pass	BM
4 / 6	SEOS	NEOS	1006	20	MZ	EC-WW-050	24.0		AP+PS	1/5/19	1724	1729	40	40	Pass	BM
6 / 8	SEOS	NEOS	1010	20	DH	EC-WW-056	20.0		AP+PS	1/5/19	1714	1719	40	40	Pass	BM
6 / 7	SEOS	NEOS	1016	20	DH	EC-WW-056	4.0		AP+PS	1/5/19	1713	1718	40	40	Pass	BM
5 / 7	SEOS	NEOS	1017	20	DH	EC-WW-056	2.5		AP+PS	1/5/19	1712	1717	40	40	Pass	BM
8 / 10	SEOS	NEOS	1030	20	MZ	EC-WW-050	16.0		AP+PS	1/5/19	1655	1700	40	40	Pass	BM
8 / 9	SEOS	NEOS	1035	20	MZ	EC-WW-050	2.5	DS-1	VB+PS	7/5/19					Pass	BM
7 / 9	SEOS	NEOS	1036	20	MZ	EC-WW-050	3.5		VB+PS	7/5/19					Pass	BM
10 / 11	SEOS	NEOS	1045	20	DH	EC-WW-056	14.5		AP+PS	2019-05-01	1649	1654	40	40	Pass	BM
9 / 11	SEOS	NEOS	1050	20	DH	EC-WW-056	3.5		AP+PS	2019-05-01	1647	1652	40	40	Pass	BM
11 / 12	SEOS	NEOS	1100	20	MZ	EC-WW-050	12.5		AP+PS	2019-04-30	1055	1100	40	40	Pass	BM
12 / 13	SEOS	NEOS	1100	20	WP	EC-WW-054	4.5		AP+PS	2019-05-01	1637	1642	40	40	Pass	BM
						PAGE TOTAL	209.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 1 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/04/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1340	WP	20	60.0%	454	129	141	136	140	148	117	130	125	135	135	160	160	162	161	157	BM	Smooth/Smooth
8	EC-WWXL-340	1540	GB	20	20.5%	454	146	155	156	144	148	140	139	133	156	137	161	154	174	173	173	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
14 / 18	EEOS	WEOS	1229	20	MZ	EC-WW-050	41.5		AP+PS	1/5/19	1648	1653	40	40	Pass	BM
14 / 15	SEOS	NEOS	1230	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1606	1611	40	40	Pass	BM
16 / 17	SEOS	NEOS	1235	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1628	1633	40	40	Pass	BM
14 / 17	EEOS	WEOS	1242	20	MZ	EC-WW-050	23.0		AP+PS	1/5/19	1642	1647	40	40	Pass	BM
17 / 18	SEOS	NEOS	1245	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1355	1400	40	40	Pass	BM
14 / 16	EEOS	WEOS	1249	20	MZ	EC-WW-050	19.0		AP+PS	1/5/19	1641	1646	40	40	Pass	BM
15 / 16	EEOS	WEOS	1255	20	MZ	EC-WW-050	9.0		AP+PS	2/5/19	905	910	40	40	Pass	BM
19 / 20	SEOS	NEOS	1305	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1152	1157	40	40	Pass	BM
21 / 22	SEOS	NEOS	1315	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1140	1145	40	40	Pass	BM
25 / 26	SEOS	NEOS	1340	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1000	1005	40	40	Pass	BM
18 / 20	EEOS	WEOS	1345	20	DH	EC-WW-056	7.0		AP+PS	4/5/19	816	821	40	40	Pass	BM
18 / 19	EEOS	3D	1347	20	DH	EC-WW-056	13.5		AP+PS	2/5/19	1150	1155	40	40	Pass	BM
18 / 19	3D	WEOS	1351	20	DH	EC-WW-056	22.0		AP+PS	1/5/19	1354	1359	40	40	Pass	BM
17 / 19	EEOS	WEOS	1358	20	DH	EC-WW-056	23.0		AP+PS	1/5/19	1627	1632	40	40	Pass	BM
16 / 19	EEOS	WEOS	1405	20	DH	EC-WW-056	17.0		AP+PS	1/5/19	1626	1631	40	40	Pass	BM
20 / 22	EEOS	WEOS	1405	20	MZ	EC-WW-050	8.5		AP+PS	2/5/19	1151	1156	40	40	Pass	BM
19 / 22	EEOS	2Q	1407	20	MZ	EC-WW-050	32.0	DS-4 & 7 & 8	AP+PS	2/5/19	1127	1132	40	40	Pass	BM
23 / 24	SEOS	NEOS	1415	20	WP	EC-WW-054	6.7		AP+PS	2/5/19	1003	1008	40	40	Pass	BM
19 / 22	2Q	2Q	1417	20	MZ	EC-WW-050	9.0	DS-4 & 7 & 8	VB+PS	7/5/19					Pass	BM
19 / 22	2Q	WEOS	1419	20	MZ	EC-WW-050	7.0	DS-4 & 7 & 8	AP+PS	2/5/19	1130	1135	40	40	Pass	BM
						PAGE TOTAL	278.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 2 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/04/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
19 / 21	EEOS	WEOS	1422	20	MZ	EC-WW-050	15.5		AP+PS	2/5/19	1121	1126	40	40	Pass	BM
22 / 24	EEOS	WEOS	1427	20	DH	EC-WW-056	11.5		AP+PS	2/5/19	1102	1107	40	40	Pass	BM
22 / 23	EEOS	WEOS	1430	20	DH	EC-WW-056	47.0		AP+PS	2/5/19	1103	1108	40	40	Pass	BM
24 / 26	EEOS	WEOS	1430	20	WP	EC-WW-054	13.0		AP+PS	2/5/19	1004	1009	40	40	Pass	BM
23 / 26	EEOS	WEOS	1435	20	WP	EC-WW-054	21.5	DS-6	AP+PS	2/5/19	1002	1007	40	40	Pass	BM
23 / 25	EEOS	WEOS	1442	20	WP	EC-WW-054	16.0		AP+PS	1/5/19	1752	1757	40	40	Pass	BM
21 / 23	EEOS	WEOS	1445	20	DH	EC-WW-056	4.0		AP+PS	2/5/19	1106	1111	40	40	Pass	BM
28 / 29	EEOS	WEOS	1500	20	MZ	EC-WW-050	20.5		AP+PS	1/5/19	1650	1655	40	40	Pass	BM
26 / 28	EEOS	WEOS	1520	20	MZ	EC-WW-050	25.0		AP+PS	2/5/19	952	957	40	40	Pass	BM
27 / 28	SEOS	NEOS	1526	20	WP	EC-WW-054	4.0		AP+PS	1/5/19	1703	1708	40	40	Pass	BM
26 / 27	EEOS	WEOS	1528	20	MZ	EC-WW-050	9.0		AP+PS	1/5/19	1727	1732	40	40	Pass	BM
1 / 31	SEOS	NEOS	1529	20	MZ	EC-WW-050	2.5		AP+PS	2/5/19	806	811	40	40	Pass	BM
25 / 27	EEOS	WEOS	1530	20	MZ	EC-WW-050	1.0		VB+PS	7/5/19					Pass	BM
1 / 32	SEOS	NEOS	1530	20	MZ	EC-WW-050	24.5		AP+PS	1/5/19	1258	1303	40	40	Pass	BM
29 / 30	EEOS	WEOS	1535	20	WP	EC-WW-054	4.5		AP+PS	1/5/19	1636	1641	40	40	Pass	BM
1 / 33	SEOS	NEOS	1538	20	MZ	EC-WW-050	11.5		AP+PS	1/5/19	1257	1302	40	40	Pass	BM
31 / 34	SEOS	NEOS	1600	20	DH	EC-WW-056	6.0		AP+PS	1/5/19	1808	1813	40	40	Pass	BM
34 / 35	SEOS	NEOS	1600	20	MZ	EC-WW-050	2.5		AP+PS	1/5/19	1816	1821	40	40	Pass	BM
34 / 36	SEOS	NEOS	1601	20	MZ	EC-WW-050	44.5		AP+PS	1/5/19	1819	1824	40	40	Pass	BM
32 / 34	SEOS	NEOS	1602	20	DH	EC-WW-056	24.5		AP+PS	1/5/19	1320	1325	40	40	Pass	BM
						PAGE TOTAL	308.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 3 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/04/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
33 / 34	SEOS	2C	1610	20	DH	EC-WW-056	8.5	DS-2 & 9	VB+PS	7/5/19					Pass	BM
33 / 34	2C	NEOS	1612	20	DH	EC-WW-056	3.0	DS-2 & 9	AP+PS	1/5/19	1327	1332	40	40	Pass	BM
35 / 37	SEOS	NEOS	1630	20	DH	EC-WW-056	5.5		AP+PS	2/5/19	829	834	40	40	Pass	BM
36 / 37	SEOS	NEOS	1632	20	DH	EC-WW-056	3.5		AP+PS	1/5/19	1830	1835	40	40	Pass	BM
36 / 38	SEOS	NEOS	1633	20	DH	EC-WW-056	40.5		AP+PS	2/5/19	855	900	40	40	Pass	BM
37 / 39	SEOS	NEOS	1636	20	MZ	EC-WW-050	1.3		VB+PS	7/5/19					Pass	BM
37 / 40	SEOS	NEOS	1637	20	MZ	EC-WW-050	11.0	DS-10	AP+PS	2/5/19	811	816	40	40	Pass	BM
38 / 40	SEOS	NEOS	1641	20	MZ	EC-WW-050	41.0	DS-3	AP+PS	2/5/19	1331	1336	40	40	Pass	BM
39 / 41	SEOS	NEOS	1700	20	WP	EC-WW-054	3.5		AP+PS	2/5/19	1817	1822	40	40	Pass	BM
13 / 30	EEOS	WEOS	1700	20	GB	EC-WWXL	3.3		VB+PS	7/5/19					Pass	BM
40 / 41	SEOS	NEOS	1701	20	WP	EC-WW-054	17.0		AP+PS	2/5/19	1331	1336	40	40	Pass	BM
12 / 30	EEOS	WEOS	1701	20	GB	EC-WWXL	0.5		VB+PS	7/5/19					Pass	BM
12 / 29	EEOS	WEOS	1702	20	GB	EC-WWXL	6.9		AP+PS	1/5/19	1639	1644	40	40	Pass	BM
11 / 29	EEOS	WEOS	1704	20	GB	EC-WWXL	7.5		AP+PS	1/5/19	1646	1651	40	40	Pass	BM
9 / 29	EEOS	WEOS	1706	20	GB	EC-WWXL	2.2		AP+PS	1/5/19	1648	1653	40	40	Pass	BM
40 / 42	SEOS	NEOS	1707	20	WP	EC-WW-054	35.5		AP+PS	2/5/19	825	830	40	40	Pass	BM
9 / 28	EEOS	WEOS	1707	20	GB	EC-WWXL	5.2		AP+PS	1/5/19	1653	1658	40	40	Pass	BM
7 / 28	EEOS	WEOS	1709	20	GB	EC-WWXL	1.2		VB+PS	7/5/19					Pass	BM
41 / 43	SEOS	NEOS	1710	20	MZ	EC-WW-050	1.5		AP+PS	1/5/19	1725	1730	40	40	Pass	BM
7 / 27	EEOS	WEOS	1710	20	GB	EC-WWXL	6.2		AP+PS	1/5/19	1103	1108	40	40	Pass	BM
						PAGE TOTAL	204.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 4 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/04/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
41 / 44	SEOS	NEOS	1711	20	MZ	EC-WW-050	24.5		AP+PS	1/5/19	1725	1730	40	40	Pass	BM
5 / 27	EEOS	WEOS	1712	20	GB	EC-WWXL	4.8		AP+PS	1/5/19	1723	1728	40	40	Pass	BM
5 / 25	EEOS	WEOS	1714	20	GB	EC-WWXL	2.7		AP+PS	1/5/19	1728	1733	40	40	Pass	BM
4 / 25	EEOS	WEOS	1715	20	GB	EC-WWXL	7.5		AP+PS	1/5/19	1310	1315	40	40	Pass	BM
2 / 25	EEOS	WEOS	1718	20	GB	EC-WWXL	6.5		AP+PS	1/5/19	1738	1743	40	40	Pass	BM
42 / 44	SEOS	NEOS	1719	20	MZ	EC-WW-050	36.0		AP+PS	8/5/19	1830	1835	40	40	Pass	BM
2 / 23	EEOS	WEOS	1720	20	GB	EC-WWXL	0.8		VB+PS	7/5/19					Pass	BM
1 / 23	EEOS	WEOS	1721	20	GB	EC-WWXL	7.5		AP+PS	1/5/19	1805	1810	40	40	Pass	BM
31 / 23	EEOS	WEOS	1724	20	GB	EC-WWXL	6.5		AP+PS	1/5/19	1807	1812	40	40	Pass	BM
31 / 21	EEOS	WEOS	1726	20	GB	EC-WWXL	1.3		VB+PS	7/5/19					Pass	BM
34 / 21	EEOS	WEOS	1727	20	GB	EC-WWXL	7.8	DS-5	AP+PS	1/5/19	1815	1820	40	40	Pass	BM
35 / 21	EEOS	WEOS	1730	20	GB	EC-WWXL	5.0		AP+PS	1/5/19	1816	1821	40	40	Pass	BM
35 / 19	EEOS	WEOS	1732	20	GB	EC-WWXL	2.8		AP+PS	1/5/19	1827	1832	40	40	Pass	BM
37 / 19	EEOS	WEOS	1733	20	GB	EC-WWXL	7.8		AP+PS	1/5/19	1828	1833	40	40	Pass	BM
39 / 19	EEOS	WEOS	1736	20	GB	EC-WWXL	3.3		AP+PS	2/5/19	815	820	40	40	Pass	BM
39 / 16	EEOS	WEOS	1737	20	GB	EC-WWXL	4.6		AP+PS	2/5/19	816	821	40	40	Pass	BM
41 / 16	EEOS	WEOS	1739	20	GB	EC-WWXL	7.9		AP+PS	2/5/19	904	909	40	40	Pass	BM
43 / 16	EEOS	WEOS	1742	20	GB	EC-WWXL	0.3		VB+PS	7/5/19					Pass	BM
43 / 15	EEOS	WEOS	1743	20	GB	EC-WWXL	7.5		AP+PS	3/5/19	1718	1723	40	40	Pass	BM
/																

PAGE TOTAL 145.1

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 5 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/01

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	820	WP	20	40.0%	454	152	150	149	151	144	169	157	153	163	154	197	207	200	205	206	BM	Textured/Textured
2	EC-WW-050	930	MZ	20	55.0%	454	140	151	146	149	151	147	161	153	157	151	194	191	195	200	195	BM	Smooth/Smooth
3	EC-WWXL-340	935	GB	20	20.5%	454	171	155	160	170	169	174	155	173	171	180	211	214	207	214	200	BM	Textured/Textured
4	EC-WW-054	940	WP	20	55.0%	454	135	161	163	155	155	172	156	162	160	161	187	181	193	183	187	BM	Smooth/Smooth
5	EC-WW-056	950	BM	20	55.0%	454	135	130	142	138	133	141	148	128	133	140	176	175	176	175	173	BM	Smooth/Smooth
6	EC-WW-054	1330	WP	20	65.0%	454	122	124	134	142	136	154	139	152	138	140	175	176	176	176	176	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
45 / 46	SEOS	NEOS	920	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1702	1707	40	40	Pass	BM
14 / 46	EEOS	WEOS	945	20	MZ	EC-WW-050	83.5		AP+PS	2/5/19	1704	1709	40	40	Pass	BM
47 / 48	SEOS	NEOS	948	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1710	1715	40	40	Pass	BM
46 / 49	EEOS	WEOS	955	20	WP	EC-WW-054	76.0		AP+PS	2/5/19	1719	1724	40	40	Pass	BM
48 / 49	SEOS	NEOS	956	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1720	1725	40	40	Pass	BM
50 / 51	SEOS	NEOS	1006	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1723	1728	40	40	Pass	BM
49 / 51	EEOS	WEOS	1010	20	BM	EC-WW-056	76.5		AP+PS	2/5/19	1721	1726	40	40	Pass	BM
15 / 46	EEOS	WEOS	1012	20	MZ	EC-WW-050	4.5		AP+PS	2/5/19	1703	1708	40	40	Pass	BM
15 / 45	EEOS	WEOS	1013	20	MZ	EC-WW-050	14.5		AP+PS	2/5/19	1701	1706	40	40	Pass	BM
46 / 48	EEOS	WEOS	1020	20	WP	EC-WW-054	12.0		AP+PS	2/5/19	1700	1705	40	40	Pass	BM
45 / 48	EEOS	WEOS	1024	20	WP	EC-WW-054	22.0		AP+PS	4/5/19	1056	1101	40	40	Pass	BM
45 / 47	EEOS	WEOS	1032	20	WP	EC-WW-054	1.5	DS-11	VB+PS	7/5/19					Pass	BM
48 / 51	EEOS	WEOS	1035	20	BM	EC-WW-056	14.5		AP+PS	2/5/19	1722	1727	40	40	Pass	BM
48 / 50	EEOS	WEOS	1040	20	BM	EC-WW-056	19.5		AP+PS	4/5/19	1052	1057	40	40	Pass	BM
47 / 50	EEOS	WEOS	1047	20	BM	EC-WW-056	13.5		AP+PS	15/5/19	1628	1633	40	40	Pass	BM
52 / 53	SEOS	NEOS	1058	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1656	1701	40	40	Pass	BM
51 / 54	EEOS	WEOS	1111	20	BM	EC-WW-056	91.5	DS-12	AP+PS	2/5/19	1739	1744	40	40	Pass	BM
53 / 54	SEOS	NEOS	1130	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1741	1746	40	40	Pass	BM
50 / 54	EEOS	WEOS	1142	20	BM	EC-WW-056	9.0		AP+PS	2/5/19	1740	1745	40	40	Pass	BM
50 / 53	EEOS	WEOS	1145	20	BM	EC-WW-056	31.0		AP+PS	4/5/19	1049	1054	40	40	Pass	BM
						PAGE TOTAL	509.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/01

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1345	BM	20	55.0%	454	151	144	152	148	143	141	142	150	138	152	176	179	179	175	178	BM	Smooth/Smooth
8	EC-WW-050	1350	LC	20	65.0%	454	143	136	134	163	133	134	153	134	148	136	173	168	176	172	181	BM	Smooth/Smooth
9	EC-WWXL-340	1400	GB	20	20.5%	454	146	160	157	165	165	143	153	151	169	167	200	200	201	210	205	BM	Textured/Textured
10	EC-WW-054	1525	WP	20	55.0%	454	154	155	151	152	152	147	147	140	149	140	186	181	193	191	183	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
50 / 52	EEOS	WEOS	1155	20	BM	EC-WW-056	3.0		AP+PS	2/5/19	1656	1701	40	40	Pass	BM
55 / 56	SEOS	NEOS	1324	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1640	1645	40	40	Pass	BM
59 / 60	SEOS	NEOS	1333	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1606	1611	40	40	Pass	BM
56 / 57	SEOS	NEOS	1343	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1808	1813	40	40	Pass	BM
54 / 57	EEOS	WEOS	1415	20	LC	EC-WW-050	12.5		AP+PS	2/5/19	1809	1814	40	40	Pass	BM
54 / 56	EEOS	4G	1419	20	LC	EC-WW-050	81.5		AP+PS	2/5/19	1750	1755	40	40	Pass	BM
58 / 59	SEOS	NEOS	1422	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1551	1556	40	40	Pass	BM
57 / 60	EEOS	4J	1440	20	WP	EC-WW-054	7.0		AP+PS	7/5/19	1828	1833	40	40	Pass	BM
57 / 60	4J	WEOS	1442	20	WP	EC-WW-054	6.0		AP+PS	7/5/19	1821	1826	40	40	Pass	BM
56 / 60	EEOS	WEOS	1445	20	WP	EC-WW-054	31.0		AP+PS	2/5/19	1807	1812	40	40	Pass	BM
54 / 56	4G	WEOS	1446	20	LC	EC-WW-050	7.0		AP+PS	2/5/19	1743	1748	40	40	Pass	BM
53 / 56	EEOS	WEOS	1449	20	LC	EC-WW-050	31.0	DS-13	AP+PS	4/5/19	1045	1050	40	40	Pass	BM
56 / 59	EEOS	WEOS	1455	20	WP	EC-WW-054	91.5		AP+PS	4/5/19	1640	1645	40	40	Pass	BM
52 / 56	EEOS	WEOS	1459	20	LC	EC-WW-050	3.0		VB+PS	7/5/19					Pass	BM
52 / 55	EEOS	WEOS	1500	20	LC	EC-WW-050	10.0		VB+PS	7/5/19					Pass	BM
60 / 62	EEOS	7O	1515	20	BM	EC-WW-056	23.0	DS-15	AP+PS	2/5/19	1828	1833	40	40	Pass	BM
60 / 62	7O	WEOS	1522	20	BM	EC-WW-056	22.0	DS-15	AP+PS	2/5/19	1812	1817	40	40	Pass	BM
61 / 62	SEOS	NEOS	1524	20	GB	EC-WWXL	6.7		AP+PS	3/5/19	843	848	40	40	Pass	BM
55 / 59	EEOS	WEOS	1525	20	WP	EC-WW-054	17.5		AP+PS	4/5/19	1640	1645	40	40	Pass	BM
55 / 58	EEOS	WEOS	1530	20	WP	EC-WW-054	1.5	DS-14	VB+PS	7/5/19					Pass	BM
						PAGE TOTAL	381.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 7 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/01

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
59 / 62	EEOS	WEOS	1530	20	BM	EC-WW-056	54.0		AP+PS	2/5/19	1820	1825	40	40	Pass	BM
65 / 66	SEOS	NEOS	1542	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1605	1610	40	40	Pass	BM
59 / 61	EEOS	WEOS	1558	20	BM	EC-WW-056	54.5		AP+PS	4/5/19	843	848	40	40	Pass	BM
63 / 64	SEOS	NEOS	1600	20	GB	EC-WWXL	6.7		AP+PS	15/5/19	1115	1120	40	40	Pass	BM
62 / 66	EEOS	WEOS	1600	20	WP	EC-WW-054	30.5		AP+PS	2/5/19	1822	1827	40	40	Pass	BM
62 / 65	EEOS	WEOS	1610	20	WP	EC-WW-054	69.0		AP+PS	15/5/19	824	829	40	40	Pass	BM
64 / 65	SEOS	NEOS	1611	20	GB	EC-WWXL	6.7		AP+PS	2/5/19	1535	1540	40	40	Pass	BM
58 / 61	EEOS	WEOS	1626	20	BM	EC-WW-056	11.5		AP+PS	4/5/19	1551	1556	40	40	Pass	BM
61 / 65	EEOS	WEOS	1632	20	WP	EC-WW-054	53.0		VB+PS	15/5/19					Pass	BM
61 / 64	EEOS	WEOS	1700	20	WP	EC-WW-054	22.5		VB+PS	15/5/19					Pass	BM
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/																
/																
/																
PAGE TOTAL							315.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 8 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1530	LC	20	65.0%	454	116	156	154	164	146	158	152	164	156	139	206	199	200	210	202	BM	Smooth/Smooth
2	EC-WW-054	1535	WP	20	65.0%	454	152	125	128	171	163	132	140	157	165	141	202	199	200	210	202	BM	Smooth/Smooth
3	EC-WW-056	1555	CW	20	45.0%	454	163	160	151	156	176	164	150	160	152	148	199	197	222	221	219	BM	Textured/Textured
4	EC-WWXL-340	1730	GB	20	20.5%	454	165	161	175	167	176	168	169	166	149	161	210	213	211	210	214	BM	Smooth/Smooth
5	EC-WW-056	1745	CW	20	65.0%	454	154	167	157	164	173	147	157	160	172	153	213	210	214	212	205	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
43 / 67	SEOS	NEOS	1549	20	LC	EC-WW-050	6.0		AP+PS	4/5/19	1718	1723	40	40	Pass	BM
44 / 67	SEOS	NEOS	1551	20	LC	EC-WW-050	60.5	DS-21	AP+PS	4/5/19	1123	1128	40	40	Pass	BM
68 / 69	EEOS	WEOS	1605	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1710	1715	40	40	Pass	BM
67 / 68	SEOS	NEOS	1610	20	WP	EC-WW-054	1.0		VB+PS	7/5/19					Pass	BM
67 / 69	SEOS	NEOS	1611	20	WP	EC-WW-054	19.5		AP+PS	4/5/19	1340	1345	40	40	Pass	BM
67 / 70	SEOS	NEOS	1617	20	WP	EC-WW-054	48.5		AP+PS	4/5/19	1126	1131	40	40	Pass	BM
69 / 70	EEOS	WEOS	1618	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1355	1400	40	40	Pass	BM
68 / 71	SEOS	NEOS	1623	20	LC	EC-WW-050	6.0		AP+PS	4/5/19	1710	1715	40	40	Pass	BM
69 / 71	SEOS	NEOS	1625	20	LC	EC-WW-050	19.5		AP+PS	4/5/19	1335	1340	40	40	Pass	BM
71 / 72	EEOS	WEOS	1628	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1730	1735	40	40	Pass	BM
70 / 71	SEOS	NEOS	1631	20	LC	EC-WW-050	45.0	DS-24	AP+PS	4/5/19	1129	1134	40	40	Pass	BM
75 / 76	EEOS	WEOS	1645	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1324	1329	40	40	Pass	BM
70 / 72	SEOS	NEOS	1646	20	LC	EC-WW-050	3.5	DS-20	AP+PS	4/5/19	1754	1759	40	40	Pass	BM
75 / 77	SEOS	NEOS	1650	20	WP	EC-WW-054	1.0		VB+PS	7/5/19					Pass	BM
75 / 78	SEOS	NEOS	1651	20	WP	EC-WW-054	42.5		AP+PS	4/5/19	1324	1329	40	40	Pass	BM
73 / 74	EEOS	WEOS	1654	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1702	1707	40	40	Pass	BM
71 / 73	SEOS	NEOS	1705	20	LC	EC-WW-050	2.0	DS-25	AP+PS	4/5/19	1702	1707	40	40	Pass	BM
76 / 78	SEOS	NEOS	1705	20	WP	EC-WW-054	40.5		AP+PS	4/5/19	1015	1020	40	40	Pass	BM
71 / 74	SEOS	5M	1706	20	LC	EC-WW-050	1.5		AP+PS	8/5/19	1702	1707	40	40	Pass	BM
71 / 74	5M	5L	1707	20	LC	EC-WW-050	3.5		AP+PS	8/5/19	1742	1747	40	40	Pass	BM
						PAGE TOTAL	334.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 9 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
71 / 74	5L	NEOS	1708	20	LC	EC-WW-050	65.5		AP+PS	8/5/19	1730	1735	40	40	Pass	BM
77 / 78	EEOS	WEOS	1710	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1656	1701	40	40	Pass	BM
80 / 81	EEOS	WEOS	1715	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1306	1311	40	40	Pass	BM
77 / 79	SEOS	NEOS	1725	20	WP	EC-WW-054	6.0		AP+PS	4/5/19	1648	1653	40	40	Pass	BM
78 / 79	SEOS	NEOS	1727	20	WP	EC-WW-054	83.0	DS-19	AP+PS	4/5/19	1147	1152	40	40	Pass	BM
72 / 74	SEOS	NEOS	1729	20	LC	EC-WW-050	3.5		AP+PS	4/5/19	1754	1759	40	40	Pass	BM
82 / 83	EEOS	WEOS	1730	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1647	1652	40	40	Pass	BM
83 / 84	EEOS	WEOS	1735	20	CW	EC-WW-056	6.7		AP+PS	4/5/19	1301	1306	40	40	Pass	BM
73 / 75	SEOS	NEOS	1738	20	LC	EC-WW-050	6.0		AP+PS	4/5/19	1702	1707	40	40	Pass	BM
74 / 75	SEOS	NEOS	1740	20	LC	EC-WW-050	33.5		AP+PS	4/5/19	1331	1336	40	40	Pass	BM
80 / 82	SEOS	NEOS	1750	20	CW	EC-WW-056	1.0		VB+PS	7/5/19					Pass	BM
15 / 67	EEOS	WEOS	1750	20	GB	EC-WWXL	5.4		AP+PS	3/5/19	1718	1723	40	40	Pass	BM
75 / 76	SEOS	NEOS	1751	20	LC	EC-WW-050	40.5		AP+PS	4/5/19	1132	1137	40	40	Pass	BM
80 / 83	SEOS	NEOS	1751	20	CW	EC-WW-056	25.5		AP+PS	4/5/19	1306	1311	40	40	Pass	BM
45 / 67	EEOS	WEOS	1751	20	GB	EC-WWXL	2.9		AP+PS	3/5/19	1715	1720	40	40	Pass	BM
45 / 68	EEOS	WEOS	1752	20	GB	EC-WWXL	8.3		AP+PS	4/5/19	1710	1715	40	40	Pass	BM
45 / 71	EEOS	WEOS	1754	20	GB	EC-WWXL	1.7		VB+PS	7/5/19					Pass	BM
47 / 71	EEOS	WEOS	1755	20	GB	EC-WWXL	6.8		AP+PS	3/5/19	1702	1707	40	40	Pass	BM
47 / 73	EEOS	WEOS	1757	20	GB	EC-WWXL	5.9		AP+PS	26/5/19	1057	1102	40	40	Pass	BM
81 / 83	SEOS	NEOS	1759	20	CW	EC-WW-056	26.8		AP+PS	4/5/19	905	910	40	40	Pass	BM
						PAGE TOTAL	349.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 10 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
50 / 73	EEOS	WEOS	1759	20	GB	EC-WWXL	2.4		AP+PS	4/5/19	1702	1707	40	40	Pass	BM
50 / 75	EEOS	WEOS	1800	20	GB	EC-WWXL	8.5		AP+PS	4/5/19	1656	1701	40	40	Pass	BM
50 / 77	EEOS	WEOS	1802	20	GB	EC-WWXL	1.9		AP+PS	4/5/19	1656	1701	40	40	Pass	BM
52 / 77	EEOS	WEOS	1803	20	GB	EC-WWXL	6.6		AP+PS	4/5/19	1648	1653	40	40	Pass	BM
79 / 80	SEOS	NEOS	1805	20	WP	EC-WW-054	21.0		AP+PS	4/5/19	1312	1317	40	40	Pass	BM
52 / 79	EEOS	WEOS	1805	20	GB	EC-WWXL	5.7		AP+PS	4/5/19	1648	1653	40	40	Pass	BM
81 / 84	SEOS	NEOS	1807	20	CW	EC-WW-056	46.0	DS-23	AP+PS	4/5/19	1216	1221	40	40	Pass	BM
55 / 79	EEOS	WEOS	1807	20	GB	EC-WWXL	2.7		AP+PS	4/5/19	1642	1647	40	40	Pass	BM
55 / 80	EEOS	WEOS	1808	20	GB	EC-WWXL	8.6		AP+PS	4/5/19	1647	1652	40	40	Pass	BM
58 / 82	EEOS	WEOS	1810	20	GB	EC-WWXL	8.4		AP+PS	27/5/19	945	950	40	40	Pass	BM
79 / 81	SEOS	6N	1812	20	WP	EC-WW-054	59.0		AP+PS	8/5/19	1056	1101	40	40	Pass	BM
58 / 86	EEOS	WEOS	1812	20	GB	EC-WWXL	1.3		VB+PS	7/5/19					Pass	BM
79 / 81	6N	NEOS	1832	20	WP	EC-WW-054	13.5		AP+PS	8/5/19	1105	1110	40	40	Pass	BM
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PAGE TOTAL 185.6

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 11 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/03

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	940	WP	20	65.0%	454	179	161	131	156	165	153	161	136	185	170	215	219	217	219	219	BM	Smooth/Smooth
2	EC-WW-050	1045	CW	20	40.0%	454	125	168	167	168	165	175	183	180	174	176	208	211	215	223	199	BM	Textured/Textured
3	EC-WW-054	1100	WP	20	45.0%	454	175	155	175	179	167	170	165	165	152	182	227	235	270	218	219	BM	Textured/Textured
4	EC-WW-050	1535	CW	20	40.0%	454	150	137	141	138	138	156	149	148	140	156	188	181	188	189	184	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
85 / 86	SEOS	NEOS	1144	20	CW	EC-WW-050	54.5	DS-18	AP+PS	4/5/19	1229	1234	40	40	Pass	BM
83 / 85	SEOS	NEOS	1155	20	WP	EC-WW-054	8.5		AP+PS	4/5/19	1254	1259	40	40	Pass	BM
84 / 85	SEOS	NEOS	1157	20	WP	EC-WW-054	46.0		AP+PS	4/5/19	1221	1226	40	40	Pass	BM
91 / 92	SEOS	NEOS	1300	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1639	1644	40	40	Pass	BM
87 / 88	SEOS	NEOS	1315	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1712	1717	40	40	Pass	BM
63 / 87	WEOS	EEOS	1325	20	WP	EC-WW-054	9.5		AP+PS	10/5/19	1145	1150	40	40	Pass	BM
64 / 87	WEOS	EEOS	1327	20	WP	EC-WW-054	22.5		AP+PS	10/5/19	1538	1543	40	40	Pass	BM
88 / 89	SEOS	NEOS	1330	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1710	1715	40	40	Pass	BM
65 / 87	WEOS	EEOS	1333	20	WP	EC-WW-054	31.5		AP+PS	10/5/19	1538	1543	40	40	Pass	BM
90 / 91	SEOS	NEOS	1335	20	CW	EC-WW-050	6.7		AP+PS	26/5/19	808	813	40	40	Pass	BM
65 / 88	WEOS	EEOS	1343	20	WP	EC-WW-054	17.0		AP+PS	10/5/19	1710	1715	40	40	Pass	BM
92 / 93	SEOS	NEOS	1345	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1612	1617	40	40	Pass	BM
65 / 89	WEOS	EEOS	1348	20	WP	EC-WW-054	73.5		AP+PS	10/5/19	1250	1255	40	40	Pass	BM
95 / 96	SEOS	NEOS	1400	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1310	1315	40	40	Pass	BM
66 / 89	WEOS	EEOS	1412	20	WP	EC-WW-054	31.0	DS-17	AP+PS	10/5/19	1600	1605	40	40	Pass	BM
94 / 95	NEOS	SEOS	1515	20	CW	EC-WW-050	6.7		AP+PS	10/5/19	1626	1631	40	40	Pass	BM
89 / 93	EEOS	WEOS	1550	20	WP	EC-WW-054	57.0	DS-27	AP+PS	10/5/19	1612	1617	40	40	Pass	BM
89 / 92	EEOS	WEOS	1609	20	WP	EC-WW-054	47.5		AP+PS	10/5/19	1612	1617	40	40	Pass	BM
97 / 98	NEOS	SEOS	1620	20	CW	EC-WW-050	54.0		AP+PS	7/5/19	855	900	40	40	Pass	BM
88 / 92	EEOS	WEOS	1624	20	WP	EC-WW-054	17.0		AP+PS	10/5/19	1626	1631	40	40	Pass	BM
						PAGE TOTAL	516.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 12 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/03

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
87 / 92	EEOS	WEOS	1629	20	WP	EC-WW-054	59.0		AP+PS	10/5/19	1626	1631	40	40	Pass	BM
87 / 91	EEOS	WEOS	1649	20	WP	EC-WW-054	14.5		AP+PS	10/5/19	1643	1648	40	40	Pass	BM
87 / 90	EEOS	WEOS	1654	20	WP	EC-WW-054	1.0		VB+PS	7/5/19					Pass	BM
86 / 97	NEOS	SEOS	1656	20	CW	EC-WW-050	54.0		AP+PS	4/5/19	1249	1254	40	40	Pass	BM
86 / 98	NEOS	SEOS	1714	20	CW	EC-WW-050	51.5		AP+PS	4/5/19	1249	1254	40	40	Pass	BM
90 / 94	WEOS	EEOS	1730	20	WP	EC-WW-054	8.5		AP+PS	10/5/19	1633	1638	40	40	Pass	BM
91 / 94	WEOS	EEOS	1732	20	WP	EC-WW-054	7.5		AP+PS	10/5/19	1633	1638	40	40	Pass	BM
92 / 95	WEOS	EEOS	1736	20	WP	EC-WW-054	115.0		AP+PS	10/5/19	1639	1644	40	40	Pass	BM
93 / 96	WEOS	EEOS	1802	20	CW	EC-WW-050	57.0	DS-26	AP+PS	10/5/19	1619	1624	40	40	Pass	BM
92 / 96	WEOS	EEOS	1814	20	WP	EC-WW-054	8.5		AP+PS	10/5/19	1639	1644	40	40	Pass	BM
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PAGE TOTAL 376.5

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 13 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1300	LC	20	40.0%	454	177	169	134	158	135	150	173	169	134	151	140	144	133	133	168	BM	Textured/Textured
2	EC-WW-050	1309	LC	20	60.0%	454	123	121	122	130	128	119	147	126	123	132	137	135	159	156	168	BM	Smooth/Smooth
3	EC-WW-054	1330	WP	20	60.0%	454	153	134	136	148	128	154	161	152	153	144	164	151	132	138	154	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
99 / 100	SEOS	NEOS	1532	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1615	1620	40	40	Pass	BM
100 / 101	SEOS	NEOS	1544	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1718	1723	40	40	Pass	BM
101 / 102	SEOS	NEOS	1556	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1714	1719	40	40	Pass	BM
102 / 103	SEOS	NEOS	1604	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1701	1706	40	40	Pass	BM
96 / 103	EEOS	WEOS	1610	20	WP	EC-WW-054	14.0	DS-32	AP+PS	12/5/19	1704	1709	40	40	Pass	BM
96 / 102	EEOS	WEOS	1615	20	WP	EC-WW-054	51.5		AP+PS	12/5/19	1704	1709	40	40	Pass	BM
103 / 105	EEOS	WEOS	1630	20	TA	EC-WW-056	14.0	DS-33	AP+PS	12/5/19	1701	1706	40	40	Pass	BM
95 / 102	EEOS	WEOS	1632	20	WP	EC-WW-054	70.5		AP+PS	12/5/19	1704	1709	40	40	Pass	BM
104 / 105	SEOS	NEOS	1633	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1504	1509	40	40	Pass	BM
95 / 101	EEOS	WEOS	1655	20	WP	EC-WW-054	17.0		AP+PS	12/5/19	1714	1719	40	40	Pass	BM
95 / 100	EEOS	WEOS	1701	20	WP	EC-WW-054	32.5		AP+PS	12/5/19	1626	1631	40	40	Pass	BM
106 / 107	SEOS	NEOS	1710	20	LC	EC-WW-050	6.7		AP+PS	10/5/19	1420	1425	40	40	Pass	BM
94 / 100	EEOS	WEOS	1711	20	WP	EC-WW-054	23.0		AP+PS	12/5/19	1301	1306	40	40	Pass	BM
107 / 108	SEOS	NEOS	1715	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1453	1458	40	40	Pass	BM
101 / 104	EEOS	WEOS	1715	20	TA	EC-WW-056	17.0		AP+PS	12/5/19	1718	1723	40	40	Pass	BM
94 / 99	EEOS	WEOS	1719	20	WP	EC-WW-054	1.5		VB+PS	7/5/19					Pass	BM
100 / 104	EEOS	WEOS	1720	20	TA	EC-WW-056	55.5		AP+PS	12/5/19	1615	1620	40	40	Pass	BM
110 / 111	SEOS	NEOS	1739	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	924	929	40	40	Pass	BM
99 / 104	EEOS	WEOS	1740	20	TA	EC-WW-056	9.5		AP+PS	26/5/19	1055	1100	40	40	Pass	BM
104 / 106	WEOS	EEOS	1742	20	WP	EC-WW-054	1.5		VB+PS	7/5/19					Pass	BM
						PAGE TOTAL	361.1									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 14 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
107	104	WEOS	EEOS	1743	20	WP	EC-WW-054	105.5	DS-29	AP+PS	12/5/19	1505	1510	40	40	Pass	BM
109	110	SEOS	NEOS	1745	20	LC	EC-WW-050	6.7		AP+PS	10/5/19	1420	1425	40	40	Pass	BM
106	109	WEOS	EEOS	1752	20	LC	EC-WW-050	8.3		AP+PS	10/5/19	1420	1425	40	40	Pass	BM
107	110	WEOS	EEOS	1755	20	LC	EC-WW-050	119.5		AP+PS	12/5/19	1455	1500	40	40	Pass	BM
107	105	WEOS	EEOS	1818	20	WP	EC-WW-054	15.0		AP+PS	12/5/19	1500	1505	40	40	Pass	BM
108	105	WEOS	EEOS	1823	20	WP	EC-WW-054	104.0	DS-36	AP+PS	12/5/19	1500	1505	40	40	Pass	BM
107	111	WEOS	EEOS	1835	20	LC	EC-WW-050	1.5		VB+PS	7/5/19					Pass	BM

PAGE TOTAL 360.5

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 15 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1201	LC	20	60.0%	454	137	143	137	124	141	134	148	147	135	144	174	168	165	172	160	BM	Smooth/Smooth
2	EC-WW-056	1215	EE	20	60.0%	454	145	140	139	147	147	137	131	143	138	136	167	154	171	168	163	BM	Smooth/Smooth
3	EC-WW-054	1220	WP	20	60.0%	454	118	129	135	121	137	141	135	140	128	132	169	164	156	162	163	BM	Smooth/Smooth
4	EC-WW-050	1230	LC	20	40.0%	454	130	154	124	151	140	161	154	157	129	150	141	143	175	167	193	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
112 / 113	SEOS	NEOS	1312	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1415	1420	40	40	Pass	BM
109 / 112	WEOS	EEOS	1316	20	WP	EC-WW-054	8.5		AP+PS	12/5/19	1415	1420	40	40	Pass	BM
109 / 113	WEOS	EEOS	1318	20	WP	EC-WW-054	6.0		AP+PS	12/5/19	1415	1420	40	40	Pass	BM
110 / 113	WEOS	EEOS	1320	20	WP	EC-WW-054	109.5	0 & 34 & 38	AP+PS	17/5/19	1449	1454	40	40	Pass	BM
112 / 115	WEOS	EEOS	1330	20	EE	EC-WW-056	17.0		AP+PS	12/5/19	1410	1415	40	40	Pass	BM
113 / 114	SEOS	NEOS	1332	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	845	850	40	40	Pass	BM
112 / 116	WEOS	EEOS	1335	20	EE	EC-WW-056	3.5		AP+PS	12/5/19	1410	1415	40	40	Pass	BM
111 / 114	WEOS	EEOS	1358	20	WP	EC-WW-054	105.5	6-37 & 41 &	AP+PS	12/5/19	1403	1408	40	40	Pass	BM
113 / 117	WEOS	EEOS	1411	20	EE	EC-WW-056	4.5		VB+PS	15/5/19					Pass	BM
114 / 117	WEOS	EEOS	1413	20	EE	EC-WW-056	110.5	2 & 48 & 52	VB+PS	15/5/19					Pass	BM
115 / 116	SEOS	NEOS	1524	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1410	1415	40	40	Pass	BM
116 / 117	SEOS	NEOS	1545	20	LC	EC-WW-050	6.7	DS-45	AP+PS	12/5/19	848	853	40	40	Pass	BM
115 / 118	WEOS	EEOS	1600	20	WP	EC-WW-054	12.0		AP+PS	12/5/19	1405	1410	40	40	Pass	BM
118 / 119	SEOS	NEOS	1601	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1405	1410	40	40	Pass	BM
115 / 119	WEOS	EEOS	1604	20	WP	EC-WW-054	5.0		AP+PS	12/5/19	1405	1410	40	40	Pass	BM
116 / 119	WEOS	EEOS	1606	20	WP	EC-WW-054	104.5		AP+PS	12/5/19	905	910	40	40	Pass	BM
119 / 120	SEOS	NEOS	1614	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	905	910	40	40	Pass	BM
116 / 120	WEOS	EEOS	1640	20	WP	EC-WW-054	4.5	DS-31	AP+PS	12/5/19	850	855	40	40	Pass	BM
117 / 120	WEOS	EEOS	1641	20	WP	EC-WW-054	115.0	6-43 & 49 &	AP+PS	12/5/19	850	855	40	40	Pass	BM
/																
						PAGE TOTAL	646.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 16 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1020	AB	20	55.0%	454	117	122	131	134	135	121	124	132	135	138	201	203	191	187	193	BM	Smooth/Smooth
2	EC-WW-054	1025	HB	20	55.0%	454	129	134	138	132	139	131	135	126	137	122	180	184	189	200	201	BM	Smooth/Smooth
3	EC-WW-056	1030	MZ	20	55.0%	454	174	176	183	180	143	176	170	184	171	152	169	178	174	166	176	BM	Smooth/Smooth
4	EC-WWXL-340	1140	LC	20	20.5%	454	158	143	165	147	154	162	159	157	155	152	143	183	194	192	191	BM	Textured/Textured
5	EC-WWXL-340	1701	LC	20	20.5%	454	141	134	148	150	151	142	138	152	147	156	177	175	173	170	165	BM	Textured/Textured
6	EC-WW-056	1730	MZ	20	55.0%	454	144	131	144	142	146	147	145	140	135	141	160	159	157	159	161	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
121 / 122	SEOS	NEOS	1201	20	LC	EC-WWXL-3407	6.7		AP+PS	12/5/19	1400	1405	40	40	Pass	BM
122 / 123	SEOS	NEOS	1220	20	LC	EC-WWXL-3407	6.7		AP+PS	12/5/19	940	945	40	40	Pass	BM
125 / 126	SEOS	NEOS	1235	20	LC	EC-WWXL-3407	6.7		AP+PS	12/5/19	1613	1618	40	40	Pass	BM
123 / 124	SEOS	NEOS	1250	20	LC	EC-WWXL-3407	6.7		AP+PS	12/5/19	1356	1401	40	40	Pass	BM
128 / 129	SEOS	NEOS	1315	20	LC	EC-WWXL-3407	6.7		AP+PS	12/5/19	1730	1735	40	40	Pass	BM
121 / 125	WEOS	EEOS	1405	20	HB	EC-WW-054	7.0		AP+PS	12/5/19	1400	1405	40	40	Pass	BM
125 / 128	WEOS	25I	1405	20	AB	EC-WW-050	66.5		AP+PS	12/5/19	1425	1430	40	40	Pass	BM
122 / 125	WEOS	EEOS	1407	20	HB	EC-WW-054	100.5		AP+PS	12/5/19	1400	1405	40	40	Pass	BM
125 / 128	25I	EEOS	1427	20	AB	EC-WW-050	45.0		AP+PS	12/5/19	1610	1615	40	40	Pass	BM
123 / 125	WEOS	EEOS	1440	20	HB	EC-WW-054	4.0		AP+PS	12/5/19	940	945	40	40	Pass	BM
123 / 126	WEOS	11Q	1441	20	HB	EC-WW-054	15.0		AP+PS	12/5/19	935	940	40	40	Pass	BM
126 / 128	WEOS	EEOS	1442	20	AB	EC-WW-050	5.5		AP+PS	12/5/19	1730	1735	40	40	Pass	BM
126 / 129	WEOS	EEOS	1444	20	AB	EC-WW-050	116.5	DS-57 & 61	AP+PS	12/5/19	1349	1354	40	40	Pass	BM
120 / 124	WEOS	EEOS	1446	20	MZ	EC-WW-056	11.0	DS-55	VB+PS	15/5/19					Pass	BM
123 / 126	11Q	EEOS	1446	20	HB	EC-WW-054	103.0		AP+PS	17/5/19	1605	1610	40	40	Pass	BM
127 / 129	WEOS	EEOS	1522	20	AB	EC-WW-050	7.0		AP+PS	12/5/19	1349	1354	40	40	Pass	BM
128 / 130	WEOS	EEOS	1700	20	MZ	EC-WW-056	116.5		AP+PS	12/5/19	1430	1435	40	40	Pass	BM
130 / 131	SEOS	NEOS	1725	20	LC	EC-WWXL	6.7	DS-51	AP+PS	12/5/19	1735	1740	40	40	Pass	BM
129 / 130	WEOS	EEOS	1738	20	MZ	EC-WW-056	1.5		VB+PS	15/5/19					Pass	BM
129 / 131	WEOS	EEOS	1750	20	HB	EC-WW-054	121.0	DS-58	AP+PS	17/5/19	1756	1801	40	40	Pass	BM
						PAGE TOTAL	760.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 17 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1730	HB	20	55.0%	454	131	138	129	126	137	132	127	121	124	127	189	191	201	202	212	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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PAGE TOTAL																

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 18 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1000	LC	20	40.0%	454	173	154	179	163	161	159	170	161	161	160	196	198	195	199	192	BM	Smooth/Smooth
2	EC-WW-050	1030	LC	20	50.0%	454	128	123	134	138	136	136	140	133	128	127	168	174	177	170	165	BM	Smooth/Smooth
3	EC-WW-056	1300	MZ	20	40.0%	454	154	149	163	148	141	144	149	158	135	140	185	176	181	179	182	BM	Textured/Textured
4	EC-WW-056	1300	MZ	20	50.0%	454	135	139	148	154	157	152	141	137	142	159	164	181	155	157	153	BM	Smooth/Smooth
5	EC-WW-054	1330	TA	20	55.0%	454	140	142	142	133	142	140	139	146	147	143	169	172	166	166	169	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
132	133	SEOS	NEOS	1126	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1735	1740	40	40	Pass	BM
130	132	WEOS	EEOS	1137	20	LC	EC-WW-050	119.0		AP+PS	12/5/19	1455	1500	40	40	Pass	BM
133	131	WEOS	EEOS	1217	20	LC	EC-WW-050	122.0	DS-63	AP+PS	12/5/19	1710	1715	40	40	Pass	BM
134	135	SEOS	NEOS	1330	20	LC	EC-WW-050	6.7		AP+PS	12/5/19	1740	1745	40	40	Pass	BM
132	134	WEOS	25P	1335	20	TA	EC-WW-054	54.0		AP+PS	15/5/19	1627	1632	40	40	Pass	BM
132	134	25P	EEOS	1353	20	TA	EC-WW-054	65.0		VB+PS	15/5/19					Pass	BM
136	137	SEOS	NEOS	1357	20	LC	EC-WW-050	6.7	DS-67	AP+PS	12/5/19	1740	1745	40	40	Pass	BM
134	136	WEOS	EEOS	1400	20	MZ	EC-WW-056	119.0		AP+PS	12/5/19	1445	1450	40	40	Pass	BM
133	134	WEOS	EEOS	1415	20	TA	EC-WW-054	1.5		VB+PS	15/5/19					Pass	BM
133	135	WEOS	25T	1416	20	TA	EC-WW-054	100.5	DS-64 & 65	VB+PS	15/5/19					Pass	BM
134	137	WEOS	EEOS	1440	20	MZ	EC-WW-056	1.5		VB+PS	15/5/19					Pass	BM
135	137	WEOS	EEOS	1441	20	MZ	EC-WW-056	120.5	DS-60	AP+PS	12/5/19	1700	1705	40	40	Pass	BM
133	135	25T	EEOS	1449	20	TA	EC-WW-054	20.0	DS-64 & 65	AP+PS	12/5/19	1705	1710	40	40	Pass	BM
138	139	SEOS	NEOS	1630	20	LC	EC-WW-056	6.7		VB+PS	15/5/19					Pass	BM
136	138	WEOS	EEOS	1720	20	TA	EC-WW-054	119.0	DS-66	AP+PS	12/5/19	1445	1450	40	40	Pass	BM
137	138	WEOS	EEOS	1800	20	TA	EC-WW-054	2.0		VB+PS	15/5/19					Pass	BM
137	139	WEOS	EEOS	1801	20	TA	EC-WW-054	120.0		AP+PS	12/5/19	1336	1341	40	40	Pass	BM

PAGE TOTAL 990.8

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 19 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	845	LC	20	40.0%	454	175	162	165	167	175	178	170	178	167	168	206	194	193	198	200	BM	Textured/Textured
2	EC-WW-050	850	LC	20	50.0%	454	146	116	155	134	139	131	130	143	137	141	177	163	170	152	178	BM	Smooth/Smooth
3	EC-WW-054	900	MZ	20	50.0%	454	136	129	141	146	152	164	151	148	154	143	185	178	183	186	184	BM	Smooth/Smooth
4	EC-WW-054	900	MZ	20	40.0%	454	157	155	159	168	168	163	162	164	174	168	215	196	195	197	200	BM	Textured/Textured
5	EC-WW-054	1300	MZ	20	50.0%	454	131	124	134	127	146	134	130	129	129	137	164	163	159	160	153	BM	Smooth/Smooth
6	EC-WW-054	1300	MZ	20	40.0%	454	101	158	137	128	131	158	130	158	152	133	156	158	153	163	160	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
138	140	WEOS	EEOS	935	20	LC	EC-WW-050	120.5		AP+PS	15/5/19	1450	1455	40	40	Pass	BM
140	141	SEOS	NEOS	953	20	MZ	EC-WW-054	6.7	DS-69	AP+PS	15/5/19	1745	1750	40	40	Pass	BM
139	140	WEOS	EEOS	1015	20	LC	EC-WW-050	0.3		VB+PS	3/6/19					Pass	BM
139	141	WEOS	EEOS	1016	20	LC	EC-WW-050	120.0	DS-68	AP+PS	15/5/19	1645	1650	40	40	Pass	BM
140	142	WEOS	EEOS	1320	20	LC	EC-WW-050	120.0		AP+PS	15/5/19	1455	1500	40	40	Pass	BM
142	143	SEOS	NEOS	1330	20	MZ	EC-WW-054	6.7		AP+PS	15/5/19	826	831	40	40	Pass	BM
144	145	SEOS	NEOS	1400	20	MZ	EC-WW-054	6.7		AP+PS	15/5/19	823	828	40	40	Pass	BM
140	143	WEOS	EEOS	1400	20	LC	EC-WW-050	0.3		VB+PS	3/6/19					Pass	BM
141	143	WEOS	EEOS	1401	20	LC	EC-WW-050	120.5	DS-71	AP+PS	15/5/19	1640	1645	40	40	Pass	BM
142	144	WEOS	26F	1500	20	MZ	EC-WW-054	15.5	DS-70	AP+PS	15/5/19	1500	1505	40	40	Pass	BM
142	144	26F	EEOS	1505	20	MZ	EC-WW-054	105.0	DS-70	AP+PS	15/5/19	1256	1301	40	40	Pass	BM
143	145	WEOS	EEOS	1540	20	MZ	EC-WW-054	120.5	DS-72	AP+PS	15/5/19	1635	1640	40	40	Pass	BM

PAGE TOTAL 742.7

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 20 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/10

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 21 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/12

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1100	WP	20	50.0%	454	156	147	146	141	158	158	149	155	156	160	185	164	184	187	183	BM	Smooth/Smooth
2	EC-WW-054	1110	WP	20	40.0%	454	180	157	140	142	152	154	144	160	180	184	204	205	213	214	210	BM	Textured/Textured
3	EC-WW-050	1156	LC	20	50.0%	454	140	123	141	135	122	148	139	140	140	140	166	155	167	165	163	BM	Smooth/Smooth
4	EC-WW-050	1200	LC	20	40.0%	454	131	129	156	144	157	159	130	157	157	148	203	187	169	182	174	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
146	147	SEOS	NEOS	1230	20	LC	EC-WW-050	6.7		AP+PS	16/5/19	932	937	40	40	Pass	BM
145	147	WEOS	EEOS	1236	20	LC	EC-WW-050	119.0	DS-74	AP+PS	16/5/19	924	929	40	40	Pass	BM
144	146	WEOS	EEOS	1240	20	WP	EC-WW-054	120.0	DS-75	AP+PS	16/5/19	924	929	40	40	Pass	BM
146	148	24I	WEOS	1500	20	WP	EC-WW-054	21.0		AP+PS	16/5/19	1135	1140	40	40	Pass	BM
146	148	24G	24H	1511	20	WP	EC-WW-054	22.3		AP+PS	16/5/19	1531	1536	40	40	Pass	BM
146	148	24F	24G	1519	20	WP	EC-WW-054	4.4		AP+PS	16/5/19	1531	1536	40	40	Pass	BM
148	149	SEOS	NEOS	1520	20	LC	EC-WW-050	6.7	DS-76	AP+PS	16/5/19	935	940	40	40	Pass	BM
146	148	24E	24F	1523	20	WP	EC-WW-054	19.8		AP+PS	16/5/19	1323	1328	40	40	Pass	BM
147	149	WEOS	EEOS	1525	20	LC	EC-WW-050	118.0	DS-73	AP+PS	16/5/19	932	937	40	40	Pass	BM
146	148	24D	24E	1530	20	WP	EC-WW-054	18.3		AP+PS	16/5/19	1323	1328	40	40	Pass	BM
146	148	EEOS	24D	1538	20	WP	EC-WW-054	6.4		AP+PS	16/5/19	1356	1401	40	40	Pass	BM
							PAGE TOTAL	462.6									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 22 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/13

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	1220	MZ	20	50.0%	454	138	138	143	134	128	134	137	135	134	125	162	161	168	168	171	BM	Smooth/Smooth
2	EC-WW-050	1220	LC	20	50.0%	454	152	147	154	142	154	119	121	148	144	147	155	167	158	165	163	BM	Smooth/Smooth
3	EC-WW-056	1225	MZ	20	40.0%	454	125	145	142	156	146	124	137	141	146	144	179	175	175	174	175	BM	Textured/Textured
4	EC-WW-054	1225	WP	20	40.0%	454	140	135	148	135	144	132	140	116	130	141	169	173	171	174	168	BM	Textured/Textured
5	EC-WW-050	1225	LC	20	40.0%	454	122	126	121	125	122	130	124	128	116	129	162	149	152	161	156	BM	Textured/Textured
6	EC-WW-054	1230	WP	20	50.0%	454	126	133	129	124	128	141	136	145	131	111	154	149	148	152	154	BM	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
150 / 151	SEOS	NEOS	1208	20	MZ	EC-WW-056	6.7		AP+PS	16/5/19	1104	1109	40	40	Pass	BM
148 / 150	WEOS	EEOS	1314	20	WP	EC-WW-054	121.0		AP+PS	16/5/19	1111	1116	40	40	Pass	BM
148 / 151	WEOS	EEOS	1354	20	WP	EC-WW-054	0.3		VB+PS	3/6/19					Pass	BM
149 / 151	WEOS	EEOS	1355	20	WP	EC-WW-054	113.0	DS-77	AP+PS	16/5/19	1111	1116	40	40	Pass	BM
152 / 153	SEOS	NEOS	1400	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	929	934	40	40	Pass	BM
153 / 154	SEOS	NEOS	1400	20	MZ	EC-WW-056	6.7	DS-83	AP+PS	16/5/19	1057	1102	40	40	Pass	BM
150 / 152	WEOS	EEOS	1415	20	LC	EC-WW-050	18.5		AP+PS	24/5/19	929	934	40	40	Pass	BM
150 / 153	WEOS	EEOS	1421	20	LC	EC-WW-050	105.0	DS-81	AP+PS	24/5/19	929	934	40	40	Pass	BM
151 / 153	WEOS	EEOS	1456	20	LC	EC-WW-050	17.5		AP+PS	16/5/19	1100	1105	40	40	Pass	BM
151 / 154	WEOS	EEOS	1502	20	LC	EC-WW-050	36.0	DS-78	AP+PS	27/5/19	846	851	40	40	Pass	BM
151 / 154	EEOS	WEES	1510	20	LC	EC-WW-050	45.5	DS-78	AP+PS	27/5/19	848	853	40	40	Pass	BM
156 / 157	SEOS	NEOS	1600	20	LC	EC-WW-050	6.7		AP+PS	16/5/19	1049	1104	40	40	Pass	BM
155 / 156	SEOS	NEOS	1605	20	WP	EC-WW-054	6.7		AP+PS	24/5/19	1605	1610	40	40	Pass	BM
152 / 155	WEOS	EEOS	1615	20	WP	EC-WW-054	18.5		AP+PS	24/5/19	929	934	40	40	Pass	BM
153 / 155	WEOS	EEOS	1621	20	WP	EC-WW-054	16.0		AP+PS	24/5/19	914	919	40	40	Pass	BM
153 / 156	WEOS	EEOS	1626	20	WP	EC-WW-054	106.5		AP+PS	16/5/19	1057	1102	40	40	Pass	BM
154 / 156	WEOS	EEOS	1701	20	WP	EC-WW-054	16.0		AP+PS	16/5/19	1052	1057	40	40	Pass	BM
154 / 157	WEOS	EEOS	1706	20	WP	EC-WW-054	67.5	DS-79 & 82	AP+PS	16/5/19	1052	1057	40	40	Pass	BM
158 / 159	SEOS	NEOS	1730	20	MZ	EC-WW-056	6.7		VB+PS	3/6/19					Pass	BM
159 / 160	SEOS	NEOS	1800	20	WP	EC-WW-054	6.7		AP+PS	16/5/19	1045	1050	40	40	Pass	BM
						PAGE TOTAL	728.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 23 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/13

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1500	WP	20	50.0%	454	146	135	146	142	143	132	130	141	134	136	172	164	171	168	167	BM	Smooth/Smooth
8	EC-WW-054	1505	WP	20	40.0%	454	153	153	168	165	161	155	153	157	151	155	181	176	175	180	183	BM	Textured/Textured
9	EC-WW-056	1655	MZ	20	50.0%	454	127	143	125	120	123	126	131	134	140	130	165	157	157	155	156	BM	Smooth/Smooth
10	EC-WW-056	1700	MZ	20	40.0%	454	142	146	150	147	144	153	120	150	145	146	172	165	165	169	166	BM	Textured/Textured
11	EC-WW-050	1701	LC	20	50.0%	454	129	122	129	125	127	122	144	129	119	117	156	157	152	161	164	BM	Smooth/Smooth
12	EC-WW-050	1730	LC	20	40.0%	454	154	155	155	145	160	159	145	153	154	154	179	163	175	164	178	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
156	159	22J	EEOS	1810	20	WP	EC-WW-054	13.0		AP+PS	16/5/19	1049	1054	40	40	Pass	BM
155	158	WEOS	EEOS	1815	20	LC	EC-WW-050	34.5		AP+PS	24/5/19	914	919	40	40	Pass	BM
157	159	WEOS	EEOS	1815	20	WP	EC-WW-054	19.0		AP+PS	16/5/19	1045	1050	40	40	Pass	BM
157	160	WEOS	EEOS	1821	20	WP	EC-WW-054	42.0	DS-80	AP+PS	16/5/19	1045	1050	40	40	Pass	BM
156	158	WEOS	EEOS	1826	20	LC	EC-WW-050	19.0		AP+PS	24/5/19	913	918	40	40	Pass	BM
156	159	WEOS	22J	1832	20	LC	EC-WW-050	90.0		AP+PS	16/5/19	1049	1054	40	40	Pass	BM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1330	WP	20	40.0%	454	146	116	155	134	139	116	120	120	131	134	158	162	161	165	166	BM	
2	EC-WW-050	1400	LC	20	50.0%	454	131	129	156	144	157	122	126	124	140	133	179	181	181	162	158	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
161 / 162	SEOS	NEOS	1343	20	WP	EC-WW-054	6.7		AP+PS	24/5/19	1748	1753	40	40	Pass	BM
164 / 165	SEOS	NEOS	1354	20	WP	EC-WW-054	6.7		AP+PS	24/5/19	1730	1735	40	40	Pass	BM
164 / 165	NEOS	SEOS	1354	20	WP	EC-WW-054	6.7		AP+PS	24/5/19	1730	1735	40	40	Pass	BM
162 / 163	SEOS	NEOS	1415	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	853	858	40	40	Pass	BM
158 / 161	WEOS	EEOS	1415	20	WP	EC-WW-054	54.5		AP+PS	24/5/19	1807	1812	40	40	Pass	BM
163 / 162	NEOS	SEOS	1415	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	853	858	40	40	Pass	BM
161 / 164	WEOS	EEOS	1430	20	LC	EC-WW-050	80.0		AP+PS	24/5/19	1748	1753	40	40	Pass	BM
159 / 161	WEOS	EEOS	1435	20	WP	EC-WW-054	25.5		AP+PS	24/5/19	1749	1754	40	40	Pass	BM
159 / 162	WEOS	EEOS	1450	20	WP	EC-WW-054	96.4		AP+PS	24/5/19	913	918	40	40	Pass	BM
162 / 164	WEOS	EEOS	1512	20	LC	EC-WW-050	33.5	DS-85	AP+PS	24/5/19	1748	1753	40	40	Pass	BM
162 / 165	WEOS	EEOS	1528	20	LC	EC-WW-050	89.0		AP+PS	24/5/19	853	858	40	40	Pass	BM
160 / 162	WEOS	EEOS	1537	20	WP	EC-WW-054	26.0		AP+PS	24/5/19	853	858	40	40	Pass	BM
160 / 163	WEOS	EEOS	1545	20	WP	EC-WW-054	9.5	DS-84	AP+PS	24/5/19	853	858	40	40	Pass	BM
163 / 165	WEOS	EEOS	1605	20	LC	EC-WW-050	5.0	DS-86	VB+PS	3/6/19					Pass	BM
167 / 168	SEOS	NEOS	1615	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	1709	1714	40	40	Pass	BM
167 / 168	NEOS	SEOS	1615	20	LC	EC-WW-050	5.2		AP+PS	24/5/19	1615	1620	40	40	Pass	BM
166 / 167	SEOS	NEOS	1621	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	1351	1356	40	40	Pass	BM
166 / 167	NEOS	SEOS	1621	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	1351	1356	40	40	Pass	BM
164 / 166	WEOS	EEOS	1630	20	LC	EC-WW-050	27.0		AP+PS	24/5/19	1310	1315	40	40	Pass	BM
164 / 167	WEOS	EEOS	1650	20	LC	EC-WW-050	86.5	DS-87	AP+PS	24/5/19	1351	1356	40	40	Pass	BM
						PAGE TOTAL	591.7									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 25 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
165	167	WEOS	EEOS	1726	20	LC	EC-WW-050	36.0		AP+PS	24/5/19	1720	1725	40	40	Pass	BM
165	168	WEOS	EEOS	1740	20	LC	EC-WW-050	53.0	DS-88	AP+PS	24/5/19	1719	1724	40	40	Pass	BM

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/16

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1300	FG	20	50.0%	454	128	140	133	133	138	127	124	135	127	134	158	160	162	158	168	TH	Smooth/Smooth
2	EC-WW-050	1300	FG	20	50.0%	454	166	149	160	164	151	160	155	152	147	151	182	175	169	175	176	TH	Textured/Textured
3	EC-WW-054	1300	EA	20	50.0%	454	156	152	157	152	150	156	162	163	157	160	181	179	181	181	176	TH	Textured/Textured
4	EC-WW-054	1300	EA	20	50.0%	454	134	121	133	136	138	131	128	131	133	136	153	148	152	152	152	TH	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
170 / 169	NEOS	SEOS	1340	20	FG	EC-WW-050	2.2	DS-92	AP+PS	23/5/19	1622	1627	40	40	Pass	TH
171 / 170	NEOS	SEOS	1342	20	EA	EC-WW-054	6.7		AP+PS	23/5/19	1651	1656	40	40	Pass	TH
170 / 169	NEOS	SEOS	1342	20	FG	EC-WW-050	2.2	DS-92	AP+PS	23/5/19	1622	1627	40	40	Pass	TH
172 / 173	NEOS	SEOS	1406	20	EA	EC-WW-054	6.7		AP+PS	23/5/19	1640	1645	40	40	Pass	TH
166 / 169	WEOS	EEOS	1415	20	FG	EC-WW-050	27.2		AP+PS	23/5/19	1310	1315	40	40	Pass	TH
169 / 172	WEOS	EEOS	1416	20	EA	EC-WW-054	65.2		AP+PS	23/5/19	1309	1314	40	40	Pass	TH
167 / 169	WEOS	EEOS	1425	20	FG	EC-WW-050	38.8		AP+PS	23/5/19	1243	1248	40	40	Pass	TH
167 / 170	WEOS	EEOS	1435	20	FG	EC-WW-050	84.2		AP+PS	23/5/19	1709	1714	40	40	Pass	TH
170 / 172	WEOS	EEOS	1447	20	EA	EC-WW-054	40.7	DS-90	AP+PS	23/5/19	1627	1632	40	40	Pass	TH
170 / 173	WEOS	EEOS	1507	20	EA	EC-WW-054	80.3		AP+PS	23/5/19	1640	1645	40	40	Pass	TH
168 / 170	WEOS	EEOS	1510	20	FG	EC-WW-050	38.9		AP+PS	23/5/19	1704	1709	40	40	Pass	TH
168 / 171	WEOS	EEOS	1525	20	FG	EC-WW-050	7.8	DS-89	AP+PS	23/5/19	1704	1709	40	40	Pass	TH
174 / 175	NEOS	SEOS	1530	20	FG	EC-WW-050	6.7		AP+PS	23/5/19	1331	1336	40	40	Pass	TH
171 / 173	WEOS	EEOS	1544	20	EA	EC-WW-054	6.0	DS-91	AP+PS	23/5/19	1651	1656	40	40	Pass	TH
172 / 174	WEOS	EEOS	1602	20	EA	EC-WW-054	31.0		AP+PS	23/5/19	1309	1314	40	40	Pass	TH
175 / 176	NEOS	SEOS	1610	20	FG	EC-WW-050	5.5		AP+PS	23/5/19	1352	1357	40	40	Pass	TH
172 / 175	WEOS	EEOS	1616	20	EA	EC-WW-054	78.3		AP+PS	23/5/19	1616	1621	40	40	Pass	TH
173 / 175	WEOS	EEOS	1712	20	EA	EC-WW-054	40.8		AP+PS	23/5/19	1652	1657	40	40	Pass	TH
/																
/																
						PAGE TOTAL	569.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 27 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/17

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WWXL-340	1200	EB	20	60.0%	454	147	122	142	147	145	139	135	137	139	141	168	158	158	173	162	TH	Textured/Textured
2	EC-WW-054	1200	MK	20	50.0%	454	150	157	171	157	140	160	157	163	158	154	180	179	179	178	182	TH	Textured/Textured
3	EC-WWXL-340	1215	EB	20	60.0%	454	154	159	166	160	145	162	156	152	169	159	184	182	186	180	187	TH	Smooth/Smooth
4	EC-WW-054	1215	MK	20	50.0%	454	125	124	133	120	128	131	132	136	130	132	150	146	150	148	146	TH	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
177	178	NEOS	SEOS	1011	20	EB	EC-WWXL-3407	5.0		AP+PS	23/5/19	1332	1337	40	40	Pass	TH
179	180	NEOS	SEOS	1230	20	MK	EC-WW-054	6.2		AP+PS	23/5/19	1353	1358	40	40	Pass	TH
174	177	WEOS	EEOS	1255	20	EB	EC-WWXL-3407	32.8		AP+PS	23/5/19	1508	1513	40	40	Pass	TH
175	177	WEOS	EEOS	1312	20	EB	EC-WWXL-3407	45.3	DS-94	AP+PS	23/5/19	1331	1336	40	40	Pass	TH
177	179	WEOS	EEOS	1312	20	MK	EC-WW-054	78.1		AP+PS	23/5/19	1508	1513	40	40	Pass	TH
175	178	WEOS	EEOS	1331	20	EB	EC-WWXL-3407	75.2	DS-98	AP+PS	23/5/19	1327	1333	40	40	Pass	TH
178	179	WEOS	EEOS	1350	20	MK	EC-WW-054	30.0		AP+PS	23/5/19	940	945	40	40	Pass	TH
176	178	WEOS	EEOS	1355	20	EB	EC-WWXL-3407	36.4	DS-96	AP+PS	23/5/19	1352	1357	40	40	Pass	TH
178	180	WEOS	EEOS	1412	20	MK	EC-WW-054	67.0	DS-95	AP+PS	23/5/19	1353	1358	40	40	Pass	TH

PAGE TOTAL 376.0

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 28 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/18

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1215	MK	20	40.0%	454	164	164	159	171	161	162	162	168	170	162	181	178	180	185	192	TH	Textured/Textured
2	EC-WWXL-006	1215	EB	20	23.5%	455	151	145	144	149	136	148	147	148	146	138	182	182	183	184	177	TH	Textured/Textured
3	EC-WW-054	1230	MK	20	50.0%	454	138	135	127	119	120	138	136	137	135	138	160	154	159	160	153	TH	Smooth/Smooth
4	EC-WWXL-006	1230	EB	20	26.5%	455	144	155	145	148	145	133	129	135	130	133	172	171	170	170	165	TH	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
181	182	EEOS	WEOS	1215	20	MK	EC-WW-054	6.8		AP+PS	20/5/19	851	956	40	40	Pass	TH
183	184	EEOS	WEOS	1405	20	EB	EC-WWXL-006	27.7		AP+PS	18/5/19	1448	1453	40	40	Pass	TH
184	185	EEOS	WEOS	1410	20	MK	EC-WW-054	25.4		AP+PS	18/5/19	1450	1455	40	40	Pass	TH
185	186	EEOS	WEOS	1417	20	EB	EC-WWXL-006	17.3		AP+PS	19/5/19	1045	1050	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	830	FG	20	50.0%	454	146	137	125	139	130	138	125	130	140	139	161	162	162	161	160	TH	Smooth/Smooth
2	EC-WW-054	830	FG	20	40.0%	454	154	163	177	145	156	165	159	161	164	159	188	191	193	192	186	TH	Textured/Textured
3	EC-WW-054	835	FG	20	40.0%	454	127	143	152	142	154	138	147	138	141	136	167	169	172	172	169	TH	Textured/Smooth
4	EC-WW-050	835	EB	20	40.0%	454	167	158	158	154	167	163	163	160	154	162	198	186	184	186	178	TH	Textured/Textured
5	EC-WW-050	835	EB	20	50.0%	454	129	129	134	136	121	142	147	139	136	136	186	185	187	174	185	TH	Smooth/Smooth
6	EC-WWXL-340	835	EB	20	20.5%	454	154	160	158	150	155	159	167	156	162	157	176	186	188	182	179	TH	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
187 / 188	EEOS	WEOS	930	20	FG	EC-WW-054	22.2		AP+PS	19/5/19	1047	1052	40	40	Pass	TH
186 / 187	EEOS	WEOS	940	20	EB	EC-WW-050	21.1		AP+PS	19/5/19	1046	1051	40	40	Pass	TH
188 / 189	EEOS	WEOS	1217	20	EA	EC-WW-054	23.3		AP+PS	19/5/19	1325	1330	40	40	Pass	TH
189 / 190	EEOS	WEOS	1245	20	EA	EC-WW-054	23.3		AP+PS	19/5/19	1339	1344	40	40	Pass	TH
191 / 192	EEOS	WEOS	1250	20	MK	EC-WW-050	21.2		AP+PS	19/5/19	1345	1350	40	40	Pass	TH
190 / 191	EEOS	WEOS	1253	20	EA	EC-WW-054	22.6	DS-104	AP+PS	19/5/19	1340	1345	40	40	Pass	TH
192 / 193	EEOS	WEOS	1305	20	MK	EC-WW-050	19.3		AP+PS	19/5/19	1350	1355	40	40	Pass	TH
193 / 194	EEOS	WEOS	1320	20	EA	EC-WW-054	18.8		AP+PS	19/5/19	1515	1520	40	40	Pass	TH
194 / 195	EEOS	WEOS	1320	20	MK	EC-WW-050	17.2	DS-103	AP+PS	19/5/19	1516	1521	40	40	Pass	TH
195 / 196	EEOS	WEOS	1331	20	EA	EC-WW-054	15.8		AP+PS	19/5/19	1517	1522	40	40	Pass	TH
196 / 197	EEOS	WEOS	1335	20	MK	EC-WW-050	14.8		AP+PS	19/5/19	1518	1523	40	40	Pass	TH
197 / 198	EEOS	WEOS	1345	20	EA	EC-WW-054	12.8		AP+PS	19/5/19	1524	1529	40	40	Pass	TH
198 / 199	EEOS	WEOS	1345	20	MK	EC-WW-050	12.0		AP+PS	19/5/19	1525	1530	40	40	Pass	TH
199 / 200	EEOS	WEOS	1355	20	EA	EC-WW-054	12.8	DS-102	AP+PS	19/5/19	1526	1531	40	40	Pass	TH
200 / 201	EEOS	WEOS	1400	20	EA	EC-WW-054	12.7		AP+PS	19/5/19	1527	1532	40	40	Pass	TH
201 / 202	EEOS	WEOS	1415	20	EA	EC-WW-054	12.6		AP+PS	19/5/19	1528	1533	40	40	Pass	TH
202 / 203	EEOS	WEOS	1450	20	MK	EC-WW-050	12.4		AP+PS	19/5/19	1543	1548	40	40	Pass	TH
203 / 204	EEOS	WEOS	1514	20	EA	EC-WW-054	12.4		AP+PS	19/5/19	1543	1548	40	40	Pass	TH
206 / 207	EEOS	WEOS	1515	20	MK	EC-WW-050	13.0		AP+PS	19/5/19	1627	1632	40	40	Pass	TH
183 / 181	SWEOS	NEEOS	1515	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	809	814	40	40	Pass	TH
						PAGE TOTAL	327.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 30 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1230	EA	20	40.0%	454	162	150	152	157	149	158	159	164	153	157	163	170	162	161	159	TH	Textured/Textured
8	EC-WW-054	1230	EA	20	50.0%	454	135	134	134	138	135	138	131	127	132	129	129	133	153	148	153	TH	Smooth/Smooth
9	EC-WW-050	1230	MK	20	40.0%	454	151	159	149	151	143	160	137	146	142	142	182	180	175	176	175	TH	Textured/Textured
10	EC-WW-050	1230	MK	20	50.0%	454	118	119	121	117	122	123	116	126	129	129	150	149	152	151	163	TH	Smooth/Smooth
11	EC-WWXL-340	1445	EB	20	50.0%	454	126	125	142	128	129	123	125	123	132	125	162	146	153	150	151	TH	Textured/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
184 / 181	SWEOS	NEEOS	1518	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	809	914	40	40	Pass	TH
204 / 205	EEOS	WEOS	1520	20	MK	EC-WW-050	4.7	DS-101	AP+PS	19/5/19	1544	1549	40	40	Pass	TH
185 / 181	SWEOS	NEEOS	1521	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	810	815	40	40	Pass	TH
204 / 205	EEOS	WEOS	1525	20	MK	EC-WW-050	6.8	DS-101	AP+PS	19/5/19	1544	1549	40	40	Pass	TH
186 / 181	SWEOS	NEEOS	1525	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	810	815	40	40	Pass	TH
205 / 206	EEOS	WEOS	1526	20	EA	EC-WW-054	12.8		AP+PS	19/5/19	1545	1550	40	40	Pass	TH
187 / 181	SWEOS	NEEOS	1528	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	811	816	40	40	Pass	TH
208 / 209	EEOS	WEOS	1530	20	MK	EC-WW-050	13.0		AP+PS	19/5/19	1630	1635	40	40	Pass	TH
188 / 181	SWEOS	NEEOS	1531	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	811	816	40	40	Pass	TH
181 / 217	SWEOS	NEEOS	1531	20	FG	EC-WW-050	75.2		AP+PS	22/5/19	1723	1728	40	40	Pass	TH
189 / 181	SWEOS	NEEOS	1535	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	823	828	40	40	Pass	TH
207 / 208	EEOS	WEOS	1537	20	EA	EC-WW-054	13.0		AP+PS	19/5/19	1628	1633	40	40	Pass	TH
190 / 181	SWEOS	NEEOS	1538	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	823	828	40	40	Pass	TH
191 / 181	SWEOS	NEEOS	1541	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	824	829	40	40	Pass	TH
192 / 181	SWEOS	NEEOS	1545	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	824	829	40	40	Pass	TH
209 / 210	EEOS	WEOS	1548	20	EA	EC-WW-054	13.0	DS-100	AP+PS	19/5/19	1631	1636	40	40	Pass	TH
193 / 181	SWEOS	NEEOS	1548	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	825	830	40	40	Pass	TH
210 / 211	EEOS	WEOS	1550	20	MK	EC-WW-050	13.1		AP+PS	19/5/19	1632	1637	40	40	Pass	TH
194 / 181	SWEOS	NEEOS	1551	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	825	830	40	40	Pass	TH
195 / 181	SWEOS	NEEOS	1555	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	841	846	40	40	Pass	TH
						PAGE TOTAL	232.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 31 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
196 / 181	SWEOS	NEEOS	1559	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	841	846	40	40	Pass	TH
211 / 212	EEOS	WEOS	1600	20	MK	EC-WW-050	13.1		AP+PS	19/5/19	1640	1645	40	40	Pass	TH
215 / 216	EEOS	WEOS	1601	20	EA	EC-WW-054	13.0		AP+PS	20/5/19	922	927	40	40	Pass	TH
197 / 181	SWEOS	NEEOS	1603	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	842	847	40	40	Pass	TH
198 / 181	SWEOS	NEEOS	1607	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	842	847	40	40	Pass	TH
214 / 215	EEOS	WEOS	1610	20	EA	EC-WW-054	12.5		AP+PS	20/5/19	922	927	40	40	Pass	TH
199 / 181	SWEOS	NEEOS	1611	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	843	848	40	40	Pass	TH
212 / 213	EEOS	WEOS	1615	20	MK	EC-WW-050	13.1	DS-99	AP+PS	19/5/19	1641	1646	40	40	Pass	TH
200 / 181	SWEOS	NEEOS	1615	20	EB	EC-WWXL-3407	4.3		AP+PS	20/5/19	843	848	40	40	Pass	TH
201 / 182	SWEOS	NEEOS	1619	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	851	856	40	40	Pass	TH
213 / 214	EEOS	WEOS	1622	20	EA	EC-WW-054	13.1		AP+PS	19/5/19	1642	1647	40	40	Pass	TH
202 / 182	SWEOS	NEEOS	1623	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	852	857	40	40	Pass	TH
203 / 182	SWEOS	NEEOS	1627	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	852	857	40	40	Pass	TH
204 / 182	SWEOS	NEEOS	1631	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	853	858	40	40	Pass	TH
205 / 182	SWEOS	NEEOS	1635	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	853	858	40	40	Pass	TH
206 / 182	SWEOS	NEEOS	1639	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	904	909	40	40	Pass	TH
207 / 182	SWEOS	NEEOS	1643	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	904	909	40	40	Pass	TH
208 / 182	SWEOS	NEEOS	1647	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	905	910	40	40	Pass	TH
209 / 182	SWEOS	NEEOS	1651	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	905	910	40	40	Pass	TH
210 / 182	SWEOS	NEEOS	1655	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	906	911	40	40	Pass	TH
						PAGE TOTAL	162.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 32 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
211	182	SWEOS	NEEOS	1659	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	906	911	40	40	Pass	TH
212	182	SWEOS	NEEOS	1703	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	915	920	40	40	Pass	TH
213	182	SWEOS	NEEOS	1707	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	915	920	40	40	Pass	TH
214	182	SWEOS	NEEOS	1711	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	916	921	40	40	Pass	TH
216	182	SWEOS	NEEOS	1715	20	EB	EC-WWXL-3407	6.7		AP+PS	20/5/19	916	921	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/20

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WWXL-340	1530	EB	20	60.0%	454	127	122	124	129	125	126	123	126	132	126	144	144	151	150	148	TH	
2	EC-WW-050	1530	FG	20	50.0%	454	114	120	120	116	124	113	119	119	117	123	141	136	141	141	138	TH	
3	EC-WW-054	1530	EA	20	50.0%	454	121	127	129	128	127	121	121	129	121	123	139	136	139	142	133	TH	
4	EC-WW-050	1530	FG	20	40.0%	454	140	141	140	143	143	138	146	148	143	149	158	158	156	148	150	TH	Textured/Textured
5	EC-WW-054	1530	EA	20	40.0%	454	144	144	142	142	142	139	141	141	139	141	155	155	156	148	152	TH	Textured/Textured
6	EC-WWXL-340	1530	EB	20	7.0%	454	123	122	118	121	119	121	124	123	117	125	142	142	153	150	150	TH	Textured/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
225	223	SWEOS	NEEOS	835	20	EA	EC-WW-054	20.1		AP+PS	23/5/19	841	846	40	40	Pass	TH
220	217	SWEOS	NEEOS	1600	20	EA	EC-WW-054	76.9		AP+PS	22/5/19	1628	1633	40	40	Pass	TH
218	181	SWEOS	NEEOS	1625	20	FG	EC-WW-050	18.0	DS-105	AP+PS	22/5/19	1722	1727	40	40	Pass	TH
218	181	SWEOS	NEEOS	1633	20	FG	EC-WW-050	25.4	DS-105	AP+PS	22/5/19	1722	1727	40	40	Pass	TH
200	218	SWEOS	NEEOS	1634	20	EA	EC-WW-054	17.2		AP+PS	22/5/19	1628	1633	40	40	Pass	TH
221	218	SWEOS	NEEOS	1642	20	EA	EC-WW-054	99.0	DS-111	AP+PS	22/5/19	1655	1700	40	40	Pass	TH
218	182	SWEOS	NEEOS	1645	20	FG	EC-WW-050	73.0	DS-115	AP+PS	23/5/19	1234	1239	40	40	Pass	TH
223	220	SWEOS	NEEOS	1700	20	EB	EC-WWXL-3407	93.0		AP+PS	22/5/19	1634	1639	40	40	Pass	TH
219	182	SWEOS	NEEOS	1716	20	FG	EC-WW-050	26.0		AP+PS	22/5/19	1309	1314	40	40	Pass	TH
223	221	SWEOS	NEEOS	1720	20	EB	EC-WWXL-3407	24.4		AP+PS	22/5/19	1634	1639	40	40	Pass	TH
221	219	SWEOS	NEEOS	1727	20	EA	EC-WW-054	20.4		AP+PS	22/5/19	1707	1712	40	40	Pass	TH
224	221	SWEOS	18L	1730	20	EB	EC-WWXL-3407	76.5	DS-112	AP+PS	22/5/19	1655	1700	40	40	Pass	TH
222	219	SWEOS	NEEOS	1737	20	EA	EC-WW-054	3.6		AP+PS	22/5/19	1737	1742	40	40	Pass	TH
224	221	18L	NEEOS	1755	20	EB	EC-WWXL-3407	20.0	DS-112	AP+PS	22/5/19	1707	1712	40	40	Pass	TH
224	222	SWEOS	NEEOS	1810	20	EB	EC-WWXL-3407	1.5		VB+PS	3/6/19					Pass	BM
	PAGE TOTAL							595.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 34 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/21

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	800	EA	20	40.0%	454	151	159	157	151	150	165	161	164	168	162	175	171	179	175	175	TH	Textured/Textured
2	EC-WW-050	800	FG	20	40.0%	454	157	165	162	163	167	172	165	161	164	155	176	175	178	180	179	TH	Textured/Textured
3	EC-WW-054	800	EA	20	50.0%	454	131	130	138	114	133	133	133	134	133	130	154	152	153	153	151	TH	
4	EC-WW-050	800	FG	20	50.0%	454	138	127	136	136	133	127	127	147	126	137	158	159	134	153	145	TH	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
226	223	SWEOS	18O	844	20	EA	EC-WW-054	73.0	DS-109	AP+PS	22/5/19	1335	1340	40	40	Pass	TH
226	223	18O	NEEOS	905	20	EA	EC-WW-054	18.0	DS-109	AP+PS	22/5/19	1534	1539	40	40	Pass	TH
229	225	SWEOS	NEEOS	920	20	FG	EC-WW-050	20.6		AP+PS	22/5/19	1356	1401	40	40	Pass	TH
226	224	SWEOS	NEEOS	928	20	EA	EC-WW-054	21.6		AP+PS	22/5/19	1355	1400	40	40	Pass	TH
229	226	SWEOS	NEEOS	930	20	FG	EC-WW-050	69.7		AP+PS	22/5/19	1336	1341	40	40	Pass	TH
227	224	SWEOS	NEEOS	937	20	EA	EC-WW-054	47.5		AP+PS	22/5/19	1349	1354	40	40	Pass	TH
230	226	SWEOS	19B	941	20	FG	EC-WW-050	75.7	DS-110	AP+PS	22/5/19	1331	1336	40	40	Pass	TH
228	224	SWEOS	18S	943	20	EA	EC-WW-054	7.3	DS-113	AP+PS	22/5/19	1349	1354	40	40	Pass	TH
230	226	19B	NEEOS	945	20	FG	EC-WW-050	45.0	DS-110	AP+PS	22/5/19	1356	1401	40	40	Pass	TH
228	224	18S	NEEOS	951	20	EA	EC-WW-054	19.8	DS-113	AP+PS	22/5/19	1339	1344	40	40	Pass	TH
230	227	SWEOS	NEEOS	955	20	FG	EC-WW-050	47.1		AP+PS	22/5/19	1335	1340	40	40	Pass	TH
230	228	SWEOS	19E	1015	20	FG	EC-WW-050	2.0	DS-116	AP+PS	22/5/19	1335	1340	40	40	Pass	TH
230	228	19E	NEEOS	1017	20	FG	EC-WW-050	18.7	DS-116	AP+PS	22/5/19	1333	1338	40	40	Pass	TH
231	228	SWEOS	NEEOS	1020	20	FG	EC-WW-050	6.6		AP+PS	22/5/19	1333	1338	40	40	Pass	TH

PAGE TOTAL 472.6

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 35 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/23

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1130	MK	20	50.0%	454	120	126	143	123	120	139	130	142	141	139	162	159	163	160	157	BM	
2	EC-WWXL-006	1200	LC	20	23.5%	454	148	144	142	138	153	151	153	146	153	135	177	175	168	170	165	BM	Textured/Textured
3	EC-WW-050	1230	RW	20	50.0%	454	127	128	129	130	131	134	138	129	128	135	163	160	160	160	163	BM	
4	EC-WWXL-006	1630	LC	20	23.5%	454	151	152	156	155	155	149	157	157	150	152	184	182	181	186	181	BM	Textured/Textured
5	EC-WW-054	1630	MK	20	50.0%	454	130	126	113	124	117	138	139	132	145	138	171	167	171	165	167	BM	
6	EC-WWXL-006	1630	LC	20	27.0%	454	135	136	132	139	133	140	138	137	138	133	166	192	166	198	190	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
98 / 232	SEOS	NEOS	1220	20	MK	EC-WW-054	105.0	DS-121	AP+PS	26/5/19	1352	1357	40	40	Pass	TH
239 / 240	EEOS	WEOS	1300	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1616	1621	40	40	Pass	TH
232 / 234	NEOS	26Q	1300	20	MK	EC-WW-054	43.0	DS-117	AP+PS	26/5/19	1352	1357	40	40	Pass	TH
234 / 237	NEOS	27E	1300	20	RW	EC-WW-050	28.0		AP+PS	25/5/19	1352	1357	40	40	Pass	TH
234 / 237	27E	SEOS	1310	20	RW	EC-WW-050	54.0		AP+PS	25/5/19	1517	1522	40	40	Pass	TH
232 / 234	26Q	SEOS	1314	20	MK	EC-WW-054	61.0	DS-117	AP+PS	27/5/19	938	943	40	40	Pass	TH
238 / 239	EEOS	WEOS	1317	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1635	1640	40	40	Pass	TH
236 / 237	EEOS	WEOS	1324	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1607	1612	40	40	Pass	TH
234 / 236	NEOS	SEOS	1327	20	RW	EC-WW-050	15.5		AP+PS	25/5/19	1555	1600	40	40	Pass	TH
235 / 236	EEOS	WEOS	1330	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1555	1600	40	40	Pass	TH
234 / 235	NEOS	SEOS	1332	20	RW	EC-WW-050	5.0		AP+PS	25/5/19	1555	1600	40	40	Pass	TH
232 / 233	NEOS	SEOS	1334	20	MK	EC-WW-054	1.0		VB+PS	3/6/19					Pass	BM
233 / 235	NEOS	SEOS	1334	20	RW	EC-WW-050	4.0		AP+PS	25/5/19	1554	1559	40	40	Pass	TH
233 / 234	EEOS	WEOS	1340	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1544	1549	40	40	Pass	TH
235 / 238	SEOS	NEOS	1400	20	RW	EC-WW-050	2.0		VB+PS	3/6/19					Pass	BM
235 / 239	SEOS	NEOS	1401	20	RW	EC-WW-050	10.0		AP+PS	25/5/19	1635	1640	40	40	Pass	TH
236 / 239	SEOS	NEOS	1404	20	RW	EC-WW-050	15.5		AP+PS	25/5/19	1607	1612	40	40	Pass	TH
237 / 239	SEOS	NEOS	1409	20	RW	EC-WW-050	10.5		AP+PS	25/5/19	1607	1612	40	40	Pass	TH
237 / 240	SEOS	NEOS	1413	20	RW	EC-WW-050	70.5	DS-120	AP+PS	25/5/19	1517	1522	40	40	Pass	TH
241 / 242	EEOS	WEOS	1640	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1625	1630	40	40	Pass	TH
						PAGE TOTAL	465.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 36 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/23

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
244 / 245	EEOS	WEOS	1648	20	LC	EC-WWXL-006	6.7		AP+PS	25/5/19	1642	1647	40	40	Pass	TH
238 / 241	SEOS	NEOS	1712	20	MK	EC-WW-054	5.0		AP+PS	25/5/19	1636	1641	40	40	Pass	TH
239 / 241	SEOS	NEOS	1714	20	MK	EC-WW-054	36.0		AP+PS	25/5/19	1616	1621	40	40	Pass	TH
246 / 247	EEOS	WEOS	1725	20	LC	EC-WWXL-006	6.7		AP+PS	26/5/19	1603	1608	40	40	Pass	TH
240 / 241	SEOS	NEOS	1726	20	MK	EC-WW-054	4.5		AP+PS	25/5/19	1616	1621	40	40	Pass	TH
240 / 242	SEOS	NEOS	1728	20	MK	EC-WW-054	66.0		AP+PS	25/5/19	1825	1830	40	40	Pass	TH
243 / 244	EEOS	WEOS	1755	20	LC	EC-WWXL-006	6.7		AP+PS	26/5/19	822	827	40	40	Pass	TH
241 / 244	SEOS	28T	1810	20	LC	EC-WWXL-006	6.5		AP+PS	25/5/19	1625	1630	40	40	Pass	TH
241 / 244	28T	28S	1817	20	LC	EC-WWXL-006	6.0		AP+PS	25/5/19	1111	1116	40	40	Pass	TH
241 / 244	28S	28R	1821	20	LC	EC-WWXL-006	5.0		AP+PS	25/5/19	1111	1116	40	40	Pass	TH
241 / 244	28R	28Q	1823	20	LC	EC-WWXL-006	10.0		VB+PS	3/6/19					Pass	BM
241 / 244	28Q	NEOS	1825	20	LC	EC-WWXL-006	21.0		AP+PS	26/5/19	809	814	40	40	Pass	TH
242 / 244	SEOS	NEOS	1826	20	LC	EC-WWXL-006	7.5		AP+PS	25/5/19	1625	1630	40	40	Pass	TH
242 / 245	SEOS	NEOS	1828	20	LC	EC-WWXL-006	58.5	DS-118	AP+PS	25/5/19	1825	1830	40	40	Pass	TH
243 / 246	SEOS	NEOS	1857	20	LC	EC-WWXL-006	3.0		AP+PS	26/5/19	822	827	40	40	Pass	TH
244 / 246	SEOS	NEOS	1858	20	LC	EC-WWXL-006	56.0		AP+PS	25/5/19	1825	1830	40	40	Pass	TH
245 / 246	SEOS	NEOS	1916	20	LC	EC-WWXL-006	0.5		VB+PS	3/6/19					Pass	BM
245 / 247	SEOS	NEOS	1917	20	LC	EC-WWXL-006	58.0	DS-119	AP+PS	25/5/19	1825	1830	40	40	Pass	TH
/																
/																
						PAGE TOTAL	363.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 37 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WWXL-340	910	LC	20	20.5%	454	150	151	167	148	159	162	156	149	155	152	179	180	178	184	175	BM	
2	EC-WWXL-006	910	EB	20	20.5%	454	157	145	161	145	151	156	145	152	159	154	190	186	183	183	177	BM	
3	EC-WW-050	1330	LC	20	40.0%	454	152	144	153	153	154	149	153	151	144	148	181	166	177	168	168	BM	Textured/Textured
4	EC-WW-050	1330	LC	20	50.0%	454	118	122	118	133	132	125	119	131	133	131	153	157	153	157	155	BM	
5	EC-WW-054	1330	MK	20	50.0%	454	109	116	117	126	111	129	130	128	137	132	152	149	150	143	149	BM	
6	EC-WW-054	1330	MK	20	40.0%	454	149	161	136	144	156	159	162	161	154	138	180	180	181	185	179	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
61 / 232	EEOS	WEOS	945	20	LC	EC-WWXL-3407	7.6		AP+PS	24/5/19	1544	1549	40	40	Pass	TH
61 / 233	EEOS	WEOS	948	20	LC	EC-WWXL-3407	4.8		AP+PS	24/5/19	1554	1559	40	40	Pass	TH
63 / 233	EEOS	WEOS	950	20	LC	EC-WWXL-3407	2.9		AP+PS	24/5/19	1554	1559	40	40	Pass	TH
63 / 235	EEOS	WEOS	951	20	LC	EC-WWXL-3407	7.6		AP+PS	24/5/19	1554	1559	40	40	Pass	TH
63 / 238	EEOS	WEOS	954	20	LC	EC-WWXL-3407	1.4		AP+PS	24/5/19	1636	1641	40	40	Pass	TH
87 / 238	EEOS	WEOS	955	20	LC	EC-WWXL-3407	6.2		AP+PS	24/5/19	1636	1641	40	40	Pass	TH
87 / 241	EEOS	WEOS	957	20	LC	EC-WWXL-3407	6.1	DS-125	AP+PS	24/5/19	1636	1641	40	40	Pass	TH
90 / 241	EEOS	WEOS	959	20	LC	EC-WWXL-3407	1.3		VB+PS	3/6/19					Pass	BM
90 / 244	EEOS	WEOS	1000	20	LC	EC-WWXL-3407	0.7		VB+PS	3/6/19					Pass	BM
90 / 243	EEOS	WEOS	1001	20	LC	EC-WWXL-3407	6.8	DS-124	VB+PS	3/6/19					Pass	BM
90 / 246	EEOS	WEOS	1003	20	LC	EC-WWXL-3407	3.7	DS-122	VB+PS	3/6/19					Pass	BM
94 / 246	EEOS	WEOS	1005	20	LC	EC-WWXL-3407	4.1		VB+PS	3/6/19					Pass	BM
248 / 249	EEOS	WEOS	1405	20	LC	EC-WW-050	6.7		AP+PS	24/5/19	1603	1608	40	40	Pass	TH
249 / 247	NEOS	SEOS	1419	20	MK	EC-WW-054	58.0		AP+PS	24/5/19	1815	1820	40	40	Pass	TH
249 / 246	NEOS	SEOS	1438	20	MK	EC-WW-054	1.5		AP+PS	25/5/19	1603	1608	40	40	Pass	TH
248 / 246	NEOS	29J	1439	20	MK	EC-WW-054	13.8		VB+PS	3/6/19					Pass	BM
248 / 246	29J	29L	1444	20	MK	EC-WW-054	16.0		AP+PS	28/5/19	1557	1602	40	40	Pass	TH
248 / 246	29L	29N	1449	20	MK	EC-WW-054	8.0		AP+PS	28/5/19	1635	1640	40	40	Pass	TH
248 / 246	29N	SEOS	1452	20	MK	EC-WW-054	21.0		AP+PS	27/5/19	1102	1107	40	40	Pass	TH
250 / 251	EEOS	WEOS	1520	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	844	849	40	40	Pass	TH
						PAGE TOTAL	184.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 38 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WWXL-340	1330	EB	20	24.0%	454	141	139	131	139	139	128	138	125	135	145	157	164	148	163	165	BM	
8	EC-WW-056	1340	FG	20	50.0%	454	139	137	137	138	136	140	133	137	145	135	165	170	168	166	166	BM	
9	EC-WW-056	1340	FG	20	40.0%	454	159	158	159	163	157	153	156	164	161	157	175	178	186	180	178	BM	
10	EC-WWXL-340	1800	EB	20	24.0%	454	141	146	146	140	137	132	129	143	147	137	166	172	178	171	169	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
251 / 252	EEOS	WEOS	1520	20	MK	EC-WW-054	6.7		AP+PS	24/5/19	1612	1617	40	40	Pass	TH
249 / 252	NEOS	SEOS	1525	20	EB	EC-WWXL-3407	61.0		AP+PS	25/5/19	1538	1543	40	40	Pass	TH
253 / 254	EEOS	WEOS	1542	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	1134	1139	40	40	Pass	TH
252 / 254	NEOS	SEOS	1542	20	FG	EC-WW-056	63.0		AP+PS	25/5/19	1538	1543	40	40	Pass	TH
255 / 256	EEOS	WEOS	1545	20	MK	EC-WW-054	6.7		AP+PS	25/5/19	904	909	40	40	Pass	TH
248 / 252	NEOS	SEOS	1545	20	EB	EC-WWXL-3407	2.0		AP+PS	25/5/19	1612	1617	40	40	Pass	TH
248 / 251	NEOS	SEOS	1546	20	EB	EC-WWXL-3407	62.5	DS-129	AP+PS	24/5/19	1819	1824	40	40	Pass	TH
251 / 254	NEOS	SEOS	1603	20	FG	EC-WW-056	12.5		AP+PS	25/5/19	1612	1617	40	40	Pass	TH
248 / 250	NEOS	SEOS	1606	20	EB	EC-WWXL-3407	1.0		VB+PS	3/6/19					Pass	BM
251 / 253	NEOS	SEOS	1607	20	FG	EC-WW-056	50.0		AP+PS	25/5/19	1142	1147	40	40	Pass	TH
256 / 257	EEOS	WEOS	1618	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	1133	1138	40	40	Pass	TH
250 / 253	NEOS	SEOS	1623	20	FG	EC-WW-056	4.5	DS-128	AP+PS	25/5/19	844	849	40	40	Pass	TH
254 / 257	NEOS	SEOS	1630	20	MK	EC-WW-054	75.0		AP+PS	25/5/19	1538	1543	40	40	Pass	TH
257 / 259	NEOS	SEOS	1635	20	EB	EC-WWXL-3407	85.5		AP+PS	25/5/19	1538	1543	40	40	Pass	TH
258 / 259	EEOS	WEOS	1650	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	1122	1127	40	40	Pass	TH
253 / 257	NEOS	SEOS	1655	20	MK	EC-WW-054	12.4		AP+PS	25/5/19	1133	1138	40	40	Pass	TH
253 / 256	NEOS	SEOS	1700	20	MK	EC-WW-054	45.0	DS-130	AP+PS	25/5/19	1142	1147	40	40	Pass	TH
256 / 259	NEOS	SEOS	1703	20	EB	EC-WWXL-3407	17.1		AP+PS	25/5/19	1122	1127	40	40	Pass	TH
256 / 258	NEOS	SEOS	1708	20	EB	EC-WWXL-3407	28.0	DS-127	AP+PS	25/5/19	904	909	40	40	Pass	TH
253 / 255	NEOS	SEOS	1715	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
						PAGE TOTAL	554.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 39 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
255 / 258	NEOS	SEOS	1717	20	EB	EC-WWXL-3407	5.0		AP+PS	25/5/19	904	909	40	40	Pass	TH
260 / 261	EEOS	WEOS	1741	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	930	935	40	40	Pass	TH
259 / 262	NEOS	SEOS	1747	20	FG	EC-WW-056	105.0		AP+PS	25/5/19	1615	1620	40	40	Pass	TH
261 / 262	EEOS	WEOS	1750	20	LC	EC-WW-050	6.7		AP+PS	25/5/19	1203	1208	40	40	Pass	TH
94 / 248	EEOS	WEOS	1820	20	EB	EC-WWXL-3407	6.2		AP+PS	25/5/19	823	828	40	40	Pass	TH
258 / 262	NEOS	SEOS	1822	20	FG	EC-WW-056	17.0	DS-126	AP+PS	25/5/19	1122	1127	40	40	Pass	TH
99 / 248	EEOS	WEOS	1823	20	EB	EC-WWXL-3407	1.6		VB+PS	3/6/19					Pass	BM
99 / 250	EEOS	WEOS	1824	20	EB	EC-WWXL-3407	7.7		AP+PS	25/5/19	823	828	40	40	Pass	TH
258 / 261	NEOS	SEOS	1827	20	FG	EC-WW-056	15.0		AP+PS	25/5/19	908	913	40	40	Pass	TH
99 / 253	EEOS	WEOS	1827	20	EB	EC-WWXL-3407	1.3		VB+PS	3/6/19					Pass	BM
104 / 253	EEOS	WEOS	1828	20	EB	EC-WWXL-3407	6.2		VB+PS	3/6/19					Pass	BM
104 / 255	EEOS	WEOS	1830	20	EB	EC-WWXL-3407	4.7		AP+PS	25/5/19	845	850	40	40	Pass	TH
258 / 260	NEOS	SEOS	1832	20	FG	EC-WW-056	0.5		VB+PS	3/6/19					Pass	BM
106 / 255	EEOS	WEOS	1832	20	EB	EC-WWXL-3407	3.1		VB+PS	3/6/19					Pass	BM
106 / 258	EEOS	WEOS	1833	20	EB	EC-WWXL-3407	7.5		VB+PS	3/6/19					Pass	BM
106 / 260	EEOS	WEOS	1835	20	EB	EC-WWXL-3407	0.3		VB+PS	3/6/19					Pass	BM
109 / 260	EEOS	WEOS	1836	20	EB	EC-WWXL-3407	7.0	DS-123	VB+PS	3/6/19					Pass	BM
/																
/																
/																

PAGE TOTAL 201.5

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 40 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	940	MK	20	50.0%	454	152	145	155	143	146	152	134	128	138	132	168	163	173	173	171	BM	
2	EC-WW-054	1010	MK	20	40.0%	454	154	156	156	162	144	155	161	163	162	154	175	175	177	174	185	BM	
3	EC-WW-050	1240	LC	20	50.0%	454	129	132	136	138	142	137	135	134	141	135	162	166	161	162	168	BM	
4	EC-WW-045	1245	EB	20	40.0%	454	150	149	153	152	143	156	160	152	155	164	180	178	183	186	177	BM	
5	EC-WW-045	1245	EB	20	50.0%	454	134	134	130	138	131	138	139	134	146	142	162	161	160	155	158	BM	
6	EC-WW-045	1400	EB	20	40.0%	454	135	140	127	135	129	149	145	154	141	148	159	156	155	159	158	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
263 / 264	EEOS	WEOS	1030	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1500	1505	40	40	Pass	TH
262 / 264	NEOS	SEOS	1045	20	MK	EC-WW-054	23.5		AP+PS	28/5/19	1615	1620	40	40	Pass	TH
262 / 263	NEOS	SEOS	1052	20	MK	EC-WW-054	98.5		AP+PS	28/5/19	1757	1802	40	40	Pass	TH
261 / 263	NEOS	SEOS	1124	20	MK	EC-WW-054	15.5		AP+PS	29/5/19	930	935	40	40	Pass	TH
260 / 263	NEOS	SEOS	1129	20	MK	EC-WW-054	3.0	DS-134	AP+PS	29/5/19	930	935	40	40	Pass	TH
267A / 268	NEOS	SEOS	1445	20	MK	EC-WW-054	18.5		AP+PS	28/5/19	1641	1646	40	40	Pass	TH
267 / 268	NEOS	SEOS	1451	20	MK	EC-WW-054	52.5		AP+PS	28/5/19	1641	1646	40	40	Pass	TH
266 / 268	NEOS	SEOS	1508	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
265 / 268	NEOS	SEOS	1509	20	MK	EC-WW-054	5.0	DS-133	AP+PS	28/5/19	1554	1559	40	40	Pass	TH
268 / 269	EEOS	WEOS	1515	20	LC	EC-WW-050	5.0		AP+PS	28/5/19	1500	1505	40	40	Pass	TH
267 / 267A	EEOS	WEOS	1520	20	LC	EC-WW-050	1.6		VB+PS	3/6/19					Pass	BM
264 / 269	NEOS	SEOS	1520	20	EB	EC-WW-045	23.5		AP+PS	28/5/19	1500	1505	40	40	Pass	TH
263 / 269	NEOS	SEOS	1528	20	EB	EC-WW-045	29.0		AP+PS	28/5/19	1500	1505	40	40	Pass	TH
265 / 266	EEOS	WEOS	1532	20	LC	EC-WW-050	5.7		AP+PS	28/5/19	1554	1559	40	40	Pass	TH
266 / 267	EEOS	WEOS	1536	20	LC	EC-WW-050	5.7		AP+PS	29/5/19	958	1003	40	40	Pass	TH
263 / 268	NEOS	SEOS	1538	20	EB	EC-WW-045	19.0		AP+PS	28/5/19	1500	1505	40	40	Pass	TH
263 / 267A	NEOS	SEOS	1545	20	EB	EC-WW-045	18.5		AP+PS	28/5/19	1641	1646	40	40	Pass	TH
263 / 267	NEOS	SEOS	1552	20	EB	EC-WW-045	52.5		AP+PS	28/5/19	1641	1646	40	40	Pass	TH
270 / 271	EEOS	WEOS	1600	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1515	1520	40	40	Pass	TH
263 / 266	NEOS	SEOS	1609	20	EB	EC-WW-045	1.6		VB+PS	3/6/19					Pass	BM
						PAGE TOTAL	393.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 41 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-056	1430	LC	20	40.0%	454	146	143	137	143	138	140	135	138	142	136	159	166	168	161	169	BM	
8	EC-WW-056	1430	LC	20	50.0%	454	129	131	126	121	126	134	139	134	131	133	155	150	154	157	155	BM	
9	EC-WW-054	1451	MK	20	45.0%	454	143	142	111	138	132	134	138	131	127	130	164	161	168	160	163	BM	Smooth/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
263 / 265	NEOS	SEOS	1610	20	EB	EC-WW-045	1.7	DS-132	VB+PS	3/6/19					Pass	BM
269 / 271	NEOS	SEOS	1620	20	MK	EC-WW-054	52.0		AP+PS	28/5/19	1515	1520	40	40	Pass	TH
268 / 271	NEOS	SEOS	1637	20	MK	EC-WW-054	32.5		AP+PS	28/5/19	1515	1520	40	40	Pass	TH
109 / 263	EEOS	WEOS	1640	20	LC	EC-WW-050	4.8		AP+PS	29/5/19	931	936	40	40	Pass	TH
112 / 263	EEOS	WEOS	1642	20	LC	EC-WW-050	2.6		AP+PS	29/5/19	931	936	40	40	Pass	TH
112 / 265	EEOS	WEOS	1643	20	LC	EC-WW-050	7.1		AP+PS	29/5/19	948	953	40	40	Pass	TH
112 / 268	EEOS	WEOS	1646	20	LC	EC-WW-050	1.2		VB+PS	3/6/19					Pass	TH
268 / 270	NEOS	SEOS	1648	20	MK	EC-WW-054	65.5	DS-131	AP+PS	28/5/19	1515	1520	40	40	Pass	TH
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/																
PAGE TOTAL							167.4									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 42 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/26

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	830	FG	20	40.0%	454	149	169	153	151	153	154	155	145	145	152	184	181	186	187	194	BM	
2	EC-WW-050	845	FG	20	50.0%	454	142	144	125	138	140	134	131	141	135	140	164	162	161	160	164	BM	
3	EC-WW-045	845	EB	20	40.0%	454	163	159	155	163	156	152	147	149	154	149	188	184	193	179	186	BM	
4	EC-WW-045	900	EB	20	50.0%	454	130	142	116	146	142	139	139	140	140	143	168	167	157	164	169	BM	
5	EC-WW-054	1030	MK	20	40.0%	454	148	148	146	145	144	145	142	130	145	142	162	164	161	170	168	BM	
6	EC-WW-054	1045	MK	20	50.0%	454	139	138	138	140	137	127	134	122	124	129	149	145	151	160	157	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
271 / 273	NEOS	SEOS	930	20	FG	EC-WW-050	84.5		AP+PS	28/5/19	1522	1527	40	40	Pass	TH
274 / 275	EEOS	WEOS	940	20	EB	EC-WW-045	6.7		AP+PS	28/5/19	1549	1554	40	40	Pass	TH
272 / 273	EEOS	WEOS	950	20	EB	EC-WW-045	6.7		AP+PS	28/5/19	1522	1527	40	40	Pass	TH
270 / 273	NEOS	SEOS	958	20	FG	EC-WW-050	27.5		AP+PS	28/5/19	1522	1527	40	40	Pass	TH
270 / 272	NEOS	SEOS	1007	20	FG	EC-WW-050	37.0	DS-135	AP+PS	28/5/19	1522	1527	40	40	Pass	TH
273 / 275	NEOS	SEOS	1010	20	EB	EC-WW-045	27.0		AP+PS	28/5/19	1549	1554	40	40	Pass	TH
273 / 274	NEOS	SEOS	1019	20	EB	EC-WW-045	85.0		AP+PS	28/5/19	1549	1554	40	40	Pass	TH
272 / 274	NEOS	SEOS	1047	20	EB	EC-WW-045	37.0	DS-136	AP+PS	28/5/19	1525	1530	40	40	Pass	TH
276 / 277	EEOS	WEOS	1325	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1608	1613	40	40	Pass	TH
275 / 277	NEOS	SEOS	1330	20	FG	EC-WW-050	27.0		AP+PS	28/5/19	1550	1555	40	40	Pass	TH
274 / 277	NEOS	SEOS	1339	20	FG	EC-WW-050	42.0		AP+PS	28/5/19	1550	1555	40	40	Pass	TH
279 / 280	EEOS	WEOS	1340	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1630	1635	40	40	Pass	TH
278 / 279	EEOS	WEOS	1345	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1736	1741	40	40	Pass	TH
274 / 276	NEOS	SEOS	1353	20	FG	EC-WW-050	80.5	DS-137	AP+PS	28/5/19	1721	1726	40	40	Pass	TH
277 / 280	NEOS	SEOS	1355	20	EB	EC-WW-045	70.0		AP+PS	28/5/19	1608	1613	40	40	Pass	TH
281 / 282	EEOS	WEOS	1400	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1607	1612	40	40	Pass	TH
276 / 280	NEOS	SEOS	1418	20	EB	EC-WW-045	32.5		AP+PS	28/5/19	1608	1613	40	40	Pass	TH
276 / 279	NEOS	SEOS	1429	20	EB	EC-WW-045	52.5	DS-139	AP+PS	28/5/19	1630	1635	40	40	Pass	TH
280 / 282	NEOS	SEOS	1445	20	FG	EC-WW-050	31.5		AP+PS	28/5/19	1607	1612	40	40	Pass	TH
276 / 278	NEOS	SEOS	1446	20	EB	EC-WW-045	4.0		AP+PS	28/5/19	1736	1741	40	40	Pass	TH
						PAGE TOTAL	678.2									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 43 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/26

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-050	1300	FG	20	40.0%	454	140	147	139	142	144	152	147	144	149	152	164	169	169	172	171	BM	
8	EC-WW-050	1300	FG	20	50.0%	454	135	141	142	131	142	141	134	112	129	123	157	158	158	154	151	BM	
9	EC-WW-045	1400	EB	20	40.0%	454	153	154	163	166	151	158	154	160	163	162	180	182	179	170	174	BM	
10	EC-WW-045	1400	EB	20	50.0%	454	147	146	150	102	138	142	148	158	150	153	169	171	171	170	167	BM	
11	EC-WW-050	1745	FG	20	40.0%	454	121	124	118	128	127	120	120	128	131	120	163	159	160	161	157	BM	Smooth/Textured
12	EC-WW-045	1800	EB	20	50.0%	454	120	133	120	131	131	138	135	137	133	135	158	159	159	160	162	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
280	281	NEOS	SEOS	1455	20	FG	EC-WW-050	71.0		AP+PS	28/5/19	1607	1612	40	40	Pass	TH
279	281	NEOS	SEOS	1518	20	FG	EC-WW-050	52.5	DS-140	AP+PS	28/5/19	1720	1725	40	40	Pass	TH
283	284	WEOS	EEOS	1741	20	EB	EC-WW-045	27.0		AP+PS	28/5/19	1746	1751	40	40	Pass	TH
284	285	WEOS	EEOS	1800	20	EB	EC-WW-045	27.0		AP+PS	28/5/19	1748	1753	40	40	Pass	TH
268	283	EEOS	WEOS	1806	20	FG	EC-WW-050	5.5		AP+PS	28/5/19	1740	1745	40	40	Pass	TH
270	283	EEOS	WEOS	1806	20	FG	EC-WW-050	6.7		AP+PS	28/5/19	1724	1729	40	40	Pass	TH
272	283	EEOS	WEOS	1806	20	FG	EC-WW-050	6.7		AP+PS	28/5/19	1723	1728	40	40	Pass	TH
274	283	EEOS	WEOS	1806	20	FG	EC-WW-050	6.7	DS-138	AP+PS	28/5/19	1722	1727	40	40	Pass	TH
286	287	SEOS	NEOS	1830	20	FG	EC-WW-050	6.7		AP+PS	28/5/19	1527	1532	40	40	Pass	TH
276	284	SEOS	NEOS	1835	20	FG	EC-WW-050	6.7		AP+PS	28/5/19	1716	1721	40	40	Pass	TH
285	286	WEOS	EEOS	1836	20	EB	EC-WW-045	4.5		AP+PS	28/5/19	1305	1310	40	40	Pass	TH
276	283	SEOS	NEOS	1838	20	FG	EC-WW-050	6.7		AP+PS	28/5/19	1746	1751	40	40	Pass	TH
285	287	WEOS	EEOS	1838	20	EB	EC-WW-045	15.0		AP+PS	28/5/19	1305	1310	40	40	Pass	TH
							PAGE TOTAL	242.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 44 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	810	MK	20	50.0%	454	131	144	122	131	124	146	132	134	144	143	172	169	172	169	172	BM	
2	EC-WW-054	815	MK	20	40.0%	454	134	145	134	143	136	153	153	153	167	161	181	182	181	180	184	BM	
3	EC-WW-045	830	EB	20	50.0%	454	139	143	113	139	143	137	152	142	149	142	169	169	173	170	175	BM	
4	EC-WW-045	830	EB	20	40.0%	454	148	158	135	143	158	161	159	155	164	160	187	185	191	185	182	BM	
5	EC-WW-054	830	MK	20	45.0%	454	124	128	122	123	138	144	154	140	151	146	169	171	171	171	167	BM	Smooth/Textured
6	EC-WW-045	1200	EB	20	50.0%	454	127	132	120	125	130	133	130	130	127	121	154	152	158	152	156	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
289 / 290	WEOS	EEOS	925	20	EB	EC-WW-045	6.7		AP+PS	28/5/19	1329	1334	40	40	Pass	TH
288 / 290	SEOS	NEOS	932	20	EB	EC-WW-045	11.5		AP+PS	28/5/19	1313	1318	40	40	Pass	TH
288 / 289	SEOS	NEOS	936	20	EB	EC-WW-045	38.5	DS-143	AP+PS	28/5/19	1329	1334	40	40	Pass	TH
142 / 290	SEOS	NEOS	1045	20	MK	EC-WW-054	5.7		AP+PS	28/5/19	1336	1341	40	40	Pass	TH
140 / 290	SEOS	NEOS	1047	20	MK	EC-WW-054	6.0		AP+PS	28/5/19	1336	1341	40	40	Pass	TH
140 / 289	SEOS	NEOS	1049	20	MK	EC-WW-054	0.7		VB+PS	2/6/19					Pass	BM
138 / 289	SEOS	NEOS	1050	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1328	1333	40	40	Pass	TH
136 / 289	SEOS	34B	1052	20	MK	EC-WW-054	3.4		AP+PS	28/5/19	1328	1333	40	40	Pass	TH
136 / 289	34B	NEOS	1053	20	MK	EC-WW-054	3.4		AP+PS	28/5/19	1327	1332	40	40	Pass	TH
134 / 289	SEOS	NEOS	1054	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1327	1332	40	40	Pass	TH
132 / 289	SEOS	NEOS	1057	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1314	1319	40	40	Pass	TH
130 / 289	SEOS	NEOS	1059	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1314	1319	40	40	Pass	TH
128 / 289	SEOS	NEOS	1102	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1313	1318	40	40	Pass	TH
287 / 288	WEOS	EEOS	1130	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1527	1532	40	40	Pass	TH
287 / 289	WEOS	EEOS	1132	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1313	1318	40	40	Pass	TH
128 / 287	SEOS	NEOS	1144	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
125 / 287	SEOS	NEOS	1145	20	MK	EC-WW-054	5.0		AP+PS	28/5/19	1313	1318	40	40	Pass	TH
125 / 285	SEOS	NEOS	1147	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
121 / 285	SEOS	NEOS	1148	20	MK	EC-WW-054	5.0		AP+PS	28/5/19	1748	1753	40	40	Pass	TH
121 / 284	SEOS	NEOS	1150	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
						PAGE TOTAL	137.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 45 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1200	EB	20	40.0%	454	155	151	153	151	155	151	161	159	150	158	181	179	181	181	181	BM	
8	EC-WW-054	1200	MK	20	50.0%	454	130	131	144	138	140	149	147	143	144	144	161	163	167	159	166	BM	
9	EC-WW-054	1205	MK	20	45.0%	454	124	122	109	126	121	148	141	131	130	143	153	147	152	148	154	BM	
10	EC-WW-054	1210	MK	20	40.0%	454	156	161	144	155	154	155	168	144	171	159	184	188	189	185	187	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
118 / 284	SEOS	NEOS	1151	20	MK	EC-WW-054	5.0		AP+PS	28/5/19	1747	1752	40	40	Pass	TH
118 / 283	SEOS	NEOS	1153	20	MK	EC-WW-054	1.5		VB+PS	3/6/19					Pass	BM
115 / 283	SEOS	NEOS	1154	20	MK	EC-WW-054	5.0		AP+PS	28/5/19	1740	1745	40	40	Pass	TH
291 / 292	SEOS	NEOS	1240	20	EB	EC-WW-045	100.5		AP+PS	28/5/19	1412	1417	40	40	Pass	TH
293 / 294	WEOS	EEOS	1300	20	MK	EC-WW-054	5.5		AP+PS	28/5/19	1346	1351	40	40	Pass	TH
179 / 291	SEOS	NEOS	1330	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	945	950	40	40	Pass	TH
177 / 291	SEOS	NEOS	1332	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1432	1437	40	40	Pass	TH
292 / 294	SEOS	NEOS	1335	20	EB	EC-WW-045	82.0	DS-141	AP+PS	28/5/19	1412	1417	40	40	Pass	TH
174 / 291	SEOS	NEOS	1335	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1432	1437	40	40	Pass	TH
172 / 291	SEOS	NEOS	1337	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1431	1436	40	40	Pass	TH
169 / 291	SEOS	NEOS	1340	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1431	1436	40	40	Pass	TH
166 / 291	SEOS	NEOS	1342	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1430	1435	40	40	Pass	TH
164 / 291	SEOS	NEOS	1344	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1424	1431	40	40	Pass	TH
161 / 291	SEOS	NEOS	1347	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1424	1431	40	40	Pass	TH
158 / 291	SEOS	NEOS	1350	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1423	1428	40	40	Pass	TH
155 / 291	SEOS	NEOS	1352	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1423	1428	40	40	Pass	TH
152 / 291	SEOS	NEOS	1355	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1422	1427	40	40	Pass	TH
150 / 291	SEOS	NEOS	1357	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1414	1419	40	40	Pass	TH
148 / 291	SEOS	NEOS	1400	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1414	1419	40	40	Pass	TH
292 / 293	SEOS	NEOS	1402	20	EB	EC-WW-045	18.5		AP+PS	28/5/19	1346	1351	40	40	Pass	TH
						PAGE TOTAL	305.1									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 46 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
146	291	SEOS	NEOS	1402	20	MK	EC-WW-054	6.7		AP+PS	28/5/19	1413	1418	40	40	Pass	TH
144	291	SEOS	NEOS	1405	20	MK	EC-WW-054	6.7	DS-142	AP+PS	28/5/19	1347	1352	40	40	Pass	TH
142	291	SEOS	NEOS	1407	20	MK	EC-WW-054	1.0		VB+PS	3/6/19					Pass	BM
290	291	EEOS	WEOS	1520	20	EB	EC-WW-045	4.3		AP+PS	28/5/19	1337	1342	40	40	Pass	TH
290	292	EEOS	WEOS	1522	20	EB	EC-WW-045	2.4		AP+PS	28/5/19	1337	1342	40	40	Pass	TH
288	292	EEOS	WEOS	1524	20	EB	EC-WW-045	4.3		AP+PS	28/5/19	1338	1343	40	40	Pass	TH
288	293	EEOS	WEOS	1526	20	EB	EC-WW-045	2.4		AP+PS	28/5/19	1338	1343	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/28

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	920	RW	20	50.0%	454	134	135	133	127	130	138	134	135	139	138	158	158	160	156	158	BM	
2	EC-WW-054	920	RW	20	40.0%	454	156	159	163	170	165	149	155	164	168	167	186	184	187	185	182	BM	
3	EC-WW-054	1400	RW	20	50.0%	454	126	128	126	135	133	133	136	112	123	134	157	157	158	156	156	BM	
4	EC-WW-054	1400	RW	20	40.0%	454	144	148	155	162	154	159	160	155	165	158	189	180	180	180	180	BM	
5	EC-WW-054	1405	RW	20	45.0%	454	121	124	115	119	124	127	133	136	132	132	159	157	159	157	157	BM	
6	EC-WW-050	1500	BB	20	50.0%	454	136	133	128	128	130	131	129	133	131	126	158	155	158	156	159	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
295 / 296	SEOS	NEOS	1320	20	RW	EC-WW-054	6.7		AP+PS	29/5/19	1242	1247	40	40	Pass	TH
294 / 295	WEOS	EEOS	1500	20	RW	EC-WW-054	6.7		AP+PS	29/5/19	1140	1145	40	40	Pass	TH
292 / 295	WEOS	EEOS	1502	20	RW	EC-WW-054	6.7		AP+PS	29/5/19	1140	1145	40	40	Pass	TH
291 / 295	WEOS	EEOS	1504	20	RW	EC-WW-054	6.7		AP+PS	29/5/19	1139	1144	40	40	Pass	TH
179 / 295	WEOS	EEOS	1506	20	RW	EC-WW-054	102.0		AP+PS	29/5/19	1139	1144	40	40	Pass	TH
298 / 299	SEOS	NEOS	1530	20	BB	EC-WW-050	6.7		AP+PS	29/5/19	1238	1243	40	40	Pass	TH
297 / 298	SEOS	NEOS	1534	20	BB	EC-WW-050	6.7		AP+PS	29/5/19	1507	1512	40	40	Pass	TH
179 / 296	WEOS	EEOS	1540	20	RW	EC-WW-054	19.0		AP+PS	29/5/19	1626	1631	40	40	Pass	TH
180 / 296	WEOS	EEOS	1547	20	RW	EC-WW-054	68.5	DS-144	AP+PS	29/5/19	1625	1630	40	40	Pass	TH
301 / 302	SEOS	NEOS	1553	20	BB	EC-WW-050	6.7	DS-146	AP+PS	29/5/19	1241	1246	40	40	Pass	TH
299 / 300	SEOS	NEOS	1609	20	BB	EC-WW-050	6.7		AP+PS	29/5/19	1535	1540	40	40	Pass	TH
296 / 300	EEOS	WEOS	1620	20	BB	EC-WW-050	21.2		AP+PS	29/5/19	1535	1540	40	40	Pass	TH
296 / 299	EEOS	WEOS	1627	20	BB	EC-WW-050	66.5	DS-145	AP+PS	29/5/19	1242	1247	40	40	Pass	TH
295 / 299	EEOS	WEOS	1649	20	BB	EC-WW-050	54.5		AP+PS	29/5/19	1335	1340	40	40	Pass	TH
299 / 301	EEOS	WEOS	1650	20	RW	EC-WW-054	31.0		AP+PS	29/5/19	1238	1243	40	40	Pass	TH
298 / 301	EEOS	WEOS	1700	20	RW	EC-WW-054	36.0	DS-147	AP+PS	29/5/19	1208	1213	40	40	Pass	TH
295 / 298	EEOS	WEOS	1707	20	BB	EC-WW-050	36.0		AP+PS	29/5/19	1138	1143	40	40	Pass	TH
300 / 302	EEOS	WEOS	1712	20	TW	EC-WWXL-3407	21.2		AP+PS	29/5/19	1727	1732	40	40	Pass	TH
297 / 301	EEOS	WEOS	1712	20	RW	EC-WW-054	31.5		AP+PS	29/5/19	1507	1512	40	40	Pass	TH
295 / 297	EEOS	WEOS	1719	20	BB	EC-WW-050	31.5	DS-148	AP+PS	29/5/19	1138	1143	40	40	Pass	TH
						PAGE TOTAL	572.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 48 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/28

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-050	1500	BB	20	40.0%	454	150	158	161	155	157	156	154	150	156	154	182	183	185	177	177	BM	
8	EC-WWXL-340	1650	TW	20	23.0%	454	144	132	137	139	136	128	135	142	137	134	164	163	166	161	173	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
299	302	EEOS	WEOS	1719	20	TW	EC-WWXL-3407	90.0		AP+PS	29/5/19	1725	1730	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/29

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	800	MK	20	50.0%	454	141	143	144	150	138	144	141	150	142	145	170	169	170	168	170	BM	
2	EC-WW-054	805	MK	20	45.0%	454	161	126	132	135	115	145	140	141	146	138	169	172	171	175	175	BM	Smooth/Textured
3	EC-WW-050	1100	FG	20	40.0%	454	138	151	145	156	153	152	145	145	149	151	171	164	175	171	175	BM	
4	EC-WW-050	1100	FG	20	50.0%	454	130	131	135	130	133	130	128	130	130	128	157	157	159	158	160	BM	
5	EC-WW-045	1100	EB	20	40.0%	454	152	143	141	150	150	145	153	156	150	144	176	169	170	165	165	BM	
6	EC-WW-045	1100	EB	20	50.0%	454	126	136	136	143	125	132	134	133	134	132	162	158	162	158	161	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
281 / 303	SEOS	NEOS	1327	20	FG	EC-WW-050	10.0		AP+PS	31/5/19	1326	1331	40	40	Pass	TH
303 / 304	EEOS	WEOS	1329	20	EB	EC-WW-045	6.7		AP+PS	31/5/19	1326	1331	40	40	Pass	TH
281 / 304	SEOS	NEOS	1330	20	FG	EC-WW-050	109.0		AP+PS	2/6/19	1528	1533	40	40	Pass	TH
304 / 305	EEOS	WEOS	1336	20	EB	EC-WW-045	6.7		AP+PS	2/6/19	1528	1533	40	40	Pass	TH
306 / 307	EEOS	WEOS	1345	20	EB	EC-WW-045	6.7		AP+PS	2/6/19	1505	1510	40	40	Pass	TH
303 / 306	SEOS	NEOS	1345	20	MK	EC-WW-054	10.0		AP+PS	31/5/19	1326	1331	40	40	Pass	TH
304 / 306	SEOS	NEOS	1348	20	MK	EC-WW-054	90.5		AP+PS	2/6/19	1505	1510	40	40	Pass	TH
308 / 309	EEOS	WEOS	1400	20	EB	EC-WW-045	6.7		AP+PS	31/5/19	1352	1357	40	40	Pass	TH
282 / 304	SEOS	NEOS	1406	20	FG	EC-WW-050	13.0		AP+PS	2/6/19	1528	1533	40	40	Pass	TH
282 / 305	SEOS	NEOS	1410	20	FG	EC-WW-050	19.5	DS-151	AP+PS	2/6/19	1528	1533	40	40	Pass	TH
304 / 307	SEOS	NEOS	1418	20	MK	EC-WW-054	31.5		AP+PS	2/6/19	1505	1510	40	40	Pass	TH
306 / 308	SEOS	NEOS	1420	20	EB	EC-WW-045	69.0		AP+PS	2/6/19	1342	1347	40	40	Pass	TH
305 / 307	SEOS	NEOS	1429	20	MK	EC-WW-054	19.5	DS-150	AP+PS	2/6/19	1528	1533	40	40	Pass	TH
306 / 309	SEOS	NEOS	1443	20	EB	EC-WW-045	29.0		AP+PS	2/6/19	1352	1357	40	40	Pass	TH
307 / 309	SEOS	NEOS	1453	20	EB	EC-WW-045	51.0	DS-149	AP+PS	2/6/19	1505	1510	40	40	Pass	TH
311 / 312	EEOS	WEOS	1555	20	FG	EC-WW-050	6.7		AP+PS	2/6/19	1348	1353	40	40	Pass	TH
310 / 311	EEOS	WEOS	1605	20	FG	EC-WW-050	6.7		AP+PS	31/5/19	1352	1357	40	40	Pass	TH
312 / 314	NEOS	SEOS	1615	20	MK	EC-WW-054	89.5		AP+PS	2/6/19	1612	1617	40	40	Pass	TH
309 / 312	NEOS	SEOS	1617	20	FG	EC-WW-050	80.0		AP+PS	2/6/19	1352	1357	40	40	Pass	TH
308 / 312	NEOS	SEOS	1643	20	FG	EC-WW-050	9.5		AP+PS	2/6/19	1348	1353	40	40	Pass	TH
						PAGE TOTAL	671.2									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 50 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/29

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1200	MK	20	50.0%	454	126	130	135	135	131	134	140	136	135	134	156	153	164	157	158	BM	
8	EC-WW-050	1525	FG	20	40.0%	454	146	160	154	145	152	154	157	149	146	147	175	175	178	178	181	BM	
9	EC-WW-050	1525	FG	20	50.0%	454	130	138	140	143	142	134	130	133	135	129	168	162	166	164	169	BM	
10	EC-WW-054	1600	MK	20	50.0%	454	110	121	128	126	123	109	117	117	119	123	157	152	150	150	146	BM	
11	EC-WW-045	1630	EB	20	40.0%	454	158	160	149	160	158	165	161	151	159	154	188	179	184	182	181	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	QC TECH
313	314	EEOS	WEOS	1644	20	EB	EC-WW-045	6.7	DS-153	AP+PS	31/5/19	1551	1556	40	40	Pass	TH
311	314	NEOS	SEOS	1645	20	MK	EC-WW-054	18.0		AP+PS	2/6/19	1252	1257	40	40	Pass	TH
308	311	NEOS	SEOS	1646	20	FG	EC-WW-050	18.0		AP+PS	2/6/19	1348	1353	40	40	Pass	TH
310	314	NEOS	SEOS	1651	20	MK	EC-WW-054	9.0		AP+PS	2/6/19	1251	1256	40	40	Pass	TH
308	310	NEOS	SEOS	1652	20	FG	EC-WW-050	42.0	DS-152	AP+PS	2/6/19	1337	1342	40	40	Pass	TH
310	313	NEOS	SEOS	1654	20	MK	EC-WW-054	32.7	DS-154	AP+PS	2/6/19	1338	1343	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1100	EB	20	40.0%	454	149	153	162	154	160	153	155	134	152	148	180	184	184	185	183	BM	
2	EC-WW-045	1100	EB	20	50.0%	454	134	136	137	138	139	142	141	141	147	146	171	167	172	171	172	BM	
3	EC-WW-054	1100	MK	20	40.0%	454	160	155	154	153	159	161	165	165	160	158	193	189	189	191	189	BM	
4	EC-WW-054	1100	MK	20	50.0%	454	145	147	142	138	147	134	131	134	147	131	163	163	165	167	166	BM	
5	EC-WW-050	1100	FG	20	40.0%	454	141	168	166	175	157	162	157	164	159	152	184	182	188	183	188	BM	
6	EC-WW-050	1100	FG	20	50.0%	454	134	139	129	145	138	134	130	134	139	134	158	162	162	161	160	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
315 / 316	EEOS	WEOS	1210	20	FG	EC-WW-050	6.7		AP+PS	4/6/19	1025	1030	40	40	Pass	BM
314 / 316	NEOS	SEOS	1220	20	FG	EC-WW-050	27.0		AP+PS	4/6/19	1017	1022	40	40	Pass	BM
315 / 314	NEOS	SEOS	1229	20	FG	EC-WW-050	89.0		AP+PS	2/6/19	1708	1713	40	40	Pass	TH
317 / 318	EEOS	WEOS	1230	20	EB	EC-WW-045	6.7		AP+PS	4/6/19	1032	1037	40	40	Pass	BM
315 / 313	NEOS	SEOS	1259	20	FG	EC-WW-050	32.5	DS-158	AP+PS	2/6/19	1339	1344	40	40	Pass	TH
316 / 318	NEOS	SEOS	1345	20	MK	EC-WW-054	27.0		AP+PS	4/6/19	1015	1020	40	40	Pass	BM
315 / 318	NEOS	SEOS	1354	20	MK	EC-WW-054	29.0		AP+PS	4/6/19	1025	1030	40	40	Pass	BM
319 / 320	EEOS	WEOS	1400	20	EB	EC-WW-045	6.7		AP+PS	2/6/19	1737	1742	40	40	Pass	TH
315 / 317	NEOS	38O	1404	20	MK	EC-WW-054	88.0	DS-157	AP+PS	2/6/19	1708	1713	40	40	Pass	TH
318 / 320	NEOS	SEOS	1415	20	EB	EC-WW-045	56.0		AP+PS	4/6/19	1005	1010	40	40	Pass	BM
315 / 317	38O	SEOS	1433	20	MK	EC-WW-054	7.0	DS-157	AP+PS	2/6/19	1652	1657	40	40	Pass	TH
317 / 320	NEOS	SEOS	1434	20	EB	EC-WW-045	30.1		AP+PS	4/6/19	1032	1037	40	40	Pass	BM
317 / 319	NEOS	39K	1444	20	EB	EC-WW-045	59.0	DS-156	AP+PS	2/6/19	1652	1657	40	40	Pass	TH
317 / 319	39K	SEOS	1504	20	EB	EC-WW-045	6.0	DS-156	AP+PS	2/6/19	1652	1657	40	40	Pass	TH
321 / 322	EEOS	WEOS	1620	20	FG	EC-WW-050	6.7		AP+PS	2/6/19	1723	1728	40	40	Pass	TH
320 / 322	NEOS	SEOS	1630	20	FG	EC-WW-050	86.0		AP+PS	2/6/19	1737	1742	40	40	Pass	TH
319 / 322	NEOS	SEOS	1658	20	FG	EC-WW-050	32.5		AP+PS	2/6/19	1723	1728	40	40	Pass	TH
319 / 321	NEOS	39N	1709	20	FG	EC-WW-050	25.5	DS-155	AP+PS	2/6/19	1652	1657	40	40	Pass	TH
319 / 321	39N	SEOS	1717	20	FG	EC-WW-050	7.0	DS-155	AP+PS	2/6/19	1652	1657	40	40	Pass	TH
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PAGE TOTAL 628.4

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 52 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/05/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-050	1445	FG	20	50.0%	454	127	132	122	134	139	122	134	134	124	130	151	147	154	148	150	BM	
8	EC-WW-050	1445	FG	20	40.0%	454	143	153	144	148	143	147	150	150	140	143	175	176	177	177	176	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 53 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	830	MK	20	50.0%	454	149	139	145	142	126	131	138	128	136	142	163	162	164	162	158	BM	
2	EC-WW-050	850	EB	20	40.0%	454	154	147	161	155	149	158	164	155	164	154	182	185	184	172	180	BM	
3	EC-WW-050	850	EB	20	50.0%	454	139	138	139	124	133	132	138	143	137	140	167	166	171	168	169	BM	
4	EC-WW-054	1230	MK	20	50.0%	454	125	121	131	127	130	132	134	137	136	141	159	154	168	161	162	BM	
5	EC-WW-054	1230	MK	20	40.0%	454	167	149	159	159	154	139	153	155	152	154	183	178	181	183	181	BM	
6	EC-WW-050	1400	EB	20	40.0%	454	166	156	162	164	166	166	167	163	174	171	187	189	186	190	185	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
322 / 323	39R	SEOS	920	20	MK	EC-WW-054	33.0		AP+PS	4/6/19	1040	1045	40	40	Pass	BM
325 / 326	EEOS	WEOS	930	20	EB	EC-WW-050	6.7		AP+PS	4/6/19	909	914	40	40	Pass	BM
321 / 323	NEOS	SEOS	931	20	MK	EC-WW-054	32.5		AP+PS	2/6/19	1652	1657	40	40	Pass	BM
324 / 326	NEOS	SEOS	945	20	EB	EC-WW-050	35.5		AP+PS	4/6/19	930	935	40	40	Pass	BM
323 / 326	NEOS	SEOS	957	20	EB	EC-WW-050	38.0		AP+PS	4/6/19	912	917	40	40	Pass	BM
323 / 325	NEOS	SEOS	1009	20	EB	EC-WW-050	86.0	DS-161	AP+PS	4/6/19	815	820	40	40	Pass	BM
327 / 328	EEOS	WEOS	1150	20	EB	EC-WW-050	6.7		AP+PS	4/6/19	845	850	40	40	Pass	BM
325 / 327	SEOS	NEOS	1215	20	EB	EC-WW-050	50.0		AP+PS	4/6/19	818	823	40	40	Pass	BM
325 / 328	SEOS	NEOS	1232	20	EB	EC-WW-050	37.0		AP+PS	4/6/19	845	850	40	40	Pass	BM
326 / 328	SEOS	NEOS	1244	20	EB	EC-WW-050	74.0	DS-159	AP+PS	4/6/19	937	942	40	40	Pass	BM
323 / 324	EEOS	WEOS	1300	20	MK	EC-WW-054	6.7		AP+PS	4/6/19	924	929	40	40	Pass	BM
329 / 330	EEOS	WEOS	1300	20	MK	EC-WW-050	6.7	DS-160	AP+PS	4/6/19	822	827	40	40	Pass	BM
327 / 329	SEOS	NEOS	1310	20	MK	EC-WW-054	10.5		AP+PS	4/6/19	1818	1823	40	40	Pass	BM
327 / 330	SEOS	NEOS	1313	20	MK	EC-WW-054	39.5		AP+PS	4/6/19	822	827	40	40	Pass	BM
322 / 324	NEOS	SEOS	1320	20	MK	EC-WW-054	35.0		AP+PS	4/6/19	924	929	40	40	Pass	BM
328 / 330	SEOS	NEOS	1326	20	MK	EC-WW-054	78.5		AP+PS	4/6/19	848	853	40	40	Pass	BM
330 / 331	EEOS	WEOS	1330	20	EB	EC-WW-050	6.7		AP+PS	4/6/19	937	942	40	40	Pass	BM
322 / 323	NEOS	39Q	1331	20	MK	EC-WW-054	10.0		AP+PS	4/6/19	920	925	40	40	Pass	BM
322 / 323	39Q	39R	1335	20	MK	EC-WW-054	43.0		AP+PS	4/6/19	920	925	40	40	Pass	BM
328 / 331	SEOS	NEOS	1352	20	MK	EC-WW-054	33.0	DS-163	AP+PS	4/6/19	937	942	40	40	Pass	BM
						PAGE TOTAL	669.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 54 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/02

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-050	1400	EB	20	50.0%	454	137	146	138	138	137	143	142	139	139	128	170	167	170	171	167	BM	
8	EC-WW-054	1600	MK	20	50.0%	454	137	145	137	141	147	146	136	146	149	145	177	169	172	172	169	BM	
9	EC-WW-054	1600	MK	20	40.0%	454	152	165	156	153	144	148	162	154	159	155	184	183	185	178	180	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
329	332	SEOS	NEOS	1620	20	MK	EC-WW-054	10.5		AP+PS	4/6/19	825	830	40	40	Pass	BM
330	332	SEOS	40P	1623	20	MK	EC-WW-054	42.0		AP+PS	4/6/19	825	830	40	40	Pass	BM
332	333	EEOS	WEOS	1625	20	EB	EC-WW-050	6.7		AP+PS	4/6/19	859	904	40	40	Pass	BM
330	332	40P	NEOS	1637	20	MK	EC-WW-054	35.0		AP+PS	4/6/19	857	902	40	40	Pass	BM
334	335	EEOS	WEOS	1640	20	EB	EC-WW-050	6.7		AP+PS	4/6/19	840	845	40	40	Pass	BM
330	333	SEOS	NEOS	1649	20	MK	EC-WW-054	41.5		AP+PS	4/6/19	857	902	40	40	Pass	BM
332	334	SEOS	NEOS	1655	20	EB	EC-WW-050	44.0		AP+PS	4/6/19	830	835	40	40	Pass	BM
331	333	SEOS	NEOS	1703	20	MK	EC-WW-054	33.0	DS-162	AP+PS	4/6/19	953	958	40	40	Pass	BM
332	335	SEOS	NEOS	1709	20	EB	EC-WW-050	43.5		AP+PS	4/6/19	840	845	40	40	Pass	BM
333	335	SEOS	NEOS	1723	20	EB	EC-WW-050	74.5	DS-164	AP+PS	4/6/19	945	950	40	40	Pass	BM

PAGE TOTAL 337.4

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 55 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/05

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1056	DG	20	40.0%	454	164	153	166	155	155	162	157	166	160	157	188	179	186	197	190	BM	
2	EC-WW-050	1059	DG	20	50.0%	454	131	129	136	123	137	117	125	127	127	130	164	159	162	156	159	BM	
3	EC-WW-054	1115	RW	20	50.0%	454	133	132	144	135	137	129	130	128	124	128	158	152	158	161	152	BM	
4	EC-WW-054	1115	RW	20	40.0%	454	161	159	157	157	163	164	164	155	165	151	182	176	178	179	187	BM	
5	EC-WW-054	1610	RW	20	50.0%	454	142	137	146	141	142	139	140	143	140	140	166	169	161	165	165	BM	
6	EC-WW-050	1610	DG	20	50.0%	454	139	137	144	143	142	130	130	148	132	123	158	153	158	152	156	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
336	337	EEOS	WEOS	1205	20	RW	EC-WW-054	6.7		AP+PS	11/6/19	905	910	40	40	Pass	TH
335	337	NEOS	SEOS	1225	20	RW	EC-WW-054	42.0		AP+PS	18/6/19	2346	2351	40	40	Pass	TH
338	339	EEOS	WEOS	1228	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	822	827	40	40	Pass	TH
335	336	NEOS	SEOS	1239	20	RW	EC-WW-054	75.0		AP+PS	11/6/19	905	910	40	40	Pass	TH
337	339	NEOS	SEOS	1250	20	DG	EC-WW-050	42.0		AP+PS	11/6/19	921	926	40	40	Pass	TH
334	336	41E	SEOS	1304	20	RW	EC-WW-054	5.0	DS-165	AP+PS	11/6/19	855	900	40	40	Pass	TH
336	339	NEOS	SEOS	1304	20	DG	EC-WW-050	43.5		AP+PS	11/6/19	921	926	40	40	Pass	TH
334	336	NEOS	41E	1309	20	RW	EC-WW-054	20.0	DS-165	AP+PS	18/6/19	2322	2327	40	40	Pass	TH
336	338	NEOS	SEOS	1318	20	DG	EC-WW-050	78.0	DS-166	AP+PS	11/6/19	822	827	40	40	Pass	TH
341	342	EEOS	WEOS	1645	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	929	934	40	40	Pass	TH

PAGE TOTAL 325.6

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 56 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/05

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-050	1620	DG	20	40.0%	454	153	144	154	166	167	141	145	158	157	168	195	177	206	195	192	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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PAGE TOTAL																

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 57 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/06

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	828	DG	20	40.0%	454	150	160	166	156	161	150	136	165	160	166	182	179	176	177	179	BM	
2	EC-WW-050	832	DG	20	50.0%	454	151	150	123	148	145	143	134	141	146	148	169	170	164	172	170	BM	
3	EC-WW-054	900	RW	20	40.0%	454	159	161	165	176	179	158	159	166	167	168	186	191	187	187	190	BM	
4	EC-WW-054	900	RW	20	50.0%	454	152	152	152	152	158	146	155	156	150	153	173	173	176	171	172	BM	
5	EC-WW-050	1620	DG	20	50.0%	454	120	115	116	120	117	112	113	116	117	116	137	138	148	145	144	BM	
6	EC-WW-054	1630	RW	20	50.0%	454	120	120	119	123	111	121	121	125	120	130	146	145	149	143	149	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
340 / 341	EEOS	WEOS	930	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	813	818	40	40	Pass	TH
339 / 342	NEOS	SEOS	955	20	DG	EC-WW-050	14.5		AP+PS	11/6/19	929	934	40	40	Pass	TH
343 / 344	EEOS	WEOS	1000	20	RW	EC-WW-054	6.7		AP+PS	11/6/19	954	959	40	40	Pass	TH
339 / 341	NEOS	SEOS	1000	20	DG	EC-WW-050	71.0		AP+PS	11/6/19	929	934	40	40	Pass	TH
338 / 341	NEOS	SEOS	1024	20	DG	EC-WW-050	50.5		AP+PS	12/6/19	813	818	40	40	Pass	TH
342 / 344	NEOS	SEOS	1030	20	RW	EC-WW-054	14.5		AP+PS	11/6/19	941	946	40	40	Pass	TH
341 / 344	NEOS	SEOS	1035	20	RW	EC-WW-054	50.5		AP+PS	11/6/19	941	946	40	40	Pass	TH
338 / 340	NEOS	SEOS	1041	20	DG	EC-WW-050	27.5	DS-170	AP+PS	12/6/19	813	818	40	40	Pass	TH
341 / 343	NEOS	SEOS	1052	20	RW	EC-WW-054	53.0		AP+PS	11/6/19	954	959	40	40	Pass	TH
340 / 343	NEOS	SEOS	1109	20	RW	EC-WW-054	45.0	DS-167	AP+PS	11/6/19	1546	1551	40	40	Pass	TH
345 / 346	EEOS	WEOS	1205	20	DG	EC-WW-050	6.7		AP+PS	12/6/19	838	843	40	40	Pass	TH
344 / 346	NEOS	SEOS	1225	20	DG	EC-WW-050	65.0		AP+PS	11/6/19	1117	1122	40	40	Pass	TH
343 / 346	NEOS	SEOS	1247	20	DG	EC-WW-050	53.0		AP+PS	11/6/19	1117	1122	40	40	Pass	TH
346 / 347	NEOS	45Q	1255	20	RW	EC-WW-054	21.5		AP+PS	18/6/19	2329	2334	40	40	Pass	TH
343 / 345	SEOS	NEOS	1305	20	DG	EC-WW-050	5.0	DS-168	AP+PS	11/6/19	1223	1228	40	40	Pass	TH
343 / 345	NEOS	SEOS	1310	20	DG	EC-WW-050	47.0	DS-168	AP+PS	12/6/19	838	843	40	40	Pass	TH
347 / 348	EEOS	WEOS	1658	20	RW	EC-WW-054	6.7		AP+PS	11/6/19	1126	1131	40	40	Pass	TH
346 / 348	NEOS	SEOS	1712	20	RW	EC-WW-054	55.0		AP+PS	11/6/19	1126	1131	40	40	Pass	TH
346 / 347	45Q	SEOS	1716	20	DG	EC-WW-050	41.5		AP+PS	18/6/19	2329	2334	40	40	Pass	TH
345 / 347	NEOS	SEOS	1730	20	RW	EC-WW-054	48.0	DS-169	AP+PS	12/6/19	841	846	40	40	Pass	TH
						PAGE TOTAL	689.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 58 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/06

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1630	RW	20	40.0%	454	130	139	126	139	141	136	141	138	142	136	171	179	175	173	176	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 59 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1330	RW	20	50.0%	454	142	143	141	137	147	144	139	140	139	138	164	163	165	163	167	BM	
2	EC-WW-045	1330	EE	20	40.0%	454	154	150	144	160	148	147	151	159	158	142	175	176	180	170	173	BM	
3	EC-WW-045	1330	EE	20	50.0%	454	137	148	136	144	145	133	133	127	134	135	165	162	168	163	163	BM	
4	EC-WW-054	1332	RW	20	40.0%	454	148	161	122	156	159	139	170	149	155	152	182	173	182	179	177	BM	
5	EC-WW-050	1333	DG	20	50.0%	454	132	132	133	132	129	134	135	128	132	130	142	156	150	149	140	BM	
6	EC-WW-050	1337	DG	20	40.0%	454	151	140	154	146	152	154	149	147	164	153	177	155	166	177	187	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
349 / 350	EEOS	WEOS	1430	20	DG	EC-WW-050	6.7		AP+PS	12/6/19	847	852	40	40	Pass	TH
348 / 350	NEOS	SEOS	1508	20	RW	EC-WW-054	55.0		AP+PS	11/6/19	1132	1137	40	40	Pass	TH
351 / 352	EEOS	WEOS	1525	20	EE	EC-WW-045	6.7		AP+PS	15/6/19	1334	1339	40	40	Pass	TH
347 / 350	NEOS	SEOS	1526	20	RW	EC-WW-054	55.5		AP+PS	11/6/19	1132	1137	40	40	Pass	TH
352 / 353	EEOS	WEOS	1537	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	1236	1241	40	40	Pass	TH
347 / 349	NEOS	SEOS	1544	20	RW	EC-WW-054	60.0	DS-171	AP+PS	12/6/19	847	852	40	40	Pass	TH
354 / 355	EEOS	WEOS	1600	20	EE	EC-WW-045	6.7		AP+PS	11/6/19	905	910	40	40	Pass	TH
350 / 353	NEOS	SEOS	1600	20	DG	EC-WW-050	45.5		AP+PS	11/6/19	1236	1241	40	40	Pass	TH
350 / 352	SEOS	NEOS	1610	20	DG	EC-WW-050	33.5		AP+PS	18/6/19	2338	2343	40	40	Pass	TH
350 / 352	NEOS	SEOS	1615	20	DG	EC-WW-050	33.1		AP+PS	18/6/19	2338	2343	40	40	Pass	TH
353 / 355	NEOS	SEOS	1615	20	EE	EC-WW-045	45.5		AP+PS	11/6/19	1249	1254	40	40	Pass	TH
352 / 355	NEOS	SEOS	1630	20	EE	EC-WW-045	56.0		AP+PS	11/6/19	1249	1254	40	40	Pass	TH
349 / 352	NEOS	SEOS	1637	20	DG	EC-WW-050	55.5		AP+PS	15/6/19	1334	1339	40	40	Pass	TH
352 / 354	NEOS	SEOS	1649	20	EE	EC-WW-045	66.0		AP+PS	15/6/19	1548	1553	40	40	Pass	TH
349 / 351	NEOS	SEOS	1655	20	DG	EC-WW-050	8.0	DS-172	AP+PS	15/6/19	1334	1339	40	40	Pass	TH
355 / 357	NEOS	SEOS	1708	20	RW	EC-WW-054	62.5		AP+PS	11/6/19	1257	1302	40	40	Pass	TH
351 / 354	SEOS	NEOS	1711	20	EE	EC-WW-045	4.0	DS-173	AP+PS	15/6/19	1548	1553	40	40	Pass	TH
351 / 354	NEOS	SEOS	1714	20	EE	EC-WW-045	5.0	DS-173	AP+PS	15/6/19	1548	1553	40	40	Pass	TH
357 / 358	EEOS	WEOS	1723	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	1257	1302	40	40	Pass	TH
356 / 357	EEOS	WEOS	1724	20	DG	EC-WW-050	6.7		AP+PS	15/6/19	1557	1602	40	40	Pass	TH
						PAGE TOTAL	625.3									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 60 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/07

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1710	RW	20	50.0%	454	149	137	135	129	127	138	126	137	133	136	160	159	157	148	149	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
354	357	NEOS	SEOS	1729	20	RW	EC-WW-054	59.0		AP+PS	11/6/19	905	910	40	40	Pass	TH
354	356	NEOS	SEOS	1749	20	RW	EC-WW-054	18.0	DS-174	AP+PS	15/6/19	1557	1602	40	40	Pass	TH
355	358	NEOS	SEOS	1755	20	RW	EC-WW-054	39.0		AP+PS	11/6/19	1257	1302	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	1154	DG	20	50.0%	454	136	126	130	129	131	125	119	133	131	130	155	157	157	152	154	BM	
2	EC-WW-050	1159	DG	20	40.0%	454	158	145	147	167	165	146	158	150	164	155	174	179	184	183	181	BM	
3	EC-WW-054	1230	RW	20	50.0%	454	125	134	130	130	134	125	133	134	131	127	154	149	158	157	151	BM	
4	EC-WW-054	1230	RW	20	40.0%	454	150	154	154	141	160	155	152	153	162	151	181	179	173	184	172	BM	
5	EC-WW-045	1230	EE	20	50.0%	454	151	144	149	150	143	149	144	124	122	138	170	167	172	171	169	BM	
6	EC-WW-045	1230	EE	20	40.0%	454	145	153	153	150	151	148	157	145	150	148	183	179	180	177	181	BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
359 / 360	EEOS	WEOS	1317	20	EE	EC-WW-045	6.7		AP+PS	12/6/19	907	912	40	40	Pass	TH
358 / 360	NEOS	SEOS	1318	20	RW	EC-WW-054	39.5		AP+PS	11/6/19	1305	1310	40	40	Pass	TH
357 / 360	NEOS	SEOS	1331	20	RW	EC-WW-054	60.5		AP+PS	11/6/19	1305	1310	40	40	Pass	TH
361 / 362	EEOS	WEOS	1335	20	DG	EC-WW-050	6.7	DS-179	AP+PS	15/6/19	1606	1611	40	40	Pass	TH
362 / 363	EEOS	WEOS	1340	20	DG	EC-WW-050	6.7		AP+PS	11/6/19	1311	1316	40	40	Pass	TH
360 / 363	NEOS	SEOS	1350	20	DG	EC-WW-050	37.0		AP+PS	11/6/19	1311	1316	40	40	Pass	TH
357 / 359	NEOS	SEOS	1351	20	RW	EC-WW-054	63.5		AP+PS	12/6/19	907	912	40	40	Pass	TH
360 / 362	NEOS	SEOS	1403	20	DG	EC-WW-050	60.5		AP+PS	11/6/19	1311	1316	40	40	Pass	TH
356 / 359	NEOS	SEOS	1412	20	RW	EC-WW-054	18.0	DS-175	AP+PS	15/6/19	1557	1602	40	40	Pass	TH
359 / 362	NEOS	SEOS	1423	20	DG	EC-WW-050	59.0		AP+PS	11/6/19	911	916	40	40	Pass	TH
359 / 361	NEOS	SEOS	1443	20	DG	EC-WW-050	19.5	DS-176	AP+PS	15/6/19	1606	1611	40	40	Pass	TH
363 / 365	NEOS	SEOS	1640	20	RW	EC-WW-054	37.0		AP+PS	11/6/19	1319	1324	40	40	Pass	TH
364 / 365	EEOS	WEOS	1647	20	EE	EC-WW-045	6.7		AP+PS	12/6/19	916	921	40	40	Pass	TH
362 / 365	NEOS	SEOS	1653	20	RW	EC-WW-054	58.5		AP+PS	11/6/19	1319	1324	40	40	Pass	TH
362 / 364	NEOS	SEOS	1713	20	RW	EC-WW-054	59.0		AP+PS	12/6/19	916	921	40	40	Pass	TH
361 / 364	NEOS	SEOS	1733	20	RW	EC-WW-054	17.0	DS-177	AP+PS	15/6/19	1606	1611	40	40	Pass	TH
366 / 367	EEOS	WEOS	1741	20	EE	EC-WW-045	6.7		AP+PS	12/6/19	937	942	40	40	Pass	TH
367 / 368	EEOS	WEOS	1752	20	EE	EC-WW-045	6.7		AP+PS	13/6/19	826	831	40	40	Pass	TH
365 / 368	NEOS	SEOS	1759	20	DG	EC-WW-050	28.5		AP+PS	11/6/19	1328	1333	40	40	Pass	TH
365 / 367	NEOS	SEOS	1809	20	DG	EC-WW-050	67.0		AP+PS	11/6/19	1328	1333	40	40	Pass	TH
						PAGE TOTAL	664.7									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 62 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/08

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1500	RW	20	50.0%	454	125	139	124	131	127	134	130	133	134	134	156	159	162	162	160	BM	
8	EC-WW-045	1520	EE	20	40.0%	454	144	138	138	142	138	149	143	141	146	144	167	167	166	162	174	BM	
9	EC-WW-050	1600	DG	20	50.0%	454	130	133	135	133	125	121	132	127	133	128	152	153	153	153	151	BM	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
364	367	NEOS	SEOS	1810	20	RW	EC-WW-054	51.5		AP+PS	12/6/19	923	928	40	40	Pass	TH
364	366	NEOS	SEOS	1827	20	RW	EC-WW-054	21.5	DS-178	AP+PS	15/6/19	1613	1618	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	1505	RW	20	40.0%	454	140	132	153	142	136	150	144	150	141	146	161	161	168	172	164	BM	Textured/Textured
2	EC-WW-054	1505	RW	20	45.0%	454	134	135	134	140	137	137	141	135	136	137	164	160	162	162	164	BM	Textured/Smoooth
3	EC-WW-054	1505	RW	20	50.0%	454	138	140	137	134	132	129	135	133	131	131	159	149	153	159	148	BM	Smooth/Smooth
4	EC-WW-050	1505	DG	20	50.0%	454	136	136	139	138	142	129	131	147	142	140	150	153	149	153	153	BM	Textured/Textured
5	EC-WW-050	1510	DG	20	45.0%	454	134	136	135	136	132	134	134	140	138	143	161	154	164	159	161	BM	Textured/Smoooth
6	EC-WW-050	1515	DG	20	40.0%	454	147	149	137	149	133	147	142	141	135							BM	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
369 / 370	NEOS	SEOS	1522	20	DG	EC-WW-050	24.2	DS-185	AP+PS	13/6/19	805	810	40	40	Pass	TH
370 / 371	EEOS	WEOS	1522	20	EE	EC-WW-045	5.6		AP+PS	13/6/19	811	816	40	40	Pass	TH
369 / 370	SEOS	NEOS	1531	20	DG	EC-WW-050	50.0	DS-185	AP+PS	13/6/19	1619	1624	40	40	Pass	TH
368 / 371	NEOS	SEOS	1605	20	RW	EC-WW-054	27.4		AP+PS	13/6/19	826	831	40	40	Pass	TH
367 / 371	NEOS	SEOS	1610	20	RW	EC-WW-054	47.2		AP+PS	13/6/19	811	816	40	40	Pass	TH
367 / 370	NEOS	SEOS	1615	20	RW	EC-WW-054	16.9		AP+PS	13/6/19	811	816	40	40	Pass	TH
367 / 369	NEOS	SEOS	1621	20	RW	EC-WW-054	59.1		AP+PS	13/6/19	805	810	40	40	Pass	TH
366 / 369	NEOS	SEOS	1638	20	RW	EC-WW-054	20.4		AP+PS	15/6/19	1613	1618	40	40	Pass	TH
374 / 373	NEOS	SEOS	1651	20	RW	EC-WW-054	6.7		AP+PS	13/6/19	757	802	40	40	Pass	TH
375 / 372	EEOS	WEOS	1655	20	DG	EC-WW-050	5.3		AP+PS	13/6/19	750	755	40	40	Pass	TH
375 / 374	NEOS	SEOS	1700	20	EE	EC-WW-045	6.8		AP+PS	13/6/19	757	802	40	40	Pass	TH
372 / 374	NEOS	SEOS	1705	20	EE	EC-WW-045	29.2		AP+PS	13/6/19	757	802	40	40	Pass	TH
371 / 373	NEOS	SEOS	1734	20	DG	EC-WW-050	64.3		AP+PS	13/6/19	822	827	40	40	Pass	TH
373 / 372	NEOS	SEOS	1735	20	EE	EC-WW-045	42.6		AP+PS	13/6/19	757	802	40	40	Pass	TH
370 / 372	NEOS	SEOS	1739	20	DG	EC-WW-050	70.5		AP+PS	13/6/19	750	755	40	40	Pass	TH
371 / 373	NEOS	SEOS	1741	20	DG	EC-WW-050	7.0		AP+PS	13/6/19	817	822	40	40	Pass	TH
370 / 375	NEOS	SEOS	1756	20	DG	EC-WW-050	6.4	DS-187	AP+PS	13/6/19	750	755	40	40	Pass	TH
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PAGE TOTAL 489.6

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 64 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/09

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-045	1515	EE	20	40.0%	454	151	149	149	154	149	142	147	153	147	144	169	161	170	184	179	BM	Textured/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 65 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	1100	EB	20	40.0%	454	138	133	134	135	128	142	142	140	150	142	171	173	171	171	170	TH	Textured/Textured
2	EC-WW-050	1100	DG	20	40.0%	454	150	156	150	156	153	155	158	161	164	151	179	173	170	172	173	TH	Textured/Textured
3	EC-WW-054	1100	FG	20	50.0%	454	134	146	139	140	132	130	136	141	142	138	161	158	161	160	154	TH	Smooth/Smooth
4	EC-WW-050	1100	DG	20	50.0%	454	140	131	144	138	134	142	138	142	138	136	170	168	168	137	163	TH	Smooth/Smooth
5	EC-WW-054	1100	FG	20	40.0%	454	127	138	138	133	136	138	131	135	136	134	162	155	156	157	158	TH	Textured/Smoooth
6	EC-WW-050	1150	DG	20	45.0%	454	131	127	133	132	130	132	139	126	131	136	150	152	159	150	155	TH	Textured/Smoooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
377 / 376	NEOS	SEOS	1105	20	EB	EC-WW-045	29.9		AP+PS	18/6/19	1528	1533	40	40	Pass	TH
376 / 378	NEOS	SEOS	1113	20	EB	EC-WW-045	42.0		AP+PS	19/6/19	600	605	40	40	Pass	TH
379 / 373	NEOS	SEOS	1221	20	DG	EC-WW-050	43.7		AP+PS	18/6/19	1553	1558	40	40	Pass	TH
376 / 373	NEOS	SEOS	1243	20	DG	EC-WW-050	35.4		AP+PS	18/6/19	1210	1215	40	40	Pass	TH
375 / 380	EEOS	WEOS	1255	20	EB	EC-WW-045	6.7		AP+PS	18/6/19	2031	2036	40	40	Pass	TH
378 / 373	NEOS	SEOS	1256	20	DG	EC-WW-050	30.0		AP+PS	18/6/19	1210	1215	40	40	Pass	TH
380 / 370	NEOS	SEOS	1300	20	FG	EC-WW-054	12.4		AP+PS	18/6/19	2031	2036	40	40	Pass	TH
381 / 382	EEOS	WEOS	1303	20	EB	EC-WW-045	6.7		AP+PS	18/6/19	103	108	40	40	Pass	TH
374 / 380	NEOS	SEOS	1305	20	FG	EC-WW-054	8.2		AP+PS	18/6/19	2031	2036	40	40	Pass	TH
373 / 377	NEOS	SEOS	1307	20	DG	EC-WW-050	4.6		AP+PS	18/6/19	1523	1528	40	40	Pass	TH
377 / 374	NEOS	SEOS	1309	20	DG	EC-WW-050	32.0	DS-189	AP+PS	18/6/19	1523	1528	40	40	Pass	TH
377 / 374	NEOS	SEOS	1325	20	DG	EC-WW-050	8.6	DS-189	AP+PS	19/6/19	2102	2107	40	40	Pass	TH
376 / 379	EEOS	WEOS	1326	20	EB	EC-WW-045	4.2		AP+PS	18/6/19	126	131	40	40	Pass	TH
384 / 383	EEOS	WEOS	1335	20	EB	EC-WW-045	6.7		AP+PS	18/6/19	135	140	40	40	Pass	TH
377 / 378	EEOS	WEOS	1523	20	EB	EC-WW-045	2.2		AP+PS	18/6/19	323	328	40	40	Pass	TH
379 / 382	NEOS	SEOS	1610	20	FG	EC-WW-054	43.1		AP+PS	18/6/19	1553	1558	40	40	Pass	TH
382 / 376	NEOS	SEOS	1621	20	FG	EC-WW-054	30.0		AP+PS	18/6/19	103	108	40	40	Pass	TH
376 / 381	NEOS	SEOS	1629	20	FG	EC-WW-054	68.6	DS-188	AP+PS	18/6/19	103	108	40	40	Pass	TH
376 / 381	NEOS	SEOS	1646	20	FG	EC-WW-054	7.6	DS-188	AP+PS	19/6/19	2041	2046	40	40	Pass	TH
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PAGE TOTAL 422.6

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 66 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/14

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	1530	FG	20	50.0%	454	118	127	122	123	123	119	119	119	123	122	133	132	137	134	136	TH	Smooth/Smooth
8	EC-WW-045	1530	EB	20	40.0%	454	144	144	135	125	133	139	147	140	135	131	166	163	161	163	153	TH	Textured/Textured
9	EC-WW-050	1530	DG	20	50.0%	454	126	124	125	129	126	120	124	123	126	122	143	142	143	141	146	TH	Smooth/Smooth
10	EC-WW-054	1530	FG	20	50.0%	454	106	123	119	121	105	131	130	126	125	129	142	141	144	142	151	TH	Textured/Smoooth
11	EC-WW-050	1530	DG	20	45.0%	454	144	142	126	118	150	132	141	132	140	117	148	164	161	163	148	TH	Textured/Smoooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
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TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 67 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/15

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	830	FG	20	50.0%	454	144	136	134	123	132	137	148	140	140	144	168	164	164	162	161	TH	Smooth/Smooth
2	EC-WW-045	830	EB	20	40.0%	454	147	153	145	147	157	152	149	148	153	148	175	172	178	172	172	TH	Textured/Textured
3	EC-WW-050	830	DG	20	50.0%	454	134	128	129	126	112	130	133	126	129	128	152	151	148	152	153	TH	Smooth/Smooth
4	EC-WW-054	830	FG	20	40.0%	454	143	154	153	152	139	152	151	148	141	145	165	159	166	162	166	TH	Textured/Smoooth
5	EC-WW-050	830	DG	20	40.0%	454	140	144	137	138	149	138	133	140	147	141	168	172	163	163	160	TH	Textured/Smoooth
6	EC-WW-045	830	EB	20	50.0%	454	133	134	137	136	135	138	132	135	135	144	164	163	164	163	166	TH	Smooth/Smooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
386 / 384	NEOS	SEOS	840	20	FG	EC-WW-054	22.5		AP+PS	18/6/19	135	140	40	40	Pass	TH
385 / 383	NEOS	SEOS	851	20	FG	EC-WW-054	112.2	DS-183	AP+PS	18/6/19	135	140	40	40	Pass	TH
385 / 383	NEOS	SEOS	939	20	FG	EC-WW-054	10.0	DS-183	AP+PS	19/6/19	2038	2043	40	40	Pass	TH
386 / 388	NEOS	SEOS	940	20	DG	EC-WW-050	21.7		AP+PS	18/6/19	140	145	40	40	Pass	TH
388 / 387	EEOS	WEOS	948	20	EB	EC-WW-045	6.7		AP+PS	16/6/19	948	953	40	40	Pass	TH
388 / 385	NEOS	SEOS	951	20	DG	EC-WW-050	25.1		AP+PS	18/6/19	140	145	40	40	Pass	TH
389 / 390	EEOS	WEOS	955	20	EB	EC-WW-045	27.4		AP+PS	16/6/19	955	1000	40	40	Pass	TH
387 / 385	NEOS	SEOS	1003	20	DG	EC-WW-050	93.9		AP+PS	19/6/19	2013	2018	40	40	Pass	TH
390 / 391	EEOS	WEOS	1100	20	FG	EC-WW-054	25.2		AP+PS	16/6/19	847	852	40	40	Pass	TH
391 / 392	EEOS	WEOS	1115	20	EB	EC-WW-045	23.7		AP+PS	16/6/19	850	855	40	40	Pass	TH
392 / 393	EEOS	WEOS	1115	20	FG	EC-WW-054	22.2		AP+PS	16/6/19	855	900	40	40	Pass	TH
395 / 396	EEOS	WEOS	1137	20	FG	EC-WW-054	19.1		AP+PS	16/6/19	910	915	40	40	Pass	TH
393 / 394	EEOS	WEOS	1139	20	DG	EC-WW-050	20.9		AP+PS	18/6/19	357	402	40	40	Pass	TH
394 / 395	EEOS	WEOS	1140	20	EB	EC-WW-045	19.9	DS-184	AP+PS	16/6/19	905	910	40	40	Pass	TH
397 / 398	EEOS	WEOS	1151	20	DG	EC-WW-050	17.8		AP+PS	16/6/19	922	927	40	40	Pass	TH
396 / 397	EEOS	WEOS	1152	20	EB	EC-WW-045	19.2		AP+PS	16/6/19	917	922	40	40	Pass	TH
398 / 399	EEOS	WEOS	1155	20	FG	EC-WW-054	16.3	DS-182	AP+PS	16/6/19	929	934	40	40	Pass	TH
399 / 400	EEOS	WEOS	1205	20	DG	EC-WW-050	13.1		AP+PS	16/6/19	940	945	40	40	Pass	TH
400 / 401	EEOS	WEOS	1206	20	FG	EC-WW-054	10.1		AP+PS	16/6/19	206	211	40	40	Pass	TH
401 / 402	EEOS	WEOS	1210	20	EB	EC-WW-045	6.9		AP+PS	16/6/19	206	211	40	40	Pass	TH
						PAGE TOTAL	533.9									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 68 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/15

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
7	EC-WW-054	830	FG	20	40.0%	454	164	154	144	159	143	156	147	150	148	152	174	178	149	162	172	TH	Textured/Textured
8	EC-WW-050	830	DG	20	40.0%	454	144	146	145	152	153	150	157	147	142	147	175	166	170	164	167	TH	Textured/Textured
9	EC-WW-045	830	EB	20	40.0%	454	137	136	137	137	139	153	154	150	136	141	164	161	164	161	160	TH	Textured/Smoooth
10	EC-WW-045	850	EB	20	40.0%	454	122	120	123	121	125	122	121	115	113	123	149	142	150	147	146	TH	Textured/Smoooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
402 / 403	EEOS	WEOS	1216	20	EB	EC-WW-045	3.0		AP+PS	16/6/19	200	205	40	40	Pass	TH
385 / 386	EEOS	WEOS	1340	20	EB	EC-WW-045	6.7		AP+PS	18/6/19	140	145	40	40	Pass	TH
403 / 388	NEOS	SEOS	1440	20	EB	EC-WW-045	11.9		AP+PS	18/6/19	200	205	40	40	Pass	TH
402 / 388	NEOS	SEOS	1444	20	EB	EC-WW-045	11.7		AP+PS	18/6/19	200	205	40	40	Pass	TH
401 / 388	NEOS	SEOS	1448	20	EB	EC-WW-045	8.7		AP+PS	18/6/19	206	211	40	40	Pass	TH
400 / 388	NEOS	SEOS	1451	20	EB	EC-WW-045	8.7		AP+PS	16/6/19	948	953	40	40	Pass	TH
399 / 387	NEOS	SEOS	1454	20	EB	EC-WW-045	8.6		AP+PS	16/6/19	929	934	40	40	Pass	TH
398 / 387	NEOS	SEOS	1458	20	EB	EC-WW-045	4.0		AP+PS	16/6/19	929	934	40	40	Pass	TH
398 / 387	SEOS	NEOS	1461	20	EB	EC-WW-045	4.7		AP+PS	16/6/19	922	927	40	40	Pass	TH
397 / 387	NEOS	SEOS	1464	20	EB	EC-WW-045	8.7		AP+PS	16/6/19	922	927	40	40	Pass	TH
396 / 387	NEOS	SEOS	1467	20	EB	EC-WW-045	7.2		AP+PS	16/6/19	910	915	40	40	Pass	TH
395 / 387	NEOS	SEOS	1470	20	EB	EC-WW-045	8.4		AP+PS	16/6/19	910	915	40	40	Pass	TH
394 / 387	NEOS	SEOS	1473	20	EB	EC-WW-045	8.4		AP+PS	16/6/19	858	903	40	40	Pass	TH
393 / 387	NEOS	SEOS	1476	20	EB	EC-WW-045	8.5		AP+PS	16/6/19	858	903	40	40	Pass	TH
392 / 387	NEOS	SEOS	1480	20	EB	EC-WW-045	8.1		AP+PS	16/6/19	850	855	40	40	Pass	TH
391 / 387	NEOS	SEOS	1484	20	EB	EC-WW-045	8.1		AP+PS	16/6/19	850	855	40	40	Pass	TH
390 / 387	NEOS	SEOS	1487	20	EB	EC-WW-045	8.2	DS-181	AP+PS	16/6/19	839	844	40	40	Pass	TH
389 / 387	NEOS	SEOS	1490	20	EB	EC-WW-045	5.2		AP+PS	16/6/19	839	844	40	40	Pass	TH
389 / 387	SEOS	NEOS	1494	20	EB	EC-WW-045	3.0		AP+PS	16/6/19	841	846	40	40	Pass	TH
384 / 382	NEOS	SEOS	1720	20	FG	EC-WW-054	23.8		AP+PS	18/6/19	135	140	40	40	Pass	TH
						PAGE TOTAL	165.6									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/07/09
SHEET NUMBER: 69 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/15

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
383	382	NEOS	SEOS	1729	20	FG	EC-WW-054	23.6		AP+PS	18/6/19	130	135	40	40	Pass	TH
383	382	NEOS	SEOS	1734	20	FG	EC-WW-054	11.2		AP+PS	18/6/19	130	135	40	40	Pass	TH
383	382	NEOS	SEOS	1741	20	FG	EC-WW-054	13.0		AP+PS	18/6/19	103	108	40	40	Pass	TH
381	383	NEOS	SEOS	1749	20	FG	EC-WW-054	64.0	DS-186	AP+PS	18/6/19	103	108	40	40	Pass	TH
381	383	NEOS	SEOS	1759	20	FG	EC-WW-054	10.4	DS-186	AP+PS	19/6/19	2041	2046	40	40	Pass	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/18

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-050	2030	DG	20	40.0%	454	136	131	136	125	134	156	156	129	136	135	174	165	182	172	171	TH	Textured/Smoooth
2	EC-WW-050	2030	DG	20	40.0%	454	152	148	155	148	152	151	148	159	155	158	173	174	175	167	172	TH	Textured/Textured
3	EC-WW-045	2030	EE	20	40.0%	454	158	160	149	153	157	161	168	155	167	157	179	180	182	178	180	TH	Textured/Textured
4	EC-WW-045	2030	EE	20	50.0%	454	126	143	135	144	135	147	143	146	142	146	146	168	164	168	161	TH	Smooth/Smooth
5	EC-WW-050	2030	DG	20	50.0%	454	141	145	145	139	142	143	148	139	138	138	168	166	163	164	166	TH	Smooth/Smooth
6	EC-WW-045	2030	EE	20	40.0%	454	131	134	134	134	130	150	124	140	140	140	170	172	172	170	172	TH	Textured/Smoooth

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
405 / 406	SEOS	NEOS	140	20	EB	EC-WW-045	6.7		AP+PS	19/6/19	2108	2113	40	40	Pass	TH
409 / 406	EEOS	WEOS	210	20	DG	EC-WW-050	27.0		AP+PS	19/6/19	2142	2147	40	40	Pass	TH
408 / 409	SEOS	NEOS	210	20	EB	EC-WW-045	6.7		AP+PS	19/6/19	210	215	40	40	Pass	TH
409 / 406	EEOS	WEOS	218	20	DG	EC-WW-050	34.7		AP+PS	19/6/19	2134	2139	40	40	Pass	TH
408 / 406	EEOS	WEOS	228	20	DG	EC-WW-050	29.0		AP+PS	19/6/19	2110	2115	40	40	Pass	TH
408 / 405	EEOS	WEOS	255	20	DG	EC-WW-050	90.6		AP+PS	19/6/19	2032	2037	40	40	Pass	TH
407 / 405	EEOS	WEOS	302	20	DG	EC-WW-050	28.5	DS-193	AP+PS	19/6/19	1950	1955	40	40	Pass	TH
411 / 412	SEOS	NEOS	355	20	EB	EC-WW-045	6.7		AP+PS	19/6/19	355	400	40	40	Pass	TH
412 / 409	EEOS	WEOS	400	20	DG	EC-WW-050	28.0		AP+PS	19/6/19	2137	2142	40	40	Pass	TH
414 / 413	SEOS	NEOS	415	20	EB	EC-WW-045	6.7		AP+PS	19/6/19	415	420	40	40	Pass	TH
411 / 409	EEOS	WEOS	417	20	DG	EC-WW-050	26.9		AP+PS	19/6/19	2117	2122	40	40	Pass	TH
411 / 408	EEOS	WEOS	430	20	DG	EC-WW-050	20.8		AP+PS	19/6/19	2113	2118	40	40	Pass	TH
415 / 412	EEOS	WEOS	437	20	EE	EC-WW-054	4.6		AP+PS	19/6/19	2148	2153	40	40	Pass	TH
411 / 408	EEOS	WEOS	438	20	DG	EC-WW-050	68.7		AP+PS	19/6/19	2048	2053	40	40	Pass	TH
414 / 412	EEOS	WEOS	438	20	EE	EC-WW-054	28.0		AP+PS	19/6/19	2140	2145	40	40	Pass	TH
414 / 411	EEOS	WEOS	446	20	EE	EC-WW-054	92.6		AP+PS	19/6/19	2051	2056	40	40	Pass	TH
410 / 408	EEOS	WEOS	450	20	DG	EC-WW-050	29.5		AP+PS	19/6/19	2039	2044	40	40	Pass	TH
413 / 411	EEOS	WEOS	508	20	EE	EC-WW-054	27.9		AP+PS	19/6/19	2044	2049	40	40	Pass	TH
410 / 407	EEOS	WEOS	525	20	DG	EC-WW-050	29.1	DS-192	AP+PS	19/6/19	2006	2011	40	40	Pass	TH
413 / 410	EEOS	WEOS	548	20	EE	EC-WW-054	58.6	DS-190	AP+PS	19/6/19	2009	2014	40	40	Pass	TH
						PAGE TOTAL	651.3									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 71 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/18

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
406	230	EEOS	WEOS	754	20	EE	EC-WW-054	3.3		AP+PS	19/6/19	2144	2149	40	40	Pass	TH
406	230	EEOS	WEOS	825	20	EE	EC-WW-054	87.4		AP+PS	19/6/19	2108	2113	40	40	Pass	TH
405	230	EEOS	WEOS	835	20	EE	EC-WW-054	31.7		AP+PS	19/6/19	126	131	40	40	Pass	TH
229	405	EEOS	WEOS	901	20	EE	EC-WW-054	66.4	DS-194	AP+PS	19/6/19	2029	2034	40	40	Pass	TH
229	405	EEOS	WEOS	904	20	EE	EC-WW-054	7.8	DS-194	AP+PS	19/6/19	125	130	40	40	Pass	TH
229	405	EEOS	WEOS	905	20	EE	EC-WW-054	13.2	DS-194	AP+PS	19/6/19	1948	1953	40	40	Pass	TH
407	408	SEOS	NEOS	2045	20	DG	EC-WW-050	5.3	DS-195	AP+PS	19/6/19	2035	2040	40	40	Pass	TH
410	411	SEOS	NEOS	2050	20	EE	EC-WW-054	5.3	DS-197	AP+PS	19/6/19	2044	2049	40	40	Pass	TH
414	415	SEOS	NEOS	2148	20	EE	EC-WW-054	6.7		AP+PS	19/6/19	2148	2153	40	40	Pass	TH
417	416	SEOS	NEOS	2245	20	DG	EC-WW-050	1.8		AP+PS	19/6/19	2059	2104	40	40	Pass	TH
							PAGE TOTAL	228.9									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 72 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/19

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	2339	DG	20	50.0%	454	140	127	116	113	121	116	124	135	114	119	159	173	176	170	169	TH	Smooth/Smooth
2	EC-WW-045	2345	DG	20	40.0%	454	152	128	137	129	147	125	120	131	119	123	153	152	167	165	159	TH	Textured/Smoooth

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
417	415	EEOS	WEOS	2133	20	DG	EC-WW-050	4.6		AP+PS	19/6/19	2151	2156	40	40	Pass	TH
417	414	EEOS	WEOS	2134	20	DG	EC-WW-050	110.4		AP+PS	20/6/19	2059	2104	40	40	Pass	TH
416	414	EEOS	WEOS	2158	20	DG	EC-WW-050	10.2		AP+PS	20/6/19	2054	2059	40	40	Pass	TH
416	413	EEOS	WEOS	2242	20	DG	EC-WW-050	86.5	DS-196	AP+PS	20/6/19	2022	2027	40	40	Pass	TH
302	417	EEOS	WEOS	2255	20	DG	EC-WW-050	97.0		AP+PS	20/6/19	2156	2201	40	40	Pass	TH
301	417	EEOS	WEOS	2331	20	DG	EC-WW-050	3.5		AP+PS	20/6/19	2100	2105	40	40	Pass	TH
416	301	EEOS	WEOS	2332	20	DG	EC-WW-050	111.5	DS-191	AP+PS	20/6/19	2025	2030	40	40	Pass	TH

PAGE TOTAL 423.7

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 73 of 74

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Heap Leach Pad | SEAM DATE 2019/06/29

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	850	TW	20	50.0%		127	140	134	131	137	128	132	117	128	131	157	157	155	161	157	TW	
2	EC-WW-045	850	TW	20	40.0%		128	142	141	131	129	130	138	144	124	141	157	152	157	161	159	TW	Smooth/Textured

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
418	419	SEOS	NEOS	1045	20	TW	EC-WW-045	10.0		AP+PS	29/6/19	1238	1243	40	40	Pass	TW
183	418	SEOS	NEOS	1100	20	TW	EC-WW-045	10.0		AP+PS	29/6/19	1233	1238	40	40	Pass	TW
419	420	SEOS	NEOS	1115	20	TW	EC-WW-045	5.0		AP+PS	29/6/19	1243	1248	40	40	Pass	TW

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/01	830	DH	20	243	246	172	149	168	174	164	203	185	205	211	207	BM	
2	EC-EX-011	2019/05/01	1400	DH	20	246	246	169	164	165	166	172	151	177	182	182	187	BM	
3	EC-EX-008	2019/05/01	1730	BB	20	248	246	120	101	162	137	133	197	179	206	194	199	BM	
4	EC-EX-011	2019/05/02	900	FG	20	254	248	120	136	153	131	130	221	213	230	217	212	BM	
5	EC-EX-011	2019/05/02	1330	FG	20	254	231	137	161	171	147	169	149	150	150	187	173	BM	
6	EC-EX-011	2019/05/02	1730	FG	20	254	232	131	136	153	145	167	208	205	207	210	200	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	13 / 30	On Crest	BO	P	EC-EX-011	2019/05/01	955	DH	10	2019/05/07	VB+PS	BM
1B	11 / 12	Connected to 29	T	G&W	EC-EX-011	2019/05/01	1000	DH	10	2019/05/07	VB+PS	BM
1C	9 / 10	Connected to 11	T	G&W	EC-EX-011	2019/05/01	1003	DH	10	2019/05/07	VB+PS	BM
1D	9 / 11	Connected to 29	T	G&W	EC-EX-011	2019/05/01	1006	DH	10	2019/05/07	VB+PS	BM
1E	8 / 9	Entire Seam	FS	P	EC-EX-011	2019/05/01	1100	DH	10	2019/05/07	VB+PS	BM
1F	7 / 9	Entire Seam	FS	P	EC-EX-011	2019/05/01	1110	DH	10	2019/05/07	VB+PS	BM
1G	27 / 28	Connected to 26	T	P	EC-EX-011	2019/05/01	1115	DH	10	2019/05/07	VB+PS	BM
1H	7 / 8	Connected to 6	T	G&W	EC-EX-011	2019/05/01	1009	DH	10	2019/05/07	VB+PS	BM
1I	5 / 6	Entire Seam	FS	G&W	EC-EX-011	2019/05/01	1130	DH	10	2019/05/07	VB+PS	BM
1J	5 / 7	Connected to 27	T	G&W	EC-EX-011	2019/05/01	1015	DH	10	2019/05/07	VB+PS	BM
1K	25 / 27	Connected to 5, 26	T	G&W	EC-EX-011	2019/05/01	1018	DH	10	2019/05/07	VB+PS	BM
1L	4 / 5	Connected to 25	T	G&W	EC-EX-011	2019/05/01	1021	DH	10	2019/05/07	VB+PS	BM
1M	25 / 26	Connected to 23	T	G&W	EC-EX-011	2019/05/01	1024	DH	10	2019/05/07	VB+PS	BM
1N	23 / 26	8m East of WEOS	BO	P	EC-EX-011	2019/05/01	1445	DH	10	2019/05/07	VB+PS	BM
1O	23 / 24	Connected to 26	T	G&W	EC-EX-011	2019/05/01	1040	DH	10	2019/05/07	VB+PS	BM
1P	23 / 24	Connected to 22	T	G&W	EC-EX-011	2019/05/01	1045	DH	10	2019/05/07	VB+PS	BM
1Q	3 / 4	Entire Seam	FS	G&W	EC-EX-011	2019/05/02	1143	FG	10	2019/05/07	VB+PS	BM
1R	2 / 4	Entire Seam	FS	G&W	EC-EX-011	2019/05/02	1300	FG	10	2019/05/07	VB+PS	BM
1S	2 / 3	Connected to 1	T	G&W	EC-EX-011	2019/05/01	1100	DH	10	2019/05/07	VB+PS	BM
1T	1 / 2	Connected to 23, 25	T	G&W	EC-EX-011	2019/05/01	1105	DH	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 1 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/01	830	DH	20	243	246	172	149	168	174	164	203	185	205	211	207	BM	
2	EC-EX-011	2019/05/01	1400	DH	20	246	246	169	164	165	166	172	151	177	182	182	187	BM	
3	EC-EX-008	2019/05/01	1730	BB	20	248	246	120	101	162	137	133	197	179	206	194	199	BM	
4	EC-EX-011	2019/05/02	900	FG	20	254	248	120	136	153	131	130	221	213	230	217	212	BM	
5	EC-EX-011	2019/05/02	1330	FG	20	254	231	137	161	171	147	169	149	150	150	187	173	BM	
6	EC-EX-011	2019/05/02	1730	FG	20	254	232	131	136	153	145	167	208	205	207	210	200	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	32 / 33	Connected to 1	T	G&W	EC-EX-011	2019/05/02	945	FG	10	2019/05/07	VB+PS	BM
2B	31 / 32	Connected to 1	T	G&W	EC-EX-011	2019/05/01	1110	DH	10	2019/05/07	VB+PS	BM
2C	33 / 34	SEOS to 8m North	FS	G&W	EC-EX-011	2019/05/02	1120	FG	10	2019/05/07	VB+PS	BM
2D	32 / 33	3m West of EEOS	D	G&W	EC-EX-011	2019/05/02	1644	FG	10	2019/05/07	VB+PS	BM
2E	1 / 31	Connected to 23	T	P	EC-EX-011	2019/05/01	1630	DH	10	2019/05/07	VB+PS	BM
2F	31 / 32	Connected to 34	T	G&W	EC-EX-011	2019/05/01	1115	DH	10	2019/05/07	VB+PS	BM
2G	31 / 34	Connected to 21, 23	T	P	EC-EX-011	2019/05/01	1700	DH	10	2019/05/07	VB+PS	BM
2H	21 / 22	Connected to 23	T	G&W	EC-EX-011	2019/05/01	1200	DH	10	2019/05/07	VB+PS	BM
2I	34 / 36	On Crest	DS	P	EC-EX-008	2019/05/07	1457	EA	15	2019/05/07	VB+PS	BM
2J	35 / 36	Connected to 34	T	G&W	EC-EX-011	2019/05/01	1202	DH	10	2019/05/07	VB+PS	BM
2K	34 / 35	Connected to 21	T	G&W	EC-EX-011	2019/05/01	1204	DH	10	2019/05/07	VB+PS	BM
2L	37 / 38	Connected to 36	T	G&W	EC-EX-011	2019/05/01	1206	DH	10	2019/05/07	VB+PS	BM
2M	35 / 36	Connected to 37	T	G&W	EC-EX-011	2019/05/01	1208	DH	10	2019/05/07	VB+PS	BM
2N	35 / 37	Connected to 19	T	G&W	EC-EX-011	2019/05/01	1210	DH	10	2019/05/07	VB+PS	BM
2O	19 / 21	Connected to 35	T	G&W	EC-EX-011	2019/05/01	1212	DH	10	2019/05/07	VB+PS	BM
2P	21 / 22	Connected to 19	T	G&W	EC-EX-011	2019/05/01	1845	DH	10	2019/05/07	VB+PS	BM
2Q	19 / 22	10m East of WEOS	FS	P	EC-EX-011	2019/05/01	1850	DH	10	2019/05/07	VB+PS	BM
2R	19 / 20	Connected to 22	T	G&W	EC-EX-011	2019/05/01	1800	DH	10	2019/05/07	VB+PS	BM
2S	38 / 40	4m South of Crest	DS	P	EC-EX-011	2019/05/02	1002	FG	10	2019/05/07	VB+PS	BM
2T	37 / 38	Connected to 40	T	G&W	EC-EX-011	2019/05/01	1220	DH	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 2 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
2	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 3 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/01	830	DH	20	243	246	172	149	168	174	164	203	185	205	211	207	BM	
2	EC-EX-011	2019/05/01	1400	DH	20	246	246	169	164	165	166	172	151	177	182	182	187	BM	
3	EC-EX-008	2019/05/01	1730	BB	20	248	246	120	101	162	137	133	197	179	206	194	199	BM	
4	EC-EX-011	2019/05/02	900	FG	20	254	248	120	136	153	131	130	221	213	230	217	212	BM	
5	EC-EX-011	2019/05/02	1330	FG	20	254	231	137	161	171	147	169	149	150	150	187	173	BM	
6	EC-EX-011	2019/05/02	1730	FG	20	254	232	131	136	153	145	167	208	205	207	210	200	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	39 / 40	Connected to 37, 19	T	P	EC-EX-011	2019/05/01	1745	DH	10	2019/05/07	VB+PS	BM
3B	16 / 17	Connected to 19	T	G&W	EC-EX-011	2019/05/02	1337	FG	10	2019/05/07	VB+PS	BM
3C	17 / 18	Connected to 19	T	G&W	EC-EX-011	2019/05/02	1343	FG	10	2019/05/07	VB+PS	BM
3D	18 / 19	22m East of WEOS	FS	G&W	EC-EX-011	2019/05/01	1800	DH	10	2019/05/07	VB+PS	BM
3E	16 / 19	Connected to 39	T	G&W	EC-EX-011	2019/05/01	1225	DH	10	2019/05/07	VB+PS	BM
3F	19 / 20	Connected to 18	T	G&W	EC-EX-011	2019/05/01	1810	DH	10	2019/05/07	VB+PS	BM
3G	41 / 42	Connected to 40	T	G&W	EC-EX-008	2019/05/02	1440	DH	10	2019/05/07	VB+PS	BM
3H	39 / 40	Connected to 41	T	G&W	EC-EX-008	2019/05/02	1435	DH	10	2019/05/07	VB+PS	BM
3I	39 / 41	Connected to 16	T	G&W	EC-EX-011	2019/05/01	1420	DH	10	2019/05/07	VB+PS	BM
3J	42 / 44	4m South of Crest	DS	P	EC-EX-008	2019/05/07	1810	EA	15	2019/05/07	VB+PS	BM
3K	41 / 42	Connected to 44	T	G&W	EC-EX-008	2019/05/02	1443	DH	10	2019/05/07	VB+PS	BM
3L	43 / 44	Connected to 41	T	G&W	EC-EX-011	2019/05/01	1425	DH	10	2019/05/07	VB+PS	BM
3M	41 / 43	Connected to 15, 16	T	G&W	EC-EX-011	2019/05/01	1430	DH	10	2019/05/07	VB+PS	BM
3N	14 / 15	Connected to 16	T	G&W	EC-EX-011	2019/05/02	1515	FG	10	2019/05/07	VB+PS	BM
3O	16 / 17	Connected to 14	T	G&W	EC-EX-011	2019/05/02	1320	FG	10	2019/05/07	VB+PS	BM
3P	17 / 18	Connected to 14	T	G&W	EC-EX-011	2019/05/02	1326	FG	10	2019/05/07	VB+PS	BM
3Q	45 / 46	Connected to 15	T	G&W	EC-EX-011	2019/05/02	1517	FG	10	2019/05/07	VB+PS	BM
3R	14 / 15	Connected to 46	T	G&W	EC-EX-011	2019/05/02	1340	FG	10	2019/05/07	VB+PS	BM
3S	45 / 46	Connected to 48	T	G&W	EC-EX-011	2019/05/02	1519	FG	10	2019/05/07	VB+PS	BM
3T	14 / 46	Crest	DS	P	EC-EX-008	2019/05/01	1801	BB	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 4 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
2	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 5 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/01	830	DH	20	243	246	172	149	168	174	164	203	185	205	211	207	BM	
2	EC-EX-011	2019/05/01	1400	DH	20	246	246	169	164	165	166	172	151	177	182	182	187	BM	
3	EC-EX-008	2019/05/01	1730	BB	20	248	246	120	101	162	137	133	197	179	206	194	199	BM	
4	EC-EX-011	2019/05/02	900	FG	20	254	248	120	136	153	131	130	221	213	230	217	212	BM	
5	EC-EX-011	2019/05/02	1330	FG	20	254	231	137	161	171	147	169	149	150	150	187	173	BM	
6	EC-EX-011	2019/05/02	1730	FG	20	254	232	131	136	153	145	167	208	205	207	210	200	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	48 / 49	Connected to 46	T	G&W	EC-EX-011	2019/05/02	1525	FG	10	2019/05/07	VB+PS	BM
4B	48 / 49	Connected to 51	T	G&W	EC-EX-011	2019/05/02	1523	FG	10	2019/05/07	VB+PS	BM
4C	50 / 51	Connected to 48	T	G&W	EC-EX-011	2019/05/02	1529	FG	10	2019/05/07	VB+PS	BM
4D	50 / 51	Connected to 54	T	G&W	EC-EX-011	2019/05/02	1539	FG	10	2019/05/07	VB+PS	BM
4E	53 / 54	Connected to 50	T	G&W	EC-EX-011	2019/05/02	1607	FG	10	2019/05/07	VB+PS	BM
4F	53 / 54	Connected to 56	T	G&W	EC-EX-011	2019/05/02	1557	FG	10	2019/05/07	VB+PS	BM
4G	54 / 56	7m East of WEOS	BO	P	EC-EX-011	2019/05/02	1555	FG	10	2019/05/07	VB+PS	BM
4H	56 / 57	Connected to 54	T	G&W	EC-EX-008	2019/05/01	1830	BB	10	2019/05/07	VB+PS	BM
4I	56 / 57	Connected to 60	T	G&W	EC-EX-008	2019/05/01	1836	BB	10	2019/05/07	VB+PS	BM
4J	57 / 60	7m East of WEOS	FS	G&W	EC-EX-035	2019/05/07	1741	BB	15	2019/05/07	VB+PS	BM
4K	59 / 60	Connected to 56	T	G&W	EC-EX-011	2019/05/02	1653	FG	10	2019/05/07	VB+PS	BM
4L	59 / 60	Connected to 62	T	G&W	EC-EX-011	2019/05/02	1655	FG	10	2019/05/07	VB+PS	BM
4M	61 / 62	Connected to 59	T	G&W	EC-EX-011	2019/05/02	1608	FG	10	2019/05/07	VB+PS	BM
4N	61 / 62	Connected to 65	T	G&W	EC-EX-011	2019/05/02	1613	FG	10	2019/05/07	VB+PS	BM
4O	65 / 66	Connected to 62	T	G&W	EC-EX-008	2019/05/01	1841	BB	10	2019/05/07	VB+PS	BM
4P	56 / 60	16m West of EEOS	BO	P	EC-EX-011	2019/05/02	1720	FG	10	2019/05/07	VB+PS	BM
4Q	49 / 51	On Crest	DS	P	EC-EX-008	2019/05/01	1825	BB	10	2019/05/07	VB+PS	BM
4R	62 / 66	On Crest	DS	P	EC-EX-008	2019/05/01	1830	BB	10	2019/05/07	VB+PS	BM
4S	44 / 67	On Crest	DS	P	EC-EX-008	2019/05/07	1816	EA	15	2019/05/07	VB+PS	BM
4T	43 / 44	Connected to 67	T	G&W	EC-EX-011	2019/05/03	1540	DH	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 6 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/03	900	DH	20	257	254	208	199	197	180	215	250	235	243	245	252	BM	
2	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
3	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 7 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/03	900	DH	20	257	254	208	199	197	180	215	250	235	243	245	252	BM	
2	EC-EX-008	2019/05/04	830	EA	20	254	254	166	186	182	161	183	192	201	219	212	199	BM	
3	EC-EX-008	2019/05/04	1300	EA	20	254	254	106	107	120	123	132	162	167	170	165	164	BM	
4	EC-EX-008	2019/05/04	1730	EA	20	254	254	121	123	120	121	119	186	176	181	177	174	BM	
5	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
6	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	43 / 67	Connected to 15	T	G&W	EC-EX-011	2019/05/03	1542	DH	10	2019/05/07	VB+PS	BM
5B	15 / 45	Connected to 67	T	G&W	EC-EX-011	2019/05/03	1534	DH	10	2019/05/07	VB+PS	BM
5C	69 / 70	Connected to 67	T	G&W	EC-EX-008	2019/05/04	845	EA	10	2019/05/07	VB+PS	BM
5D	69 / 70	2.5m West of EEOS	FS	G&W	EC-EX-008	2019/05/04	850	EA	10	2019/05/07	VB+PS	BM
5E	69 / 70	Connected to 71	T	G&W	EC-EX-008	2019/05/04	842	EA	10	2019/05/07	VB+PS	BM
5F	68 / 69	Connected to 67, 45	T	G&W	EC-EX-011	2019/05/03	1537	DH	10	2019/05/07	VB+PS	BM
5G	68 / 69	Connected to 71	T	G&W	EC-EX-011	2019/05/03	1545	DH	10	2019/05/07	VB+PS	BM
5H	70 / 72	Entire Seam	FS	P	EC-EX-008	2019/05/07	1750	EA	15	2019/05/07	VB+PS	BM
5I	70 / 71	2m South of NEOS	BO	P	EC-EX-008	2019/05/07	1755	EA	15	2019/05/07	VB+PS	BM
5J	68 / 71	Connected to 45, 47, 48	T	P	EC-EX-011	2019/05/03	1548	DH	10	2019/05/07	VB+PS	BM
5K	71 / 72	Connected to 74	T	G&W	EC-EX-008	2019/05/07	1726	EA	15	2019/05/07	VB+PS	BM
5L	71 / 74	4.5m North of SEOS	T	FS	EC-EX-011	2019/05/03	1552	DH	10	2019/05/07	VB+PS	BM
5M	71 / 74	3m North of SEOS	T	FS	EC-EX-011	2019/05/03	1555	DH	10	2019/05/07	VB+PS	BM
5N	71 / 74	1.5m North of SEOS	T	FS	EC-EX-011	2019/05/03	1559	DH	10	2019/05/07	VB+PS	BM
5O	73 / 74	Connected to 71, 47	T	P	EC-EX-011	2019/05/03	1130	DH	10	2019/05/07	VB+PS	BM
5P	73 / 74	Connected to 71	T	G&W	EC-EX-011	2019/05/03	1135	DH	10	2019/05/07	VB+PS	BM
5Q	74 / 76	On Crest	DS	P	EC-EX-008	2019/05/07	1718	EA	15	2019/05/07	VB+PS	BM
5R	75 / 76	Connected to 74	T	G&W	EC-EX-008	2019/05/04	911	EA	10	2019/05/07	VB+PS	BM
5S	75 / 76	Connected to 78	T	G&W	EC-EX-008	2019/05/04	915	EA	10	2019/05/07	VB+PS	BM
5T	73 / 74	Connected to 75	T	G&W	EC-EX-011	2019/05/03	1123	DH	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 8 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/03	900	DH	20	257	254	208	199	197	180	215	250	235	243	245	252	BM	
2	EC-EX-008	2019/05/04	830	EA	20	254	254	166	186	182	161	183	192	201	219	212	199	BM	
3	EC-EX-008	2019/05/04	1300	EA	20	254	254	106	107	120	123	132	162	167	170	165	164	BM	
4	EC-EX-008	2019/05/04	1730	EA	20	254	254	121	123	120	121	119	186	176	181	177	174	BM	
5	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
6	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
6A	47 / 50	Connected to 73	T	G&W	EC-EX-011	2019/05/03	1118	DH	10	2019/05/07	VB+PS	BM
6B	47 / 50	4m West of EEOS	BO	P	EC-EX-008	2019/05/07	1649	EA	15	2019/05/07	VB+PS	BM
6C	47 / 48	Connected to 50	T	G&W	EC-EX-011	2019/05/03	1640	EA	10	2019/05/07	VB+PS	BM
6D	73 / 75	Connected to 50	T	G&W	EC-EX-011	2019/05/03	1115	DH	10	2019/05/07	VB+PS	BM
6E	78 / 79	On Crest	DS	P	EC-EX-008	2019/05/07	1653	EA	15	2019/05/07	VB+PS	BM
6F	77 / 78	Connected to 75, 50	T	G&W	EC-EX-011	2019/05/03	1110	DH	10	2019/05/07	VB+PS	BM
6G	77 / 78	Connected to 79	T	G&W	EC-EX-011	2019/05/03	1103	DH	10	2019/05/07	VB+PS	BM
6H	50 / 52	Connected to 77	T	G&W	EC-EX-011	2019/05/03	1106	DH	10	2019/05/07	VB+PS	BM
6I	52 / 53	Connected to 50	T	G&W	EC-EX-011	2019/05/03	1055	DH	10	2019/05/07	VB+PS	BM
6J	77 / 79	Connected to 52	T	G&W	EC-EX-011	2019/05/03	1100	DH	10	2019/05/07	VB+PS	BM
6K	52 / 55	Entire Seam	FS	G&W	EC-EX-011	2019/05/03	1050	DH	10	2019/05/07	VB+PS	BM
6L	52 / 56	Entire Seam	FS	G&W	EC-EX-011	2019/05/03	1040	DH	10	2019/05/07	VB+PS	BM
6M	53 / 56	WEOS to 7m East	FS	G&W	EC-EX-011	2019/05/03	1030	DH	10	2019/05/07	VB+PS	BM
6N	79 / 81	6m South to 19m South	FS	G&W	EC-EX-011	2019/05/03	1000	DH	10	2019/05/07	VB+PS	BM
6O	80 / 81	Connected to 79	T	G&W	EC-EX-011	2019/05/03	1125	EA	10	2019/05/07	VB+PS	BM
6P	80 / 81	Connected to 83	T	G&W	EC-EX-008	2019/05/04	1120	EA	10	2019/05/07	VB+PS	BM
6Q	79 / 80	Connected to 55	T	G&W	EC-EX-011	2019/05/03	945	DH	10	2019/05/07	VB+PS	BM
6R	81 / 84	On Crest	DS	P	EC-EX-008	2019/05/07	1644	EA	15	2019/05/07	VB+PS	BM
6S	83 / 84	Connected to 81	T	G&W	EC-EX-008	2019/05/04	932	EA	10	2019/05/07	VB+PS	BM
6T	80 / 82	Connected to 55, 58, 59	T	P	EC-EX-011	2019/05/03	935	DH	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 9 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/02	900	FG	20	254	248	120	136	153	131	130	221	213	230	217	212	BM	
2	EC-EX-011	2019/05/02	1330	FG	20	254	231	137	161	171	147	169	149	150	150	187	173	BM	
3	EC-EX-011	2019/05/02	1730	FG	20	254	232	131	136	153	145	167	208	205	207	210	200	BM	
4	EC-EX-011	2019/05/03	900	DH	20	257	254	208	199	197	180	215	250	235	243	245	252	BM	
5	EC-EX-008	2019/05/04	830	EA	20	254	254	166	186	182	161	183	192	201	219	212	199	BM	
6	EC-EX-008	2019/05/04	1300	EA	20	254	254	106	107	120	123	132	162	167	170	165	164	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
7A	58 / 59	Connected to 61	T	G&W	EC-EX-008	2019/05/04	1105	EA	10	2019/05/07	VB+PS	BM
7B	55 / 56	Connected to 59	T	G&W	EC-EX-008	2019/05/04	1100	EA	10	2019/05/07	VB+PS	BM
7C	83 / 84	2.5m West of EEOS	DS	G&W	EC-EX-008	2019/05/04	934	EA	10	2019/05/07	VB+PS	BM
7D	83 / 84	Connected to 85	T	G&W	EC-EX-008	2019/05/04	925	EA	10	2019/05/07	VB+PS	BM
7E	85 / 86	Connected to 83	T	G&W	EC-EX-008	2019/05/04	940	EA	10	2019/05/07	VB+PS	BM
7F	85 / 86	On Crest	DS	P	EC-EX-008	2019/05/07	1603	EA	15	2019/05/07	VB+PS	BM
7G	85 / 86	20m North of SEOS	BO	P	EC-EX-008	2019/05/04	1106	EA	10	2019/05/07	VB+PS	BM
7H	86 / 97	2.5m West, On Crest	D	P	EC-EX-008	2019/05/07	1635	EA	15	2019/05/07	VB+PS	BM
7I	97 / 98	On Crest	BO	P	EC-EX-008	2019/05/07	1630	EA	15	2019/05/07	VB+PS	BM
7J	86 / 97	8m North of SEOS	BO	P	EC-EX-008	2019/05/04	1052	EA	10	2019/05/07	VB+PS	BM
7K	97 / 98	Connected to 86	T	G&W	EC-EX-008	2019/05/04	956	EA	10	2019/05/07	VB+PS	BM
7L	82 / 83	Connected to 86	T	G&W	EC-EX-011	2019/05/03	920	DH	10	2019/05/07	VB+PS	BM
7M	61 / 64	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1100	RL	20	2019/05/15	VB+PS	BM
7N	61 / 65	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	930	RL	20	2019/05/15	VB+PS	BM
7O	60 / 62	22m East of WEOS	BO	P	EC-EX-011	2019/05/02	1720	FG	10	2019/05/07	VB+PS	BM
7P	63 / 64	Connected to 87	T	P	EC-EX-008	2019/05/04	1323	EA	10	2019/05/07	VB+PS	BM
7Q	64 / 65	Connected to 87	T	G&W	EC-EX-008	2019/05/04	1330	EA	10	2019/05/07	VB+PS	BM
7R	87 / 88	Connected to 65	T	G&W	EC-EX-008	2019/05/04	1210	EA	10	2019/05/07	VB+PS	BM
7S	88 / 89	Connected to 65	T	G&W	EC-EX-008	2019/05/04	1201	EA	10	2019/05/07	VB+PS	BM
7T	65 / 66	Connected to 89	T	G&W	EC-EX-008	2019/05/04	1150	EA	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 10 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/04	1730	EA	20	254	254	121	123	120	121	119	186	176	181	177	174	BM	
2	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
3	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	
4	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
5	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
6	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 11 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 12 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/04	830	EA	20	254	254	166	186	182	161	183	192	201	219	212	199	BM	
2	EC-EX-008	2019/05/04	1300	EA	20	254	254	106	107	120	123	132	162	167	170	165	164	BM	
3	EC-EX-008	2019/05/04	1730	EA	20	254	254	121	123	120	121	119	186	176	181	177	174	BM	
4	EC-EX-035	2019/05/08	830	DH	20	246	243	143	150	133	178	136	189	194	199	182	190	BM	
5	EC-EX-035	2019/05/08	1130	DH	20	246	243	141	140	155	140	142	163	191	175	168	169	BM	
6	EC-EX-035	2019/05/08	1730	DH	20	246	243	141	149	140	148	139	169	166	160	158	162	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
8A	66 / 89	Crest	DS	P	EC-EX-035	2019/05/08	1110	DH	15	2019/05/15	VB+PS	BM
8B	87 / 88	3.4m South of NEOS	FS	G&W	EC-EX-008	2019/05/08	1212	JH	15	2019/05/15	VB+PS	BM
8C	90 / 91	Connected to 87	T	G&W	EC-EX-008	2019/05/24	1540	RR	20	2019/06/03	VB+PS	BM
8D	91 / 92	Connected to 87	T	G&W	EC-EX-008	2019/05/04	1548	EA	10	2019/05/07	VB+PS	BM
8E	87 / 88	Connected to 92	T	G&W	EC-EX-008	2019/05/04	1215	EA	10	2019/05/07	VB+PS	BM
8F	88 / 89	Connected to 92	T	G&W	EC-EX-008	2019/05/04	1154	EA	10	2019/05/07	VB+PS	BM
8G	92 / 93	Connected to 89	T	G&W	EC-EX-008	2019/05/04	1818	EA	10	2019/05/07	VB+PS	BM
8H	89 / 93	Crest	DS	P	EC-EX-035	2019/05/08	1130	DH	15	2019/05/15	VB+PS	BM
8I	90 / 91	Connected to 94	T	G&W	EC-EX-008	2019/05/04	1548	EA	10	2019/05/07	VB+PS	BM
8J	94 / 95	Connected to 91, 92	T	G&W	EC-EX-008	2019/05/04	1540	EA	10	2019/05/07	VB+PS	BM
8K	91 / 92	Connected to 95	T	P	EC-EX-008	2019/05/04	1524	EA	10	2019/05/07	VB+PS	BM
8L	91 / 92	5m North of SEOS, 3m East	D	P	EC-EX-008	2019/05/04	1331	EA	10	2019/05/07	VB+PS	BM
8M	91 / 92	5m North of SEOS, 1m East	D	P	EC-EX-008	2019/05/04	1353	EA	10	2019/05/07	VB+PS	BM
8N	91 / 92	3.5m North of SEOS, 0.5m East	D	P	EC-EX-008	2019/05/04	1530	EA	10	2019/05/07	VB+PS	BM
8O	91 / 92	2.5m North of SEOS, 1m East	D	P	EC-EX-008	2019/05/04	1400	EA	10	2019/05/07	VB+PS	BM
8P	91 / 92	1m North of SEOS, 0.5m East	D	P	EC-EX-008	2019/05/04	1520	EA	10	2019/05/07	VB+PS	BM
8Q	92 / 95	60m East of WEOS	FS	G&W	EC-EX-008	2019/05/04	1221	EA	10	2019/05/07	VB+PS	BM
8R	95 / 96	Connected to 92	T	G&W	EC-EX-035	2019/05/13	1806	EA	20	2019/05/15	VB+PS	BM
8S	92 / 93	Connected to 96	T	P	EC-EX-008	2019/05/04	1838	EA	10	2019/05/07	VB+PS	BM
8T	92 / 93	2.5m North of SEOS, 1m East	D	P	EC-EX-008	2019/05/04	1823	EA	10	2019/05/07	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 13 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
2	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
3	EC-EX-008	2019/05/24	920	RR	20	257	257	96	97	92	95	95	158	167	164	168	166	BM	
4	EC-EX-008	2019/05/24	1510	RR	20	257	257	132	137	115	102	120	158	157	147	164	162	BM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 14 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/04	830	EA	20	254	254	166	186	182	161	183	192	201	219	212	199	BM	
2	EC-EX-008	2019/05/04	1300	EA	20	254	254	106	107	120	123	132	162	167	170	165	164	BM	
3	EC-EX-008	2019/05/04	1730	EA	20	254	254	121	123	120	121	119	186	176	181	177	174	BM	
4	EC-EX-008	2019/05/07	1400	EA	20	254	254	145	143	144	145	141	163	163	165	166	162	BM	
5	EC-EX-035	2019/05/07	1700	BB	20	246	243	160	152	149	153	157	165	172	177	156	170	BM	
6	EC-EX-035	2019/05/08	830	DH	20	246	243	143	150	133	178	136	189	194	199	182	190	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
9A	92 / 93	5m North of SEOS, 1m East	D	P	EC-EX-008	2019/05/04	1800	EA	10	2019/05/07	VB+PS	BM
9B	93 / 96	Crest	DS	P	EC-EX-008	2019/05/07	1519	EA	10	2019/05/07	VB+PS	BM
9C	99 / 100	Connected to 94	T	G&W	EC-EX-035	2019/05/10	1702	EA	20	2019/05/15	VB+PS	BM
9D	94 / 100	3.5m West of EEOS	BO	P	EC-EX-035	2019/05/12	1626	EA	20	2019/05/15	VB+PS	BM
9E	94 / 95	Connected to 100	T	G&W	EC-EX-035	2019/05/10	1708	EA	20	2019/05/15	VB+PS	BM
9F	100 / 101	Connected to 95	T	G&W	EC-EX-035	2019/05/12	1708	EA	20	2019/05/15	VB+PS	BM
9G	101 / 102	Connected to 95	T	G&W	EC-EX-035	2019/05/12	1729	EA	20	2019/05/15	VB+PS	BM
9H	95 / 96	Connected to 102	T	G&W	EC-EX-035	2019/05/13	1803	EA	20	2019/05/15	VB+PS	BM
9I	102 / 103	Connected to 96	T	G&W	EC-EX-035	2019/05/09	1523	JH	15	2019/05/15	VB+PS	BM
9J	96 / 103	Crest	DS	P	EC-EX-035	2019/05/08	1300	DH	15	2019/05/15	VB+PS	BM
9K	99 / 100	Connected to 104	T	G&W	EC-EX-035	2019/05/10	1659	EA	20	2019/05/15	VB+PS	BM
9L	100 / 104	19.5m West of EEOS	BO	P	EC-EX-035	2019/05/12	1652	EA	20	2019/05/15	VB+PS	BM
9M	100 / 101	Connected to 104	T	G&W	EC-EX-035	2019/05/12	1703	EA	20	2019/05/15	VB+PS	BM
9N	101 / 102	Connected to 104	T	P	EC-EX-035	2019/05/12	1720	EA	20	2019/05/15	VB+PS	BM
9O	104 / 105	Connected to 102, 101	T	G&W	EC-EX-035	2019/05/14	1430	RL	20	2019/05/15	VB+PS	BM
9P	102 / 103	Connected to 105	T	G&W	EC-EX-035	2019/05/09	1528	JH	15	2019/05/15	VB+PS	BM
9Q	103 / 105	Crest	DS	P	EC-EX-035	2019/05/08	1500	DH	15	2019/05/15	VB+PS	BM
9R	106 / 107	Connected to 104	T	G&W	EC-EX-035	2019/05/10	1655	EA	20	2019/05/15	VB+PS	BM
9S	104 / 105	Connected to 107	T	P	EC-EX-035	2019/05/12	1745	EA	20	2019/05/15	VB+PS	BM
9T	104 / 105	0.5m North of SEOS, 1m East	D	P	EC-EX-035	2019/05/14	1505	RL	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 15 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/08	1130	DH	20	246	243	141	140	155	140	142	163	191	175	168	169	BM	
2	EC-EX-035	2019/05/08	1730	DH	20	246	243	141	149	140	148	139	169	166	160	158	162	BM	
3	EC-EX-008	2019/05/09	1000	JH	20	248	246	135	135	140	141	145	182	184	189	180	185	BM	
4	EC-EX-035	2019/05/09	1430	JH	20	243	246	142	147	149	145	143	168	168	171	176	169	BM	
5	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
6	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 16 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	
2	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
3	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	
4	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
5	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
6	EC-EX-035	2019/05/14	815	RL	20	248	248	121	119	119	112	133	176	185	181	183	186	BM	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 17 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/14	1200	RL	20	248	248	139	123	129	121	133	170	161	164	158	165	BM	Textured/Textured
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 18 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/08	830	DH	20	246	243	143	150	133	178	136	189	194	199	182	190	BM	
2	EC-EX-035	2019/05/08	1130	DH	20	246	243	141	140	155	140	142	163	191	175	168	169	BM	
3	EC-EX-035	2019/05/08	1730	DH	20	246	243	141	149	140	148	139	169	166	160	158	162	BM	
4	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
5	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	
6	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
10A	107 / 108	Connected to 105	T	G&W	EC-EX-008	2019/05/10	1618	BB	20	2019/05/15	VB+PS	BM
10B	102 / 105	48m West of EEOS, Not Done	FS	G&W	EC-EX-035	2019/05/08	1545	RL	15	2019/05/15	VB+PS	BM
10C	102 / 105	37m West of EEOS, Not Done	FS	P	EC-EX-035	2019/05/08	1605	RL	15	2019/05/15	VB+PS	BM
10D	105 / 108	Crest	DS	P	EC-EX-035	2019/05/08	1515	DH	15	2019/05/15	VB+PS	BM
10E	109 / 110	Connected to 106, 107	T	G&W	EC-EX-035	2019/05/10	1653	EA	20	2019/05/15	VB+PS	BM
10F	107 / 108	Connected to 110, 111	T	G&W	EC-EX-008	2019/05/10	1600	BB	20	2019/05/15	VB+PS	BM
10G	108 / 111	Entire Seam	FS	G&W	EC-EX-008	2019/05/10	930	BB	20	2019/05/15	VB+PS	BM
10H	107 / 108	0.5m South of NEOS, 2m East	D	P	EC-EX-008	2019/05/10	1615	BB	20	2019/05/15	VB+PS	BM
10I	107 / 108	0.5m North of SEOS, 1.5m East	D	P	EC-EX-008	2019/05/10	1608	BB	20	2019/05/15	VB+PS	BM
10J	107 / 108	0.5m North of SEOS, 3.5m East	D	P	EC-EX-008	2019/05/10	1610	BB	20	2019/05/15	VB+PS	BM
10K	107 / 108	0.5m North of SEOS, 5.5m East	D	P	EC-EX-008	2019/05/10	1611	BB	20	2019/05/15	VB+PS	BM
10L	109 / 110	Connected to 112	T	G&W	EC-EX-035	2019/05/10	1642	EA	20	2019/05/15	VB+PS	BM
10M	112 / 113	Connected to 110	T	G&W	EC-EX-035	2019/05/10	1639	EA	20	2019/05/15	VB+PS	BM
10N	110 / 113	EEOS to 11m West	FS	P	EC-EX-035	2019/05/12	930	EA	20	2019/05/15	VB+PS	BM
10O	110 / 114	Entire Seam	FS	P	EC-EX-035	2019/05/11	1845	EA	20	2019/05/15	VB+PS	BM
10P	111 / 114	WEOS to 3m East	FS	P	EC-EX-035	2019/05/12	850	EA	20	2019/05/15	VB+PS	BM
10Q	111 / 114	Crest to 11m West	FS	P	EC-EX-035	2019/05/08	1630	DH	15	2019/05/15	VB+PS	BM
10R	115 / 116	Connected to 112	T	G&W	EC-EX-035	2019/05/10	1631	EA	20	2019/05/15	VB+PS	BM
10S	112 / 113	Connected to 116	T	G&W	EC-EX-035	2019/05/10	1637	EA	20	2019/05/15	VB+PS	BM
10T	116 / 117	Connected to 113	T	G&W	EC-EX-035	2019/05/11	1822	EA	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 19 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/11	830	EA	20	248	248	113	110	113	109	122	168	167	166	165	167	BM	
2	EC-EX-008	2019/05/11	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
3	EC-EX-008	2019/05/11	1430	BB	20	243	246	136	132	145	151	152	185	178	179	181	184	BM	
4	EC-EX-035	2019/05/11	1700	EA	20	248	248	131	140	135	144	141	185	177	182	178	181	BM	
5	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
6	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 20 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/08	830	DH	20	246	243	143	150	133	178	136	189	194	199	182	190	BM	
2	EC-EX-035	2019/05/08	1130	DH	20	246	243	141	140	155	140	142	163	191	175	168	169	BM	
3	EC-EX-035	2019/05/08	1730	DH	20	246	243	141	149	140	148	139	169	166	160	158	162	BM	
4	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
5	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	
6	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
11A	113 / 114	Connected to 117	T	G&W	EC-EX-035	2019/05/11	1830	EA	20	2019/05/15	VB+PS	BM
11B	114 / 117	Entire Seam	FS	G&W	EC-EX-008	2019/05/15	1600	RL	20	2019/05/15	VB+PS	BM
11C	118 / 119	Connected to 115	T	G&W	EC-EX-035	2019/05/10	1623	EA	20	2019/05/15	VB+PS	BM
11D	115 / 116	Connected to 119	T	G&W	EC-EX-035	2019/05/10	1626	EA	20	2019/05/15	VB+PS	BM
11E	119 / 120	Connected to 116	T	G&W	EC-EX-035	2019/05/11	1750	EA	20	2019/05/15	VB+PS	BM
11F	116 / 117	Connected to 120	T	P	EC-EX-035	2019/05/11	1809	EA	20	2019/05/15	VB+PS	BM
11G	117 / 120	32m West of Crest to 37m West	FS	P	EC-EX-035	2019/05/08	1100	DH	15	2019/05/15	VB+PS	BM
11H	118 / 121	Entire Seam	FS	G&W	EC-EX-035	2019/05/10	1500	EA	20	2019/05/15	VB+PS	BM
11I	118 / 122	Entire Seam	FS	G&W	EC-EX-035	2019/05/10	1430	EA	20	2019/05/15	VB+PS	BM
11J	119 / 122	Entire Seam	FS	G&W	EC-EX-035	2019/05/11	1230	EA	20	2019/05/15	VB+PS	BM
11K	119 / 123	Entire Seam	FS	G&W	EC-EX-035	2019/05/11	1145	EA	20	2019/05/15	VB+PS	BM
11L	122 / 123	2m South of NEOS, 0.5m East	D	G&W	EC-EX-035	2019/05/11	1125	EA	20	2019/05/15	VB+PS	BM
11M	122 / 123	2.5m South of NEOS, 2m West	D	G&W	EC-EX-035	2019/05/11	1130	EA	20	2019/05/15	VB+PS	BM
11N	118 / 119	3.4m South of NEOS, 1m East	D	P	EC-EX-035	2019/05/12	1606	EA	20	2019/05/15	VB+PS	BM
11O	122 / 123	Connected to 125	T	G&W	EC-EX-035	2019/05/11	1129	EA	20	2019/05/15	VB+PS	BM
11P	125 / 126	Connected to 123	T	G&W	EC-EX-035	2019/05/11	1120	EA	20	2019/05/15	VB+PS	BM
11Q	123 / 126	110m West of EEOS	BO	P	EC-EX-035	2019/05/11	1640	EA	20	2019/05/15	VB+PS	BM
11R	125 / 128	45m East of WEOS	BO	P	EC-EX-035	2019/05/12	1522	EA	20	2019/05/15	VB+PS	BM
11S	125 / 128	60m East of WEOS	FS	G&W	EC-EX-035	2019/05/10	1727	EA	20	2019/05/15	VB+PS	BM
11T	125 / 126	Connected to 128	T	G&W	EC-EX-035	2019/05/11	1125	EA	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 21 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/11	830	EA	20	248	248	113	110	113	109	122	168	167	166	165	167	BM	
2	EC-EX-008	2019/05/11	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
3	EC-EX-008	2019/05/11	1430	BB	20	243	246	136	132	145	151	152	185	178	179	181	184	BM	
4	EC-EX-035	2019/05/11	1700	EA	20	248	248	131	140	135	144	141	185	177	182	178	181	BM	
5	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
6	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 22 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
2	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
3	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
4	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 23 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/09	1000	JH	20	248	246	135	135	140	141	145	182	184	189	180	185	BM	
2	EC-EX-035	2019/05/09	1430	JH	20	243	246	142	147	149	145	143	168	168	171	176	169	BM	
3	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
4	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	
5	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	
6	EC-EX-035	2019/05/11	830	EA	20	248	248	113	110	113	109	122	168	167	166	165	167	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
12A	128 / 129	Connected to 126	T	P	EC-EX-035	2019/05/11	1043	EA	20	2019/05/15	VB+PS	BM
12B	128 / 129	Connected to 129, 131	T	P	EC-EX-035	2019/05/11	1000	EA	20	2019/05/15	VB+PS	BM
12C	120 / 124	Entire Seam	FS	G&W	EC-EX-008	2019/05/10	1652	BB	20	2019/05/15	VB+PS	BM
12D	124 / 127	Entire Seam	FS	G&W	EC-EX-008	2019/05/09	1133	JH	15	2019/05/15	VB+PS	BM
12E	124 / 126	Entire Seam	FS	G&W	EC-EX-008	2019/05/10	1122	BB	20	2019/05/15	VB+PS	BM
12F	127 / 126	Connected to 129	T	P	EC-EX-008	2019/05/09	1210	JH	15	2019/05/15	VB+PS	BM
12G	131 / 133	On Crest	DS	P	EC-EX-008	2019/05/10	1628	BB	20	2019/05/15	VB+PS	BM
12H	133 / 135	On Crest	DS	P	EC-EX-008	2019/05/10	1136	BB	20	2019/05/15	VB+PS	BM
12I	135 / 137	On Crest	DS	P	EC-EX-008	2019/05/10	1144	BB	20	2019/05/15	VB+PS	BM
12J	137 / 139	On Crest	DS	P	EC-EX-008	2019/05/10	1202	BB	20	2019/05/15	VB+PS	BM
12K	131 / 133	Connected to 130, 132	T	P	EC-EX-035	2019/05/11	947	EA	20	2019/05/15	VB+PS	BM
12L	133 / 135	Connected to 132, 134	T	P	EC-EX-035	2019/05/11	932	EA	20	2019/05/15	VB+PS	BM
12M	135 / 137	Connected to 134, 136	T	P	EC-EX-035	2019/05/11	914	EA	20	2019/05/15	VB+PS	BM
12N	137 / 139	Connected to 136, 138	T	P	EC-EX-035	2019/05/11	852	EA	20	2019/05/15	VB+PS	BM
12O	139 / 141	On Crest	DS	P	EC-EX-008	2019/05/10	1208	BB	20	2019/05/15	VB+PS	BM
12P	142 / 143	3m South of NEOS, 0.5m East	D	P	EC-EX-035	2019/05/10	1740	EA	20	2019/05/15	VB+PS	BM
12Q	142 / 143	3m South of NEOS, 2.5m East	D	P	EC-EX-035	2019/05/10	1746	EA	20	2019/05/15	VB+PS	BM
12R	142 / 143	3m South of NEOS, 4.5m East	D	P	EC-EX-035	2019/05/10	1750	EA	20	2019/05/15	VB+PS	BM
12S	142 / 143	3m South of NEOS, 6.5m East	D	P	EC-EX-035	2019/05/10	1754	EA	20	2019/05/15	VB+PS	BM
12T	142 / 143	4m South of NEOS, 0.5m East	D	P	EC-EX-035	2019/05/10	1742	EA	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 24 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/11	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
2	EC-EX-008	2019/05/11	1430	BB	20	243	246	136	132	145	151	152	185	178	179	181	184	BM	
3	EC-EX-035	2019/05/11	1700	EA	20	248	248	131	140	135	144	141	185	177	182	178	181	BM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 25 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
2	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	
3	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	
4	EC-EX-035	2019/05/11	830	EA	20	248	248	113	110	113	109	122	168	167	166	165	167	BM	
5	EC-EX-008	2019/05/11	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
6	EC-EX-008	2019/05/11	1430	BB	20	243	246	136	132	145	151	152	185	178	179	181	184	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
13A	142 / 143	4m South of NEOS, 2.5m East	D	P	EC-EX-035	2019/05/10	1744	EA	20	2019/05/15	VB+PS	BM
13B	142 / 143	4m South of NEOS, 4.5m East	D	P	EC-EX-035	2019/05/10	1748	EA	20	2019/05/15	VB+PS	BM
13C	142 / 143	4m South of NEOS, 6.5m East	D	P	EC-EX-035	2019/05/10	1752	EA	20	2019/05/15	VB+PS	BM
13D	142 / 143	4m South of NEOS, 8.5m East	D	P	EC-EX-035	2019/05/10	1756	EA	20	2019/05/15	VB+PS	BM
13E	142 / 143	4m South of NEOS, 10.5m East	D	P	EC-EX-035	2019/05/11	1424	EA	20	2019/05/15	VB+PS	BM
13F	142 / 143	4m South of NEOS, 12.5m East	D	P	EC-EX-035	2019/05/11	1422	EA	20	2019/05/15	VB+PS	BM
13G	142 / 143	4m South of NEOS, 14.5m East	D	P	EC-EX-035	2019/05/11	1420	EA	20	2019/05/15	VB+PS	BM
13H	142 / 143	4m South of NEOS, 16.5m East	D	P	EC-EX-035	2019/05/11	1418	EA	20	2019/05/15	VB+PS	BM
13I	142 / 143	4m South of NEOS, 18.5m East	D	P	EC-EX-035	2019/05/11	1414	EA	20	2019/05/15	VB+PS	BM
13J	142 / 143	4m South of NEOS, 20.5m East	D	P	EC-EX-035	2019/05/11	1410	EA	20	2019/05/15	VB+PS	BM
13K	139 / 141	Connected to 138, 140	T	P	EC-EX-035	2019/05/11	1524	EA	20	2019/05/15	VB+PS	BM
13L	141 / 143	Connected to 140, 142	T	G&W	EC-EX-035	2019/05/11	1509	EA	20	2019/05/15	VB+PS	BM
13M	143 / 145	Connected to 142, 144	T	P	EC-EX-035	2019/05/11	1500	EA	20	2019/05/15	VB+PS	BM
13N	146 / 147	Connected to 144, 145	T	P	EC-EX-035	2019/05/13	903	EA	20	2019/05/15	VB+PS	BM
13O	146 / 147	2.5m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/13	935	EA	20	2019/05/15	VB+PS	BM
13P	146 / 147	2m North of SEOS, 0.5m East	D	P	EC-EX-035	2019/05/13	938	EA	20	2019/05/15	VB+PS	BM
13Q	148 / 149	Connected to 146, 147	T	P	EC-EX-035	2019/05/13	930	EA	20	2019/05/15	VB+PS	BM
13R	148 / 149	3m North of SEOS, 0.5m East	D	P	EC-EX-035	2019/05/13	959	EA	20	2019/05/15	VB+PS	BM
13S	183 /	Whole SE side of Panel	EXT	G&W	EC-EX-035	2019/05/19	1545	FG	20	2019/06/03	VB+PS	BM
13T	183 / 184	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1618	FG	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 26 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/11	1700	EA	20	248	248	131	140	135	144	141	185	177	182	178	181	BM	
2	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
3	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
4	EC-EX-035	2019/05/19	1115	EB	20	246	243	120	111	131	114	114	170	161	166	160	165	TH	Textured/Textured
5	EC-EX-035	2019/05/19	1510	FG	20	246	243	149	130	147	143	150	159	153	166	160	164	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 27 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/19	1115	EB	20	246	243	120	111	131	114	114	170	161	166	160	165	TH	Textured/Textured
2	EC-EX-035	2019/05/19	1510	FG	20	246	243	149	130	147	143	150	159	153	166	160	164	TH	Textured/Textured
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
14A	184 / 185	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1620	FG	20	2019/06/03	VB+PS	BM
14B	185 / 186	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1625	FG	20	2019/06/03	VB+PS	BM
14C	186 / 187	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1630	FG	20	2019/06/03	VB+PS	BM
14D	187 / 188	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1653	FG	20	2019/06/03	VB+PS	BM
14E	188 / 189	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1655	FG	20	2019/06/03	VB+PS	BM
14F	189 / 190	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1658	FG	20	2019/06/03	VB+PS	BM
14G	190 / 191	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1702	FG	20	2019/06/03	VB+PS	BM
14H	191 / 192	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1716	FG	20	2019/06/03	VB+PS	BM
14I	192 / 193	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1721	FG	20	2019/06/03	VB+PS	BM
14J	193 / 194	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1723	FG	20	2019/06/03	VB+PS	BM
14K	194 / 195	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1724	FG	20	2019/06/03	VB+PS	BM
14L	195 / 196	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1727	FG	20	2019/06/03	VB+PS	BM
14M	196 / 197	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1729	FG	20	2019/06/03	VB+PS	BM
14N	197 / 198	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1731	FG	20	2019/06/03	VB+PS	BM
14O	198 / 199	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1732	FG	20	2019/06/03	VB+PS	BM
14P	199 / 200	Connected to 181	T	G&W	EC-EX-035	2019/05/19	1734	FG	20	2019/06/03	VB+PS	BM
14Q	200 / 201	Connected to 181, 182	T	G&W	EC-EX-035	2019/05/19	1742	FG	20	2019/06/03	VB+PS	BM
14R	201 / 202	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1743	FG	20	2019/06/03	VB+PS	BM
14S	202 / 203	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1745	FG	20	2019/06/03	VB+PS	BM
14T	203 / 204	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1747	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 28 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/19	1115	EB	20	246	243	120	111	131	114	114	170	161	166	160	165	TH	Textured/Textured
2	EC-EX-035	2019/05/19	1510	FG	20	246	243	149	130	147	143	150	159	153	166	160	164	TH	Textured/Textured
3	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
4	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	
5	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
6	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
15A	204 / 205	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1748	EB	20	2019/06/03	VB+PS	BM
15B	205 / 206	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1749	EB	20	2019/06/03	VB+PS	BM
15C	206 / 207	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1751	EB	20	2019/06/03	VB+PS	BM
15D	207 / 208	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1752	EB	20	2019/06/03	VB+PS	BM
15E	208 / 209	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1754	EA	20	2019/06/03	VB+PS	BM
15F	209 / 210	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1756	EA	20	2019/06/03	VB+PS	BM
15G	210 / 211	Conneced to 182	T	P	EC-EX-035	2019/05/19	1758	EA	20	2019/06/03	VB+PS	BM
15H	211 / 212	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1759	EA	20	2019/06/03	VB+PS	BM
15I	212 / 213	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1801	EA	20	2019/06/03	VB+PS	BM
15J	213 / 214	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1803	EA	20	2019/06/03	VB+PS	BM
15K	214 / 215	Conneced to 182	T	G&W	EC-EX-035	2019/05/19	1806	EA	20	2019/06/03	VB+PS	BM
15L	185 / 186	3m From SE Trench	BO	P	EC-EX-035	2019/05/19	1530	FG	20	2019/06/03	VB+PS	BM
15M	185 / 186	3.3m From SE Trench	BO	P	EC-EX-035	2019/05/19	1535	FG	20	2019/06/03	VB+PS	BM
15N	204 / 205	4.7m From East Trench	BO	P	EC-EX-035	2019/05/19	1750	EA	20	2019/06/03	VB+PS	BM
15O	211 / 212	2m From East Trench	IO	G&W	EC-EX-035	2019/05/19	1800	EA	20	2019/06/03	VB+PS	BM
15P	190 / 191	4.3m South of NEOS	DS	P	EC-EX-038	2019/05/21	1145	EB	20	2019/06/03	VB+PS	BM
15Q	191 / 192	1.8m South of NEOS, 1m East	D	G&W	EC-EX-038	2019/05/21	1148	EB	20	2019/06/03	VB+PS	BM
15R	192 / 193	1m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1152	EB	20	2019/06/03	VB+PS	BM
15S	192 / 193	3m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1154	EB	20	2019/06/03	VB+PS	BM
15T	192 / 193	5m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1156	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 29 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
2	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	
3	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
4	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
16A	192 / 193	7m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1158	EB	20	2019/06/03	VB+PS	BM
16B	192 / 193	9m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1200	EB	20	2019/06/03	VB+PS	BM
16C	192 / 193	11m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1202	EB	20	2019/06/03	VB+PS	BM
16D	192 / 193	13m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1204	EB	20	2019/06/03	VB+PS	BM
16E	192 / 193	15m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1206	EB	20	2019/06/03	VB+PS	BM
16F	192 / 193	17m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1208	EB	20	2019/06/03	VB+PS	BM
16G	193 / 194	1m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1238	EB	20	2019/06/03	VB+PS	BM
16H	193 / 194	3m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1234	EB	20	2019/06/03	VB+PS	BM
16I	193 / 194	5m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1232	EB	20	2019/06/03	VB+PS	BM
16J	193 / 194	7m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1230	EB	20	2019/06/03	VB+PS	BM
16K	194 / 195	3.3m South of NEOS	DS	P	EC-EX-038	2019/05/21	1250	EB	20	2019/06/03	VB+PS	BM
16L	197 / 198	2m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1306	EB	20	2019/06/03	VB+PS	BM
16M	197 / 198	4m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1308	EB	20	2019/06/03	VB+PS	BM
16N	197 / 198	6m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1310	EB	20	2019/06/03	VB+PS	BM
16O	197 / 198	8m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1312	EB	20	2019/06/03	VB+PS	BM
16P	197 / 198	10m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1314	EB	20	2019/06/03	VB+PS	BM
16Q	197 / 198	1.5m South of NEOS, 3.4m East	D	G&W	EC-EX-038	2019/05/21	1330	EB	20	2019/06/03	VB+PS	BM
16R	197 / 198	2m South of NEOS, 3.4m East	D	G&W	EC-EX-038	2019/05/21	1334	EB	20	2019/06/03	VB+PS	BM
16S	197 / 198	3m South of NEOS, 5m East	D	G&W	EC-EX-038	2019/05/21	1332	EB	20	2019/06/03	VB+PS	BM
16T	181 / 198	2m East of WEOS	BO	P	EC-EX-038	2019/05/21	1328	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 30 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
2	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	
3	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
4	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	
5	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
6	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
17A	198 / 199	Crest	BO	P	EC-EX-038	2019/05/21	1510	EB	20	2019/06/03	VB+PS	BM
17B	198 / 199	2m South of NEOS, 1.5m East	D	P	EC-EX-038	2019/05/21	1506	EB	20	2019/06/03	VB+PS	BM
17C	199 / 200	2m South of NEOS	DS	P	EC-EX-038	2019/05/21	1502	EB	20	2019/06/03	VB+PS	BM
17D	204 / 205	2m South of NEOS	DS	P	EC-EX-038	2019/05/21	1606	EB	20	2019/06/03	VB+PS	BM
17E	205 / 206	1m South of NEOS, 3.4m East	D	P	EC-EX-038	2019/05/21	1604	EB	20	2019/06/03	VB+PS	BM
17F	209 / 210	6.6m South of NEOS, 1m West	D	P	EC-EX-038	2019/05/21	1615	EB	20	2019/06/03	VB+PS	BM
17G	209 / 210	2.3m South of NEOS	DS	P	EC-EX-038	2019/05/21	1620	EB	20	2019/06/03	VB+PS	BM
17H	210 / 211	3.2m South of NEOS	FS	G&W	EC-EX-038	2019/05/21	1623	EB	20	2019/06/03	VB+PS	BM
17I	212 / 213	2.7m South of NEOS	DS	P	EC-EX-038	2019/05/21	1640	EB	20	2019/06/03	VB+PS	BM
17J	213 / 214	1m South of NEOS, 3.4m East	D	P	EC-EX-038	2019/05/21	1630	EB	20	2019/06/03	VB+PS	BM
17K	217 / 218	Connected to 181	T	G&W	EC-EX-038	2019/05/21	1740	EB	20	2019/06/03	VB+PS	BM
17L	182 / 218	25m West of EEOS	DS	P	EC-EX-035	2019/05/22	1114	GB	20	2019/06/03	VB+PS	BM
17M	181 / 182	Connected to 218	T	G&W	EC-EX-035	2019/05/22	824	GB	20	2019/06/03	VB+PS	BM
17N	182 / 218	1m West of EEOS	DS	P	EC-EX-035	2019/05/22	935	GB	20	2019/06/03	VB+PS	BM
17O	218 / 219	Connected to 182	T	G&W	EC-EX-038	2019/05/21	1716	EB	20	2019/06/03	VB+PS	BM
17P	218 / 219	1m North of SEOS	DS	P	EC-EX-035	2019/05/22	946	GB	20	2019/06/03	VB+PS	BM
17Q	217 / 220	2m East of WEOS	BO	P	EC-EX-038	2019/05/21	1800	EB	20	2019/06/03	VB+PS	BM
17R	217 / 218	Connected to 220	T	G&W	EC-EX-038	2019/05/21	1742	EB	20	2019/06/03	VB+PS	BM
17S	218 / 220	1m West of EEOS	DS	P	EC-EX-035	2019/05/22	1058	GB	20	2019/06/03	VB+PS	BM
17T	220 / 221	Connected to 218	T	G&W	EC-EX-038	2019/05/21	1724	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 31 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
2	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
3	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
4	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 32 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
2	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	
3	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
4	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	
5	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
6	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
18A	220 / 221	1m North of SEOS	DS	P	EC-EX-038	2019/05/21	1620	EB	20	2019/06/03	VB+PS	BM
18B	218 / 221	1m West of EEOS	DS	P	EC-EX-035	2019/05/22	928	GB	20	2019/06/03	VB+PS	BM
18C	218 / 219	Connected to 221	T	P	EC-EX-038	2019/05/21	1730	EB	20	2019/06/03	VB+PS	BM
18D	221 / 222	Connected to 219	T	G&W	EC-EX-038	2019/05/21	1704	EB	20	2019/06/03	VB+PS	BM
18E	221 / 222	2m East of WEOS, 2m North	D	P	EC-EX-038	2019/05/21	1706	EB	20	2019/06/03	VB+PS	BM
18F	221 / 222	1m East of WEOS, 2m North	D	G&W	EC-EX-038	2019/05/21	1708	EB	20	2019/06/03	VB+PS	BM
18G	221 / 222	1m East of WEOS, 3.4m North	D	G&W	EC-EX-038	2019/05/21	1710	EB	20	2019/06/03	VB+PS	BM
18H	221 / 222	1m East of WEOS, 5m North	D	G&W	EC-EX-038	2019/05/21	1712	EB	20	2019/06/03	VB+PS	BM
18I	220 / 223	1m West of EEOS	DS	P	EC-EX-035	2019/05/22	1123	GB	20	2019/06/03	VB+PS	BM
18J	220 / 221	Connected to 223	T	G&W	EC-EX-038	2019/05/21	1727	EB	20	2019/06/03	VB+PS	BM
18K	223 / 224	Connected to 221	T	G&W	EC-EX-038	2019/05/21	1823	EB	20	2019/06/03	VB+PS	BM
18L	221 / 224	20m West of EEOS	DS	P	EC-EX-035	2019/05/22	917	GB	20	2019/06/03	VB+PS	BM
18M	221 / 222	Connected to 224	T	P	EC-EX-038	2019/05/21	1712	EB	20	2019/06/03	VB+PS	BM
18N	225 / 226	Connected to 223	T	G&W	EC-EX-038	2019/05/21	1805	EB	20	2019/06/03	VB+PS	BM
18O	223 / 226	25m West of EEOS	BO	P	EC-EX-035	2019/05/22	1131	GB	20	2019/06/03	VB+PS	BM
18P	223 / 224	Connected to 226	T	G&W	EC-EX-038	2019/05/21	1825	EB	20	2019/06/03	VB+PS	BM
18Q	226 / 227	Connected to 224	T	G&W	EC-EX-035	2019/05/22	831	GB	20	2019/06/03	VB+PS	BM
18R	227 / 228	Connected to 224	T	G&W	EC-EX-035	2019/05/22	845	GB	20	2019/06/03	VB+PS	BM
18S	224 / 228	20m West of EEOS	DS	P	EC-EX-035	2019/05/22	857	GB	20	2019/06/03	VB+PS	BM
18T	225 / 226	Connected to 229	T	G&W	EC-EX-038	2019/05/21	1807	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 33 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
2	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
3	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
4	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 34 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/17	1400	JH	20	246	243	163	133	133	149	162	182	176	180	169	177	TH	Textured/Textured
2	EC-EX-035	2019/05/17	1400	EA	20	246	243	127	116	106	118	111	180	174	171	169	168	TH	Textured/Textured
3	EC-EX-035	2019/05/19	1115	EB	20	246	243	120	111	131	114	114	170	161	166	160	165	TH	Textured/Textured
4	EC-EX-035	2019/05/19	1510	FG	20	246	243	149	130	147	143	150	159	153	166	160	164	TH	Textured/Textured
5	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
6	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
19A	229 / 230	Connected to 226	T	G&W	EC-EX-038	2019/05/21	1810	EB	20	2019/06/03	VB+PS	BM
19B	226 / 230	45m West of EEOS	DS	P	EC-EX-035	2019/05/22	1138	GB	20	2019/06/03	VB+PS	BM
19C	226 / 227	Connected to 230	T	G&W	EC-EX-035	2019/05/22	853	GB	20	2019/06/03	VB+PS	BM
19D	227 / 228	Connected to 230	T	G&W	EC-EX-035	2019/05/22	848	GB	20	2019/06/03	VB+PS	BM
19E	228 / 230	19m West of EEOS	DS	P	EC-EX-035	2019/05/22	907	GB	20	2019/06/03	VB+PS	BM
19F	230 / 231	Connected to 228	T	G&W	EC-EX-035	2019/05/22	954	GB	20	2019/06/03	VB+PS	BM
19G	228 / 231	Anchor Trench	BO	P	EC-EX-035	2019/05/22	1000	GB	20	2019/06/03	VB+PS	BM
19H	180 / 179	Connected to 178	T	P	EC-EX-035	2019/05/17	1718	EA	20	2019/06/03	VB+PS	BM
19I	178 / 180	2m From East Trench	DS	P	EC-EX-008	2019/05/22	1111	TW	20	2019/06/03	VB+PS	BM
19J	178 / 179	10.6m from EEOS	IO	G&W	EC-EX-035	2019/05/17	1719	EA	20	2019/06/03	VB+PS	BM
19K	178 / 177	Connected to 179	DS	P	EC-EX-035	2019/05/19	1144	EA	20	2019/06/03	VB+PS	BM
19L	175 / 174	Connected to 177	T	G&W	EC-EX-008	2019/05/21	1719	JH	20	2019/06/03	VB+PS	BM
19M	178 / 177	Connected to 175	T	G&W	EC-EX-008	2019/05/22	952	TW	20	2019/06/03	VB+PS	BM
19N	176 / 175	Connected to 178	DS	P	EC-EX-035	2019/05/17	1650	EA	20	2019/06/03	VB+PS	BM
19O	176 / 178	4.1m From East Trench	DS	P	EC-EX-008	2019/05/22	1118	TW	20	2019/06/03	VB+PS	BM
19P	173 / 176	3m From East Trench	DS	P	EC-EX-035	2019/05/17	1538	EA	20	2019/06/03	VB+PS	BM
19Q	176 / 175	Connected to 173	DS	P	EC-EX-035	2019/05/17	1637	EA	20	2019/06/03	VB+PS	BM
19R	173 / 172	Connected to 175	T	G&W	EC-EX-035	2019/05/17	1702	EA	20	2019/06/03	VB+PS	BM
19S	175 / 174	Connected to 172	T	G&W	EC-EX-008	2019/05/21	1718	JH	20	2019/06/03	VB+PS	BM
19T	170 / 169	Connected to 172	DS	P	EC-EX-008	2019/05/21	1802	JH	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 35 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
2	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	
3	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
4	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
5	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
6	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 36 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
2	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 37 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/17	1400	JH	20	246	243	163	133	133	149	162	182	176	180	169	177	TH	Textured/Textured
2	EC-EX-035	2019/05/17	1400	EA	20	246	243	127	116	106	118	111	180	174	171	169	168	TH	Textured/Textured
3	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
4	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	
5	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
6	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
20A	170 / 169	3m South of NEOS	BO	P	EC-EX-008	2019/05/21	1813	JH	20	2019/06/03	VB+PS	BM
20B	169 / 170	3m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1803	JH	20	2019/06/03	VB+PS	BM
20C	169 / 170	4m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1805	JH	20	2019/06/03	VB+PS	BM
20D	169 / 170	5m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1806	JH	20	2019/06/03	VB+PS	BM
20E	169 / 170	4m South of NEOS, 2.8m East	D	G&W	EC-EX-008	2019/05/21	1808	JH	20	2019/06/03	VB+PS	BM
20F	173 / 172	Connected to 170	DS	P	EC-EX-008	2019/05/22	937	TW	20	2019/06/03	VB+PS	BM
20G	172 / 173	2m South of NEOS, 1m East	D	G&W	EC-EX-008	2019/05/22	939	TW	20	2019/06/03	VB+PS	BM
20H	172 / 173	3m South of NEOS, 0.8m East	D	G&W	EC-EX-008	2019/05/22	938	TW	20	2019/06/03	VB+PS	BM
20I	171 / 173	6m From East Trench	DS	P	EC-EX-035	2019/05/17	1550	EA	20	2019/06/03	VB+PS	BM
20J	168 / 171	On Crest	DS	P	EC-EX-035	2019/05/17	1612	EA	20	2019/06/03	VB+PS	BM
20K	171 / 170	2m South of NEOS, 2m East	D	P	EC-EX-035	2019/05/17	1558	EA	20	2019/06/03	VB+PS	BM
20L	171 / 170	3m South of NEOS, 4m East	D	P	EC-EX-035	2019/05/17	1555	EA	20	2019/06/03	VB+PS	BM
20M	171 / 170	Connected to 168	T	G&W	EC-EX-035	2019/05/17	1600	EA	20	2019/06/03	VB+PS	BM
20N	168 / 167	Connected to 170	DS	P	EC-EX-035	2019/05/17	1632	EA	20	2019/06/03	VB+PS	BM
20O	170 / 169	Connected to 167	DS	P	EC-EX-008	2019/05/21	1801	JH	20	2019/06/03	VB+PS	BM
20P	166 / 167	Connected to 169	T	G&W	EC-EX-008	2019/05/21	1726	JH	20	2019/06/03	VB+PS	BM
20Q	165 / 168	1m From East Trench	DS	P	EC-EX-008	2019/05/22	1140	TW	20	2019/06/03	VB+PS	BM
20R	165 / 168	11.8m From East Trench	BO	P	EC-EX-008	2019/05/22	1132	TW	20	2019/06/03	VB+PS	BM
20S	167 / 168	Connected to 165	T	G&W	EC-EX-035	2019/05/17	1621	EA	20	2019/06/03	VB+PS	BM
20T	165 / 164	Connected to 167	DS	P	EC-EX-008	2019/05/22	912	TW	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 38 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
2	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
3	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
4	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
5	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
6	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 39 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
2	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
3	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
4	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
5	EC-EX-038	2019/05/21	1110	EB	20	243	246	131	133	139	140	133	166	162	159	160	160	TH	
6	EC-EX-008	2019/05/21	1215	JH	20	240	243	146	143	150	158	150	160	165	176	156	171	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
21A	167 / 166	Connected to 164	T	G&W	EC-EX-008	2019/05/21	1729	JH	20	2019/06/03	VB+PS	BM
21B	166 / 167	3.4m South of NEOS, 2m East	D	G&W	EC-EX-008	2019/05/21	1730	JH	20	2019/06/03	VB+PS	BM
21C	166 / 167	5.5m South of NEOS, 1m East	D	G&W	EC-EX-008	2019/05/21	1731	JH	20	2019/06/03	VB+PS	BM
21D	166 / 167	3.4m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1732	JH	20	2019/06/03	VB+PS	BM
21E	161 / 162	Connected to 164	T	G&W	EC-EX-008	2019/05/21	1737	JH	20	2019/06/03	VB+PS	BM
21F	165 / 164	Connected to 162	DS	P	EC-EX-008	2019/05/22	918	TW	20	2019/06/03	VB+PS	BM
21G	163 / 162	Connected to 165	DS	P	EC-EX-008	2019/05/22	1213	TW	20	2019/06/03	VB+PS	BM
21H	162 / 163	3m South of NEOS, 2m East	D	P	EC-EX-008	2019/05/22	853	TW	20	2019/06/03	VB+PS	BM
21I	160 / 163	1m From East Trench	DS	P	EC-EX-008	2019/05/22	1230	TW	20	2019/06/03	VB+PS	BM
21J	163 / 162	Connected to 160	T	G&W	EC-EX-008	2019/05/22	1215	TW	20	2019/06/03	VB+PS	BM
21K	160 / 159	Connected to 162	T	G&W	EC-EX-008	2019/05/15	906	JH	20	2019/05/15	VB+PS	BM
21L	161 / 162	Connected to 159	T	G&W	EC-EX-008	2019/05/21	1736	JH	20	2019/06/03	VB+PS	BM
21M	161 / 162	3m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1738	JH	20	2019/06/03	VB+PS	BM
21N	161 / 162	3m South of NEOS, 0.3m East	D	G&W	EC-EX-008	2019/05/21	1739	JH	20	2019/06/03	VB+PS	BM
21O	161 / 162	4m South of NEOS, 0.1m East	D	G&W	EC-EX-008	2019/05/21	1740	JH	20	2019/06/03	VB+PS	BM
21P	161 / 162	5m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/21	1741	JH	20	2019/06/03	VB+PS	BM
21Q	161 / 162	2m South of NEOS, 0.8m East	D	G&W	EC-EX-008	2019/05/21	1742	JH	20	2019/06/03	VB+PS	BM
21R	158 / 159	Cap On Seam	FS	P	EC-EX-008	2019/05/15	1619	JH	20	2019/05/15	VB+PS	BM
21S	155 / 156	Connected to 158	T	G&W	EC-EX-008	2019/05/15	1623	JH	20	2019/05/15	VB+PS	BM
21T	155 / 156	1m South of NEOS	D	P	EC-EX-008	2019/05/15	1643	JH	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 40 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-038	2019/05/21	1450	EB	20	243	246	142	145	139	131	134	144	150	150	151	158	TH	
2	EC-EX-008	2019/05/21	1653	JH	20	237	243	122	134	121	128	124	163	159	163	154	159	TH	
3	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
4	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
5	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
6	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 41 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
2	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 42 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
2	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
3	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
4	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
5	EC-EX-035	2019/05/16	1300	JH	20	246	243	122	126	124	132	134	154	155	163	162	163	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
22A	155 / 156	3.4m South of NEOS	D	P	EC-EX-008	2019/05/15	1648	JH	20	2019/05/15	VB+PS	BM
22B	155 / 156	2m South of NEOS, 1m East	D	P	EC-EX-008	2019/05/15	1650	JH	20	2019/05/15	VB+PS	BM
22C	155 / 156	3.4m South of NEOS, 3.4m East	D	G&W	EC-EX-008	2019/05/15	1653	JH	20	2019/05/15	VB+PS	BM
22D	155 / 156	4m South of NEOS, 2.2m East	D	G&W	EC-EX-008	2019/05/15	1654	JH	20	2019/05/15	VB+PS	BM
22E	155 / 156	3m South of NEOS, 2.2m East	D	P	EC-EX-008	2019/05/15	1655	JH	20	2019/05/15	VB+PS	BM
22F	155 / 156	3m South of NEOS, 5m East	D	G&W	EC-EX-008	2019/05/15	1656	JH	20	2019/05/15	VB+PS	BM
22G	155 / 156	3.4m South of NEOS, 6.3m East	D	G&W	EC-EX-008	2019/05/15	1657	JH	20	2019/05/15	VB+PS	BM
22H	152 / 153	Connected to 155	T	G&W	EC-EX-035	2019/05/16	1458	JH	20	2019/06/03	VB+PS	BM
22I	155 / 156	Connected to 153	T	G&W	EC-EX-008	2019/05/15	1622	JH	20	2019/05/15	VB+PS	BM
22J	156 / 159	90.8m From WEOP	FS	G&W	EC-EX-008	2019/05/15	1230	JH	20	2019/05/15	VB+PS	BM
22K	157 / 156	Connected to 159	T	G&W	EC-EX-008	2019/05/15	954	JH	20	2019/05/15	VB+PS	BM
22L	160 / 159	Connected to 157	T	G&W	EC-EX-008	2019/05/15	907	JH	20	2019/05/15	VB+PS	BM
22M	159 / 160	1m South of NEOS, 0.2m East	D	G&W	EC-EX-008	2019/05/15	908	JH	20	2019/05/15	VB+PS	BM
22N	157 / 160	1m From East Trench	DS	P	EC-EX-008	2019/05/15	1110	JH	20	2019/05/15	VB+PS	BM
22O	156 / 157	1m North of SEOS, 0.4m East	D	G&W	EC-EX-008	2019/05/15	1000	JH	20	2019/05/15	VB+PS	BM
22P	156 / 157	1m North of SEOS, 0.8m East	D	P	EC-EX-008	2019/05/15	948	JH	20	2019/05/15	VB+PS	BM
22Q	156 / 157	1m North of SEOS, 3m East	D	P	EC-EX-008	2019/05/15	945	JH	20	2019/05/15	VB+PS	BM
22R	156 / 157	1m North of SEOS, 5m East	D	P	EC-EX-008	2019/05/15	942	JH	20	2019/05/15	VB+PS	BM
22S	156 / 157	1m North of SEOS, 7.3m East	D	P	EC-EX-008	2019/05/15	939	JH	20	2019/05/15	VB+PS	BM
22T	156 / 157	1m North of SEOS, 9.5m East	D	P	EC-EX-008	2019/05/15	936	JH	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 43 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
2	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
3	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
4	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
5	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
6	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
23A	156 / 157	1m North of SEOS, 11.8m East	D	P	EC-EX-008	2019/05/15	923	JH	20	2019/05/15	VB+PS	BM
23B	156 / 157	1m North of SEOS, 14m East	D	P	EC-EX-008	2019/05/15	914	JH	20	2019/05/15	VB+PS	BM
23C	156 / 157	1m North of SEOS, 16.3m East	D	P	EC-EX-008	2019/05/15	912	JH	20	2019/05/15	VB+PS	BM
23D	156 / 157	1m North of SEOS, 18.4m East	D	G&W	EC-EX-008	2019/05/15	904	JH	20	2019/05/15	VB+PS	BM
23E	156 / 157	1m North of SEOS, 20.5m East	D	G&W	EC-EX-008	2019/05/15	855	JH	20	2019/05/15	VB+PS	BM
23F	156 / 157	1m North of SEOS, 22.5m East	D	G&W	EC-EX-008	2019/05/15	854	JH	20	2019/05/15	VB+PS	BM
23G	157 / 160	1m From East Trench	DS	P	EC-EX-008	2019/05/15	1110	JH	20	2019/05/15	VB+PS	BM
23H	154 / 157	1m From East Trench	DS	P	EC-EX-008	2019/05/15	1130	JH	20	2019/05/15	VB+PS	BM
23I	157 / 156	Connected to 154	T	G&W	EC-EX-008	2019/05/15	958	JH	20	2019/05/15	VB+PS	BM
23J	154 / 153	Connected to 156	DS	P	EC-EX-008	2019/05/15	1339	JH	20	2019/05/15	VB+PS	BM
23K	151 / 154	On Crest	DS	P	EC-EX-008	2019/05/15	1148	JH	20	2019/05/15	VB+PS	BM
23L	154 / 153	Connected to 151	DS	P	EC-EX-008	2019/05/15	1330	JH	20	2019/05/15	VB+PS	BM
23M	151 / 150	Connected to 153	DS	P	EC-EX-008	2019/05/15	1509	JH	20	2019/05/15	VB+PS	BM
23N	153 / 152	Connected to 150	T	G&W	EC-EX-008	2019/05/15	1459	JH	20	2019/06/03	VB+PS	BM
23O	148 / 150	Connected to 149, 151	T	G&W	EC-EX-008	2019/05/15	1449	JH	20	2019/05/15	VB+PS	BM
23P	149 / 151	1.2m From WEOS	D	G&W	EC-EX-008	2019/05/15	1357	JH	20	2019/05/15	VB+PS	BM
23Q	149 / 151	On Crest	DS	P	EC-EX-008	2019/05/15	1212	JH	20	2019/05/15	VB+PS	BM
23R	147 / 149	1m From East Trench	DS	P	EC-EX-008	2019/05/22	1336	TW	20	2019/06/03	VB+PS	BM
23S	149 / 148	0.1m From NEOS	DS	p	EC-EX-035	2019/05/15	930	EA	20	2019/05/15	VB+PS	BM
23T	149 /	0.1m From WEOP	D	P	EC-EX-035	2019/05/13	1001	EA	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 44 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
2	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
3	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
4	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
5	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
6	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 45 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
2	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	
3	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
4	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
5	EC-EX-035	2019/05/14	815	RL	20	248	248	121	119	119	112	133	176	185	181	183	186	BM	Textured/Textured
6	EC-EX-035	2019/05/14	1200	RL	20	248	248	139	123	129	121	133	170	161	164	158	165	BM	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
24A	149 /	1.5m From WEOP	D	G&W	EC-EX-035	2019/05/13	1000	EA	20	2019/05/15	VB+PS	BM
24B	149 /	2.4m From WEOP	D	G&W	EC-EX-035	2019/05/13	959	EA	20	2019/05/15	VB+PS	BM
24C	146 / 148	Connected to 147, 149	DS	P	EC-EX-035	2019/05/13	955	EA	20	2019/05/15	VB+PS	BM
24D	146 / 148	10.6m From EEOS	FS	G&W	EC-EX-035	2019/05/13	1015	EA	20	2019/05/15	VB+PS	BM
24E	146 / 148	36m From EEOS	FS	G&W	EC-EX-035	2019/05/13	1035	EA	20	2019/05/15	VB+PS	BM
24F	146 / 148	55.8m From EEOS	FS	G&W	EC-EX-035	2019/05/13	1306	EA	20	2019/05/15	VB+PS	BM
24G	146 / 148	60.2m From EEOS	FS	G&W	EC-EX-035	2019/05/13	1310	EA	20	2019/05/15	VB+PS	BM
24H	146 / 148	82.5m From EEOS	FS	G&W	EC-EX-035	2019/05/13	1212	EA	20	2019/05/15	VB+PS	BM
24I	146 / 148	94m From EEOS	FS	P	EC-EX-035	2019/05/13	1220	EA	20	2019/05/15	VB+PS	BM
24J	126 / 129	76m From East Trench	FS	G&W	EC-EX-008	2019/05/27	855	RR	20	2019/06/03	VB+PS	BM
24K	147 / 149	9.3m From East Trench	FS	G&W	EC-EX-008	2019/05/27	850	RR	20	2019/06/03	VB+PS	BM
24L	89 /	1.1m From WEOP	FS	G&W	EC-EX-008	2019/05/27	900	RR	20	2019/06/03	VB+PS	BM
24M	95 / 96	0.5m North of SEOS, 1m East	D	P	EC-EX-035	2019/05/13	1803	EA	20	2019/05/15	VB+PS	BM
24N	96 / 103	2m East of WEOS	DS	P	EC-EX-035	2019/05/13	1810	EA	20	2019/05/15	VB+PS	BM
24O	99 / 104	1.5m West of EEOS	BO	P	EC-EX-008	2019/05/26	1520	RR	20	2019/06/03	VB+PS	BM
24P	102 / 105	Entire Seam	FS	G&W	EC-EX-035	2019/05/14	1230	RL	20	2019/05/15	VB+PS	BM
24Q	102 / 104	Entire Seam	FS	G&W	EC-EX-035	2019/05/14	1400	RL	20	2019/05/15	VB+PS	BM
24R	104 / 107	46m West of EEOS	FS	G&W	EC-EX-035	2019/05/12	1655	EA	20	2019/05/15	VB+PS	BM
24S	114 / 117	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1600	RL	20	2019/05/15	VB+PS	BM
24T	113 / 117	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1700	RL	20	2019/05/15	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 46 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
2	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
3	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
4	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
5	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
6	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 47 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
2	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
3	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
4	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
5	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
6	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 48 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/09	1000	JH	20	248	246	135	135	140	141	145	182	184	189	180	185	BM	
2	EC-EX-035	2019/05/09	1430	JH	20	243	246	142	147	149	145	143	168	168	171	176	169	BM	
3	EC-EX-008	2019/05/10	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
4	EC-EX-008	2019/05/10	1300	BB	20	240	243	132	131	131	120	136	155	153	154	158	158	BM	
5	EC-EX-035	2019/05/10	1400	EA	20	248	248	136	135	136	131	134	157	156	151	148	152	BM	
6	EC-EX-035	2019/05/11	830	EA	20	248	248	113	110	113	109	122	168	167	166	165	167	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
25A	113 / 116	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1710	RL	20	2019/05/15	VB+PS	BM
25B	112 / 116	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1800	RL	20	2019/05/15	VB+PS	BM
25C	112 / 115	Entire Seam	FS	G&W	EC-EX-035	2019/05/15	1810	RL	20	2019/05/15	VB+PS	BM
25D	120 / 123	Entire Seam	FS	G&W	EC-EX-008	2019/05/17	1346	JH	20	2019/06/03	VB+PS	BM
25E	118 / 119	3m North of SEOS, 1m East	D	P	EC-EX-035	2019/05/12	1606	EA	20	2019/05/15	VB+PS	BM
25F	121 / 122	Connected to 125	T	G&W	EC-EX-035	2019/05/10	1618	EA	20	2019/05/15	VB+PS	BM
25G	123 / 126	54.5m West of EEOS	FS	G&W	EC-EX-008	2019/05/17	1532	JH	20	2019/06/03	VB+PS	BM
25H	123 / 126	10m West of EEOS	FS	G&W	EC-EX-008	2019/05/17	1528	JH	20	2019/06/03	VB+PS	BM
25I	125 / 128	45m East of WEOS	BO	P	EC-EX-035	2019/05/12	1522	EA	20	2019/05/15	VB+PS	BM
25J	125 / 128	60m East of WEOS	FS	G&W	EC-EX-035	2019/05/12	1727	EA	20	2019/05/15	VB+PS	BM
25K	129 / 131	Crest	DS	P	EC-EX-035	2019/05/09	1220	JH	20	2019/05/15	VB+PS	BM
25L	129 / 131	47m West of EEOS to WEOS	FS	G&W	EC-EX-035	2019/05/13	1651	EA	20	2019/05/15	VB+PS	BM
25M	131 / 133	2.5m East of WEOS	BO	P	EC-EX-035	2019/05/23	1345	FG	20	2019/06/03	VB+PS	BM
25N	131 / 133	21m East of WEOS	FS	G&W	EC-EX-035	2019/05/11	1541	EA	20	2019/05/15	VB+PS	BM
25O	131 / 133	52m East of WEOS	BO	P	EC-EX-035	2019/05/13	1615	EA	20	2019/05/15	VB+PS	BM
25P	132 / 134	76m West of EEOS	BO	P	EC-EX-035	2019/05/12	1547	EA	20	2019/05/15	VB+PS	BM
25Q	132 / 134	68m West of EEOS	FS	G&W	EC-EX-035	2019/05/12	1535	EA	20	2019/05/15	VB+PS	BM
25R	132 / 134	65m West of EEOS	BO	P	EC-EX-035	2019/05/12	1554	EA	20	2019/05/15	VB+PS	BM
25S	132 / 134	65m West of EEOS to EEOS	FS	G&W	EC-EX-035	2019/05/22	1700	GB	20	2019/06/03	VB+PS	BM
25T	133 / 135	WEOS to 20m West of EEOS	FS	G&W	EC-EX-035	2019/05/22	1525	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 49 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/11	900	BB	20	248	246	131	138	154	144	148	189	186	191	188	193	BM	
2	EC-EX-008	2019/05/11	1430	BB	20	243	246	136	132	145	151	152	185	178	179	181	184	BM	
3	EC-EX-035	2019/05/11	1700	EA	20	248	248	131	140	135	144	141	185	177	182	178	181	BM	
4	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
5	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	
6	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 50 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
2	EC-EX-035	2019/05/15	830	RL	20	248	248	135	139	134	141	129	189	197	185	191	191	TH	Textured/Textured
3	EC-EX-008	2019/05/15	830	JH	20	246	243	109	115	116	120	120	158	162	161	165	161	TH	Textured/Textured
4	EC-EX-035	2019/05/15	1220	RL	20	248	248	140	129	131	121	135	178	169	175	177	174	TH	Textured/Textured
5	EC-EX-008	2019/05/15	1500	JH	20	243	240	165	153	141	153	152	178	174	177	168	168	TH	Textured/Textured
6	EC-EX-008	2019/05/17	1400	JH	20	246	243	163	133	133	149	162	182	176	180	169	177	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 51 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/17	1400	EA	20	246	243	127	116	106	118	111	180	174	171	169	168	TH	Textured/Textured
2	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
3	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
4	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
5	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
6	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 52 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	
2	EC-EX-035	2019/05/23	800	FG	20	246	243	105	113	108	120	101	186	185	172	188	182	BM	
3	EC-EX-035	2019/05/23	801	GB	20	246	243	101	112	108	118	98	188	183	181	189	181	BM	
4	EC-EX-035	2019/05/23	1200	GB	20	246	243	125	105	119	134	134	171	167	165	165	164	BM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 53 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/12	830	EA	20	248	248	115	116	123	139	138	203	197	195	196	199	BM	
2	EC-EX-035	2019/05/12	1430	EA	20	248	248	110	120	117	116	119	140	154	152	153	152	BM	
3	EC-EX-035	2019/05/13	830	EA	20	248	248	107	106	107	114	115	190	183	191	196	190	BM	Textured/Textured
4	EC-EX-035	2019/05/13	1230	EA	20	248	248	125	141	122	118	146	161	165	155	150	153	BM	Textured/Textured
5	EC-EX-035	2019/05/19	1115	EB	20	246	243	120	111	131	114	114	170	161	166	160	165	TH	Textured/Textured
6	EC-EX-035	2019/05/19	1510	FG	20	246	243	149	130	147	143	150	159	153	166	160	164	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
26A	137 / 139	6m East of WEOS	FS	G&W	EC-EX-035	2019/05/13	839	EA	20	2019/06/03	VB+PS	BM
26B	137 / 139	7m East of WEOS	FS	G&W	EC-EX-035	2019/05/13	839	EA	20	2019/06/03	VB+PS	BM
26C	137 / 139	8m East of WEOS	FS	G&W	EC-EX-035	2019/05/13	839	EA	20	2019/06/03	VB+PS	BM
26D	138 / 139	Entire Seam	FS	G&W	EC-EX-035	2019/05/19	1435	EA	20	2019/06/03	VB+PS	BM
26E	142 / 144	27m West of EEOS	FS	G&W	EC-EX-035	2019/05/12	1205	EA	20	2019/05/15	VB+PS	BM
26F	142 / 144	105m West of EEOS	FS	G&W	EC-EX-035	2019/05/12	1203	EA	20	2019/05/15	VB+PS	BM
26G	146 / 148	21m East of WEOS to 34m East	FS	G&W	EC-EX-035	2019/05/13	1220	EA	20	2019/05/15	VB+PS	BM
26H	146 / 148	57m East of WEOS	FS	G&W	EC-EX-035	2019/05/13	1310	EA	20	2019/05/15	VB+PS	BM
26I	146 / 148	61m East of WEOS to 66m East	FS	G&W	EC-EX-035	2019/05/13	1306	EA	20	2019/05/15	VB+PS	BM
26J	146 / 148	86m East of WEOS	FS	G&W	EC-EX-035	2019/05/13	1035	EA	20	2019/05/15	VB+PS	BM
26K	146 / 148	104m East of WEOS to 110m East	FS	G&W	EC-EX-035	2019/05/13	1015	EA	20	2019/05/15	VB+PS	BM
26L	141 / 143	On Crest	DS	P	EC-EX-008	2019/05/22	1532	TW	20	2019/06/03	VB+PS	BM
26M	143 / 145	On Crest	DS	P	EC-EX-008	2019/05/22	1405	TW	20	2019/06/03	VB+PS	BM
26N	145 / 147	On Crest	DS	P	EC-EX-008	2019/05/22	1355	TW	20	2019/06/03	VB+PS	BM
26O	98 / 232	Connected to 82, 86, 98, 58, 61	T	P	EC-EX-008	2019/05/24	1200	RR	20	2019/06/03	VB+PS	BM
26P	98 / 232	Crest	DS	P	EC-EX-008	2019/05/26	1137	RR	20	2019/06/03	VB+PS	BM
26Q	232 / 234	43m South of NEOS	BO	P	EC-EX-008	2019/05/26	1224	RR	20	2019/06/03	VB+PS	BM
26R	232 / 234	34m North of SEOS	BO	P	EC-EX-008	2019/05/27	922	RR	20	2019/06/03	VB+PS	BM
26S	233 / 234	Connected to 232, 61	T	P	EC-EX-008	2019/05/26	1220	RR	20	2019/06/03	VB+PS	BM
26T	61 / 232	3.4m East of WEOS, 0.6m North	D	P	EC-EX-008	2019/05/24	1211	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 54 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/22	805	GB	20	243	246	113	124	112	118	110	164	155	159	156	168	TH	
2	EC-EX-008	2019/05/22	830	TW	20	243	240	123	107	120	130	126	158	164	159	155	160	TH	
3	EC-EX-035	2019/05/22	1204	GB	20	243	246	132	138	137	134	138	153	154	160	155	159	TH	
4	EC-EX-008	2019/05/22	1245	TW	20	240	243	129	129	129	137	136	151	135	151	146	151	TH	
5	EC-EX-035	2019/05/22	1604	GB	20	243	246	131	135	130	124	124	152	144	155	148	159	TH	
6	EC-EX-008	2019/05/22	1637	TW	20	240	243	137	135	140	132	130	158	157	159	160	157	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 55 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/24	920	RR	20	257	257	96	97	92	95	95	158	167	164	168	166	BM	
2	EC-EX-008	2019/05/24	1510	RR	20	257	257	132	137	115	102	120	158	157	147	164	162	BM	
3	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
4	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
5	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
6	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 56 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
2	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
3	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
4	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 57 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/24	920	RR	20	257	257	96	97	92	95	95	158	167	164	168	166	BM	
2	EC-EX-008	2019/05/24	1510	RR	20	257	257	132	137	115	102	120	158	157	147	164	162	BM	
3	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
4	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
5	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
27A	61 / 64	Connected to 233, 63	T	P	EC-EX-008	2019/05/24	1240	RR	20	2019/06/03	VB+PS	BM
27B	234 / 237	3m South of NEOS	FS	G&W	EC-EX-008	2019/05/26	1140	RR	20	2019/06/03	VB+PS	BM
27C	234 / 237	25m South of NEOS	FS	G&W	EC-EX-008	2019/05/26	1145	RR	20	2019/06/03	VB+PS	BM
27D	234 / 237	27m South of NEOS	FS	G&W	EC-EX-008	2019/05/26	1200	RR	20	2019/06/03	VB+PS	BM
27E	234 / 237	28m South of NEOS	WR	P	EC-EX-008	2019/05/26	1216	RR	20	2019/06/03	VB+PS	BM
27F	236 / 237	Connected to 234	T	G&W	EC-EX-008	2019/05/24	1744	RR	20	2019/06/03	VB+PS	BM
27G	235 / 236	Connected to 234	T	G&W	EC-EX-008	2019/05/24	1255	RR	20	2019/06/03	VB+PS	BM
27H	234 / 235	Connected to 235	T	G&W	EC-EX-008	2019/05/24	1253	RR	20	2019/06/03	VB+PS	BM
27I	235 / 233	Connected to 63	T	G&W	EC-EX-008	2019/05/24	1250	RR	20	2019/06/03	VB+PS	BM
27J	234 / 233	3.4m West of EEOS, 1m South	D	P	EC-EX-008	2019/05/24	1231	RR	20	2019/06/03	VB+PS	BM
27K	234 / 233	5m West of EEOS, 0.5m South	D	P	EC-EX-008	2019/05/24	1245	RR	20	2019/06/03	VB+PS	BM
27L	237 / 240	Crest	DS	P	EC-EX-008	2019/05/26	1205	RR	20	2019/06/03	VB+PS	BM
27M	237 / 240	38m South of NEOS	BO	P	EC-EX-008	2019/05/26	1252	RR	20	2019/06/03	VB+PS	BM
27N	239 / 240	Connected to 237	T	G&W	EC-EX-008	2019/05/24	1532	RR	20	2019/06/03	VB+PS	BM
27O	236 / 237	Connected to 239	T	G&W	EC-EX-008	2019/05/24	1740	RR	20	2019/06/03	VB+PS	BM
27P	235 / 236	Connected to 239	T	G&W	EC-EX-008	2019/05/24	1259	RR	20	2019/06/03	VB+PS	BM
27Q	239 / 238	Connected to 235, 63, 87	T	G&W	EC-EX-008	2019/05/24	1302	RR	20	2019/06/03	VB+PS	BM
27R	240 / 242	Crest	DS	P	EC-EX-008	2019/05/26	1643	RR	20	2019/06/03	VB+PS	BM
27S	241 / 242	Connected to 240	T	G&W	EC-EX-008	2019/05/26	1658	RR	20	2019/06/03	VB+PS	BM
27T	239 / 240	Connected to 241	T	G&W	EC-EX-008	2019/05/26	1732	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 58 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/24	920	RR	20	257	257	96	97	92	95	95	158	167	164	168	166	BM	
2	EC-EX-008	2019/05/24	1510	RR	20	257	257	132	137	115	102	120	158	157	147	164	162	BM	
3	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
4	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
5	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
28A	239 / 240	3.4m West of EEOS, 0.3m North	D	G&W	EC-EX-008	2019/05/26	1733	RR	20	2019/06/03	VB+PS	BM
28B	239 / 240	4m West of EEOS, 0.2m North	D	G&W	EC-EX-008	2019/05/26	1733	RR	20	2019/06/03	VB+PS	BM
28C	239 / 240	5m West of EEOS, 0.4m North	D	G&W	EC-EX-008	2019/05/26	1734	RR	20	2019/06/03	VB+PS	BM
28D	238 / 239	Connected to 241	T	G&W	EC-EX-008	2019/05/24	1305	RR	20	2019/06/03	VB+PS	BM
28E	238 / 241	Connected to 87	T	G&W	EC-EX-008	2019/05/24	1307	RR	20	2019/06/03	VB+PS	BM
28F	242 / 245	Crest	DS	P	EC-EX-008	2019/05/26	1543	RR	20	2019/06/03	VB+PS	BM
28G	244 / 245	Connected to 242	T	P	EC-EX-008	2019/05/24	1715	RR	20	2019/06/03	VB+PS	BM
28H	241 / 242	Connected to 244	T	G&W	EC-EX-008	2019/05/24	1700	RR	20	2019/06/03	VB+PS	BM
28I	241 / 242	3m West of EEOS, 0.8m North	D	P	EC-EX-008	2019/05/24	1650	RR	20	2019/06/03	VB+PS	BM
28J	241 / 242	3m West of EEOS, 0.2m North	D	P	EC-EX-008	2019/05/24	1655	RR	20	2019/06/03	VB+PS	BM
28K	241 / 242	3.4m West of EEOS, 0.2m North	D	G&W	EC-EX-008	2019/05/24	1656	RR	20	2019/06/03	VB+PS	BM
28L	241 / 242	4m West of EEOS, 0.2m North	D	G&W	EC-EX-008	2019/05/24	1656	RR	20	2019/06/03	VB+PS	BM
28M	241 / 242	3.4m West of EEOS, 0.8m North	D	G&W	EC-EX-008	2019/05/24	1657	RR	20	2019/06/03	VB+PS	BM
28N	241 / 242	4m West of EEOS, 0.8m North	D	G&W	EC-EX-008	2019/05/24	1657	RR	20	2019/06/03	VB+PS	BM
28O	241 / 242	5m West of EEOS, 0.7m North	D	G&W	EC-EX-008	2019/05/24	1658	RR	20	2019/06/03	VB+PS	BM
28P	241 / 244	17m South of NEOS	FS	G&W	EC-EX-008	2019/05/24	1751	RR	20	2019/06/03	VB+PS	BM
28Q	241 / 244	21m South of NEOS	FS	G&W	EC-EX-008	2019/05/24	1752	RR	20	2019/06/03	VB+PS	BM
28R	241 / 244	31m South of NEOS	FS	P	EC-EX-008	2019/05/24	1800	RR	20	2019/06/03	VB+PS	BM
28S	241 / 244	36m South of NEOS to 42m	FS	P	EC-EX-008	2019/05/24	1806	RR	20	2019/06/03	VB+PS	BM
28T	241 / 244	45m South of NEOS	FS	G&W	EC-EX-008	2019/05/24	1815	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 59 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/24	920	RR	20	257	257	96	97	92	95	95	158	167	164	168	166	BM	
2	EC-EX-008	2019/05/24	1510	RR	20	257	257	132	137	115	102	120	158	157	147	164	162	BM	
3	EC-EX-008	2019/05/25	830	RR	20	254	254	134	128	120	121	121	168	163	166	178	167	BM	
4	EC-EX-008	2019/05/25	1230	RR	20	254	254	111	110	115	120	115	160	158	155	157	163	BM	
5	EC-EX-008	2019/05/25	1630	RR	20	254	254	108	106	132	138	108	161	172	158	166	176	BM	
6	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
29A	241 / 244	47m South of NEOS	FS	G&W	EC-EX-008	2019/05/24	1816	RR	20	2019/06/03	VB+PS	BM
29B	245 / 247	Crest	DS	P	EC-EX-008	2019/05/26	1627	RR	20	2019/06/03	VB+PS	BM
29C	246 / 247	Connected to 244, 245	T	P	EC-EX-008	2019/05/24	1720	RR	20	2019/06/03	VB+PS	BM
29D	243 / 244	Connected to 246	T	P	EC-EX-008	2019/05/24	1618	RR	20	2019/06/03	VB+PS	BM
29E	243 / 244	Connected to 241, 242, 90, 91	T	P	EC-EX-008	2019/05/24	1542	RR	20	2019/06/03	VB+PS	BM
29F	90 / 243	Entire Seam	FS	G&W	EC-EX-008	2019/05/24	1151	RR	20	2019/06/03	VB+PS	BM
29G	243 / 246	Connected to 90, 94	T	P	EC-EX-008	2019/05/24	1557	RR	20	2019/06/03	VB+PS	BM
29H	247 / 249	Crest	DS	P	EC-EX-008	2019/05/26	1620	RR	20	2019/06/03	VB+PS	BM
29I	246 / 247	Connected to 249	T	G&W	EC-EX-008	2019/05/26	1255	RR	20	2019/06/03	VB+PS	BM
29J	248 / 249	Connected to 246, to 13m South	T	G&W	EC-EX-008	2019/05/26	1256	RR	20	2019/06/03	VB+PS	BM
29K	246 / 248	33m North of SEOS	FS	G&W	EC-EX-008	2019/05/27	1618	RR	20	2019/06/03	VB+PS	BM
29L	246 / 248	21m North of SEOS	BO	P	EC-EX-008	2019/05/27	955	RR	20	2019/06/03	VB+PS	BM
29M	246 / 248	2m North of SEOS	WR	P	EC-EX-008	2019/05/25	1119	RR	20	2019/06/03	VB+PS	BM
29N	246 / 248	Connected to 90, 94, 29L	T	P	EC-EX-008	2019/05/25	1115	RR	20	2019/06/03	VB+PS	BM
29O	248 / 249	Connected to 252	T	G&W	EC-EX-008	2019/05/26	1455	RR	20	2019/06/03	VB+PS	BM
29P	251 / 252	Connected to 248	T	G&W	EC-EX-008	2019/05/26	1458	RR	20	2019/06/03	VB+PS	BM
29Q	250 / 251	Connected to 248, 94, 99, 100	T	P	EC-EX-008	2019/05/26	1206	RR	20	2019/06/03	VB+PS	BM
29R	251 / 252	Connected to 254	T	G&W	EC-EX-008	2019/05/26	1500	RR	20	2019/06/03	VB+PS	BM
29S	253 / 254	Connected to 251	T	G&W	EC-EX-008	2019/05/26	1717	RR	20	2019/06/03	VB+PS	BM
29T	250 / 251	Connected to 253	T	P	EC-EX-008	2019/05/25	1212	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 60 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
2	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
3	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
4	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
5	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
6	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 61 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 62 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/25	830	RR	20	254	254	134	128	120	121	121	168	163	166	178	167	BM	
2	EC-EX-008	2019/05/25	1230	RR	20	254	254	111	110	115	120	115	160	158	155	157	163	BM	
3	EC-EX-008	2019/05/25	1630	RR	20	254	254	108	106	132	138	108	161	172	158	166	176	BM	
4	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
5	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
6	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
30A	250 / 253	Connected to 99, 104	T	G&W	EC-EX-008	2019/05/26	1450	RR	20	2019/06/03	VB+PS	BM
30B	104 / 253	Entire Seam	FS	G&W	EC-EX-008	2019/05/26	1440	RR	20	2019/06/03	VB+PS	BM
30C	253 / 254	Connected to 257	T	G&W	EC-EX-008	2019/05/26	1715	RR	20	2019/06/03	VB+PS	BM
30D	256 / 257	Connected to 253	T	G&W	EC-EX-008	2019/05/26	1708	RR	20	2019/06/03	VB+PS	BM
30E	255 / 256	Connected to 253, 104	T	P	EC-EX-008	2019/05/26	1430	RR	20	2019/06/03	VB+PS	BM
30F	256 / 257	2m East of WEOS, 0.5m North	D	P	EC-EX-008	2019/05/26	1726	RR	20	2019/06/03	VB+PS	BM
30G	256 / 257	Connected to 259	T	G&W	EC-EX-008	2019/05/26	1722	RR	20	2019/06/03	VB+PS	BM
30H	258 / 259	Connected to 256	T	G&W	EC-EX-008	2019/05/26	1727	RR	20	2019/06/03	VB+PS	BM
30I	255 / 256	Connected to 258	T	P	EC-EX-008	2019/05/25	1735	RR	20	2019/06/03	VB+PS	BM
30J	255 / 258	Connected to 104, 106, 107	T	G&W	EC-EX-008	2019/05/26	1800	RR	20	2019/06/03	VB+PS	BM
30K	106 / 258	Entire Seam	FS	G&W	EC-EX-008	2019/05/26	1805	RR	20	2019/06/03	VB+PS	BM
30L	258 / 259	3m West of EEOS, 1m North	D	G&W	EC-EX-008	2019/05/26	1728	RR	20	2019/06/03	VB+PS	BM
30M	258 / 259	4m West of EEOS, 1m North	D	G&W	EC-EX-008	2019/05/27	1100	RR	20	2019/06/03	VB+PS	BM
30N	258 / 259	5m West of EEOS, 2m North	D	G&W	EC-EX-008	2019/05/26	1729	RR	20	2019/06/03	VB+PS	BM
30O	258 / 259	Connected to 262	T	G&W	EC-EX-008	2019/05/26	1423	RR	20	2019/06/03	VB+PS	BM
30P	261 / 262	Connected to 258	T	P	EC-EX-008	2019/05/26	1618	RR	20	2019/06/03	VB+PS	BM
30Q	260 / 261	Connected to 258, 106, 109	T	P	EC-EX-008	2019/05/26	1810	RR	20	2019/06/03	VB+PS	BM
30R	109 / 260	Entire Seam	FS	P	EC-EX-008	2019/05/26	1815	RR	20	2019/06/03	VB+PS	BM
30S	259 / 262	Crest	FS	G&W	EC-EX-008	2019/05/26	1625	RR	20	2019/06/03	VB+PS	BM
30T	262 / 264	Crest	FS	G&W	EC-EX-008	2019/05/26	1626	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 63 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
2	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
3	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
4	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
5	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 64 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/25	830	RR	20	254	254	134	128	120	121	121	168	163	166	178	167	BM	
2	EC-EX-008	2019/05/25	1230	RR	20	254	254	111	110	115	120	115	160	158	155	157	163	BM	
3	EC-EX-008	2019/05/25	1630	RR	20	254	254	108	106	132	138	108	161	172	158	166	176	BM	
4	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
5	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
6	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
31A	263 / 264	Connected to 262	T	G&W	EC-EX-008	2019/05/26	1546	RR	20	2019/06/03	VB+PS	BM
31B	261 / 262	Connected to 263	T	G&W	EC-EX-008	2019/05/26	1619	RR	20	2019/06/03	VB+PS	BM
31C	261 / 262	3.4m West of EEOS, 1m North	D	G&W	EC-EX-008	2019/05/27	1048	RR	20	2019/06/03	VB+PS	BM
31D	260 / 261	Connected to 263, 109	T	P	EC-EX-008	2019/05/26	1600	RR	20	2019/06/03	VB+PS	BM
31E	109 / 112	Connected to 263	T	G&W	EC-EX-008	2019/05/26	1747	RR	20	2019/06/03	VB+PS	BM
31F	263 / 264	Connected to 269	T	G&W	EC-EX-008	2019/05/26	1547	RR	20	2019/06/03	VB+PS	BM
31G	268 / 269	Connected to 263	T	G&W	EC-EX-008	2019/05/27	1534	RR	20	2019/06/03	VB+PS	BM
31H	268 / 269	1m West of EEOS, 0.5m North	D	G&W	EC-EX-008	2019/05/27	1535	RR	20	2019/06/03	VB+PS	BM
31I	268 / 269	3.4m West of EEOS, 1m North	D	G&W	EC-EX-008	2019/05/27	1536	RR	20	2019/06/03	VB+PS	BM
31J	267A / 268	Connected to 263	T	G&W	EC-EX-008	2019/05/26	1514	RR	20	2019/06/03	VB+PS	BM
31K	267 / 267A	Connected to 263, 268	T	G&W	EC-EX-008	2019/05/27	1603	RR	20	2019/06/03	VB+PS	BM
31L	266 / 267	Connected to 263, 265	T	G&W	EC-EX-008	2019/05/25	1632	RR	20	2019/06/03	VB+PS	BM
31M	263 / 265	Connected to 266, 112	T	P	EC-EX-008	2019/05/26	1844	RR	20	2019/06/03	VB+PS	BM
31N	266 / 267	Connected to 265, 268	T	G&W	EC-EX-008	2019/05/25	1640	RR	20	2019/06/03	VB+PS	BM
31O	265 / 268	Connected to 112, 115, 283	T	P	EC-EX-008	2019/05/27	1310	RR	20	2019/06/03	VB+PS	BM
31P	268 / 269	Connected to 271	T	G&W	EC-EX-008	2019/05/27	1331	RR	20	2019/06/03	VB+PS	BM
31Q	270 / 271	Connected to 268	T	G&W	EC-EX-008	2019/05/26	1517	RR	20	2019/06/03	VB+PS	BM
31R	270 / 271	1m West of EEOS, 1m North	T	D	EC-EX-008	2019/05/26	1518	RR	20	2019/06/03	VB+PS	BM
31S	270 / 271	5m West of EEOS, 1.5m North	T	D	EC-EX-008	2019/05/26	1519	RR	20	2019/06/03	VB+PS	BM
31T	268 / 270	12m North of SEOS	BO	P	EC-EX-008	2019/05/25	1815	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 65 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
2	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
3	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
4	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
5	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 66 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/26	900	RR	20	254	254	126	135	112	130	133	168	169	158	162	170	BM	
2	EC-EX-008	2019/05/26	1330	RR	20	254	254	117	143	139	145	148	154	160	159	162	160	BM	
3	EC-EX-008	2019/05/26	1730	RR	20	254	254	135	141	135	131	128	172	164	152	173	175	BM	
4	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
5	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
6	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
32A	268 / 270	Connected to 283	T	P	EC-EX-008	2019/05/27	1331	RR	20	2019/06/03	VB+PS	BM
32B	270 / 271	Connected to 273	T	G&W	EC-EX-008	2019/05/26	1520	RR	20	2019/06/03	VB+PS	BM
32C	272 / 273	Connected to 270	T	G&W	EC-EX-008	2019/05/27	1156	RR	20	2019/06/03	VB+PS	BM
32D	272 / 273	3m West of EEOS, 2m North	D	G&W	EC-EX-008	2019/05/27	1157	RR	20	2019/06/03	VB+PS	BM
32E	272 / 273	3m West of EEOS, 5m North	D	G&W	EC-EX-008	2019/05/27	1158	RR	20	2019/06/03	VB+PS	BM
32F	272 / 273	5m West of EEOS, 2m North	D	G&W	EC-EX-008	2019/05/27	1201	RR	20	2019/06/03	VB+PS	BM
32G	272 / 273	5m West of EEOS, 5m North	D	G&W	EC-EX-008	2019/05/27	1200	RR	20	2019/06/03	VB+PS	BM
32H	272 / 273	5m West of EEOS, 8m North	D	G&W	EC-EX-008	2019/05/27	1159	RR	20	2019/06/03	VB+PS	BM
32I	272 / 273	5m West of EEOS, 11m North	D	G&W	EC-EX-008	2019/05/27	1202	RR	20	2019/06/03	VB+PS	BM
32J	272 / 273	5m West of EEOS, 14m North	D	G&W	EC-EX-008	2019/05/27	1203	RR	20	2019/06/03	VB+PS	BM
32K	272 / 273	5m West of EEOS, 17m North	D	G&W	EC-EX-008	2019/05/27	1204	RR	20	2019/06/03	VB+PS	BM
32L	270 / 272	Connected to 283	T	P	EC-EX-008	2019/05/27	1337	RR	20	2019/06/03	VB+PS	BM
32M	274 / 275	3.4m West of EEOS, 2m North	D	G&W	EC-EX-008	2019/05/27	1121	RR	20	2019/06/03	VB+PS	BM
32N	274 / 275	3.4m West of EEOS, 5m North	D	G&W	EC-EX-008	2019/05/27	1122	RR	20	2019/06/03	VB+PS	BM
32O	274 / 275	3.4m West of EEOS, 8m North	D	G&W	EC-EX-008	2019/05/27	1123	RR	20	2019/06/03	VB+PS	BM
32P	274 / 275	Connected to 273	T	G&W	EC-EX-008	2019/05/27	1120	RR	20	2019/06/03	VB+PS	BM
32Q	272 / 273	Connected to 274	T	G&W	EC-EX-008	2019/05/27	1153	RR	20	2019/06/03	VB+PS	BM
32R	272 / 274	Connected to 283	T	P	EC-EX-008	2019/05/27	1334	RR	20	2019/06/03	VB+PS	BM
32S	274 / 275	Connected to 277	T	G&W	EC-EX-008	2019/05/27	1117	RR	20	2019/06/03	VB+PS	BM
32T	276 / 277	Connected to 274	T	G&W	EC-EX-008	2019/05/27	1127	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 67 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
2	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 68 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
2	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
3	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
4	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
5	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
6	EC-EX-035	2019/05/28	800	LC	20	246	243	125	121	103	110	100	162	163	146	166	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
33A	274 / 283	Connected to 276 to 3m East	T	P	EC-EX-008	2019/05/27	1506	RR	20	2019/06/03	VB+PS	BM
33B	276 / 277	Connected to 280	T	G&W	EC-EX-008	2019/05/27	1130	RR	20	2019/06/03	VB+PS	BM
33C	279 / 280	Connected to 276	T	G&W	EC-EX-008	2019/05/27	1142	RR	20	2019/06/03	VB+PS	BM
33D	279 / 280	3m West of EEOS, 0.5m North	D	G&W	EC-EX-008	2019/05/27	1143	RR	20	2019/06/03	VB+PS	BM
33E	279 / 280	4m West of EEOS, 0.5m North	D	G&W	EC-EX-008	2019/05/27	1144	RR	20	2019/06/03	VB+PS	BM
33F	279 / 280	5m West of EEOS, 1m North	D	G&W	EC-EX-008	2019/05/27	1145	RR	20	2019/06/03	VB+PS	BM
33G	278 / 279	Connected to 276	T	P	EC-EX-008	2019/05/27	1534	RR	20	2019/06/03	VB+PS	BM
33H	281 / 282	Connected to 280	T	G&W	EC-EX-008	2019/05/27	1124	RR	20	2019/06/03	VB+PS	BM
33I	281 / 282	Connected to 281	T	G&W	EC-EX-008	2019/05/27	1140	RR	20	2019/06/03	VB+PS	BM
33J	283 / 284	Connected to 115, 118	T	G&W	EC-EX-008	2019/05/27	1732	RR	20	2019/06/03	VB+PS	BM
33K	284 / 285	Connected to 118, 121	T	P	EC-EX-008	2019/05/27	1728	RR	20	2019/06/03	VB+PS	BM
33L	285 / 287	Connected to 121, 125	T	G&W	EC-EX-008	2019/05/27	1723	RR	20	2019/06/03	VB+PS	BM
33M	287 / 289	Connected to 125, 128	T	P	EC-EX-008	2019/05/27	1718	RR	20	2019/06/03	VB+PS	BM
33N	283 / 284	Connected to 276	T	G&W	EC-EX-008	2019/05/27	1555	RR	20	2019/06/03	VB+PS	BM
33O	286 / 287	Connected to 285	T	G&W	EC-EX-011	2019/05/28	840	EB	20	2019/06/03	VB+PS	BM
33P	288 / 289	Connected to 287	T	P	EC-EX-011	2019/05/28	1210	EB	20	2019/06/03	VB+PS	BM
33Q	Existing /	Connected to 281, 278, 276, 285, 286	T	G&W	EC-EX-011	2019/05/28	1510	EB	20	2019/06/03	VB+PS	BM
33R	128 / 130	Connected to 289	T	G&W	EC-EX-008	2019/05/27	1741	RR	20	2019/06/03	VB+PS	BM
33S	130 / 132	Connected to 289	T	G&W	EC-EX-008	2019/05/27	1743	RR	20	2019/06/03	VB+PS	BM
33T	132 / 134	Connected to 289	T	G&W	EC-EX-008	2019/05/27	1745	RR	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 69 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	815	FG	20	246	243	107	104	109	118	109	157	162	167	160	169	BM	
2	EC-EX-011	2019/05/28	820	EB	20	246	243	101	112	110	108	101	155	167	180	137	178	BM	
3	EC-EX-011	2019/05/28	1300	FG	20	246	243	124	130	109	136	135	159	171	154	179	166	BM	
4	EC-EX-011	2019/05/28	1300	EB	20	246	243	128	119	122	121	116	173	172	170	175	176	BM	
5	EC-EX-035	2019/05/28	1315	LC	20	246	243	118	124	123	130	114	167	164	162	164	163	BM	
6	EC-EX-035	2019/05/28	1315	MK	20	246	243	151	151	143	151	145	166	167	172	168	163	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 70 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	1730	EB	20	246	243	124	128	129	133	129	177	166	164	175	169	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 71 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
2	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
3	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
4	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
5	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
6	EC-EX-035	2019/05/28	800	LC	20	246	243	125	121	103	110	100	162	163	146	166	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
34A	134 / 136	Connected to 289	T	G&W	EC-EX-008	2019/05/27	1746	RR	20	2019/06/03	VB+PS	BM
34B	136 / 289	3m North of SEOS	BO	P	EC-EX-008	2019/05/27	1749	RR	20	2019/06/03	VB+PS	BM
34C	136 / 138	Connected to 289	T	G&W	EC-EX-008	2019/05/27	1750	RR	20	2019/06/03	VB+PS	BM
34D	138 / 140	Connected to 289, 290	T	G&W	EC-EX-008	2019/05/27	1759	RR	20	2019/06/03	VB+PS	BM
34E	138 / 140	3.4m South of NEOS, 1m East	D	P	EC-EX-008	2019/05/27	1806	RR	20	2019/06/03	VB+PS	BM
34F	140 / 142	Connected to 290, 291	T	P	EC-EX-008	2019/05/27	1810	RR	20	2019/06/03	VB+PS	BM
34G	290 / 291	Connected to 142, 144	T	P	EC-EX-011	2019/05/28	1427	EB	20	2019/06/03	VB+PS	BM
34H	144 / 146	Connected to 291	T	P	EC-EX-011	2019/05/28	1230	EB	20	2019/06/03	VB+PS	BM
34I	144 / 146	2m East of WEOS, 3.4m South	D	P	EC-EX-011	2019/05/28	1415	EB	20	2019/06/03	VB+PS	BM
34J	146 / 148	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1410	EB	20	2019/06/03	VB+PS	BM
34K	148 / 150	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1400	EB	20	2019/06/03	VB+PS	BM
34L	150 / 152	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1402	EB	20	2019/06/03	VB+PS	BM
34M	152 / 155	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1356	EB	20	2019/06/03	VB+PS	BM
34N	155 / 158	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1354	EB	20	2019/06/03	VB+PS	BM
34O	158 / 161	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1352	EB	20	2019/06/03	VB+PS	BM
34P	161 / 164	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1351	EB	20	2019/06/03	VB+PS	BM
34Q	164 / 166	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1348	EB	20	2019/06/03	VB+PS	BM
34R	166 / 169	Connected to 291	T	P	EC-EX-011	2019/05/28	1334	EB	20	2019/06/03	VB+PS	BM
34S	169 / 172	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1336	EB	20	2019/06/03	VB+PS	BM
34T	172 / 174	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1338	EB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 72 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	815	FG	20	246	243	107	104	109	118	109	157	162	167	160	169	BM	
2	EC-EX-011	2019/05/28	820	EB	20	246	243	101	112	110	108	101	155	167	180	137	178	BM	
3	EC-EX-011	2019/05/28	1300	FG	20	246	243	124	130	109	136	135	159	171	154	179	166	BM	
4	EC-EX-011	2019/05/28	1300	EB	20	246	243	128	119	122	121	116	173	172	170	175	176	BM	
5	EC-EX-035	2019/05/28	1315	LC	20	246	243	118	124	123	130	114	167	164	162	164	163	BM	
6	EC-EX-035	2019/05/28	1315	MK	20	246	243	151	151	143	151	145	166	167	172	168	163	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 73 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	1730	EB	20	246	243	124	128	129	133	129	177	166	164	175	169	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 74 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/05/27	815	RR	20	254	254	128	147	132	144	148	164	169	167	170	166	BM	
2	EC-EX-008	2019/05/27	1225	RR	20	254	254	161	158	159	140	156	176	176	163	172	176	BM	
3	EC-EX-035	2019/05/27	1356	LC	20	246	243	123	125	142	135	132	162	169	165	170	173	BM	
4	EC-EX-011	2019/05/27	1515	FG	20	246	243	148	150	132	150	151	171	177	176	165	168	BM	
5	EC-EX-008	2019/05/27	1600	RR	20	254	254	148	112	130	121	128	165	163	164	170	174	BM	
6	EC-EX-035	2019/05/28	800	LC	20	246	243	125	121	103	110	100	162	163	146	166	152	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
35A	174 / 177	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1340	EB	20	2019/06/03	VB+PS	BM
35B	177 / 179	Connected to 291	T	G&W	EC-EX-011	2019/05/28	1344	EB	20	2019/06/03	VB+PS	BM
35C	289 / 290	Connected to 288	T	G&W	EC-EX-008	2019/05/27	1801	RR	20	2019/06/03	VB+PS	BM
35D	288 / 290	Connected to 292	T	G&W	EC-EX-011	2019/05/28	1826	FG	20	2019/06/03	VB+PS	BM
35E	291 / 292	Connected to 290	T	G&W	EC-EX-011	2019/05/28	1827	FG	20	2019/06/03	VB+PS	BM
35F	292 / 293	Connected to 288	T	G&W	EC-EX-011	2019/05/28	1820	FG	20	2019/06/03	VB+PS	BM
35G	292 / 293	2m East of WEOS, 1m South	D	G&W	EC-EX-011	2019/05/28	1821	FG	20	2019/06/03	VB+PS	BM
35H	292 / 293	3m East of WEOS, 1m South	D	G&W	EC-EX-011	2019/05/28	1822	FG	20	2019/06/03	VB+PS	BM
35I	293 / 294	Connected to 292	T	P	EC-EX-011	2019/05/28	1220	EB	20	2019/06/03	VB+PS	BM
35J	Existing /	Connected to 288, 293, 294	T	G&W	EC-EX-035	2019/05/28	1330	LC	20	2019/06/03	VB+PS	BM
35K	Existing /	Connected to 295, 297, 301	T	G&W	EC-EX-035	2019/05/29	1540	GB	20	2019/06/03	VB+PS	BM
35L	292 / 294	Connected to 295	T	G&W	EC-EX-011	2019/05/28	1645	EB	20	2019/06/03	VB+PS	BM
35M	291 / 292	Connected to 295	T	G&W	EC-EX-011	2019/05/28	1650	EB	20	2019/06/03	VB+PS	BM
35N	179 / 291	Connected to 295	T	G&W	EC-EX-011	2019/05/28	1647	EB	20	2019/06/03	VB+PS	BM
35O	295 / 297	1m East of WEOS, 5m North	D	P	EC-EX-035	2019/05/29	1229	RW	20	2019/06/03	VB+PS	BM
35P	295 / 297	1m East of WEOS, 3m North	D	P	EC-EX-035	2019/05/29	1225	RW	20	2019/06/03	VB+PS	BM
35Q	295 / 296	Connected to 179	T	G&W	EC-EX-011	2019/05/28	1703	EB	20	2019/06/03	VB+PS	BM
35R	179 / 180	Connected to 296	T	G&W	EC-EX-035	2019/05/29	1614	GB	20	2019/06/03	VB+PS	BM
35S	180 / 296	Crest	DS	P	EC-EX-035	2019/05/29	1648	GB	20	2019/06/03	VB+PS	BM
35T	295 / 296	1m South of NEOS, 1m East	D	P	EC-EX-035	2019/05/29	1558	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 75 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	815	FG	20	246	243	107	104	109	118	109	157	162	167	160	169	BM	
2	EC-EX-011	2019/05/28	820	EB	20	246	243	101	112	110	108	101	155	167	180	137	178	BM	
3	EC-EX-011	2019/05/28	1300	FG	20	246	243	124	130	109	136	135	159	171	154	179	166	BM	
4	EC-EX-011	2019/05/28	1300	EB	20	246	243	128	119	122	121	116	173	172	170	175	176	BM	
5	EC-EX-035	2019/05/28	1315	LC	20	246	243	118	124	123	130	114	167	164	162	164	163	BM	
6	EC-EX-035	2019/05/28	1315	MK	20	246	243	151	151	143	151	145	166	167	172	168	163	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 76 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/05/28	1730	EB	20	246	243	124	128	129	133	129	177	166	164	175	169	BM	
2	EC-EX-035	2019/05/29	830	RW	20	246	243	103	134	131	114	153	155	169	176	178	167	BM	
3	EC-EX-035	2019/05/29	830	GB	20	246	243	111	121	107	123	130	177	178	170	172	171	BM	
4	EC-EX-035	2019/05/29	1314	GB	20	243	246	150	145	155	155	144	168	171	154	172	165	BM	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 77 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/28	800	LC	20	246	243	125	121	103	110	100	162	163	146	166	152	BM	
2	EC-EX-011	2019/05/28	815	FG	20	246	243	107	104	109	118	109	157	162	167	160	169	BM	
3	EC-EX-011	2019/05/28	820	EB	20	246	243	101	112	110	108	101	155	167	180	137	178	BM	
4	EC-EX-011	2019/05/28	1300	FG	20	246	243	124	130	109	136	135	159	171	154	179	166	BM	
5	EC-EX-011	2019/05/28	1300	EB	20	246	243	128	119	122	121	116	173	172	170	175	176	BM	
6	EC-EX-035	2019/05/28	1315	LC	20	246	243	118	124	123	130	114	167	164	162	164	163	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
36A	295 / 296	1.5m South of NEOS, 3.5m East	D	P	EC-EX-035	2019/05/29	1559	GB	20	2019/06/03	VB+PS	BM
36B	297 / 298	Connected to 295	T	P	EC-EX-035	2019/05/29	1348	GB	20	2019/06/03	VB+PS	BM
36C	298 / 299	Connected to 295	T	G&W	EC-EX-011	2019/05/28	1825	EB	20	2019/06/03	VB+PS	BM
36D	298 / 299	3m South of NEOS, 1m East	D	P	EC-EX-035	2019/05/29	1508	GB	20	2019/06/03	VB+PS	BM
36E	298 / 299	3.4m South of NEOS, 1m East	D	G&W	EC-EX-035	2019/05/29	1510	GB	20	2019/06/03	VB+PS	BM
36F	298 / 299	3.4m South of NEOS, 1.5m East	D	G&W	EC-EX-035	2019/05/29	1511	GB	20	2019/06/03	VB+PS	BM
36G	298 / 299	4m South of NEOS, 1m East	D	G&W	EC-EX-035	2019/05/29	1512	GB	20	2019/06/03	VB+PS	BM
36H	298 / 299	4m South of NEOS, 1.5m East	D	G&W	EC-EX-035	2019/05/29	1513	GB	20	2019/06/03	VB+PS	BM
36I	298 / 299	3.6m South of NEOS, 0.5m East	D	G&W	EC-EX-035	2019/05/29	1509	GB	20	2019/06/03	VB+PS	BM
36J	295 / 296	Connected to 299	T	P	EC-EX-011	2019/05/28	1705	EB	20	2019/06/03	VB+PS	BM
36K	299 / 300	Connected to 296	T	G&W	EC-EX-011	2019/05/28	1750	EB	20	2019/06/03	VB+PS	BM
36L	297 / 298	Connected to 301	T	P	EC-EX-035	2019/05/29	1357	GB	20	2019/06/03	VB+PS	BM
36M	298 / 299	Connected to 301	T	G&W	EC-EX-011	2019/05/28	1820	EB	20	2019/06/03	VB+PS	BM
36N	301 / 302	Connected to 299	T	G&W	EC-EX-011	2019/05/28	1815	EB	20	2019/06/03	VB+PS	BM
36O	301 / 302	1m South of NEOS to 36N	DS	P	EC-EX-035	2019/05/29	1530	GB	20	2019/06/03	VB+PS	BM
36P	299 / 302	40m East of WEOS	FS	G&W	EC-EX-011	2019/05/28	1800	EB	20	2019/06/03	VB+PS	BM
36Q	299 / 300	3.4m South of NEOS, 0.5m East	D	G&W	EC-EX-035	2019/05/29	1657	GB	20	2019/06/03	VB+PS	BM
36R	299 / 300	Connected to 302	T	G&W	EC-EX-011	2019/05/28	1748	EB	20	2019/06/03	VB+PS	BM
36S	300 / 302	Trench	BO	P	EC-EX-035	2019/05/29	1700	GB	20	2019/06/03	VB+PS	BM
36T	279 / 281	1m North of SEOS, 3.4m West	D	P	EC-EX-035	2019/05/30	1200	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 78 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/28	1315	MK	20	246	243	151	151	143	151	145	166	167	172	168	163	BM	
2	EC-EX-011	2019/05/28	1730	EB	20	246	243	124	128	129	133	129	177	166	164	175	169	BM	
3	EC-EX-035	2019/05/29	830	RW	20	246	243	103	134	131	114	153	155	169	176	178	167	BM	
4	EC-EX-035	2019/05/29	830	GB	20	246	243	111	121	107	123	130	177	178	170	172	171	BM	
5	EC-EX-035	2019/05/29	1314	GB	20	243	246	150	145	155	155	144	168	171	154	172	165	BM	
6	EC-EX-035	2019/05/30	1032	GB	20	246	243	140	130	144	141	134	167	168	170	158	169	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 79 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/30	1425	GB	20	246	243	146	140	130	110	127	167	157	170	168	170	BM	
2	EC-EX-011	2019/05/30	1732	EB	20	246	243	139	144	138	148	146	152	148	163	167	164	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 80 of 112

GEOMEMBRANE DETAIL & TEST LOG

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PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/30	1032	GB	20	246	243	140	130	144	141	134	167	168	170	158	169	BM	
2	EC-EX-035	2019/05/30	1425	GB	20	246	243	146	140	130	110	127	167	157	170	168	170	BM	
3	EC-EX-011	2019/05/30	1732	EB	20	246	243	139	144	138	148	146	152	148	163	167	164	BM	
4	EC-EX-035	2019/06/02	830	GB	20	246	243	116	128	110	138	138	155	172	164	180	175	BM	
5	EC-EX-035	2019/06/02	1300	GB	20	246	243	123	156	106	147	118	171	175	179	179	183	BM	
6	EC-EX-011	2019/06/02	1700	LC	20	246	243	142	136	131	138	145	161	161	165	164	167	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
37A	279 / 281	3m North of SEOS, 3.4m West	D	P	EC-EX-035	2019/05/30	1158	GB	20	2019/06/03	VB+PS	BM
37B	Existing /	Connected to 303, 306, 308, 310, 313	T	G&W	EC-EX-011	2019/05/30	1745	EB	20	2019/06/03	VB+PS	BM
37C	304 / 305	Connected to 282	T	G&W	EC-EX-035	2019/06/02	1136	GB	20	2019/06/03	VB+PS	BM
37D	281 / 282	Connected to 304	T	G&W	EC-EX-035	2019/06/02	1140	GB	20	2019/06/03	VB+PS	BM
37E	303 / 304	Connected to 281	T	G&W	EC-EX-035	2019/05/30	1055	GB	20	2019/06/03	VB+PS	BM
37F	304 / 305	2.5m East of WEOS, 0.5m North	D	P	EC-EX-035	2019/06/02	1129	GB	20	2019/06/03	VB+PS	BM
37G	304 / 305	3.4m East of WEOS, 0.5m North	D	G&W	EC-EX-035	2019/06/02	1128	GB	20	2019/06/03	VB+PS	BM
37H	304 / 305	3.4m East of WEOS, 3m North	D	G&W	EC-EX-035	2019/06/02	1130	GB	20	2019/06/03	VB+PS	BM
37I	303 / 304	3.4m East of WEOS, 1m North	D	G&W	EC-EX-035	2019/05/30	1056	GB	20	2019/06/03	VB+PS	BM
37J	304 / 305	Connected to 307	T	G&W	EC-EX-035	2019/06/02	1152	GB	20	2019/06/03	VB+PS	BM
37K	306 / 307	Connected to 304	T	G&W	EC-EX-035	2019/06/02	1143	GB	20	2019/06/03	VB+PS	BM
37L	303 / 304	Connected to 306	T	G&W	EC-EX-035	2019/05/30	1053	GB	20	2019/06/03	VB+PS	BM
37M	303 / 306	3m North of SEOS	BO	P	EC-EX-035	2019/05/30	1208	GB	20	2019/06/03	VB+PS	BM
37N	306 / 307	3m East of WEOS	BO	P	EC-EX-035	2019/06/02	1150	GB	20	2019/06/03	VB+PS	BM
37O	306 / 307	Connected to 309	T	G&W	EC-EX-035	2019/06/02	1155	GB	20	2019/06/03	VB+PS	BM
37P	308 / 309	Connected to 306	T	G&W	EC-EX-035	2019/05/30	1645	GB	20	2019/06/03	VB+PS	BM
37Q	308 / 309	4m West of EEOS, 0.5m North	D	G&W	EC-EX-035	2019/05/30	1703	GB	20	2019/06/03	VB+PS	BM
37R	308 / 309	4m West of EEOS, 1.5m North	D	G&W	EC-EX-035	2019/05/30	1708	GB	20	2019/06/03	VB+PS	BM
37S	308 / 309	4m West of EEOS, 6m North	D	G&W	EC-EX-035	2019/05/30	1709	GB	20	2019/06/03	VB+PS	BM
37T	308 / 309	5m West of EEOS, 2m North	D	P	EC-EX-035	2019/05/30	1651	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS 37G is four beads 37H is two beads 37Q is 5 Beads

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 81 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/02	1700	GB	20	246	243	107	125	120	127	131	169	164	156	169	171	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
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REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 82 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/30	1032	GB	20	246	243	140	130	144	141	134	167	168	170	158	169	BM	
2	EC-EX-035	2019/05/30	1425	GB	20	246	243	146	140	130	110	127	167	157	170	168	170	BM	
3	EC-EX-011	2019/05/30	1732	EB	20	246	243	139	144	138	148	146	152	148	163	167	164	BM	
4	EC-EX-035	2019/06/02	830	GB	20	246	243	116	128	110	138	138	155	172	164	180	175	BM	
5	EC-EX-035	2019/06/02	1300	GB	20	246	243	123	156	106	147	118	171	175	179	179	183	BM	
6	EC-EX-011	2019/06/02	1700	LC	20	246	243	142	136	131	138	145	161	161	165	164	167	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
38A	308 / 309	5m West of EEOS, 5m North	D	P	EC-EX-035	2019/05/30	1637	GB	20	2019/06/03	VB+PS	BM
38B	308 / 309	5m West of EEOS, 8m North	D	P	EC-EX-035	2019/05/30	1702	GB	20	2019/06/03	VB+PS	BM
38C	306 / 308	1m West of EEOS, 4m North	D	P	EC-EX-035	2019/05/30	1355	GB	20	2019/06/03	VB+PS	BM
38D	308 / 309	Connected to 312	T	G&W	EC-EX-035	2019/05/30	1634	GB	20	2019/06/03	VB+PS	BM
38E	311 / 312	Connected to 308	T	G&W	EC-EX-035	2019/05/30	1620	GB	20	2019/06/03	VB+PS	BM
38F	310 / 311	Connected to 308	T	G&W	EC-EX-035	2019/05/30	1616	GB	20	2019/06/03	VB+PS	BM
38G	311 / 312	3m West of EEOS, 1m North	D	P	EC-EX-035	2019/05/30	1624	GB	20	2019/06/03	VB+PS	BM
38H	311 / 312	Connected to 314	T	G&W	EC-EX-035	2019/05/30	1627	GB	20	2019/06/03	VB+PS	BM
38I	310 / 311	Connected to 314	T	P	EC-EX-035	2019/05/30	1611	GB	20	2019/06/03	VB+PS	BM
38J	313 / 314	Connected to 310	T	G&W	EC-EX-035	2019/05/30	1602	GB	20	2019/06/03	VB+PS	BM
38K	313 / 310	7m North of SEOS	DS	P	EC-EX-035	2019/05/30	1349	GB	20	2019/06/03	VB+PS	BM
38L	313 / 314	3.4m West of EEOS, 0.5m North	D	G&W	EC-EX-035	2019/05/30	1515	GB	20	2019/06/03	VB+PS	BM
38M	315 / 316	Connected to 314	T	G&W	EC-EX-035	2019/06/02	1233	GB	20	2019/06/03	VB+PS	BM
38N	313 / 314	Connected to 315	T	P	EC-EX-035	2019/05/30	1514	GB	20	2019/06/03	VB+PS	BM
38O	313 / 315	7m North of SEOS	DS	P	EC-EX-035	2019/06/02	917	GB	20	2019/06/03	VB+PS	BM
38P	315 / 316	4m West of EEOS, 0.5m North	D	P	EC-EX-035	2019/06/02	1238	GB	20	2019/06/03	VB+PS	BM
38Q	315 / 317	26m North of SEOS, 1.5m East	D	G&W	EC-EX-035	2019/05/30	1429	GB	20	2019/06/03	VB+PS	BM
38R	315 / 317	23m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1428	GB	20	2019/06/03	VB+PS	BM
38S	315 / 317	20m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1425	GB	20	2019/06/03	VB+PS	BM
38T	315 / 317	17m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1421	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS 38L is 5 beads

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 83 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/02	1700	GB	20	246	243	107	125	120	127	131	169	164	156	169	171	BM	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
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REMARKS

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GEOMEMBRANE DETAIL & TEST LOG

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PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/05/30	1032	GB	20	246	243	140	130	144	141	134	167	168	170	158	169	BM	
2	EC-EX-035	2019/05/30	1425	GB	20	246	243	146	140	130	110	127	167	157	170	168	170	BM	
3	EC-EX-011	2019/05/30	1732	EB	20	246	243	139	144	138	148	146	152	148	163	167	164	BM	
4	EC-EC-035	2019/05/31	900	FG	20	246	243	147	144	146	141	144	174	168	176	177	176	BM	
5	EC-EX-035	2019/05/31	1230	EB	20	246	243	147	160	160	155	146	177	171	179	180	177	BM	
6	EC-EX-035	2019/06/02	830	GB	20	246	243	116	128	110	138	138	155	172	164	180	175	BM	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
39A	315 / 317	14m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1413	GB	20	2019/06/03	VB+PS	BM
39B	315 / 317	11m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1410	GB	20	2019/06/03	VB+PS	BM
39C	315 / 317	8m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1406	GB	20	2019/06/03	VB+PS	BM
39D	315 / 317	5m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1402	GB	20	2019/06/03	VB+PS	BM
39E	315 / 317	2m North of SEOS, 1.5m East	D	P	EC-EX-035	2019/05/30	1358	GB	20	2019/06/03	VB+PS	BM
39F	315 / 316	Connected to 318	T	P	EC-EX-035	2019/06/02	1246	GB	20	2019/06/03	VB+PS	BM
39G	317 / 318	Connected to 315	T	G&W	EC-EX-035	2019/06/02	1755	GB	20	2019/06/03	VB+PS	BM
39H	315 / 317	7m North of SEOS	DS	P	EC-EX-035	2019/06/02	925	GB	20	2019/06/03	VB+PS	BM
39I	317 / 318	Connected to 320	T	G&W	EC-EX-035	2019/06/02	1800	GB	20	2019/06/03	VB+PS	BM
39J	319 / 320	Connected to 317	T	P	EC-EX-035	2019/06/02	1750	GB	20	2019/06/03	VB+PS	BM
39K	317 / 319	6m North of SEOS	DS	P	EC-EX-035	2019/06/02	932	GB	20	2019/06/03	VB+PS	BM
39L	319 / 320	Connected to 322	T	G&W	EC-EX-035	2019/06/02	950	GB	20	2019/06/03	VB+PS	BM
39M	321 / 322	Connected to 319	T	G&W	EC-EX-035	2019/06/02	948	GB	20	2019/06/03	VB+PS	BM
39N	319 / 321	7m North of SEOS	DS	P	EC-EX-035	2019/06/02	943	GB	20	2019/06/03	VB+PS	BM
39O	Existing /	Connected to 315, 317, 319, 321	T	G&W	EC-EX-035	2019/05/31	1230	EB	20	2019/06/03	VB+PS	BM
39P	323 / 324	Connected to 322	T	G&W	EC-EX-035	2019/06/02	1253	GB	20	2019/06/03	VB+PS	BM
39Q	323 / 322	10m South of NEOS	BO	P	EC-EX-035	2019/06/02	1400	GB	20	2019/06/03	VB+PS	BM
39R	323 / 322	43m South of NEOS	WS	P	EC-EX-035	2019/06/02	1807	GB	20	2019/06/03	VB+PS	BM
39S	321 / 322	Connected to 323	T	G&W	EC-EX-035	2019/06/02	947	GB	20	2019/06/03	VB+PS	BM
39T	322 / 324	Crest	FS	P	EC-EX-035	2019/06/02	1300	GB	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 85 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/02	1300	GB	20	246	243	123	156	106	147	118	171	175	179	179	183	BM	
2	EC-EX-011	2019/06/02	1700	LC	20	246	243	142	136	131	138	145	161	161	165	164	167	BM	
3	EC-EX-035	2019/06/02	1700	GB	20	246	243	107	125	120	127	131	169	164	156	169	171	BM	
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 86 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/02	830	GB	20	246	243	116	128	110	138	138	155	172	164	180	175	BM	
2	EC-EX-035	2019/06/02	1300	GB	20	246	243	123	156	106	147	118	171	175	179	179	183	BM	
3	EC-EX-011	2019/06/02	1700	LC	20	246	243	142	136	131	138	145	161	161	165	164	167	BM	
4	EC-EX-035	2019/06/02	1700	GB	20	246	243	107	125	120	127	131	169	164	156	169	171	BM	
5	EC-EX-035	2019/06/03	841	LC	20	246	243	111	113	120	112	124	175	163	177	172	171	BM	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
40A	323 / 324	Connected to 326	T	G&W	EC-EX-035	2019/06/02	1257	GB	20	2019/06/03	VB+PS	BM
40B	325 / 326	Connected to 323	T	G&W	EC-EX-035	2019/06/02	1809	GB	20	2019/06/03	VB+PS	BM
40C	323 / 325	8m North of SEOS	DS	P	EC-EX-035	2019/06/03	1110	LC	20	2019/06/03	VB+PS	BM
40D	325 / 326	2.5m West of EEOS, 2m North	D	P	EC-EX-035	2019/06/02	1823	GB	20	2019/06/03	VB+PS	BM
40E	325 / 326	Connected to 328	T	G&W	EC-EX-035	2019/06/02	1812	GB	20	2019/06/03	VB+PS	BM
40F	327 / 328	Connected to 325	T	G&W	EC-EX-035	2019/06/03	1203	LC	20	2019/06/03	VB+PS	BM
40G	328 / 331	3m North of SEOS, 2m East	D	P	EC-EX-035	2019/06/02	1609	GB	20	2019/06/03	VB+PS	BM
40H	328 / 330	7m South of NEOS, 2m East	D	P	EC-EX-035	2019/06/02	1350	GB	20	2019/06/03	VB+PS	BM
40I	328 / 331	Crest	DS	P	EC-EX-035	2019/06/03	1240	LC	20	2019/06/03	VB+PS	BM
40J	330 / 331	Connected to 328	T	P	EC-EX-035	2019/06/02	1552	GB	20	2019/06/03	VB+PS	BM
40K	327 / 328	Connected to 330	T	G&W	EC-EX-035	2019/06/03	1204	LC	20	2019/06/03	VB+PS	BM
40L	329 / 330	Connected to 327	T	G&W	EC-EX-035	2019/06/03	1119	LC	20	2019/06/03	VB+PS	BM
40M	331 / 333	Crest	DS	P	EC-EX-035	2019/06/03	1238	LC	20	2019/06/03	VB+PS	BM
40N	330 / 331	Connected to 333	T	G&W	EC-EX-035	2019/06/03	1236	LC	20	2019/06/03	VB+PS	BM
40O	332 / 333	Connected to 330	T	G&W	EC-EX-035	2019/06/03	1235	LC	20	2019/06/03	VB+PS	BM
40P	330 / 332	31m South of NEOS	BO	P	EC-EX-035	2019/06/03	1230	LC	20	2019/06/03	VB+PS	BM
40Q	330 / 332	16m North of SEOS	FS	G&W	EC-EX-035	2019/06/03	1153	LC	20	2019/06/03	VB+PS	BM
40R	330 / 332	13m North of SEOS	FS	G&W	EC-EX-035	2019/06/03	1151	LC	20	2019/06/03	VB+PS	BM
40S	330 / 332	9m North of SEOS	FS	G&W	EC-EX-035	2019/06/03	1150	LC	20	2019/06/03	VB+PS	BM
40T	329 / 330	Connected to 332	T	P	EC-EX-035	2019/06/03	1120	LC	20	2019/06/03	VB+PS	BM

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 87 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/03	841	LC	20	246	243	111	113	120	112	124	175	163	177	172	171	BM	
2	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
4	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
5	EC-EX-011	2019/06/12	830	FG	20	246	243	118	125	131	122	144	170	168	170	168	178	TH	Textured/Textured
6	EC-EX-011	2019/06/12	1230	EA	20	246	243	147	142	145	142	146	172	158	170	168	173	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
41A	333 / 335	Crest	DS	P	EC-EX-035	2019/06/03	1231	LC	20	2019/06/03	VB+PS	BM
41B	332 / 333	Connected to 335	T	G&W	EC-EX-035	2019/06/03	1232	LC	20	2019/06/03	VB+PS	BM
41C	334 / 335	Connected to 332	T	G&W	EC-EX-035	2019/06/03	1229	LC	20	2019/06/03	VB+PS	BM
41D	Existing /	Connected to 323 to 334	T	G&W	EC-EX-035	2019/06/03	900	LC	20	2019/06/03	VB+PS	BM
41E	334 / 336	3m North of SEOS	DS	P	EC-EX-011	2019/06/12	1120	FG	20	2019/06/15	VB+PS	TH
41F	Existing / 334	1m From seam 334,336	D	P	EC-EX-011	2019/06/12	1127	FG	20	2019/06/16	VB+PS	TH
41G	334 / 335	Connected to 336	T	G&W	EC-EX-011	2019/06/12	1127	EA	20	2019/06/16	VB+PS	TH
41H	336 / 337	Connected to 335	T	G&W	EC-EX-011	2019/06/10	948	EA	20	2019/06/16	VB+PS	TH
41I	337 /	32.8m From SEOS	D	G&W	EC-EX-011	2019/06/10	930	EA	20	2019/06/16	VB+PS	TH
41J	337 / 336	Connected to 339	T	G&W	EC-EX-011	2019/06/10	945	EA	20	2019/06/16	VB+PS	TH
41K	338 / 339	Connected to 336	T	G&W	EC-EX-011	2019/06/10	1105	EA	20	2019/06/16	VB+PS	TH
41L	340 / 338	Connected to Existing	T	P	EC-EX-011	2019/06/12	1222	EA	20	2019/06/16	VB+PS	TH
41M	338 / 340	4.4m From SEOS	DS	P	EC-EX-011	2019/06/12	1219	EA	20	2019/06/16	VB+PS	TH
41N	340 / 341	Connected to 338	T	G&W	EC-EX-011	2019/06/10	1453	EA	20	2019/06/16	VB+PS	TH
41O	338 / 339	Connected to 341	T	G&W	EC-EX-011	2019/06/10	1100	EA	20	2019/06/16	VB+PS	TH
41P	339 /	2.3m From SEOS	D	P	EC-EX-011	2019/06/10	1113	EA	20	2019/06/16	VB+PS	TH
41Q	341 / 342	Connected to 339	T	G&W	EC-EX-011	2019/06/10	1155	EA	20	2019/06/16	VB+PS	TH
41R	339 / 342	2m From SEOS	D	G&W	EC-EX-011	2019/06/10	1157	EA	20	2019/06/16	VB+PS	TH
41S	339 / 342	4m From SEOS	D	G&W	EC-EX-011	2019/06/10	1158	EA	20	2019/06/16	VB+PS	TH
41T	339 / 342	6m From SEOS	D	G&W	EC-EX-011	2019/06/10	1159	EA	20	2019/06/16	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 88 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/12	1230	FG	20	246	243	147	127	138	153	151	170	168	173	170	170	TH	Textured/Textured
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 89 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-011	2019/06/12	830	FG	20	246	243	118	125	131	122	144	170	168	170	168	178	TH	Textured/Textured
5	EC-EX-011	2019/06/12	1230	EA	20	246	243	147	142	145	142	146	172	158	170	168	173	TH	Textured/Textured
6	EC-EX-011	2019/06/12	1230	FG	20	246	243	147	127	138	153	151	170	168	173	170	170	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
42A	339 / 342	8m From SEOS	D	G&W	EC-EX-011	2019/06/10	1200	EA	20	2019/06/16	VB+PS	TH
42B	339 / 342	10m From SEOS	D	G&W	EC-EX-011	2019/06/10	1201	EA	20	2019/06/16	VB+PS	TH
42C	339 / 342	12m From SEOS	D	G&W	EC-EX-011	2019/06/10	1202	EA	20	2019/06/16	VB+PS	TH
42D	340 / 343	Connected to Existing	T	G&W	EC-EX-011	2019/06/12	1225	EA	20	2019/06/16	VB+PS	TH
42E	340 / 341	Connected to 343	T	G&W	EC-EX-011	2019/06/10	1452	EA	20	2019/06/16	VB+PS	TH
42F	341 / 342	Connected to 344	T	G&W	EC-EX-011	2019/06/10	1148	EA	20	2019/06/16	VB+PS	TH
42G	343 / 344	Connected to 346	T	G&W	EC-EX-011	2019/06/10	1538	EA	20	2019/06/16	VB+PS	TH
42H	345 / 346	Connected to 343	T	G&W	EC-EX-011	2019/06/10	1518	EA	20	2019/06/16	VB+PS	TH
42I	343 / 345	4.6m From SEOS	DS	P	EC-EX-011	2019/06/10	1248	EA	20	2019/06/16	VB+PS	TH
42J	343 / 345	Connected to Existing	T	P	EC-EX-011	2019/06/10	1250	EA	20	2019/06/16	VB+PS	TH
42K	345 / 346	Connected to 347	T	G&W	EC-EX-011	2019/06/10	1531	EA	20	2019/06/16	VB+PS	TH
42L	348 / 347	Connected to 346	T	G&W	EC-EX-011	2019/06/10	1556	EA	20	2019/06/16	VB+PS	TH
42M	348 / 347	Connected to 350	T	G&W	EC-EX-011	2019/06/10	1559	EA	20	2019/06/16	VB+PS	TH
42N	350 / 349	Connected to 347	T	G&W	EC-EX-011	2019/06/10	1736	EA	20	2019/06/16	VB+PS	TH
42O	350 /	On Seam 349, 350	D	P	EC-EX-011	2019/06/10	1748	EA	20	2019/06/16	VB+PS	TH
42P	350 /	2.2m From SEOS	D	G&W	EC-EX-011	2019/06/10	1750	EA	20	2019/06/16	VB+PS	TH
42Q	349 / 351	Connected to Existing	T	P	EC-EX-035	2019/06/15	1530	EB	20	2019/06/16	VB+PS	TH
42R	351 / 352	Connected to 349	T	G&W	EC-EX-011	2019/06/12	952	FG	20	2019/06/16	VB+PS	TH
42S	349 / 350	Connected to 352	T	G&W	EC-EX-011	2019/06/10	1732	EA	20	2019/06/16	VB+PS	TH
42T	353 / 352	Connected to 350	T	G&W	EC-EX-011	2019/06/10	1610	EA	20	2019/06/16	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 90 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/15	1130	TH	20	246	243	125	123	115	117	116	162	161	167	165	162	TH	Textured/Textured
2	EC-EX-008	2019/06/15	1500	EA	20	246	243	130	124	137	139	141	147	150	157	156	162	TH	Textured/Textured
3	EC-EX-035	2019/06/15	1510	EB	20	246	243	128	132	119	132	128	167	160	167	154	163	TH	Textured/Textured
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 91 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-011	2019/06/11	830	EA	20	246	243	111	113	124	92	112	159	157	164	155	158	TH	Textured/Textured
5	EC-EX-011	2019/06/11	1230	EA	20	246	243	141	124	140	124	130	152	156	156	155	164	TH	Textured/Textured
6	EC-EX-011	2019/06/12	830	FG	20	246	243	118	125	131	122	144	170	168	170	168	178	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
43A	353 /	1m From SEOS	D	G&W	EC-EX-011	2019/06/10	1613	EA	20	2019/06/16	VB+PS	TH
43B	353 / 352	Connected to 355	T	G&W	EC-EX-011	2019/06/10	1621	EA	20	2019/06/16	VB+PS	TH
43C	355 / 354	Connected to 352	T	G&W	EC-EX-011	2019/06/11	1117	EA	20	2019/06/16	VB+PS	TH
43D	352 / 351	Connected to 354	T	G&W	EC-EX-011	2019/06/12	956	FG	20	2019/06/16	VB+PS	TH
43E	351 / 354	3.1m From SEOS	DS	P	EC-EX-035	2019/06/15	1230	TH	20	2019/06/16	VB+PS	TH
43F	354 / Existing	2.1m From Seam 356,354	FM	P	EC-EX-035	2019/06/15	1535	EB	20	2019/06/16	VB+PS	TH
43G	356 / 354	Connected to Existing	T	P	EC-EX-035	2019/06/15	1540	EB	20	2019/06/16	VB+PS	TH
43H	356 / 357	Connected to 354	T	G&W	EC-EX-011	2019/06/11	940	EA	20	2019/06/16	VB+PS	TH
43I	354 / 355	Connected to 357	T	G&W	EC-EX-011	2019/06/11	1002	EA	20	2019/06/16	VB+PS	TH
43J	357 / 358	Connected to 355	T	G&W	EC-EX-011	2019/06/10	1622	EA	20	2019/06/16	VB+PS	TH
43K	355 / 358	In North Trench	IO	P	EC-EX-011	2019/06/11	1327	EA	20	2019/06/16	VB+PS	TH
43L	358 /	0.7m From SEOS	D	G&W	EC-EX-011	2019/06/10	1226	EA	20	2019/06/16	VB+PS	TH
43M	358 /	0.8m From SEOS	D	G&W	EC-EX-011	2019/06/10	1224	EA	20	2019/06/16	VB+PS	TH
43N	358 /	1.1m From SEOS	D	G&W	EC-EX-011	2019/06/10	1223	EA	20	2019/06/16	VB+PS	TH
43O	358 / 357	Connected to 360	T	G&W	EC-EX-011	2019/06/10	1625	EA	20	2019/06/16	VB+PS	TH
43P	356 / 357	Connected to 359	T	G&W	EC-EX-011	2019/06/11	931	EA	20	2019/06/16	VB+PS	TH
43Q	356 /	5.8m From SEOP	D	P	EC-EX-035	2019/06/15	1637	EB	20	2019/06/16	VB+PS	TH
43R	359 / 360	Connected to 357	T	G&W	EC-EX-011	2019/06/11	1115	EA	20	2019/06/16	VB+PS	TH
43S	360 /	1.2m From SEOP	D	P	EC-EX-011	2019/06/11	1118	EA	20	2019/06/16	VB+PS	TH
43T	363 / 362	Connected to 360	T	G&W	EC-EX-011	2019/06/10	1628	EA	20	2019/06/16	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 92 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/12	1230	EA	20	246	243	147	142	145	142	146	172	158	170	168	173	TH	Textured/Textured
2	EC-EX-011	2019/06/12	1230	FG	20	246	243	147	127	138	153	151	170	168	173	170	170	TH	Textured/Textured
3	EC-EX-035	2019/06/15	1130	TH	20	246	243	125	123	115	117	116	162	161	167	165	162	TH	Textured/Textured
4	EC-EX-008	2019/06/15	1500	EA	20	246	243	130	124	137	139	141	147	150	157	156	162	TH	Textured/Textured
5	EC-EX-035	2019/06/15	1510	EB	20	246	243	128	132	119	132	128	167	160	167	154	163	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 93 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-011	2019/06/11	830	EA	20	246	243	111	113	124	92	112	159	157	164	155	158	TH	Textured/Textured
5	EC-EX-011	2019/06/11	1230	EA	20	246	243	141	124	140	124	130	152	156	156	155	164	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
44A	360 / 359	Connected to 362	T	G&W	EC-EX-011	2019/06/11	1121	EA	20	2019/06/16	VB+PS	TH
44B	362 / 361	Connected to 359	T	G&W	EC-EX-011	2019/06/11	913	EA	20	2019/06/16	VB+PS	TH
44C	359 / 361	Connected to Existing	T	P	EC-EX-035	2019/06/16	1630	EB	20	2019/06/16	VB+PS	TH
44D	362 /	1.1m From SEOS	D	P	EC-EX-011	2019/06/11	916	EA	20	2019/06/16	VB+PS	TH
44E	362 /	2.3m From SEOS	D	P	EC-EX-011	2019/06/11	918	EA	20	2019/06/16	VB+PS	TH
44F	362 /	3.4m From SEOS	D	P	EC-EX-011	2019/06/11	921	EA	20	2019/06/16	VB+PS	TH
44G	362 /	4.1m From SEOS	D	G&W	EC-EX-011	2019/06/11	922	EA	20	2019/06/16	VB+PS	TH
44H	362 /	5.6m From SEOS	D	P	EC-EX-011	2019/06/11	924	EA	20	2019/06/16	VB+PS	TH
44I	362 /	7.2m From SEOS	D	P	EC-EX-011	2019/06/11	927	EA	20	2019/06/16	VB+PS	TH
44J	361 / 362	Connected to 364	T	P	EC-EX-011	2019/06/11	900	EA	20	2019/06/16	VB+PS	TH
44K	364 / 365	Connected to 362	T	G&W	EC-EX-011	2019/06/10	1124	EA	20	2019/06/16	VB+PS	TH
44L	363 / 362	Connected to 365	T	G&W	EC-EX-011	2019/06/10	1630	EA	20	2019/06/16	VB+PS	TH
44M	367 / 368	Connected to 365	T	G&W	EC-EX-011	2019/06/10	1635	EA	20	2019/06/16	VB+PS	TH
44N	365 / 364	Connected to 367	T	G&W	EC-EX-011	2019/06/11	1127	EA	20	2019/06/16	VB+PS	TH
44O	367 / 366	Connected to 364	T	G&W	EC-EX-011	2019/06/11	930	EA	20	2019/06/16	VB+PS	TH
44P	364 / 366	Connected to Existing	T	P	EC-EX-035	2019/06/16	1740	EB	20	2019/06/16	VB+PS	TH
44Q	368 /	0.7m From SEOP	D	P	EC-EX-011	2019/06/10	1250	EA	20	2019/06/16	VB+PS	TH
44R	368 /	3.5m From SEOP	D	P	EC-EX-011	2019/06/10	1255	EA	20	2019/06/16	VB+PS	TH
44S	368 / 367	Connected to 371	T	G&W	EC-EX-011	2019/06/10	1638	EA	20	2019/06/16	VB+PS	TH
44T	371 / 370	Connected to 367	T	G&W	EC-EX-011	2019/06/10	1702	EA	20	2019/06/16	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 94 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-011	2019/06/11	830	EA	20	246	243	111	113	124	92	112	159	157	164	155	158	TH	Textured/Textured
5	EC-EX-011	2019/06/11	1230	EA	20	246	243	141	124	140	124	130	152	156	156	155	164	TH	Textured/Textured
6	EC-EX-011	2019/06/12	830	FG	20	246	243	118	125	131	122	144	170	168	170	168	178	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
45A	370 / 369	Connected to 367	T	G&W	EC-EX-011	2019/06/11	1139	EA	20	2019/06/16	VB+PS	TH
45B	370 / 369	Connected to 367	T	G&W	EC-EX-011	2019/06/12	913	FG	20	2019/06/16	VB+PS	TH
45C	370 / 369	10m From NEOS	BO	P	EC-EX-011	2019/06/12	928	FG	20	2019/06/16	VB+PS	TH
45D	370 / 369	15m From NEOS	D	G&W	EC-EX-011	2019/06/12	929	FG	20	2019/06/16	VB+PS	TH
45E	372 / 375	Connected to 370	T	G&W	EC-EX-011	2019/06/12	940	FG	20	2019/06/16	VB+PS	TH
45F	372 / 375	Connected to 374	T	G&W	EC-EX-011	2019/06/12	942	FG	20	2019/06/16	VB+PS	TH
45G	371 / 370	Connected to 372	T	G&W	EC-EX-011	2019/06/10	1658	EA	20	2019/06/16	VB+PS	TH
45H	373 / 372	Connected to 371	T	G&W	EC-EX-011	2019/06/10	1655	EA	20	2019/06/16	VB+PS	TH
45I	373 / 371	64.3m From NEOS	BO	G&W	EC-EX-011	2019/06/11	1214	EA	20	2019/06/16	VB+PS	TH
45J	371 /	0.2m From SEOP	D	P	EC-EX-011	2019/06/11	1158	EA	20	2019/06/16	VB+PS	TH
45K	371 /	1.9m From SEOP	D	P	EC-EX-011	2019/06/11	1200	EA	20	2019/06/16	VB+PS	TH
45L	371 /	3.1m From SEOP	D	P	EC-EX-011	2019/06/11	1202	EA	20	2019/06/16	VB+PS	TH
45M	371 /	4.6m From SEOP	D	P	EC-EX-011	2019/06/11	1204	EA	20	2019/06/16	VB+PS	TH
45N	371 /	7.2m From SEOP	D	P	EC-EX-011	2019/06/11	1206	EA	20	2019/06/16	VB+PS	TH
45O	371 /	9.3m From SEOP	D	P	EC-EX-011	2019/06/11	1208	EA	20	2019/06/16	VB+PS	TH
45P	371 /	11.7m From SEOP	D	P	EC-EX-011	2019/06/11	1210	EA	20	2019/06/16	VB+PS	TH
45Q	346 / 347	27.3m From SEOS	FS	G&W	EC-EX-011	2019/06/18	2147	EA	20	2019/06/19	VB+PS	TH
45R	347 / 345	36m From SEOS	FS	G&W	EC-EX-011	2019/06/19	2123	EA	20	2019/06/19	VB+PS	TH
45S	359 /	6.1m From SEOP	D	P	EC-EX-035	2019/06/16	1644	EB	20	2019/06/19	VB+PS	TH
45T	368 / 371	In North Trench	PT	P	EC-EX-011	2019/06/12	900	FG	20	2019/06/19	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 95 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/12	1230	EA	20	246	243	147	142	145	142	146	172	158	170	168	173	TH	Textured/Textured
2	EC-EX-011	2019/06/12	1230	FG	20	246	243	147	127	138	153	151	170	168	173	170	170	TH	Textured/Textured
3	EC-EX-011	2019/06/18	2000	EA	20	246	243	119	114	106	117	113	169	157	166	164	171	TH	Textured/Textured
4	EC-EX-008	2019/06/18	2100	JH	20	246	243	155	151	153	151	162	168	161	169	167	172	TH	Textured/Textured
5	EC-EX-035	2019/06/18	2140	EB	20	246	243	123	108	135	133	125	176	163	168	170	166	TH	Textured/Textured
6	EC-EX-011	2019/06/19	30	EA	20	246	243	153	132	130	125	145	170	173	169	162	147	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 96 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/06/19	30	JH	20	246	243	127	131	163	150	148	158	181	177	181	175	TH	Textured/Textured
2	EC-EX-035	2019/06/19	200	EB	20	246	243	144	137	152	121	148	188	174	188	184	175	TH	Textured/Textured
3	EC-EX-008	2019/06/19	300	JH	20	246	243	151	140	135	153	156	176	172	175	164	172	TH	Textured/Textured
4	EC-EX-011	2019/06/19	400	EA	20	246	243	135	107	110	126	103	173	169	170	166	174	TH	Textured/Textured
5	EC-EX-035	2019/06/19	2015	EA	20	246	243	118	136	112	127	131	167	166	171	165	163	TH	Textured/Textured
6	EC-EX-008	2019/06/19	2030	JH	20	246	243	159	140	150	152	142	178	181	170	179	165	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 97 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/19	2358	EA	20	246	243	133	144	137	145	139	173	171	168	156	177	TH	Textured/Textured
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 98 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/15	1130	TH	20	246	243	125	123	115	117	116	162	161	167	165	162	TH	Textured/Textured
2	EC-EX-008	2019/06/15	1500	EA	20	246	243	130	124	137	139	141	147	150	157	156	162	TH	Textured/Textured
3	EC-EX-035	2019/06/15	1510	EB	20	246	243	128	132	119	132	128	167	160	167	154	163	TH	Textured/Textured
4	EC-EX-011	2019/06/18	2000	EA	20	246	243	119	114	106	117	113	169	157	166	164	171	TH	Textured/Textured
5	EC-EX-008	2019/06/18	2100	JH	20	246	243	155	151	153	151	162	168	161	169	167	172	TH	Textured/Textured
6	EC-EX-035	2019/06/18	2140	EB	20	246	243	123	108	135	133	125	176	163	168	170	166	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
46A	369 / 370	9.8m From SEOS	DS	P	EC-EX-011	2019/06/19	109	EA	20	2019/06/19	VB+PS	TH
46B	375 / 370	1m From NEOS	DS	P	EC-EX-011	2019/06/19	116	EA	20	2019/06/19	VB+PS	TH
46C	373 /	1m From SEOP	D	P	EC-EX-011	2019/06/19	2050	EA	20	2019/06/19	VB+PS	TH
46D	375 / 380	Connected to 374	T	G&W	EC-EX-011	2019/06/18	2132	EA	20	2019/06/19	VB+PS	TH
46E	375 / 380	Connected to 370	T	G&W	EC-EX-011	2019/06/18	2136	EA	20	2019/06/19	VB+PS	TH
46F	374 / 377	9m From SEOS	D	P	EC-EX-011	2019/06/18	2129	EA	20	2019/06/19	VB+PS	TH
46G	374 / 377	10m From SEOS	D	P	EC-EX-011	2019/06/18	2125	EA	20	2019/06/19	VB+PS	TH
46H	374 / 377	11m From SEOS	DS	P	EC-EX-011	2019/06/19	124	EA	20	2019/06/19	VB+PS	TH
46I	374 / 373	Connected to 377	T	G&W	EC-EX-011	2019/06/18	2015	EA	20	2019/06/19	VB+PS	TH
46J	377 / 378	Connected to 373	T	G&W	EC-EX-011	2019/06/18	2020	EA	20	2019/06/19	VB+PS	TH
46K	378 / 377	Connected to 376	T	G&W	EC-EX-011	2019/06/18	2025	EA	20	2019/06/19	VB+PS	TH
46L	376 / 378	Connected to 373	T	G&W	EC-EX-011	2019/06/18	2046	EA	20	2019/06/19	VB+PS	TH
46M	379 / 376	Connected to 373	T	G&W	EC-EX-011	2019/06/15	1808	EA	20	2019/06/19	VB+PS	TH
46N	379 /	1m From SEOP	D	G&W	EC-EX-011	2019/06/15	1624	EA	20	2019/06/19	VB+PS	TH
46O	379 / 376	Conneccted to 382	T	G&W	EC-EX-011	2019/06/15	1623	EA	20	2019/06/19	VB+PS	TH
46P	382 / 381	Connected to 376	T	G&W	EC-EX-011	2019/06/15	1815	EA	20	2019/06/19	VB+PS	TH
46Q	382 /	1m From SEOP	D	G&W	EC-EX-011	2019/06/15	1816	EA	20	2019/06/19	VB+PS	TH
46R	376 / 381	1m From SEOS	DS	P	EC-EX-011	2019/06/19	140	EA	20	2019/06/19	VB+PS	TH
46S	381 / 383	10m From SEOS	DS	P	EC-EX-011	2019/06/19	148	EA	20	2019/06/19	VB+PS	TH
46T	382 / 381	Connected to 383	T	G&W	EC-EX-011	2019/06/15	1821	EA	20	2019/06/19	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 99 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/19	30	EA	20	246	243	153	132	130	125	145	170	173	169	162	147	TH	Textured/Textured
2	EC-EX-008	2019/06/19	30	JH	20	246	243	127	131	163	150	148	158	181	177	181	175	TH	Textured/Textured
3	EC-EX-035	2019/06/19	200	EB	20	246	243	144	137	152	121	148	188	174	188	184	175	TH	Textured/Textured
4	EC-EX-008	2019/06/19	300	JH	20	246	243	151	140	135	153	156	176	172	175	164	172	TH	Textured/Textured
5	EC-EX-011	2019/06/19	400	EA	20	246	243	135	107	110	126	103	173	169	170	166	174	TH	Textured/Textured
6	EC-EX-035	2019/06/19	2015	EA	20	246	243	118	136	112	127	131	167	166	171	165	163	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 100 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/06/19	2030	JH	20	246	243	159	140	150	152	142	178	181	170	179	165	TH	Textured/Textured
2	EC-EX-035	2019/06/19	2358	EA	20	246	243	133	144	137	145	139	173	171	168	156	177	TH	Textured/Textured
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 101 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/15	1130	TH	20	246	243	125	123	115	117	116	162	161	167	165	162	TH	Textured/Textured
2	EC-EX-008	2019/06/15	1500	EA	20	246	243	130	124	137	139	141	147	150	157	156	162	TH	Textured/Textured
3	EC-EX-035	2019/06/15	1510	EB	20	246	243	128	132	119	132	128	167	160	167	154	163	TH	Textured/Textured
4	EC-EX-011	2019/06/19	30	EA	20	246	243	153	132	130	125	145	170	173	169	162	147	TH	Textured/Textured
5	EC-EX-008	2019/06/19	30	JH	20	246	243	127	131	163	150	148	158	181	177	181	175	TH	Textured/Textured
6	EC-EX-035	2019/06/19	200	EB	20	246	243	144	137	152	121	148	188	174	188	184	175	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
47A	383 / 382	13m From SEOS	FS	G&W	EC-EX-011	2019/06/15	1638	EA	20	2019/06/19	VB+PS	TH
47B	383 / 382	14.2m From NEOS	BO	P	EC-EX-011	2019/06/15	1619	EA	20	2019/06/19	VB+PS	TH
47C	383 / 384	Connceted to 382	T	G&W	EC-EX-011	2019/06/15	1544	EA	20	2019/06/19	VB+PS	TH
47D	384 / 382	In North Trench	PT	G&W	EC-EX-011	2019/06/15	1751	EA	20	2019/06/19	VB+PS	TH
47E	386 / 384	In North Trench	PT	G&W	EC-EX-011	2019/06/15	1752	EA	20	2019/06/19	VB+PS	TH
47F	384 /	2.1m From SEOP	D	P	EC-EX-011	2019/06/15	1702	EA	20	2019/06/19	VB+PS	TH
47G	386 / 384	Connected to 383,385	T	P	EC-EX-011	2019/06/15	1541	EA	20	2019/06/19	VB+PS	TH
47H	385 / 383	12.8m From SEOS	DS	P	EC-EX-011	2019/06/19	156	EA	20	2019/06/19	VB+PS	TH
47I	Existing / 385	2m From WEOS	D	P	EC-EX-035	2019/06/19	620	EB	20	2019/06/19	VB+PS	TH
47J	385 /	5.9m From SEOP	D	G&W	EC-EX-035	2019/06/19	616	EB	20	2019/06/19	VB+PS	TH
47K	385 /	5.9m From SEOP	D	G&W	EC-EX-035	2019/06/19	617	EB	20	2019/06/19	VB+PS	TH
47L	385 /	3.3m From SEOP	D	G&W	EC-EX-035	2019/06/19	618	EB	20	2019/06/19	VB+PS	TH
47M	385 /	3.3m From SEOP	D	G&W	EC-EX-035	2019/06/19	619	EB	20	2019/06/19	VB+PS	TH
47N	404 / 387	Connected to 385	T	P	EC-EX-011	2019/06/19	615	EA	20	2019/06/19	VB+PS	TH
47O	387 / 388	Connected to 385	T	G&W	EC-EX-011	2019/06/15	1600	EA	20	2019/06/19	VB+PS	TH
47P	385 / 386	Connceted to 388	T	G&W	EC-EX-011	2019/06/15	1535	EA	20	2019/06/19	VB+PS	TH
47Q	388 / 386	In North Trench	PT	G&W	EC-EX-011	2019/06/15	1756	EA	20	2019/06/19	VB+PS	TH
47R	403 / 402	Connected to 388	T	G&W	EC-EX-011	2019/06/15	1530	EA	20	2019/06/19	VB+PS	TH
47S	402 / 401	Connected to 388	T	G&W	EC-EX-011	2019/06/15	1549	EA	20	2019/06/19	VB+PS	TH
47T	400 / 401	Connected to 388	T	P	EC-EX-011	2019/06/15	1555	EA	20	2019/06/19	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 102 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/06/19	300	JH	20	246	243	151	140	135	153	156	176	172	175	164	172	TH	Textured/Textured
2	EC-EX-011	2019/06/19	400	EA	20	246	243	135	107	110	126	103	173	169	170	166	174	TH	Textured/Textured
3	EC-EX-035	2019/06/19	2015	EA	20	246	243	118	136	112	127	131	167	166	171	165	163	TH	Textured/Textured
4	EC-EX-008	2019/06/19	2030	JH	20	246	243	159	140	150	152	142	178	181	170	179	165	TH	Textured/Textured
5	EC-EX-035	2019/06/19	2358	EA	20	246	243	133	144	137	145	139	173	171	168	156	177	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 103 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-011	2019/06/12	830	FG	20	246	243	118	125	131	122	144	170	168	170	168	178	TH	Textured/Textured
5	EC-EX-011	2019/06/12	1230	EA	20	246	243	147	142	145	142	146	172	158	170	168	173	TH	Textured/Textured
6	EC-EX-011	2019/06/12	1230	FG	20	246	243	147	127	138	153	151	170	168	173	170	170	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
48A	400 / 399	Connected to 387, 388	T	G&W	EC-EX-011	2019/06/15	1601	EA	20	2019/06/19	VB+PS	TH
48B	398 / 399	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1645	EA	20	2019/06/19	VB+PS	TH
48C	398 / 387	4.2m From SEOS	BO	P	EC-EX-011	2019/06/15	1701	EA	20	2019/06/19	VB+PS	TH
48D	398 / 397	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1704	EA	20	2019/06/19	VB+PS	TH
48E	396 / 397	Conneted to 387	T	G&W	EC-EX-011	2019/06/15	1706	EA	20	2019/06/19	VB+PS	TH
48F	396 / 395	Conneted to 387	T	G&W	EC-EX-011	2019/06/15	1709	EA	20	2019/06/19	VB+PS	TH
48G	395 / 394	1m From EEOS	DS	P	EC-EX-011	2019/06/19	330	EA	20	2019/06/19	VB+PS	TH
48H	395 / 394	Conneted to 387	T	G&W	EC-EX-011	2019/06/15	1712	EA	20	2019/06/19	VB+PS	TH
48I	394 / 393	1m From EEOS	BO	P	EC-EX-011	2019/06/15	319	EA	20	2019/06/19	VB+PS	TH
48J	394 / 393	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1714	EA	20	2019/06/19	VB+PS	TH
48K	393 / 392	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1717	EA	20	2019/06/19	VB+PS	TH
48L	392 / 391	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1719	EA	20	2019/06/19	VB+PS	TH
48M	391 / 390	Connected to 387	T	G&W	EC-EX-011	2019/06/15	1721	EA	20	2019/06/19	VB+PS	TH
48N	390 / 387	1m From SEOS	T	G&W	EC-EX-011	2019/06/19	301	EA	20	2019/06/19	VB+PS	TH
48O	390 / 389	Connected to387	T	G&W	EC-EX-011	2019/06/15	1723	EA	20	2019/06/19	VB+PS	TH
48P	389 / 387	3m From SEOS	D	G&W	EC-EX-011	2019/06/15	1736	EA	20	2019/06/19	VB+PS	TH
48Q	Existing /	Connected to 336,338	T	G&W	EC-EX-011	2019/06/12	1130	FG	20	2019/06/16	VB+PS	TH
48R	Existing /	Connected to 340,343	T	G&W	EC-EX-011	2019/06/10	1230	EA	20	2019/06/16	VB+PS	TH
48S	Existing /	onnected to 345,347,349,351,354,356,35	T	G&W	EC-EX-035	2019/06/15	1145	EB	20	2019/06/16	VB+PS	TH
48T	Existing /	Connected to 361,364,366,369	T	G&W	EC-EX-035	2019/06/16	1630	EB	20	2019/06/16	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 104 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/15	1130	TH	20	246	243	125	123	115	117	116	162	161	167	165	162	TH	Textured/Textured
2	EC-EX-008	2019/06/15	1500	EA	20	246	243	130	124	137	139	141	147	150	157	156	162	TH	Textured/Textured
3	EC-EX-035	2019/06/15	1510	EB	20	246	243	128	132	119	132	128	167	160	167	154	163	TH	Textured/Textured
4	EC-EX-011	2019/06/19	30	EA	20	246	243	153	132	130	125	145	170	173	169	162	147	TH	Textured/Textured
5	EC-EX-008	2019/06/19	30	JH	20	246	243	127	131	163	150	148	158	181	177	181	175	TH	Textured/Textured
6	EC-EX-035	2019/06/19	200	EB	20	246	243	144	137	152	121	148	188	174	188	184	175	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 105 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/06/19	300	JH	20	246	243	151	140	135	153	156	176	172	175	164	172	TH	Textured/Textured
2	EC-EX-011	2019/06/19	400	EA	20	246	243	135	107	110	126	103	173	169	170	166	174	TH	Textured/Textured
3	EC-EX-035	2019/06/19	2015	EA	20	246	243	118	136	112	127	131	167	166	171	165	163	TH	Textured/Textured
4	EC-EX-008	2019/06/19	2030	JH	20	246	243	159	140	150	152	142	178	181	170	179	165	TH	Textured/Textured
5	EC-EX-035	2019/06/19	2358	EA	20	246	243	133	144	137	145	139	173	171	168	156	177	TH	Textured/Textured
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 106 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/18	2000	EA	20	246	243	119	114	106	117	113	169	157	166	164	171	TH	Textured/Textured
2	EC-EX-008	2019/06/18	2100	JH	20	246	243	155	151	153	151	162	168	161	169	167	172	TH	Textured/Textured
3	EC-EX-035	2019/06/18	2140	EB	20	246	243	123	108	135	133	125	176	163	168	170	166	TH	Textured/Textured
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
49A	Existing /	Connected to 370,380,374,377,376,381	T	G&W	EC-EX-011	2019/06/18	2130	EA	20	2019/06/19	VB+PS	TH
49B	Existing /	Connected to 383,385,387,404	T	G&W	EC-EX-035	2019/06/18	620	EB	20	2019/06/19	VB+PS	TH
49C	229 / 405	13.2m From WEOS	BO	G&W	EC-EX-035	2019/06/18	1100	EB	20	2019/06/19	VB+PS	TH
49D	229 / 405	21m From WEOS	DS	P	EC-EX-035	2019/06/18	1102	EB	20	2019/06/19	VB+PS	TH
49E	229 / 405	23m From WEOS	BO	P	EC-EX-035	2019/06/18	1135	EB	20	2019/06/19	VB+PS	TH
49F	229 / 230	Connected to 405	T	G&W	EC-EX-035	2019/06/18	115	EB	20	2019/06/19	VB+PS	TH
49G	405 / 406	Connected to 419	T	G&W	EC-EX-035	2019/06/18	151	EB	20	2019/06/19	VB+PS	TH
49H	230 / 231	Connected to 406	T	G&W	EC-EX-035	2019/06/18	419	EB	20	2019/06/19	VB+PS	TH
49I	409 / 406	27m From EEOS	BO	G&W	EC-EX-035	2019/06/18	407	EB	20	2019/06/19	VB+PS	TH
49J	409 / 408	Connected to 406	T	G&W	EC-EX-035	2019/06/18	338	EB	20	2019/06/19	VB+PS	TH
49K	406 / 405	Connected to 408	T	G&W	EC-EX-035	2019/06/18	154	EB	20	2019/06/19	VB+PS	TH
49L	407 / 408	Connected to 405	T	G&W	EC-EX-035	2019/06/18	1204	EB	20	2019/06/19	VB+PS	TH
49M	408 /	1.2m From WEOP	D	G&W	EC-EX-035	2019/06/18	1210	EB	20	2019/06/19	VB+PS	TH
49N	408 /	0.8m From WEOP	D	G&W	EC-EX-035	2019/06/18	1205	EB	20	2019/06/19	VB+PS	TH
49O	408 /	0.8m From WEOP	D	G&W	EC-EX-035	2019/06/18	1206	EB	20	2019/06/19	VB+PS	TH
49P	408 /	1.5m From WEOP	D	G&W	EC-EX-035	2019/06/18	1207	EB	20	2019/06/19	VB+PS	TH
49Q	408 /	1.5m From WEOP	D	G&W	EC-EX-035	2019/06/18	1208	EB	20	2019/06/19	VB+PS	TH
49R	408 /	2.7m From WEOP	D	G&W	EC-EX-035	2019/06/18	1209	EB	20	2019/06/19	VB+PS	TH
49S	407 / 408	Connected to 410	T	G&W	EC-EX-035	2019/06/18	1211	EB	20	2019/06/19	VB+PS	TH
49T	410 / 411	Connected to 408	T	G&W	EC-EX-035	2019/06/18	1230	EB	20	2019/06/19	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 107 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/18	2000	EA	20	246	243	119	114	106	117	113	169	157	166	164	171	TH	Textured/Textured
2	EC-EX-008	2019/06/18	2100	JH	20	246	243	155	151	153	151	162	168	161	169	167	172	TH	Textured/Textured
3	EC-EX-035	2019/06/18	2140	EB	20	246	243	123	108	135	133	125	176	163	168	170	166	TH	Textured/Textured
4	EC-EX-011	2019/06/19	30	EA	20	246	243	153	132	130	125	145	170	173	169	162	147	TH	Textured/Textured
5	EC-EX-008	2019/06/19	30	JH	20	246	243	127	131	163	150	148	158	181	177	181	175	TH	Textured/Textured
6	EC-EX-035	2019/06/19	200	EB	20	246	243	144	137	152	121	148	188	174	188	184	175	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
50A	410 / 411	1m From SEOS	DS	P	EC-EX-035	2019/06/18	517	EB	20	2019/06/19	VB+PS	TH
50B	411 / 408	20.8m From EEOS	DS	P	EC-EX-035	2019/06/18	324	EB	20	2019/06/19	VB+PS	TH
50C	409 / 408	Connected to 411	T	G&W	EC-EX-035	2019/06/18	346	EB	20	2019/06/19	VB+PS	TH
50D	412 / 411	Connected to 409	T	G&W	EC-EX-035	2019/06/18	358	EB	20	2019/06/19	VB+PS	TH
50E	415 / 414	Connected to 412	T	G&W	EC-EX-035	2019/06/18	440	EB	20	2019/06/19	VB+PS	TH
50F	412 / 411	Connected to 414	T	G&W	EC-EX-035	2019/06/18	410	EB	20	2019/06/19	VB+PS	TH
50G	414 / 413	Connected to 411	T	G&W	EC-EX-035	2019/06/18	1244	EB	20	2019/06/19	VB+PS	TH
50H	411 / 410	Connected to 413	T	G&W	EC-EX-035	2019/06/18	1233	EB	20	2019/06/19	VB+PS	TH
50I	413 / 416	Connected to Existing	T	P	EC-EX-008	2019/06/19	2130	JH	20	2019/06/19	VB+PS	TH
50J	416 / 301	Connected to Existing	T	P	EC-EX-008	2019/06/19	2135	JH	20	2019/06/19	VB+PS	TH
50K	Existing /	Connected to 405,407,410,413,416	T	G&W	EC-EX-008	2019/06/19	2140	JH	20	2019/06/19	VB+PS	TH
50L	413 / 414	Connected to 416	T	G&W	EC-EX-035	2019/06/18	1246	EB	20	2019/06/19	VB+PS	TH
50M	416 / 417	Connected to 414	T	G&W	EC-EX-035	2019/06/18	1229	EB	20	2019/06/19	VB+PS	TH
50N	415 / 414	Connected to 417	T	G&W	EC-EX-035	2019/06/18	434	EB	20	2019/06/19	VB+PS	TH
50O	301 / 302	Connected to 417	T	G&W	EC-EX-035	2019/06/18	137	EB	20	2019/06/19	VB+PS	TH
50P	417 / 416	Connected to 301	T	G&W	EC-EX-035	2019/06/18	129	EB	20	2019/06/19	VB+PS	TH
50Q	336 /	12m From SEOS	SI	P	EC-EX-035	2019/06/23	515	EB	20	2019/06/23	VB+PS	TH
50R	336 /	14m From SEOS	SI	P	EC-EX-035	2019/06/23	522	EB	20	2019/06/23	VB+PS	TH
50S	294 /	48m From SEOS	D	P	EC-EX-035	2019/06/25	1503	EB	20	2019/06/25	VB+PS	TH
50T	42 /	1.1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1320	EB	20	2019/06/24	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 108 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/06/19	300	JH	20	246	243	151	140	135	153	156	176	172	175	164	172	TH	Textured/Textured
2	EC-EX-011	2019/06/19	400	EA	20	246	243	135	107	110	126	103	173	169	170	166	174	TH	Textured/Textured
3	EC-EX-035	2019/06/19	2015	EA	20	246	243	118	136	112	127	131	167	166	171	165	163	TH	Textured/Textured
4	EC-EX-008	2019/06/19	2030	JH	20	246	243	159	140	150	152	142	178	181	170	179	165	TH	Textured/Textured
5	EC-EX-035	2019/06/19	2358	EA	20	246	243	133	144	137	145	139	173	171	168	156	177	TH	Textured/Textured
6	EC-EX-035	2019/06/23	1700	EB	20	246	243	132	133	139	114	131	162	159	167	162	160	TH	Textured/Textured

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 109 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/24	1130	EB	20	246	243	100	116	111	116	101	148	133	144	145	156	TH	Textured/Textured
2	EC-EX-035	2019/06/25	1430	FG	20	246	243	111	103	107	123	134	143	154	138	129	134	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
A	/											
B	/											
C	/											
D	/											
E	/											
F	/											
G	/											
H	/											
I	/											
J	/											
K	/											
L	/											
M	/											
N	/											
O	/											
P	/											
Q	/											
R	/											
S	/											
T	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 110 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/24	1130	EB	20	246	243	100	116	111	116	101	148	133	144	145	156	TH	Textured/Textured
2	EC-EX-035	2019/06/25	1430	FG	20	246	243	111	103	107	123	134	143	154	138	129	134	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
51A	2 /	1m From NEOS	D	G&W	EC-EX-035	2019/06/24	1339	EB	20	2019/06/24	VB+PS	TH
51B	24 /	1.3m From WEOS	D	G&W	EC-EX-035	2019/06/24	1350	EB	20	2019/06/24	VB+PS	TH
51C	24 /	1m From WEOS	D	P	EC-EX-035	2019/06/24	1345	EB	20	2019/06/24	VB+PS	TH
51D	84 /	1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1310	EB	20	2019/06/24	VB+PS	TH
51E	76 /	0.8m From SEOS	D	G&W	EC-EX-035	2019/06/24	1313	EB	20	2019/06/24	VB+PS	TH
51F	247 /	0.6m From SEOS	D	G&W	EC-EX-035	2019/06/24	1258	EB	20	2019/06/24	VB+PS	TH
51G	259 /	6m From SEOS	D	G&W	EC-EX-035	2019/06/24	1254	EB	20	2019/06/24	VB+PS	TH
51H	259 /	3.2m From SEOS	D	G&W	EC-EX-035	2019/06/24	1253	EB	20	2019/06/24	VB+PS	TH
51I	262 /	0.8m From SEOS	D	G&W	EC-EX-035	2019/06/24	1242	EB	20	2019/06/24	VB+PS	TH
51J	312 /	1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1238	EB	20	2019/06/24	VB+PS	TH
51K	312 /	61m From SEOS	D	G&W	EC-EX-035	2019/06/24	1233	EB	20	2019/06/24	VB+PS	TH
51L	316 /	1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1231	EB	20	2019/06/24	VB+PS	TH
51M	326 /	1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1220	EB	20	2019/06/24	VB+PS	TH
51N	358 /	1m From SEOS	D	G&W	EC-EX-035	2019/06/24	1205	EB	20	2019/06/24	VB+PS	TH
51O	358 /	2m From SEOS	D	G&W	EC-EX-035	2019/06/24	1206	EB	20	2019/06/24	VB+PS	TH
51P	358 /	2m From SEOS	D	G&W	EC-EX-035	2019/06/24	1207	EB	20	2019/06/24	VB+PS	TH
51Q	196 /	10m From NEOS	D	P	EC-EX-035	2019/06/25	1625	FG	20	2019/06/25	VB+PS	TH
51R	150 /	3m From WEOS	D	G&W	EC-EX-035	2019/06/25	1505	FG	20	2019/06/25	VB+PS	TH
51S	156 /	0.6m From WEOS	D	G&W	EC-EX-035	2019/06/25	1509	FG	20	2019/06/25	VB+PS	TH
51T	159 / 158	On Seam Patch 159, 158	D	P	EC-EX-035	2019/06/25	1512	FG	20	2019/06/25	VB+PS	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 111 of 112

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Heap Leach Pad

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-011	2019/06/10	830	EA	20	246	243	124	127	129	127	138	187	174	188	170	185	TH	Textured/Textured
2	EC-EX-011	2019/06/10	1230	EA	20	246	243	148	127	158	137	130	167	178	179	163	175	TH	Textured/Textured
3	EC-EX-011	2019/06/10	1600	EA	20	246	243	150	144	112	122	132	150	142	142	129	128	TH	Textured/Textured
4	EC-EX-035	2019/06/25	1430	FG	20	246	243	111	103	107	123	134	143	154	138	129	134	TH	
5	EC-EX-035	2019/06/29	1045	TW	20	246	243	127	114	106	104	123	165	163	159	161	160	TW	
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
52A	14 /	1m From WEOS	D	G&W	EC-EX-035	2019/06/25	1523	FG	20	2019/06/25	VB+PS	TH
52B	56 /	0.3m From WEOS	D	G&W	EC-EX-035	2019/06/25	1530	FG	20	2019/06/25	VB+PS	TH
52C	62 /	0.5m From WEOS	D	G&W	EC-EX-035	2019/06/25	1524	FG	20	2019/06/25	VB+PS	TH
52D	62 /	0.5m From WEOS	D	G&W	EC-EX-035	2019/06/25	1525	FG	20	2019/06/25	VB+PS	TH
52E	111 /	1m From WEOS	D	P	EC-EX-035	2019/06/25	1541	FG	20	2019/06/25	VB+PS	TH
52F	142 /	52m From EEOS	D	G&W	EC-EX-035	2019/06/25	1551	FG	20	2019/06/25	VB+PS	TH
52G	162 /	53m From WEOS	D	P	EC-EX-035	2019/06/25	1553	FG	20	2019/06/25	VB+PS	TH
52H	162 /	1.2m From WEOS	D	G&W	EC-EX-035	2019/06/25	1601	FG	20	2019/06/25	VB+PS	TH
52I	178 /	1.9m From WEOS	D	G&W	EC-EX-035	2019/06/25	1603	FG	20	2019/06/25	VB+PS	TH
52J	180 /	32m From WEOS	D	P	EC-EX-035	2019/06/25	1607	FG	20	2019/06/25	VB+PS	TH
52K	416 /	10m From EEOS	D	G&W	EC-EX-035	2019/06/25	1608	FG	20	2019/06/25	VB+PS	TH
52L	343 / 344	Connected to 341	T	G&W	EC-EX-011	2019/06/10	1539	EA	20	2019/06/16	VB+PS	TH
52M	183 / 418	NEOS	T	P	EC-EX-035	2019/06/29	1156	TW	20	2019/06/29	VB+PS	TW
52N	183 / 418	Crest	BO	P	EC-EX-035	2019/06/29	1130	TW	20	2019/06/29	VB+PS	TW
52O	Existing /	Connected to 418, 419, 420	T	G&W	EC-EX-035	2019/06/29	1230	TW	20	2019/06/29	VB+PS	TW
	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/07/09

SHEET NUMBER 112 of 112

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	8/9	2019/04/30	20		Pass		119	122	132	133	134	118	124	133	137	139	167	166	180	167	180
6m North of SEOS								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-2	SPF	33/34	2019/05/01	20		Fail																
AT																						
DS-3	SPF	38/40	2019/05/01	20		Pass		137	140	137	143	138	148	153	157	153	148	182	184	178	176	182
3m South of Crest								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-4	SPF	19/22	2019/05/01	20		Fail																
37m West of EEOS																						
DS-5	SPF	21/34	2019/05/01	20		Pass		158	152	146	146	149	158	159	163	156	134	172	188	176	185	176
0.3m West of EEOS								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-6	SPF	23/26	2019/05/01	20		Pass		145	142	154	150	155	153	146	152	150	164	179	180	175	180	182
27m West of Crest								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-7	SPF	19/22	2019/05/01	20		Pass		149	153	135	148	142	147	166	159	140	156	173	181	178	176	191
34m West of EEOS								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-8	SPF	19/22	2019/05/01	20		Pass		133	133	149	132	145	140	134	138	143	133	172	174	179	180	188
40m West of EEOS								SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 1 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-9	SPF	33/34	2019/05/01	20		Pass			145	145	154	147	148	145	156	141	151	155	177	174	181	173	178
6m South of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-10	SPF	37/40	2019/05/01	20		Pass			137	151	136	141	144	162	143	151	143	156	166	172	182	180	173
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-11	SPF	45/47	2019/05/01	20		Pass			146	146	140	122	144	155	132	164	154	146	185	183	188	187	180
1m West of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-12	SPF	51/54	2019/05/01	20		Pass			158	153	160	147	147	151	154	157	150	156	200	178	174	163	200
20m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-13	SPF	53/56	2019/05/02	20		Pass			170	170	159	157	150	162	157	164	160	175	177	215	210	207	212
2m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-14	SPF	55/58	2019/05/02	20		Pass			170	174	174	179	160	164	162	158	167	160	199	199	202	204	194
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-15	SPF	60/62	2019/05/02	20		Pass			136	152	154	155	167	155	161	144	168	173	194	200	196	196	190
23m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-16	SPF	61/63	2019/05/02	20		Pass			164	157	163	152	180	174	174	174	152	158	194	200	190	192	171
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 2 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-17	SPF	66/89	2019/05/04	20		Pass			160	170	153	156	150	140	148	141	152	143	180	182	179	178	178
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-18	SPF	85/86	2019/05/04	20		Pass			150	158	157	163	150	164	162	165	157	159	180	186	189	185	175
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-19	SPF	78/79	2019/05/04	20		Pass			155	142	155	154	152	138	146	137	147	140	185	177	172	180	182
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-20	SPF	70/72	2019/05/04	20		Fail																	
Crest																							
DS-21	SPF	67/44	2019/05/04	20		Pass			149	148	147	141	147	155	150	151	144	145	171	169	167	170	170
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-22	SPF	74/76	2019/05/04	20		Pass			141	151	147	150	141	149	136	148	144	146	179	175	175	177	178
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-23	SPF	81/84	2019/05/04	20		Pass			147	143	143	145	149	119	133	135	133	131	172	172	175	173	167
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-24	SPF	70/71	2019/05/04	20		Pass			133	131	136	140	142	142	136	141	137	140	164	162	169	169	164
									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 3 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	PASS 3RD PARTY	LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-25	SPF	71/73	2019/05/04	20		Pass			147	145	139	146	144	147	138	145	147	141	174	161	173	169	171
									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-26	SPF	93/96	2019/05/04	20		Pass			146	137	151	149	144	151	144	142	132	141	174	171	172	167	165
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-27	SPF	89/93	2019/05/04	20		Pass			151	147	155	148	152	145	136	137	142	135	165	164	171	166	162
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-28	SPF	92/102	2019/05/08	20		Pass			148	139	135	142	136	132	138	149	133	144	163	167	168	161	164
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-29	SPF	104/107	2019/05/08	20		Pass			138	139	150	138	139	139	138	145	146	145	164	167	175	174	170
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-30	SPF	110/113	2019/05/08	20		Fail																	
1m West of EEOS																							
DS-31	SPF	116/120	2019/05/08	20		Pass			151	153	148	143	149	150	142	128	131	139	169	172	168	168	169
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-32	SPF	96/103	2019/05/08	20		Pass			152	152	144	145	143	128	129	141	151	137	170	170	170	167	169
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 4 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-33	SPF	103/105	2019/05/08	20		Pass			146	132	153	138	137	124	131	128	114	124	170	167	170	169	166
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-34	SPF	110/113	2019/05/08	20		Fail																	
4m West of EEOS																							
DS-35	SPF	110/114	2019/05/08	20		Fail																	
2m East of WEOS																							
DS-36	SPF	105/108	2019/05/08	20		Pass			138	137	129	124	136	141	135	135	133	136	160	158	162	160	161
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-37	SPF	111/114	2019/05/08	20		Pass			140	134	133	131	131	131	143	143	138	131	163	161	158	158	162
3m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-38	SPF	110/113	2019/05/08	20		Fail																	
7m West of EEOS																							
DS-39	SPF	110/113	2019/05/08	20		Pass			161	151	158	163	147	147	156	152	154	155	185	178	179	181	177
10m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-40	SPF	108/111	2019/05/09	20		Fail																	
Crest																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 5 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-41	SPF	111/114	2019/05/09	20		Fail																	
10m West of EEOS																							
DS-42	SPF	114/117	2019/05/09	20		Fail																	
Crest																							
DS-43	SPF	117/120	2019/05/09	20		Fail																	
32m West of Crest																							
DS-44	SPF	108/111	2019/05/09	20		Fail																	
3m West of Crest																							
DS-45	SPF	116/117	2019/05/09	20		Pass			165	156	160	159	177	158	162	159	168	155	187	195	192	187	180
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-46	SPF	119/122	2019/05/09	20		Fail																	
1m West of EEOS																							
DS-47	SPF	111/114	2019/05/09	20		Pass			143	151	139	148	141	146	140	148	146	146	174	170	172	172	172
13m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-48	SPF	114/117	2019/05/09	20		Fail																	
3m West of Crest																							

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 6 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-49	SPF	117/120	2019/05/09	20		Pass			149	137	149	151	156	137	142	150	137	144	175	170	177	170	174
35m West of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-50	SPF	117/120	2019/05/09	20		Pass			150	151	142	149	134	143	140	144	144	144	165	172	173	178	182
29m West of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-51	SPF	130/131	2019/05/09	20		Pass			165	150	153	128	163	166	154	162	154	157	165	172	173	178	182
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-52	SPF	114/117	2019/05/09	20		Fail																	
6m West of EEOS																							
DS-53	SPF	119/122	2019/05/09	20		Fail																	
4m West of EEOS																							
DS-54	SPF	119/123	2019/05/09	20		Fail																	
2m East of WEOS																							
DS-55	SPF	120/124	2019/05/09	20		Fail																	
Crest																							
DS-56	SPF	124/127	2019/05/09	20		Fail																	
Crest																							

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 7 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-57	SPF	126/129	2019/05/09	20		Pass			153	152	157	161	151	137	151	147	147	148	178	177	168	173	173
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-58	SPF	129/131	2019/05/09	20		Pass			144	133	142	145	135	138	139	146	141	137	178	180	178	179	177
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-59	SPF	114/117	2019/05/09	20		Fail																	
9m West of EEOS																							
DS-60	SPF	135/137	2019/05/09	20		Pass			141	139	142	144	139	128	141	141	141	139	162	158	161	161	162
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-61	SPF	126/129	2019/05/09	20		Pass			150	148	152	136	148	140	142	149	151	149	169	176	173	170	170
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-62	SPF	124/126	2019/05/10	20		Pass			167	154	165	161	133	135	132	135	139	124	177	182	184	178	183
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-63	SPF	131/133	2019/05/10	20		Pass			142	142	146	145	141	137	148	141	140	137	173	170	163	166	168
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-64	SPF	133/135	2019/05/10	20		Pass			138	146	139	140	140	138	136	134	132	135	168	163	167	164	166
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 8 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-65	SPF	133/135	2019/05/10	20		Pass			147	138	143	140	144	142	141	143	151	143	168	169	169	165	163
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-66	SPF	136/138	2019/05/10	20		Pass			139	146	142	136	134	141	144	143	135	133	172	170	168	165	170
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-67	SPF	136/137	2019/05/10	20		Pass			162	163	160	169	167	148	160	160	159	155	187	182	181	179	183
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-68	SPF	141/139	2019/05/11	20		Pass			141	140	140	139	151	144	144	142	144	140	170	167	168	168	167
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-69	SPF	140/141	2019/05/11	20		Pass			162	164	161	172	161	165	153	160	158	151	186	184	185	179	176
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-70	SPF	142/144	2019/05/11	20		Pass			141	152	155	140	140	140	133	132	141	126	159	159	158	158	159
3m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-71	SPF	141/143	2019/05/11	20		Pass			150	135	142	135	137	149	144	144	140	144	170	171	164	161	161
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-72	SPF	143/145	2019/05/11	20		Pass			150	146	147	149	138	149	139	144	140	148	167	167	158	162	166
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 9 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-73	SPF	149/147	2019/05/13	20		Pass			154	149	159	154	155	163	148	154	154	154	176	177	169	161	168
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-74	SPF	145/147	2019/05/13	20		Pass			159	157	152	146	161	160	162	154	159	152	178	178	185	179	185
3m West of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-75	SPF	144/146	2019/05/13	20		Pass			158	161	157	159	157	135	147	138	121	128	171	165	169	166	172
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1
DS-76	SPF	148/149	2019/05/13	20		Pass			168	171	175	176	163	167	160	163	165	166	196	186	194	188	187
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-77	SPF	149/151	2019/05/14	20		Pass			130	147	143	147	139	139	137	129	142	129	171	167	173	169	168
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-78	SPF	151/154	2019/05/14	20		Pass			154	161	157	147	140	144	134	155	141	127	179	175	182	173	187
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-79	SPF	154/157	2019/05/14	20		Pass			138	141	135	137	143	135	134	143	126	123	163	161	164	162	162
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-80	SPF	157/160	2019/05/14	20		Pass			141	141	147	157	155	131	123	120	125	142	166	160	167	165	156
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 10 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-81	SPF	150/153	2019/05/14	20		Pass			138	150	148	136	144	134	127	134	134	141	157	157	160	162	155
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-82	SPF	154/157	2019/05/14	20		Pass			142	140	146	140	147	135	129	131	128	130	164	158	162	161	153
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-83	SPF	153/154	2019/05/14	20		Pass			140	124	152	147	145	145	139	149	142	150	182	173	176	178	175
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-84	SPF	160/163	2019/05/16	20		Pass			159	158	161	155	161	133	136	134	135	134	172	177	167	164	165
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-85	SPF	162/164	2019/05/16	20		Pass			148	134	157	160	155	141	144	138	136	136	167	169	169	168	161
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-86	SPF	163/165	2019/05/16	20		Pass			140	141	137	139	141	150	141	143	153	149	154	161	160	163	165
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-87	SPF	164/167	2019/05/16	20		Pass			134	162	158	155	159	152	147	139	154	152	170	168	171	168	165
End of Seam									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-88	SPF	165/168	2019/05/16	20		Pass			138	142	132	138	134	139	137	134	132	136	172	168	172	172	165
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 11 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY	PRESENT LAYFIELD	PASS 3RD PARTY	LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-89	SPF	168/171	2019/05/17	20		Pass			148	150	148	147	143	148	150	130	137	139	166	168	155	153	155
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-90	SPF	170/172	2019/05/17	20		Pass			136	135	140	142	149	138	135	134	133	136	156	154	155	147	148
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-91	SPF	171/173	2019/05/17	20		Pass			144	139	138	140	143	139	147	138	140	133	154	156	161	159	157
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-92	SPF	169/170	2019/05/17	20		Pass			135	122	141	131	134	143	143	143	139	141	155	155	154	151	158
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-93	SPF	173/176	2019/05/17	20		Pass			157	152	154	157	156	158	164	163	159	144	186	176	189	184	180
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-94	SPF	175/177	2019/05/17	20		Pass			148	155	173	154	156	155	154	158	158	154	183	178	182	177	174
Cross Seam SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-95	SPF	178/180	2019/05/17	20		Pass			128	144	118	124	123	118	130	144	139	141	159	149	153	153	158
2m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-96	SPF	176/178	2019/05/17	20		Pass			137	130	131	132	135	134	133	137	127	132	154	153	153	152	153
4m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 12 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-97	SPF	175/179	2019/05/17	20		Pass			128	128	116	121	129	140	142	128	141	138	160	155	153	155	153
EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-98	SPF	175/178	2019/05/17	20		Pass			127	126	125	136	129	130	126	124	130	124	155	152	155	152	146
EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-99	SPF	212/213	2019/05/22	20		Pass			124	142	130	130	138	135	135	140	147	136	166	165	162	161	166
3m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-100	SPF	209/210	2019/05/22	20		Pass			136	139	133	140	145	143	140	140	132	130	164	156	159	162	156
3m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-101	SPF	204/205	2019/05/22	20		Pass			130	145	132	142	138	134	143	138	137	126	151	150	157	151	153
2m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-102	SPF	199/200	2019/05/22	20		Pass			138	123	138	124	126	135	135	136	132	137	161	158	164	160	150
2m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-103	SPF	194/195	2019/05/22	20		Pass			131	119	131	131	138	136	137	126	126	132	153	155	154	156	158
3m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-104	SPF	190/191	2019/05/22	20		Pass			140	138	134	140	138	146	134	134	138	140	162	148	160	162	160
3m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 13 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	PASS 3RD PARTY	LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-105	SPF	181/218	2019/05/22	20		Pass			132	132	134	130	129	132	126	128	131	132	149	144	149	144	146
18m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-106	SPF	218/220	2019/05/22	20		Pass			133	131	136	134	124	137	135	134	133	127	145	144	147	143	141
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-107	SPF	220/221	2019/05/22	20		Pass			153	153	158	153	154	153	155	149	154	160	177	180	172	176	177
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-108	SPF	120/123	2019/05/22	20		Pass			121	127	122	124	120	123	133	128	128	123	150	140	152	144	150
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-109	SPF	223/226	2019/05/22	20		Pass			135	139	132	121	114	119	130	132	117	132	148	141	149	145	148
25m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-110	SPF	226/230	2019/05/22	20		Pass			127	119	129	124	132	131	130	134	132	128	144	140	140	138	144
45m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-111	SPF	218/221	2019/05/22	20		Pass			118	122	126	126	132	133	124	136	129	124	154	148	155	153	151
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-112	SPF	224/221	2019/05/22	20		Pass			129	144	134	132	136	121	130	133	135	134	149	145	143	147	142
20m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 14 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	PASS 3RD PARTY	PASS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-113	SPF	224/228	2019/05/22	20		Pass			118	128	117	137	123	138	135	136	137	133	156	153	155	145	148
20m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-114	SPF	218/219	2019/05/23	20		Pass			161	158	164	157	160	159	153	162	160	150	194	183	193	196	191
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-115	SPF	218/182	2019/05/23	20		Pass			148	142	135	139	136	138	143	129	140	137	164	167	164	166	170
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-116	SPF	228/230	2019/05/23	20		Pass			145	151	113	151	152	131	158	140	137	142	176	177	181	178	181
19m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-117	SPF	232/234	2019/05/24	20		Pass			143	138	140	134	145	130	147	129	140	142	164	163	160	164	166
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-118	SPF	242/245	2019/05/24	20		Pass			118	132	126	127	139	130	136	136	130	128	161	160	169	165	161
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-119	SPF	245/247	2019/05/24	20		Pass			134	141	134	138	139	132	137	106	143	141	155	163	164	153	160
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-120	SPF	237/240	2019/05/24	20		Pass			112	134	139	136	138	131	151	140	146	137	168	158	166	166	162
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 15 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	PASS 3RD PARTY	PASS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-121	SPF	232/98	2019/05/24	20		Pass			141	136	132	140	139	123	148	152	149	147	167	165	169	166	168
1m South of Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-122	SPF	246/90	2019/05/24	20		Fail																	
2m NE of SWEOS																							
DS-123	SPF	260/109	2019/05/25	20		Pass			157	153	149	148	148	154	152	149	155	159	184	182	191	186	180
3m Northeast of SWEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-124	SPF	90/243	2019/05/25	20		Fail																	
2m Northeast of SWEOS																							
DS-125	SPF	87/241	2019/05/25	20		Pass			147	144	153	151	154	140	133	116	131	145	182	171	181	174	176
2m Northeast of SWEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-126	SPF	258/262	2019/05/25	20		Pass			145	137	144	144	142	142	143	139	145	142	163	162	163	156	160
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-127	SPF	256/258	2019/05/25	20		Pass			130	126	130	128	126	137	132	142	135	131	158	153	161	158	157
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-128	SPF	250/253	2019/05/25	20		Pass			137	138	137	144	134	120	125	136	131	136	159	150	161	155	157
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 16 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-129	SPF	248/251	2019/05/25	20		Pass			128	126	127	124	123	129	130	127	134	133	153	152	146	149	152
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-130	SPF	253/256	2019/05/25	20		Pass			137	139	137	139	136	138	128	135	133	128	156	156	156	151	150
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-131	SPF	268/270	2019/05/26	20		Pass			131	149	140	147	140	137	132	142	134	136	158	164	166	168	163
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-132	SPF	263/265	2019/05/26	20		Pass			138	138	139	146	136	131	129	132	140	143	153	159	161	162	155
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-133	SPF	265/268	2019/05/26	20		Pass			145	131	165	134	141	157	157	138	156	157	175	178	170	172	176
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-134	SPF	260/263	2019/05/26	20		Pass			154	141	151	146	131	119	144	137	137	149	168	168	171	167	166
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-135	SPF	270/272	2019/05/27	20		Pass			128	125	121	128	133	154	139	144	142	144	159	165	161	162	161
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-136	SPF	272/274	2019/05/27	20		Pass			141	155	134	153	112	138	132	129	138	136	169	161	160	163	170
1m North of SEOS									SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 17 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-137	SPF	274/276	2019/05/27	20		Pass			136	144	144	155	156	122	150	150	148	145	172	168	170	167	164
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-138	SPF	274/283	2019/05/27	20		Pass			167	162	154	166	165	157	159	155	165	158	189	188	198	188	188
3m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-139	SPF	276/279	2019/05/27	20		Pass			140	155	148	147	133	142	138	131	139	129	170	171	173	166	168
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-140	SPF	279/281	2019/05/27	20		Pass			117	136	140	137	143	141	141	142	149	142	166	163	168	166	167
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-141	SPF	292/294	2019/05/28	20		Pass			121	132	140	134	133	119	134	131	121	111	157	152	161	162	158
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-142	SPF	144/291	2019/05/28	20		Pass			158	159	169	158	150	162	144	150	161	160	184	180	182	177	177
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-143	SPF	288/289	2019/05/28	20		Pass			146	143	141	142	148	163	154	141	157	161	172	169	174	170	170
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-144	SPF	180/296	2019/05/30	20		Pass			137	134	139	138	138	122	137	134	148	135	163	161	166	165	161
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 18 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-145	SPF	299/296	2019/05/30	20		Pass			133	132	133	159	134	142	142	145	139	138	160	163	168	162	161
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-146	SPF	301/302	2019/05/30	20		Pass			167	170	178	165	173	156	165	155	160	162	191	190	192	191	187
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-147	SPF	298/301	2019/05/30	20		Pass			138	139	142	134	140	134	137	135	135	134	163	153	164	166	161
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-148	SPF	295/297	2019/05/30	20		Pass			157	140	145	140	146	127	131	131	132	130	168	169	166	161	159
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-149	SPF	307/309	2019/06/02	20		Pass			138	139	142	133	136	146	140	129	133	138	166	166	165	166	165
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-150	SPF	305/307	2019/06/02	20		Pass			142	147	159	148	135	152	152	148	148	149	171	169	173	173	166
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-151	SPF	282/305	2019/06/02	20		Pass			139	135	140	144	140	147	162	150	149	148	178	180	182	171	169
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-152	SPF	308/310	2019/06/02	20		Pass			148	146	148	147	144	150	146	146	143	148	165	163	162	157	163
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 19 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY	PRESENT LAYFIELD	PASS 3RD PARTY	LAB PASS	LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-153	SPF	313/314	2019/06/02	20		Pass			162	165	155	155	155	165	155	160	152	149	184	178	180	185	175
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-154	SPF	310/313	2019/06/02	20		Pass			153	153	142	151	150	126	143	144	151	147	171	170	165	172	176
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-155	SPF	319/321	2019/06/02	20		Pass			132	133	135	138	136	132	130	134	132	130	160	162	162	159	151
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-156	SPF	317/319	2019/06/02	20		Pass			134	137	127	132	124	136	138	140	142	142	163	161	159	158	158
6m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-157	SPF	315/317	2019/06/02	20		Pass			139	138	144	147	149	143	145	145	136	141	165	161	165	155	163
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-158	SPF	313/315	2019/06/02	20		Pass			150	148	152	150	153	138	125	137	130	132	183	184	186	179	190
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-159	SPF	326/328	2019/06/03	20		Pass			136	144	154	137	143	147	149	144	143	132	172	168	170	170	168
AT									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-160	SPF	329/330	2019/06/03	20		Pass			171	173	183	166	176	169	166	180	179	179	204	200	212	210	196
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 20 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-161	SPF	323/325	2019/06/03	20		Pass			137	146	134	137	136	149	148	151	145	145	152	141	164	163	163
7m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-162	SPF	331/333	2019/06/03	20		Pass			154	155	149	149	152	146	150	153	150	148	176	171	168	170	172
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-163	SPF	328/331	2019/06/03	20		Pass			152	148	158	157	152	143	141	157	140	146	179	177	171	167	169
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-164	SPF	333/335	2019/06/03	20		Pass			150	149	139	157	143	139	145	147	146	143	170	168	167	171	171
Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-165	SPF	334/336	2019/06/06	20		Pass			143	156	142	143	142	147	156	154	158	153	177	168	176	174	174
6m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-166	SPF	336/338	2019/06/06	20		Pass			143	143	126	128	127	135	134	147	143	142	161	158	161	160	159
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-167	SPF	340/343	2019/06/07	20		Pass			144	145	137	150	146	149	145	143	155	148	172	173	174	167	167
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-168	SPF	343/345	2019/06/07	20		Pass			143	140	135	130	135	145	153	151	155	138	170	162	170	164	163
3m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 21 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-169	SPF	345/347	2019/06/07	20		Pass			148	143	143	140	135	137	131	137	140	135	165	168	155	163	158
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-170	SPF	338/340	2019/06/07	20		Pass			127	130	132	130	115	141	139	131	134	137	151	148	156	146	129
5m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-171	SPF	347/349	2019/06/08	20		Pass			151	150	128	142	138	151	144	150	149	149	182	175	183	183	175
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-172	SPF	349/351	2019/06/08	20		Pass			141	155	160	140	151	150	154	140	151	140	180	178	171	170	170
South Excess									SE-1	SE-1	AD-BRK	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-173	SPF	351/354	2019/06/08	20		Pass			146	148	143	134	131	135	129	144	143	147	152	163	163	167	162
4m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-174	SPF	354/356	2019/06/08	20		Pass			124	133	143	140	128	138	141	130	119	137	162	163	159	158	159
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-175	SPF	359/356	2019/06/10	20		Pass			138	136	133	136	137	124	132	121	127	134	142	150	149	147	135
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-176	SPF	361/359	2019/06/10	20		Pass			138	142	138	140	131	135	130	130	128	135	152	146	151	150	153
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 22 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-177	SPF	364/361	2019/06/10	20		Pass			150	153	143	142	145	149	150	152	147	147	156	162	158	156	154
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-178	SPF	364/366	2019/06/10	20		Pass			141	140	130	132	138	136	136	130	132	131	149	155	154	141	152
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-179	SPF	361/362	2019/06/10	20		Pass			159	161	160	164	154	139	153	156	152	154	147	167	170	170	168
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-180	SPF	397/388	2019/06/18	20		Pass			140	156	145	152	140	157	144	143	148	144	171	170	172	172	167
2m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-181	SPF	390/387	2019/06/18	20		Pass			127	132	130	132	125	152	150	139	137	141	173	157	155	161	167
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-182	SPF	398/399	2019/06/18	20		Pass			129	132	139	141	139	129	131	154	138	136	163	152	143	158	157
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-183	SPF	385/383	2019/06/18	20		Pass			142	152	150	147	144	150	146	145	143	149	179	169	177	178	171
11m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-184	SPF	394/395	2019/06/18	20		Pass			130	141	119	112	147	116	114	129	133	127	150	146	160	156	154
1m East of WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 23 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-185	SPF	370/369	2019/06/18	20		Pass			153	152	154	149	143	142	139	142	132	155	169	167	168	169	167
10m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-186	SPF	383/381	2019/06/18	20		Pass			149	139	146	142	148	132	134	131	136	127	163	165	163	160	148
9m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-187	SPF	375/370	2019/06/18	20		Pass			139	130	144	147	152	143	136	137	133	130	166	164	166	161	164
1m South of NEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-188	SPF	381/376	2019/06/18	20		Pass			146	135	140	143	137	144	142	145	142	145	161	146	156	157	153
10m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-189	SPF	377/374	2019/06/18	20		Pass			137	141	136	142	132	143	153	139	136	132	164	161	157	155	154
6m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-190	SPF	410/413	2019/06/19	20		Pass			137	134	134	138	143	143	130	145	140	139	182	172	182	170	181
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-191	SPF	416/301	2019/06/19	20		Pass			146	144	154	143	152	139	131	142	134	139	176	158	143	172	168
1m West of EEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-192	SPF	407/410	2019/06/19	20		Pass			157	140	146	151	146	143	135	136	138	131	173	171	170	168	161
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 24 of 25

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Heap Leach Pad
AREA / LAYER Primary
3RD PARTY Tetratech
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☑

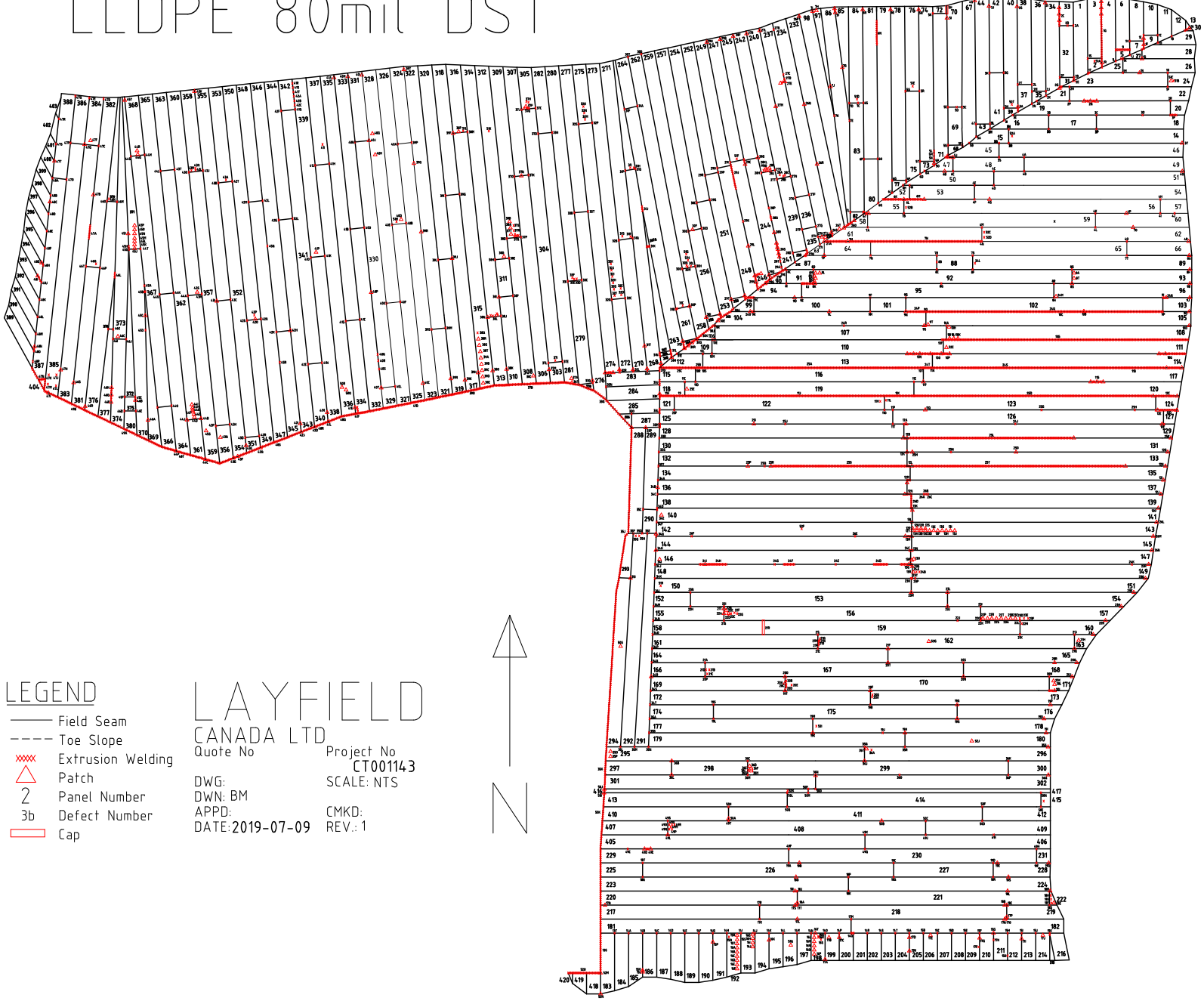
DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY	INITIALS PRESENT LAYFIELD	INITIALS PASS 3RD PARTY	INITIALS LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION									LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-193	SPF	405/407	2019/06/19	20		Pass			133	140	139	130	135	152	144	146	155	150	179	169	169	170	166
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-194	SPF	229/405	2019/06/19	20		Pass			149	137	147	133	136	151	144	139	149	149	162	156	173	171	168
21m from WEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-195	SPF	408/407	2019/06/19	20		Pass			170	156	148	160	163	166	160	166	164	167	191	182	184	194	186
Cross Seam SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-196	SPF	413/416	2019/06/19	20		Pass			160	150	158	159	158	146	132	139	135	139	174	157	183	174	169
South Excess									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-197	SPF	411/410	2019/06/19	20		Pass			156	162	160	152	147	158	153	162	163	155	189	176	185	179	182
Cross Seam SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Bradley McLeod
SUBMITTED BY Chad Messervy
SUBMISSION DATE 2019/07/09
SHEET NUMBER 25 of 25

Eagle Gold Heap Leach Pad

LLDPE 80mil DST



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD

CANADA LTD

Quote No

Project No CT001143

DWG:

SCALE: NTS

DWN: BM

APPD:

CMKD:

DATE: 2019-07-09

REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: HEAP LEACH PAD.
PROJECT NUMBER: C7001143 **DATE:** June 26/19
OWNER: VICTORIA GOLD
LOCATION: EAGLE GOLD

Scope of Installation(s): THE WORK
Area/Layer: _____ Area Inspected: ☐ Partial or ☑ Complete
Dimensions: APPROX 132,000 m². AREA HAS BEEN INSTALLED WITH GCL UNDERLAY AND 80MIL LLDPE PRIMARY LAYER. ALL MATERIALS HAVE BEEN INSTALLED, WELDED, REPAIRED & TESTED IN ACCORDANCE to SPECIFICATIONS.

Part 1 – LAYFIELD CANADA LTD.

I, Iain Konechny, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: Iain Konechny
Title: Supervisor
Date: June 26/19 **Signature:** _____

Part 2 – OWNER (or Representative)

I, Scott Dimitroff, a duly appointed representative of TetraTech, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Dimitroff
Title: QA Monitor
Company: TetraTech
Date: June 24/19 **Signature:** _____

Comments: Small section @ SE corner by stacker remaining

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as Phase 1A heap Leach Pad will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (June 26, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will <u>not</u> be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

Landfarm

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF SUBGRADE SURFACE INSPECTION

PROJECT NAME: EAGLE Gold Land Farm
PROJECT NUMBER: CT001143
OWNER/CONTRACTOR: Victoria Gold / JOS Mining
LOCATION: Eagle Gold, YK

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☑ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐Partial or ☑Complete): ~1742m²
Dimensions of Subgrade Inspection: 26m · 67m
Anchor Trench Dimensions: 0.5m · 1m deep: wide
Comments:

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: 2019-04-06
Signature:
Name: BRADLEY McLEOD
Title: QC Technician

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: 2019-04-16
Signature:
Name: Kati Rogers
Title: CQA Technician
Company: Tetra Tech

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Gold Eagle Landfarm
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/04

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	E0007629-021	26	6.8	0	Good	BM	OK
2	E0007629-021	26	6.8	0	Good	BM	OK
3	E0007629-021	26	6.8	0	Good	BM	OK
4	E0007629-021	26	6.8	0	Good	BM	OK
5	E0007629-021	26	6.8	0	Good	BM	OK
6	E0007629-021	26	6.8	0	Good	BM	OK
7	E0007629-018	26	6.8	0	Good	BM	OK
8	E0007629-018	10	6.8	0	Good	BM	OK
9	E0007629-018	10	6.8	0	Good	BM	OK
10	E0007629-018	10	6.8	0	Good	BM	OK
11	E0007629-018	10	6.8	0	Good	BM	OK
12	E0007629-018	10.5	6.8	0	Good	BM	OK
13	E0007629-018	10.5	6.8	0	Good	BM	OK
14	E0007629-018	10.5	6.8	0	Good	BM	OK
15	E0007629-018	10.5	6.8	0	Good	BM	OK

TOTAL PAGE AREA 1795.2 m²

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/08
SHEET NUMBER 1 of 1

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Gold Eagle Landfarm | SEAM DATE 2019/06/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	1355	WP	1	70.0%	454	124	130	120	130	122	125	135	144	134	147	204	212	210	213	219	BM	
2	EC-WW-019	1715	LC	1	40.0%	454	120	167	118	128	144	150	120	128	131	155	221	224	214	220	215	BM	Smooth/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 2	EEOS	WEOS	1440	1	WP	EC-WW-039	26.0		AP+PS	6/4/19	1705	1710	35	35	Pass	BM
2 / 3	EEOS	WEOS	1500	1	WP	EC-WW-039	26.0		AP+PS	6/4/19	1710	1715	35	35	Pass	BM
3 / 4	EEOS	1F	1510	1	WP	EC-WW-039	16.0		AP+PS	6/4/19	1740	1745	35	35	Pass	BM
3 / 4	1F	WEOS	1510	1	WP	EC-WW-039	10.0		AP+PS	6/4/19	1810	1815	35	35	Pass	BM
4 / 5	EEOS	WEOS	1530	1	WP	EC-WW-039	26.0		AP+PS	6/4/19	1715	1720	35	35	Pass	BM
5 / 6	EEOS	WEOS	1540	1	WP	EC-WW-039	26.0		AP+PS	6/4/19	1720	1725	35	35	Pass	BM
6 / 7	EEOS	WEOS	1600	1	WP	EC-WW-039	26.0	DS-1	AP+PS	6/4/19	1725	1730	35	35	Pass	BM
13 / 14	SEOS	NEOS	1620	1	WP	EC-WW-039	10.5		AP+PS	6/4/19	1730	1735	35	35	Pass	BM
9 / 10	SEOS	NEOS	1630	1	WP	EC-WW-039	10.0		AP+PS	6/4/19	1730	1735	35	35	Pass	BM
14 / 15	SEOS	NEOS	1740	1	LC	EC-WW-019	10.5		AP+PS	7/4/19	1145	1150	40	40	Pass	BM
12 / 13	SEOS	NEOS	1755	1	LC	EC-WW-019	10.5		AP+PS	7/4/19	1152	1157	40	40	Pass	BM
12 / 1	WEOS	EEOS	1804	1	LC	EC-WW-019	6.7		AP+PS	7/4/19	1152	1157	40	40	Pass	BM
13 / 1	WEOS	EEOS	1806	1	LC	EC-WW-019	6.7		AP+PS	7/4/19	1152	1157	40	40	Pass	BM
14 / 1	WEOS	EEOS	1808	1	LC	EC-WW-019	6.7		AP+PS	7/4/19	1140	1145	40	40	Pass	BM
15 / 1	WEOS	EEOS	1810	1	LC	EC-WW-019	6.7		AP+PS	7/4/19	1145	1150	40	40	Pass	BM
8 / 9	SEOS	1K	1830	1	LC	EC-WW-019	2.5		AP+PS	7/4/19	1225	1230	40	40	Pass	BM
8 / 9	1K	NEOS	1830	1	LC	EC-WW-019	7.5		AP+PS	7/4/19	1225	1230	40	40	Pass	BM
10 / 11	SEOS	NEOS	1840	1	LC	EC-WW-019	10.0		AP+PS	7/4/19	1230	1235	40	40	Pass	BM
/																
/																

PAGE TOTAL 244.3

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Bradley McLeod
SUPERVISOR Chad Messervy
SUBMISSION DATE 2019/04/08
SHEET NUMBER 1 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Gold Eagle Landfarm | SEAM DATE 2019/07/04

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-039	830	WP	-3	30.0%	454	130	124	128	123	141	123	127	133	152	123	195	193	194	192	184	BM	Smooth/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
7 / 11	EEOS	WEOS	905	-3	WP	EC-WW-039	6.7		AP+PS	7/4/19	1230	1235	40	40	Pass	BM
7 / 10	EEOS	1M	907	-3	WP	EC-WW-039	3.4		AP+PS	7/4/19	1230	1235	40	40	Pass	BM
7 / 10	1M	WEOS	908	-3	WP	EC-WW-039	3.4		AP+PS	7/4/19	1232	1237	40	40	Pass	BM
7 / 9	EEOS	WEOS	909	-3	WP	EC-WW-039	6.7		AP+PS	7/4/19	1225	1230	40	40	Pass	BM
7 / 8	EEOS	WEOS	911	-3	WP	EC-WW-039	6.7		AP+PS	7/4/19	1225	1230	40	40	Pass	BM
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PAGE TOTAL							26.9									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: Bradley McLeod
SUPERVISOR: Chad Messervy
SUBMISSION DATE: 2019/04/08
SHEET NUMBER: 2 of 2

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Gold Eagle Landfarm

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-023	2019/04/06	1610	DH	1	243	237	117	122	114	133	110	181	200	201	203	212	BM	
2	EC-EX-011	2019/04/07	930	BB	-3	251	240	147	160	154	168	177	190	186	183	183	179	BM	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	12 / 13	Connected to 1	T	G&W	EC-EX-011	2019/04/07	1048	BB	-3	2019/04/07	VB+PS	BM
1B	13 / 14	Connected to 1	T	G&W	EC-EX-011	2019/04/07	1050	BB	-3	2019/04/07	VB+PS	BM
1C	1 / 14	2m West of EEOS, 1m South	WR	P	EC-EX-011	2019/04/07	1120	BB	-3	2019/04/07	VB+PS	BM
1D	14 / 15	Connected to 1	T	P	EC-EX-011	2019/04/07	1130	BB	-3	2019/04/07	VB+PS	BM
1E	12 / 13	On Crest	BO	P	EC-EX-011	2019/04/07	1044	BB	-3	2019/04/07	VB+PS	BM
1F	3 / 4	2.5m East of West Toe	BO	P	EC-EX-023	2019/04/06	1740	DH	1	2019/04/07	VB+PS	BM
1G	4 / 5	On Crest	BO	P	EC-EX-023	2019/04/06	1745	DH	1	2019/04/07	VB+PS	BM
1H	5 / 6	On Crest	BO	P	EC-EX-023	2019/04/06	1750	DH	1	2019/04/07	VB+PS	BM
1I	6 / 7	1m East of Crest	BO	P	EC-EX-023	2019/04/06	1800	DH	1	2019/04/07	VB+PS	BM
1J	8 / 9	Connected to 7	T	G&W	EC-EX-011	2019/04/07	1152	BB	-3	2019/04/07	VB+PS	BM
1K	8 / 9	2.5m North of SEOS	BO	P	EC-EX-011	2019/04/07	1200	BB	-3	2019/04/07	VB+PS	BM
1L	9 / 10	Connected to 7	T	G&W	EC-EX-011	2019/04/07	1146	BB	-3	2019/04/07	VB+PS	BM
1M	7 / 10	3.4m West of EEOS	WR	P	EC-EX-011	2019/04/07	1140	BB	-3	2019/04/07	VB+PS	BM
1N	10 / 11	Connected to 7	T	G&W	EC-EX-011	2019/04/07	1144	BB	-3	2019/04/07	VB+PS	BM
	/											
	/											
	/											
	/											
	/											
	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Bradley McLeod

SUPERVISOR Chad Messervy

SUBMISSION DATE 2019/04/08

SHEET NUMBER 1 of 1

GEOMEMBRANE DESTRUCT LOG

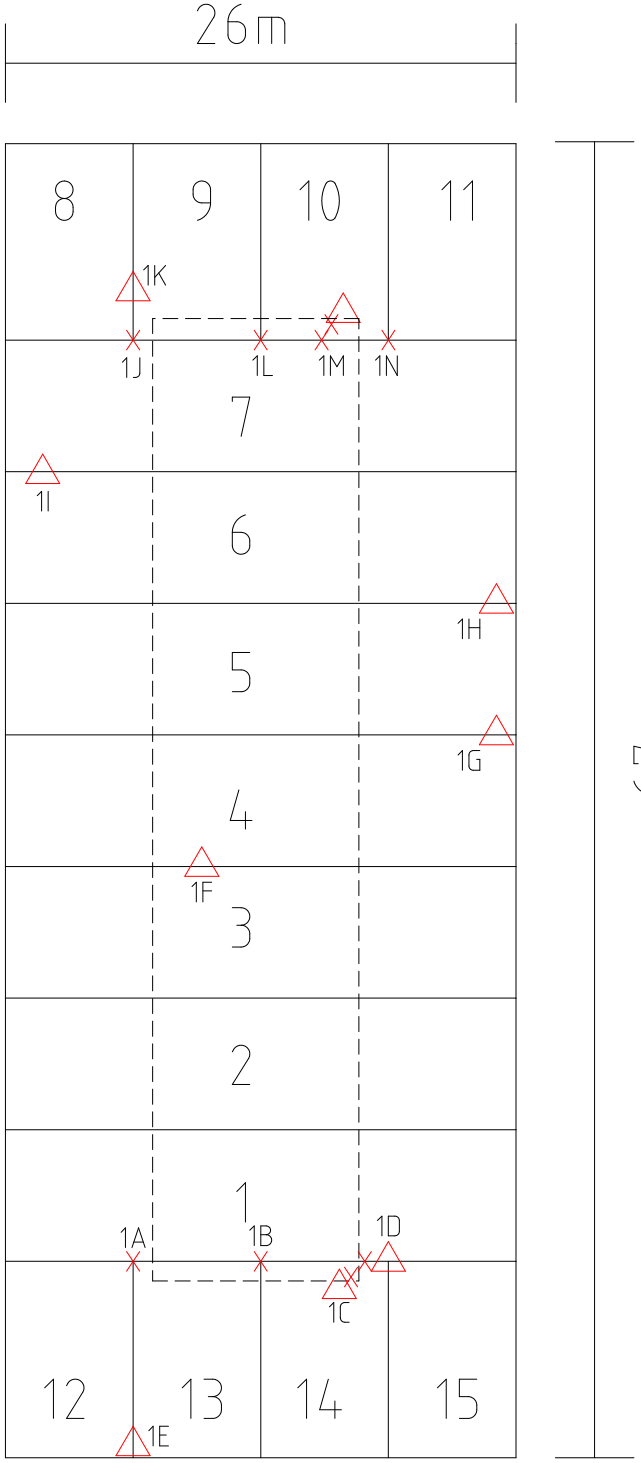
PROJECT NUMBER: CT001143
PROJECT TITLE: Gold Eagle Landfarm
AREA / LAYER: Primary
3RD PARTY: Tetra Tech
ARCHIVE: LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	6/7	2019/04/06	20		BM			119	141	133	146	156	123	115	100	115	136	193	190	195	203	190
On Crest									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION; SOF - SOLID FUSION; SLV - SOLVENT; EXT - EXTRUSION; HAF - HOT AIR FUSION

QC TECH: Bradley McLeod
SUBMITTED BY: Chad Messervy
SUBMISSION DATE: 2019/04/08
SHEET NUMBER: 1 of 1

Landfarm
HDPE DST 60mil



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 — Panel Number
- 3b — Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No

Project No
CT001143

DWG:
DWN: BM
APPD:
DATE: 2019-04-07

SCALE: NTS

CMKD:
REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Eagle Gold Land Farm
PROJECT NUMBER: CT001143 **DATE:** 2019-04-09
OWNER: Victoria Gold
LOCATION: Eagle Gold, YK

Scope of Installation(s): **THE WORK**
Area/Layer: Land Farm, Area Inspected: ☐ Partial or ☑ Complete
Dimensions: 26m · 67m, LP16 underlay installed. HDPE 60 mil installed & tested. Two layers of LP16 overlay installed.

Part 1 – LAYFIELD CANADA LTD.

I, BRADLEY MCLEOD, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: BRADLEY MCLEOD
Title: QC Technician
Date: 2019-04-09 **Signature:**

Part 2 – OWNER (or Representative)

I, _____, a duly appointed representative of _____, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: _____
Title: _____
Company: _____
Date: _____ **Signature:** _____

Comments: _____

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as Land farm will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (April 9, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will <u>not</u> be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

Dublin Vault

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF INSPECTION
OF SOIL SUBGRADE SURFACE

PROJECT NAME: Dublin Vault
PROJECT NUMBER: CT001143
OWNER/CONTRACTOR: Victoria Gold
LOCATION: Eagle Gold,

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

☑ *found it to be an acceptable surface on which to install geomembrane; OR*

☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial or ☑ Complete): 18 X 16
Dimensions of Subgrade Inspection: 18 x 16
Anchor Trench Dimensions: included in dementions
Comments: bits of water flowing threw subgrade.

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: June 23 2019
Signature:
Name: Thomas Howald
Title: Tech

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: June 23/19
Signature:
Name: Scott Dunfee
Title: QA Monitor
Company: tetra Tech

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Dublin Vault
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/22

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-88985	18	6.8	20	Okay	TW	Okay

TOTAL PAGE AREA 122.4 m²

QC TECH TH
SUPERVISOR Austin Green
SUBMISSION DATE
SHEET NUMBER 1 of 2

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Eagle Gold Dublin Vault
AREA / LAYER Primary
DEPLOYMENT DATE 2019/06/23

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
2	5-88985	18	6.8	20	Okay	TW	Okay
3	5-88985	9	3.3	20	Okay	TW	Okay
4	5-88985	9	3.3	20	Okay	TW	Okay

TOTAL PAGE AREA 181.8 m²

QC TECH TH
SUPERVISOR Austin Green
SUBMISSION DATE
SHEET NUMBER 2 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Eagle Gold Dublin Vault | SEAM DATE 2019/06/23

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-045	900	FG	20	40.0%	454	129	154	159	125	147	147	119	129	148	125	177	179	178	180	181	TH	Textured/Textured
2	EC-WW-045	900	FG	20	40.0%	454	136	139	132	135	146	130	133	133	128	136	168	164	172	162	168	TH	Smooth/Textured

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 4	NEOS	SEOS	1100	20	FG	EC-WW-045	18.0	DS-1	AP+PS	6/6/19	1252	1257	40	40	Pass	TH
2 / 3	EEOS	WEOS	1110	20	FG	EC-WW-045	3.3		AP+PS	6/6/19	1000	1005	40	40	Pass	TH
2 / 4	SEOS	NEOS	1115	20	FG	EC-WW-045	9.0		AP+PS	6/6/19	1245	1250	40	40	Pass	TH
3 / 4	SEOS	NEOS	1118	20	FG	EC-WW-045	9.0		AP+PS	6/6/19	1245	1250	40	40	Pass	TH
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PAGE TOTAL							39.3									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH: TH
SUPERVISOR: Austin Green
SUBMISSION DATE:
SHEET NUMBER: 1 of 1

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Eagle Gold Dublin Vault

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-035	2019/06/22	1630	FG	20	246	243	135	140	154	150	150	176	166	177	172	169	TH	
2	EC-EX-035	2019/06/23	1130	EB	20	246	243	129	138	122	113	137	164	161	178	163	166	TH	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	1 / 4	4m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1645	FG	20	2019/06/23	VB+PS	TH
1B	1 / 4	6m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1655	FG	20	2019/06/23	VB+PS	TH
1C	1 / 4	8m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1705	FG	20	2019/06/23	VB+PS	TH
1D	1 / 4	10m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1715	FG	20	2019/06/23	VB+PS	TH
1E	1 / 4	13m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1725	FG	20	2019/06/23	VB+PS	TH
1F	1 / 4	15m South of NEOS, 5.5m West	P	B	EC-EX-035	2019/06/22	1735	FG	20	2019/06/23	VB+PS	TH
1G	1 / 4	1m North of SEOS	DS	P	EC-EX-035	2019/06/23	1233	FG	20	2019/06/23	VB+PS	TH
1H	3 / 4	4m South of NEOS, EXT to Crest	FS	P	EC-EX-035	2019/06/23	1235	FG	20	2019/06/23	VB+PS	TH
1I	2 / 3	Connected to 4	T	G&W	EC-EX-035	2019/06/23	1145	FG	20	2019/06/23	VB+PS	TH
1J	2 / 4	1m North of SEOS	BO	P	EC-EX-035	2019/06/23	1231	FG	20	2019/06/23	VB+PS	TH
	/											
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DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH TH

SUPERVISOR Austin Green

SUBMISSION DATE

SHEET NUMBER 1 of 1

GEOMEMBRANE DESTRUCT LOG

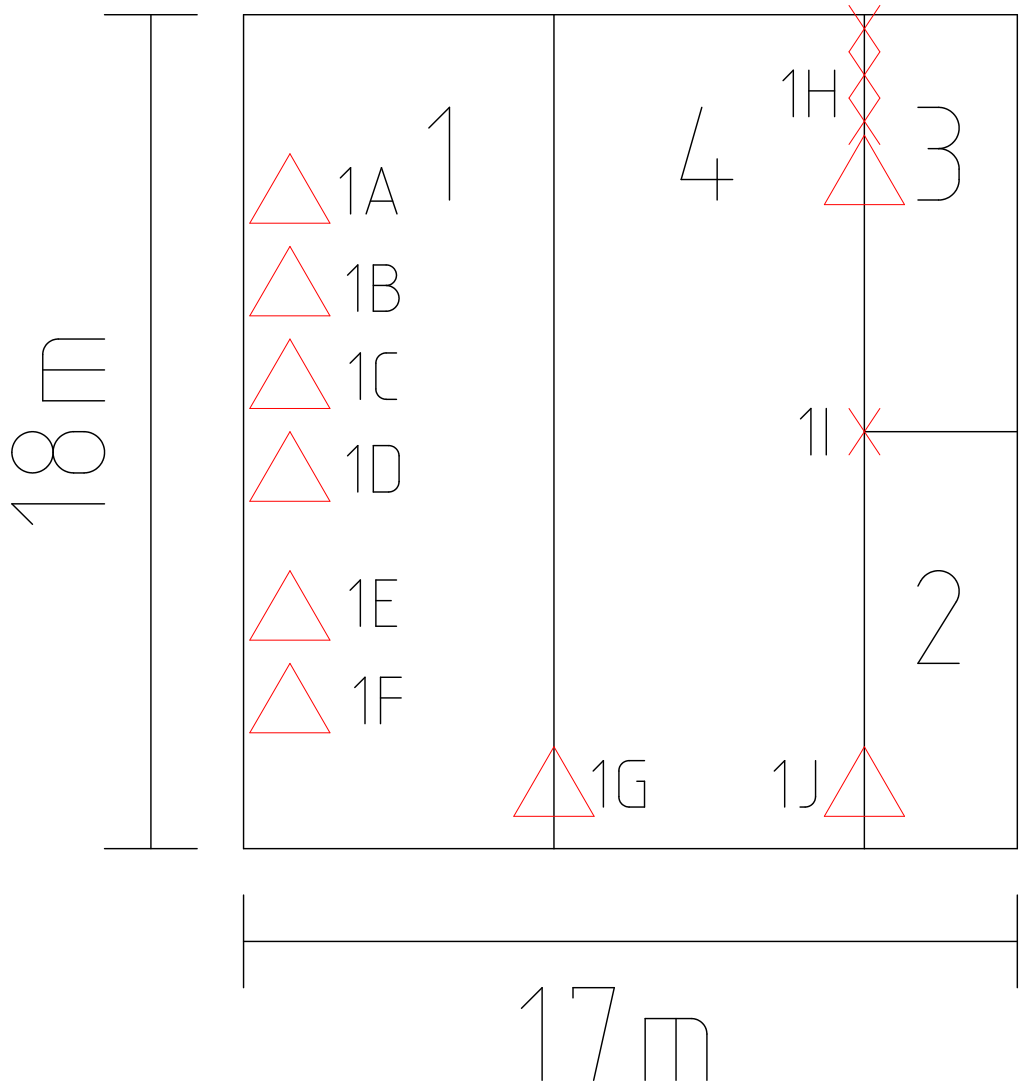
PROJECT NUMBER: CT001143
PROJECT TITLE: Eagle Gold Dublin Vault
AREA / LAYER: Primary
3RD PARTY:
ARCHIVE: LAYFIELD ☐ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	1/4	2019/06/23	20		Pass			144	132	115	116	134	134	133	145	145	149	165	172	169	156	168
1m North of SEOS									SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1	SE-1
DS-																							
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DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH: TH
SUBMITTED BY: Austin Green
SUBMISSION DATE:
SHEET NUMBER: 1 of 1

Dublin Vault



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD CANADA LTD

Quote No

Project No CT001143

DWG:

DWN: BM

APPD:

DATE: 2019-07-10

SCALE: NTS

CMKD:

REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Dublin Vault
PROJECT NUMBER: CT001143 **DATE:** June 23, 2019
OWNER: Victoria Gold
LOCATION: Dublin Vault

Scope of Installation(s): **THE WORK**
Area/Layer: 18X16 Primary Area Inspected: ☐ Partial or ☑ Complete
Dimensions: 18X16
6x boots installed aswell. Single layer 80 RT overlay.
12 ounce underlay geotextile.

Part 1 – LAYFIELD CANADA LTD.

I, Thomas Howald, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: Thomas Howald
Title: Tech
Date: June 23, 2019 **Signature:**

Part 2 – OWNER (or Representative)

I, Scott Dimmick, a duly appointed representative of Tetra Tech, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Dimmick
Title: QA Monitor
Company: Tetra Tech
Date: Jun 24/19 **Signature:**

Comments: Contained water as best as possible. Small amounts of water still under liner.

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as Dublin Vault will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (June 23, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will <u>not</u> be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

ADR Ditch

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: HEAP leach pond ADR Trench
PROJECT NUMBER: CT001143 **DATE:** 2019-04-28
OWNER: Victoria Gold
LOCATION: Eagle Gold, YK

Scope of Installation(s): **THE WORK**
Area/Layer: _____ Area Inspected: ☐ Partial or ☑ Complete
Dimensions: Approx 84m by 13.5m, total area of ~1134m², One layer of 60mil LLDPE DST liner. All panels and seams tested. All details and repairs tested

Part 1 – LAYFIELD CANADA LTD.

I, BRADLEY McLEOD, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: BRADLEY McLEOD
Title: QC Technician
Date: 2019-04-28 **Signature:** [signature]

Part 2 – OWNER (or Representative)

I, Scott Denfield, a duly appointed representative of Tetra Tech, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Denfield
Title: Project Technologist
Company: Tetra Tech
Date: April 30, 2019 **Signature:** [signature]

Comments: Mapped out liner placement and QC/ details for all 2019 work.

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Heapleach Ditch ADR Trench
AREA / LAYER Primary
DEPLOYMENT DATE 2019/04/24

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-37820	30	6.8	4	Good	DB	OK
2	5-37820	30	6.8	4	Good	DB	OK
3	E0007574-021	21	6.8	4	Good	DB	OK
4	E0007574-021	21	6.8	4	Good	DB	OK
5	E0007574-021	25	6.8	4	Good	DB	OK
6	E0007574-021	25	6.8	4	Good	DB	OK
7	E0007574-021	10	6.8	4	Good	DB	OK
8	E0007574-021	10	6.8	4	Good	DB	OK
2A	5-37820	6.7	2	4	Good	DB	OK
8A	E0007574-021	9	1	4	Good	DB	OK

TOTAL PAGE AREA 1192 m²

QC TECH David Burgos
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 1 of 1

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Heapleach Ditch ADR Trench | SEAM DATE 2019/04/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-056	950	EB	-3	40.0%	454	138	138	127	130	138	127	124	130	133	141	146	51	148	139	141	DB	TEXTURED/TEXTURED
2	EC-WW-054	1000	EE	-3	55.0%	454	124	104	109	109	110	115	118	112	124	117	174	146	171	148	148	DB	
3	EC-WW-054	1515	EE	3	50.0%	454	126	112	116	125	118	117	125	121	119	123	133	137	131	129	130	DB	
4	EC-WW-056	1610	EB	3	45.0%	454	128	131	111	120	114	117	115	109	120	116	137	131	135	130	131	DB	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 2	EEOS	WEOS	1044	3	EE	EC-WW-056	30.0		AP+PS	24/4/19	1055	1100	35	35	Pass	BM
3 / 4	EEOS	WEOS	1135	3	EE	EC-WW-054	21.0		AP+PS	24/4/19	1145	1150	35	35	Pass	BM
1 / 4	NEOS	SEOS	1300	3	EB	EC-WW-056	6.0		AP+PS	24/4/19	1755	1800	35	35	Pass	BM
2 / 4	NEOS	SEOS	1304	3	EB	EC-WW-056	0.5		VB+PS	25/4/19					Pass	BM
2 / 3	NEOS	SEOS	1304	3	EB	EC-WW-056	6.0	DS-1	AP+PS	24/4/19	1502	1507	35	35	Pass	BM
5 / 6	EEOS	WEOS	1530	3	EE	EC-WW-054	25.0		AP+PS	24/4/19	1630	1635	35	35	Pass	BM
8 / 7A	EEOS	WEOS	1635	3	EB	EC-WW-056	10.0		AP+PS	24/4/19	1645	1650	35	35	Pass	BM
6 / 8	NEOS	SEOS	1722	3	EB	EC-WW-056	6.7		AP+PS	25/4/19	1240	1245	35	35	Pass	BM
5 / 7	NEOS	SEOS	1726	3	EB	EC-WW-056	6.7		VB+PS	25/4/19					Pass	BM
4 / 6	NEOS	SEOS	1745	3	EB	EC-WW-056	6.0		AP+PS	25/4/19	1545	1550	35	35	Pass	BM
4 / 5	NEOS	SEOS	1749	3	EB	EC-WW-056	0.5		VB+PS	25/4/19					Pass	BM
3 / 5	NEOS	SEOS	1749	3	EE	EC-WW-054	6.0		VB+PS	25/4/19					Pass	BM
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PAGE TOTAL							124.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH David Burgos
SUPERVISOR Chad Messervy
SUBMISSION DATE
SHEET NUMBER 1 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001143 | AREA / LAYER Primary
PROJECT TITLE Heapleach Ditch ADR Trench | SEAM DATE 2019/04/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	EC-WW-054	945	EB	-1	45.0%	454	137	146	137	141	132	140	147	126	134	140	153	152	155	151	149	DB	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1	Existing	SEOS	NEOS	950	-1	EB	EC-WW-054	6.7		AP+PS	25/4/19	1122	1127	35	35	Pass	BM
7	7A	WEOS	EEOS	1032	-1	EB	EC-WW-054	9.0		AP+PS	25/4/19	1200	1205	35	35	Pass	BM
2A	Existing	SEOS	NEOS	1200	-1	EB	EC-WW-054	6.7		AP+PS	25/4/19	1205	1210	35	35	Pass	BM
2	2A	NEOS	SEOS	1214	-1	EB	EC-WW-054	6.7		AP+PS	25/4/19	1220	1225	35	35	Pass	BM

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001143 AREA / LAYER Primary

PROJECT TITLE Heapleach Ditch ADR Trench

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EC-EX-008	2019/04/25	1229	EB	3	248	248	112	118	118	121	117	140	138	137	130	139	DB	
2	EC-EX-008	2019/04/25	1625	EB	3	248	248	92	106	111	102	100	143	150	143	143	135	DB	
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	1 / 2	Connected to 2A, Existing	T	P	EC-EX-008	2019/04/25	1414	EB	3	2019/04/25	VB+PS	BM
1B	1 / 4	On Crest	BO	P	EC-EX-008	2019/04/25	1818	EB	3	2019/04/25	VB+PS	BM
1C	1 / 2	Connected to 3, 4	T	G&W	EC-EX-008	2019/04/25	1400	EB	3	2019/04/25	VB+PS	BM
1D	3 / 5	Entire Seam, Connected to 4, 6	T	P	EC-EX-008	2019/04/25	1718	EB	3	2019/04/25	VB+PS	BM
1E	4 / 6	On Crest	BO	P	EC-EX-008	2019/04/25	1800	EB	3	2019/04/25	VB+PS	BM
1F	5 / 7	Entire Seam	FS	G&W	EC-EX-008	2019/04/25	1325	EB	3	2019/04/25	VB+PS	BM
1G	6 / 8	2m North of SEOS	BO	P	EC-EX-008	2019/04/25	1710	EB	3	2019/04/25	VB+PS	BM
1H	6 / 8	On Crest	BO	P	EC-EX-008	2019/04/25	1702	EB	3	2019/04/25	VB+PS	BM
1I	7A / 8	8, 7A, 7 tied into Existing	FS	G&W	EC-EX-008	2019/04/25	1600	EB	3	2019/04/25	VB+PS	BM
1J	5 / 6	1m West of EEOS, 2.5m South	D	P	EC-EX-008	2019/04/25	1246	EB	3	2019/04/25	VB+PS	BM
1K	5 / 6	3m West of EEOS, 2.5m South	D	P	EC-EX-008	2019/04/25	1316	EB	3	2019/04/25	VB+PS	BM
1L	5 / 6	5m West of EEOS, 2.5m South	D	P	EC-EX-008	2019/04/25	1320	EB	3	2019/04/25	VB+PS	BM
1M	5 / 6	6.5m West of EEOS, 2.5m South	D	P	EC-EX-008	2019/04/25	1330	EB	3	2019/04/25	VB+PS	BM
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DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH David Burgos

SUPERVISOR Chad Messervy

SUBMISSION DATE

SHEET NUMBER 1 of 1

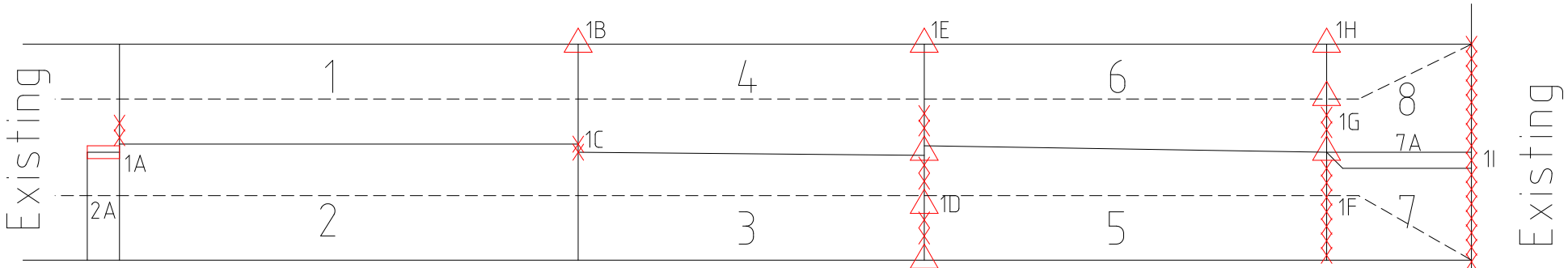
GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001143
PROJECT TITLE Heapleach Ditch ADR Trench
AREA / LAYER Primary
3RD PARTY NLR-AE
ARCHIVE LAYFIELD ☑ OWNER ☐ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	2/3	2017/11/03	15	TS	JR			130	120	136	139	126	136	147	143	146	120	184	190	189	186	183
9.2m from SEOS									SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	SE1	BRK	BRK	BRK	BRK	BRK
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH David Burgos
SUBMITTED BY Chad Messervy
SUBMISSION DATE
SHEET NUMBER 1 of 1



HEAP Leach Pond ADR Trench
Primary Layer

LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No
Project No CT001143
DWG:
DWN: BM
SCALE: NTS
APPD:
CMKD:
DATE: 2019-04-28
REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF SUBGRADE SURFACE INSPECTION

PROJECT NAME: Gold Eagle Misc Heapleach Ditch ADR TRENCH
PROJECT NUMBER: CE-001143
OWNER/CONTRACTOR: JDS MINING / VICTORIA GOLD
LOCATION: EAGLE MINE VICTORIA GOLD, YUKON

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☑ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial or ☑ Complete): _____
Dimensions of Subgrade Inspection: ~ 84m by 135m
Anchor Trench Dimensions: N/A
Comments: _____

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: 04/24/19
Signature: _____
Name: DAVID BURNS
Title: QAQC TECHNICIAN

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: April 30, 2019
Signature: _____
Name: SCOTT DIXON
Title: Project Technician
Company: Victoria Gold

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001143

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Victoria Gold Corp; (the Customer) that the work performed by LAYFIELD on the Installation described as ADR Trench will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (April 28, 2019), for a period of One year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. All liner materials provided for the Installation are covered by a separate warranty provided by Solmax, and LAYFIELD shall not be liable for material failure claims hereunder;

g. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

h. An Installation Warranty will not be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

Cameron Forster, Vice President

90 Day Sump

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

PROJECT NAME: 90 day Sump
PROJECT NUMBER: CT001321
OWNER/CONTRACTOR: Victoria mine
LOCATION: 90 day Sump

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☐ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☑ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐ Partial or ☑ Complete): ☑
Dimensions of Subgrade Inspection: 75ft x 75ft
Anchor Trench Dimensions: N/A
Comments: found to be Ruff with rocks & branches, client understands quality concersens, promition to praced

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: Aug 26 2019
Signature:
Name: Thomas Howald
Title: Tech/Qc

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: Aug 26/19
Signature:
Name: R. Tuckey
Title: TECH SERV SUPER VIC GOLD
Company: VIC Gold

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001231
PROJECT TITLE 90 day sump
AREA / LAYER 80 mil LLDPE Primary
DEPLOYMENT DATE 2019/08/26

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	5-038992	15.2	6.8	15	GOOD	TH	Rough
2	5-038992	6	6.8	15	GOOD	TH	Rough
3	5-038992	5.5	6.8	15	GOOD	TH	Rough
4	5-038992	6.9	6.9	15	GOOD	TH	Rough
5	5-038992	6	5.9	15	GOOD	TH	Rough
6	5-038992	3	2	15	GOOD	TH	Rough

TOTAL PAGE AREA 270.57 m²

QC TECH Thomas Howald
SUPERVISOR Fred Crossman
SUBMISSION DATE 2019/09/02
SHEET NUMBER 1 of 2

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001231
PROJECT TITLE 90 day sump
AREA / LAYER 80 mil LLDPE Primary
DEPLOYMENT DATE 2019/08/30

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
7	5-038992	6.1	6.8	15	GOOD	TH	Rough
8	5-038992	6.9	6.8	15	GOOD	TH	Rough
9	5-038992	6.8	6.8	15	GOOD	TH	Rough

TOTAL PAGE AREA 134.64 m²

QC TECH Thomas Howald
SUPERVISOR Fred Crossman
SUBMISSION DATE 2019/09/02
SHEET NUMBER 2 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001231 | AREA / LAYER 80 mil LLDPE Primary
PROJECT TITLE 90 day sump | SEAM DATE 2019/08/26

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	ww-45	1200	TH	15	45.0%	454	139	141	138	137	138	129	135	134	138	137	199	189	187	193	194	TH	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
1 / 2	WEOS	EEOS	1220	15	TH	WW-45	6.8		AP+PT	30/8/19	1152	1157	40	40	TH	TH
3 / 4	WEOS	EEOS	1230	15	TH	WW-45	6.9		AP+PT	30/8/19	1040	1045	40	40	TH	TH
4 / 5	WEOS	EEOS	1242	15	TH	WW-45	6.0		AP+PT	30/8/19	1040	1045	40	40	TH	TH
3 / 6	WEOS	EEOS	1255	15	TH	WW-45	3.0		AP+PT	30/8/19	1045	1050	40	40	TH	TH
2 / 5	NEOS	SEOS	1311	15	TH	WW-45	5.9		AP+PT	30/8/19	1040	1045	40	40	TH	TH
1 / 4	NEOS	SEOS	1318	15	TH	WW-45	2.0		AP+PT	30/8/19	1100	1105	40	40	TH	TH
1 / 4	NEOS	SEOS	1322	15	TH	WW-45	2.0		AP+PT	30/8/19	1100	1105	40	40	TH	TH
1 / 3	NEOS	SEOS	1327	15	TH	WW-45	6.8		AP+PT	30/8/19	1045	1050	40	40	TH	TH
1 / 6	NEOS	SEOS	1334	15	TH	WW-45	2.0		AP+PT	30/8/19	1045	1050	40	40	TH	TH
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PAGE TOTAL							41.4									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED & VAC BOX
PS - POINT STRESS	

REMARKS:

QC TECH: Thomas Howald
SUPERVISOR: Fred Crossman
SUBMISSION DATE: 2019/09/02
SHEET NUMBER: 1 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001231 | AREA / LAYER 80 mil LLDPE Primary
PROJECT TITLE 90 day sump | SEAM DATE 2019/08/30

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	ww-45	730	TH	15	45.0%	454	139	146	145	145	143	140	141	141	141	149	187	192	190	192	189	TH	

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
7 / 8	WEOS	EEOS	745	15	TH	WW-45	6.9		AP+PT	30/8/19	1050	1055	40	40	TH	TH
8 / 9	WEOS	EEOS	800	15	TH	WW-45	6.1		AP+PT	30/8/19	1050	1055	40	40	TH	TH
7 / 2	NEOS	SEOS	815	15	TH	WW-45	3.2		AP+PT	30/8/19	1152	1157	40	40	TH	TH
7 / 1	NEOS	SEOS	820	15	TH	WW-45	1.1		AP+PT	30/8/19	1152	1157	40	40	TH	TH
1 / 8	NEOS	SEOS	822	15	TH	WW-45	1.1		AP+PT	30/8/19	1105	1110	40	40	TH	TH
1 / 8	NEOS	SEOS	825	15	TH	WW-45	3.3		AP+PT	30/8/19	1100	1105	40	40	TH	TH
1 / 9	NEOS	SEOS	831	15	TH	WW-45	6.8	DS-1	AP+PT	30/8/19	1050	1055	40	40	TH	TH
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PAGE TOTAL							28.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas Howald
SUPERVISOR Fred Crossman
SUBMISSION DATE 2019/09/02
SHEET NUMBER 2 of 2

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001231 AREA / LAYER 80 mil LLDPE Primary

PROJECT TITLE 90 day sump

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EX-035	2019/08/30	830	TH	15	251	248	120	119	114	109	113	158	149	162	160	154	TH	
2																			
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1a	2 / 5	Connected to P-1 and P4	T	G&W	EX-035	2019/08/30	835	IA	15	2019/08/30	VB+PT	TH
1b	1 / 4	7.9m From North Trench	WR	P	EX-035	2019/08/30	840	IA	15	2019/08/30	VB+PT	TH
1c	1 /	7.1m From West Trench	WR	P	EX-035	2019/08/30	845	IA	15	2019/08/30	VB+PT	TH
1d	4 / 3	Connected to P-1	T	G&W	EX-035	2019/08/30	850	IA	15	2019/08/30	VB+PT	TH
1e	4 / 3	6m From West Trench	BO	P	EX-035	2019/08/30	855	IA	15	2019/08/30	VB+PT	TH
1f	4 / 3	4m From West Trench	BO	P	EX-035	2019/08/30	900	IA	15	2019/08/30	VB+PT	TH
1g	3 / 6	Connected to P-1	T	G&W	EX-035	2019/08/30	905	IA	15	2019/08/30	VB+PT	TH
1h	8 / 9	Connected to P-1			EX-035	2019/08/30	906	IA	15	2019/08/30	VB+PT	TH
1i	1 /	7.1m From East Trench	WR	P	EX-035	2019/08/30	910	IA	15	2019/08/30	VB+PT	TH
1j	1 /	7.1m From East Trench	WR	P	EX-035	2019/08/30	922	IA	15	2019/08/30	VB+PT	TH
1k	1 / 8	6.9m From East Trench	WR	G&W	EX-035	2019/08/30	931	IA	15	2019/08/30	VB+PT	TH
1l	7 / 8	Connected to P-1	T	G&W	EX-035	2019/08/30	955	IA	15	2019/08/30	VB+PT	TH
1m	7 / 2	3.2m From North Trench	P	BOOT	EX-035	2019/08/30	1115	IA	15	2019/08/30	VB+PT	TH
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	/											
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	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Thomas Howald

SUPERVISOR Fred Crossman

SUBMISSION DATE 2019/09/02

SHEET NUMBER 1 of 1

GEOMEMBRANE DESTRUCT LOG

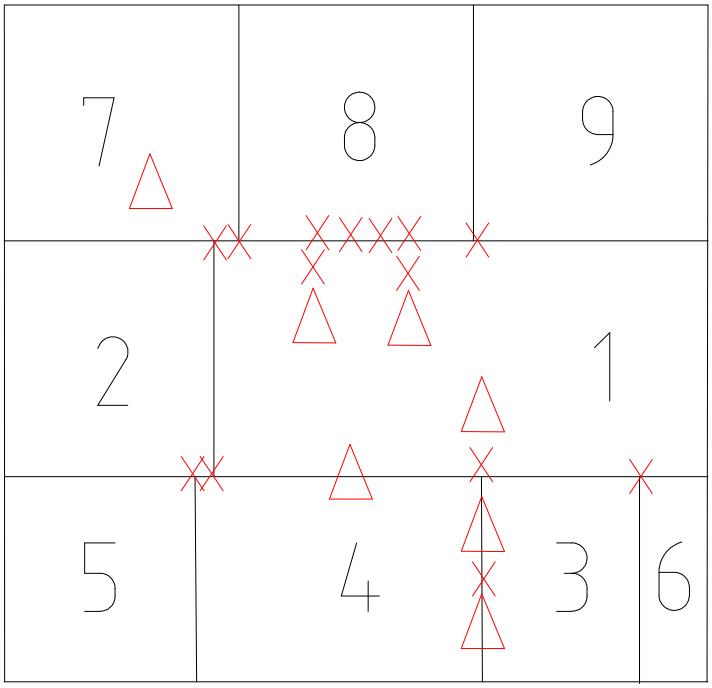
PROJECT NUMBER CT001231
PROJECT TITLE 90 day sump
AREA / LAYER 80 mil LLDPE Primary
3RD PARTY Victoria Mine
ARCHIVE LAYFIELD ☑ OWNER ☑ ENGINEER ☑

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS				INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION					3RD PARTY PRESENT	LAYFIELD PASS	3RD PARTY LAB PASS		LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	1/9	2019/08/30	15		PASS			133	134	132	136	134	141	136	137	142	140	156	163	172	170	166
End of seam									SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2	SE2
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							
DS-																							

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Thomas Howald
SUBMITTED BY Fred Crossman
SUBMISSION DATE 2019/09/02
SHEET NUMBER 1 of 1

CT001143
90 Day Sump



LEGEND

- Field Seam
- Toe Slope
- Extrusion Welding
- Patch
- 2 Panel Number
- 3b Defect Number
- Cap

LAYFIELD
CANADA LTD

Quote No

Project No
CT001143

DWG:
DWN: BM
APPD:
DATE: 2019-09-05

SCALE: NTS

CMKD:
REV.: 1

N

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Eagle Gold Liner work
PROJECT NUMBER: ctool321 **DATE:** Aug 30 2019
OWNER: Vic Gold
LOCATION: 90 day Sump, Elsa YK

Scope of Installation(s): **THE WORK**
Area/Layer: 21m x21m 90 day sump Area Inspected: ☐ Partial or ☒ Complete
Dimensions: 21m x21m

Part 1 – LAYFIELD CANADA LTD.

I, Fred Crossman, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:

Name: Fred Crossman
Title: Technician
Date: Aug 30 2019 **Signature:** FC

Part 2 – OWNER (or Representative)

I, _____, a duly appointed representative of _____ _____, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:

Name: _____
Title: _____
Company: _____
Date: _____ **Signature:** _____

Comments: _____

Heap Leach Repairs 2019

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

PROJECT NAME: Eagle gold mine, Heap leach Pad
PROJECT NUMBER: CT001321
OWNER/CONTRACTOR: JDS
LOCATION: Victoria mine

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☑ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☑ Partial or ☐ Complete): inspected Bridging area.
Dimensions of Subgrade Inspection: 1m X 12m
Anchor Trench Dimensions: N/A
Comments: cut back liner, inspected depth of erosion, then installed a liner cap strip to prevent bridging.

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: Aug 18 2019
Signature:
Name: Thomas Howald
Title: QC/tech.

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date:
Signature:
Name:
Title:
Company:

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT1321
PROJECT TITLE Heap Leach Repairs August 2019
AREA / LAYER Primary 80 mil LLDPE
DEPLOYMENT DATE 2019/08/18

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
Cap 1	5-38962	6	1	10	good	TH	Eroded a bit
Cap 2	5-38962	6	1	10	good	TH	Eroded a bit

TOTAL PAGE AREA 12 m²

QC TECH Thomas Howald
SUPERVISOR Fred Crossman
SUBMISSION DATE Septemeber 2, 2019
SHEET NUMBER 1 of 2

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT1321
PROJECT TITLE Heap Leach Repairs August 2019
AREA / LAYER Primary 80 mil LLDPE
DEPLOYMENT DATE 2019/08/20

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
Cap 3	5-38962	5	4	10	good	TH	Ruff
Cap 4	5-38962	5	1	10	good	TH	Ruff
Cap 5	5-38962	5	1	10	good	TH	Ruff

TOTAL PAGE AREA 30 m²

QC TECH Thomas Howald
SUPERVISOR Fred Crossman
SUBMISSION DATE Septemeber 2, 2019
SHEET NUMBER 2 of 2

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT1321 | AREA / LAYER Primary 80 mil LLDPE
PROJECT TITLE Heap Leach Repairs August 2019 | SEAM DATE 2019/08/18

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	WW-045	930	TH	10	40.0%	454	162	154	175	182	169	171	159	173	164	172	221	218	212	209	220	TH	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
138	Cap 1	SEOS	NEOS	1020	10	TH	WW-45	5.5		AP	18/8/19	1225	1230	40	40	PASS	TH
138	Cap 1	SEOS	NEOS	1023	10	TH	WW-45	5.5		AP	18/8/19	1225	1230	40	40	PASS	TH
140	Cap 2	NEOS	SEOS	1035	10	TH	WW-45	5.5		AP	18/8/19	1222	1227	40	40	PASS	TH
140	Cap 2	NEOS	SEOS	1038	10	TH	WW-45	5.5		AP	18/8/19	1222	1227	40	40	PASS	TH

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT1321 | AREA / LAYER Primary 80 mil LLDPE
PROJECT TITLE Heap Leach Repairs August 2019 | SEAM DATE 2019/08/20

TRIAL SEAMS

#	MACHINE NUMBER	TIME	WELD TECH	AIR TEMP °C	SPEED	WEDGE TEMP °C	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	WW-045	800	TH	10	45.0%	454	151	154	151	155	148	151	152	149	157	149	224	208	199	198	221	TH	

WELD SEAMS

PANEL NUMBERS		SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
Cap 3	Cap 4	WEOS	EEOS	915	10	TH	WW-45	5.0		AP	20/8/19	1000	1005	40	40	PASS	TH
Cap 4	Cap 5	WEOS	EEOS	920	10	TH	WW-45	5.0		AP	20/8/19	1000	1005	40	40	PASS	TH

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT1321 AREA / LAYER Primary 80 mil LLDPE

PROJECT TITLE Heap Leach Repairs August 2019

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EX-035	2019/08/18	935	TH	10	251	248	135	136	119	138	143	205	214	217	209	212	TH	
2	EX-035	2019/08/19	800	TH	10	251	248	164	164	166	175	174	230	225	214	228	235	TH	
3	EX-035	2019/08/19	1200	TH	10	251	248	151	139	142	142	135	210	201	205	206	210	TH	
4	EX-035	2019/08/20	805	TH	10	251	248	155	157	149	152	154	182	172	199	198	199	TH	
5	EX-035	2019/08/21	900	TH	10	251	248	139	137	131	132	127	193	178	187	189	185	TH	
6	EX-035	2019/08/21	1520	TH	10	251	248	142	141	141	141	139	182	190	191	185	186	TH	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1a	138 /	North end of Cap 1	SI	P	EX-035	2019/08/18	1100	TH	10	2019/08/18	VB	TH
1b	138 / 140	Between Cap 1 and Cap 2	SI	B	EX-035	2019/08/18	1110	TH	10	2019/08/18	VB	TH
1c	140 /	South end of Cap 2	SI	P	EX-035	2019/08/18	1120	TH	10	2019/08/18	VB	TH
1d	419 /	On crest	EE	P	EX-035	2019/08/21	930	TH	10	2019/08/21	VB	TH
1e	pill Wa /	1m from Cap 3	EE	P	EX-035	2019/08/21	1555	TH	10	2019/08/21	VB	TH
1f	pill Wa /	1m from Cap 3	EE	B	EX-035	2019/08/21	1550	TH	10	2019/08/21	VB	TH
1g	Cap 3 / Cap 4,5	ected to Spill way , Excisting pond & Pane	EXT	CAP	EX-035	2019/08/20	1000	TH	10	2019/08/20	VB+PT	TH
1h	106 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	831	TH	10	2019/08/19	VB+PT	TH
1i	106 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	830	TH	10	2019/08/19	VB+PT	TH
1j	106 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	829	TH	10	2019/08/19	VB+PT	TH
1k	106 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	828	TH	10	2019/08/19	VB+PT	TH
1l	107 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	827	TH	10	2019/08/19	VB+PT	TH
1m	107 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	826	TH	10	2019/08/19	VB+PT	TH
1n	107 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	825	TH	10	2019/08/19	VB+PT	TH
1o	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	824	TH	10	2019/08/19	VB+PT	TH
1p	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	823	TH	10	2019/08/19	VB+PT	TH
1q	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	822	TH	10	2019/08/19	VB+PT	TH
1r	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	821	TH	10	2019/08/19	VB+PT	TH
1s	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	820	TH	10	2019/08/19	VB+PT	TH
1t	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	819	TH	10	2019/08/19	VB+PT	TH

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Thomas Howald

SUPERVISOR Fred Crossman

SUBMISSION DATE Septemeber 2, 2019

SHEET NUMBER 1 of 3

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT1321 AREA / LAYER Primary 80 mil LLDPE

PROJECT TITLE Heap Leach Repairs August 2019

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	EX-035	2019/08/19	800	TH	10	251	248	164	164	166	175	174	230	225	214	228	235	TH	
2	EX-035	2019/08/19	1200	TH	10	251	248	151	139	142	142	135	210	201	205	206	210	TH	
3	EX-035	2019/08/21	900	TH	10	251	248	139	137	131	132	127	193	178	187	189	185	TH	
4	EX-035	2019/08/21	1520	TH	10	251	248	142	141	141	141	139	182	190	191	185	186	TH	
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2a	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	818	TH	10	2019/08/19	VB+PT	TH
2b	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	817	TH	10	2019/08/19	VB+PT	TH
2c	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	816	TH	10	2019/08/19	VB+PT	TH
2d	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	815	TH	10	2019/08/19	VB+PT	TH
2e	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	814	TH	10	2019/08/19	VB+PT	TH
2f	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	813	TH	10	2019/08/19	VB+PT	TH
2g	104 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	812	TH	10	2019/08/19	VB+PT	TH
2h	99 /	Within 2m of tie in	EE	B	EX-035	2019/08/19	811	TH	10	2019/08/19	VB+PT	TH
2i	256 /	2m from South end of seam	EE	P	EX-035	2019/08/19	810	TH	10	2019/08/19	VB+PT	TH
2j	94 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1525	TH	10	2019/08/21	VB+PT	TH
2k	87 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1526	TH	10	2019/08/21	VB+PT	TH
2l	87 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1527	TH	10	2019/08/21	VB+PT	TH
2m	63 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1528	TH	10	2019/08/21	VB+PT	TH
2n	63 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1529	TH	10	2019/08/21	VB+PT	TH
2o	63 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1530	TH	10	2019/08/21	VB+PT	TH
2p	63 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1531	TH	10	2019/08/21	VB+PT	TH
2q	61 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1532	TH	10	2019/08/21	VB+PT	TH
2r	61 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1533	TH	10	2019/08/21	VB+PT	TH
2s	61 /	Within 2m of tie in	EE	B	EX-035	2019/08/21	1534	TH	10	2019/08/21	VB+PT	TH
2t	/											

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
HAW - HOT AIR WELD		

REMARKS

QC TECH Thomas Howald

SUPERVISOR Fred Crossman

SUBMISSION DATE Septemeber 2, 2019

SHEET NUMBER 2 of 3

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Eagle gold mine Heap leach Pad
PROJECT NUMBER: CT00 1321 **DATE:** Aug 18, 2019
OWNER: JDS
LOCATION: Heap leach pad

Scope of Installation(s): **THE WORK**
Area/Layer: Primary Area Inspected: ☑ Partial or ☐ Complete
Dimensions: 1M X 12m (Panels 140, 138)

Part 1 – LAYFIELD CANADA LTD.

I, Thomas Howald, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: Thomas Howald
Title: QC/Tech
Date: Aug 18 2019 **Signature:**

Part 2 – OWNER (or Representative)

I, Scott Dimitroff, a duly appointed representative of TetraTech, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Scott Dimitroff
Title: QA Monitor
Company: TetraTech
Date: Aug. 19, 2019 **Signature:**

Comments:

Other Documents

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225748

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37809	1008824	CJE810020	22-Jul-18	0.35	0.920	*100* > 120		N/A
5-37812	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37820	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37825	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37835	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37836	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37837	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37844	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37845	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37849	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37852	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37854	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37855	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37856	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37857	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37858	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37859	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37860	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A

Quantity (rolls) : 18

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225749

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37821	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37823	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37824	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37827	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37828	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37829	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37830	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37831	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37832	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37833	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37834	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37875	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37876	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37878	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37879	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37887	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A
5-37889	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A
5-37891	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A

Quantity (rolls) : **18**

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225749

SOLMAX APPROVED Quality Assurance

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37821	MD	1.45 / 1.36	0.938	2.47	10 /10 Views			32.7	524	198	536		0.51 / 0.49
	XD							31.2	538	207			
5-37823	MD	1.44 / 1.34	0.938	2.55	10 /10 Views			36.3	582	196	534		0.49 / 0.49
	XD							31.5	540	203			
5-37824	MD	1.43 / 1.30	0.938	2.25	10 /10 Views			35.6	580	196	534		0.48 / 0.46
	XD							33.1	579	203			
5-37827	MD	1.43 / 1.34	0.938	2.73	10 /10 Views			37.5	609	196	534		0.44 / 0.54
	XD							30.6	535	203			
5-37828	MD	1.45 / 1.42	0.937	2.19	10 /10 Views			36.7	590	200	536		0.45 / 0.50
	XD							33.2	575	198			
5-37829	MD	1.43 / 1.31	0.937	2.19	10 /10 Views			36.6	590	200	536		0.45 / 0.55
	XD							33.3	575	198			
5-37830	MD	1.46 / 1.41	0.937	2.61	10 /10 Views			36.7	589	200	536		0.44 / 0.54
	XD							30.6	529	198			
5-37831	MD	1.43 / 1.31	0.937	2.61	10 /10 Views			36.8	589	200	536		0.54 / 0.44
	XD							30.6	529	198			
5-37832	MD	1.44 / 1.32	0.937	2.60	10 /10 Views			37.2	599	200	536		0.50 / 0.46
	XD							34.0	581	198			
5-37833	MD	1.43 / 1.40	0.937	2.60	10 /10 Views			37.3	599	197	534		0.47 / 0.54
	XD							34.0	581	199			
5-37834	MD	1.44 / 1.39	0.937	2.48	10 /10 Views			35.9	575	197	534		0.49 / 0.46
	XD							32.5	556	199			
5-37875	MD	1.44 / 1.37	0.934	2.69	10 /10 Views			38.4	607	186	538		0.48 / 0.46
	XD							32.4	557	213			
5-37876	MD	1.43 / 1.36	0.934	2.45	10 /10 Views			38.4	615	186	538		0.45 / 0.49
	XD							32.7	563	213			
5-37878	MD	1.43 / 1.35	0.934	2.45	10 /10 Views			38.4	615	186	538		0.46 / 0.45
	XD							32.7	563	213			
5-37879	MD	1.44 / 1.38	0.938	2.40	10 /10 Views			37.9	593	192	554		0.44 / 0.45
	XD							35.2	591	212			
5-37887	MD	1.45 / 1.36	0.938	2.40	10 /10 Views			37.0	592	200	565		0.47 / 0.47
	XD							33.3	562	206			
5-37889	MD	1.44 / 1.38	0.937	2.56	10 /10 Views			38.0	609	195	562		0.45 / 0.48
	XD							34.5	587	206			

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225749

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37891 MD	1.45 / 1.42	0.937	2.54	10 /10 Views			30.2	524	195	562		0.48 / 0.54
XD							38.0	606	206			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225750

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37826	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37838	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37839	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37840	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37861	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37862	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37863	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37864	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37865	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37866	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37867	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37868	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37869	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37870	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37871	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37872	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37873	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37874	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A

Quantity (rolls) : 18

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225750

SOLMAX APPROVED Quality Assurance

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37826	MD	1.44 / 1.39	0.938	2.11	10 /10 Views			37.5	609	196	534		0.49 / 0.51
	XD							30.7	535	203			
5-37838	MD	1.43 / 1.32	0.937	2.65	10 /10 Views			35.1	570	198	544		0.46 / 0.52
	XD							30.8	539	206			
5-37839	MD	1.44 / 1.30	0.937	2.65	10 /10 Views			35.2	570	198	544		0.51 / 0.54
	XD							30.8	539	206			
5-37840	MD	1.45 / 1.38	0.937	2.69	10 /10 Views			34.9	572	198	544		0.49 / 0.51
	XD							31.6	548	206			
5-37861	MD	1.43 / 1.36	0.936	2.67	10 /10 Views			36.3	582	191	543		0.47 / 0.51
	XD							32.7	556	205			
5-37862	MD	1.44 / 1.33	0.936	2.73	10 /10 Views			36.0	578	191	543		0.47 / 0.46
	XD							33.2	569	205			
5-37863	MD	1.45 / 1.40	0.936	2.73	10 /10 Views			36.1	578	196	554		0.46 / 0.46
	XD							33.3	569	202			
5-37864	MD	1.44 / 1.39	0.936	2.48	10 /10 Views			37.0	599	196	554		0.45 / 0.48
	XD							32.5	554	202			
5-37865	MD	1.43 / 1.34	0.936	2.48	10 /10 Views			37.0	599	196	554		0.48 / 0.48
	XD							32.6	554	202			
5-37866	MD	1.43 / 1.36	0.936	2.30	10 /10 Views			36.5	588	196	554		0.45 / 0.47
	XD							31.2	526	202			
5-37867	MD	1.43 / 1.37	0.936	2.30	10 /10 Views			36.4	588	196	554		0.45 / 0.45
	XD							31.2	526	202			
5-37868	MD	1.44 / 1.39	0.934	2.52	10 /10 Views			36.8	582	194	552		0.47 / 0.48
	XD							33.6	575	204			
5-37869	MD	1.43 / 1.38	0.934	2.52	10 /10 Views			36.8	582	194	552		0.46 / 0.46
	XD							33.6	575	204			
5-37870	MD	1.43 / 1.37	0.934	2.39	10 /10 Views			37.3	593	194	552		0.46 / 0.47
	XD							31.3	540	204			
5-37871	MD	1.44 / 1.38	0.934	2.39	10 /10 Views			37.3	593	194	552		0.47 / 0.47
	XD							31.3	540	204			
5-37872	MD	1.43 / 1.37	0.934	2.55	10 /10 Views			37.4	607	194	552		0.48 / 0.47
	XD							34.7	598	204			
5-37873	MD	1.44 / 1.39	0.934	2.55	10 /10 Views			37.5	607	186	538		0.46 / 0.46
	XD							34.7	598	213			

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225750

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37874 MD	1.45 / 1.41	0.934	2.69	10 /10 Views			38.4	607	186	538		0.49 / 0.47
XD							32.3	557	213			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225751

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37813	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37815	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37841	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37842	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37843	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37846	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37847	1008824	CJE810020	24-Jul-18	0.35	0.920	*100* > 120		N/A
5-37848	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37850	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37851	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37853	1008824	CJE810020	25-Jul-18	0.35	0.920	*100* > 120		N/A
5-37880	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37881	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37882	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37883	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37884	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37885	1008824	CJE810020	26-Jul-18	0.35	0.920	*100* > 120		N/A
5-37901	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A

Quantity (rolls) : 18

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225751

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37813	MD	1.46 / 1.36	0.938	2.52	10 /10 Views			35.0	570	189	549		0.47 / 0.51
	XD							31.3	545	202			
5-37815	MD	1.43 / 1.36	0.938	2.50	10 /10 Views			35.9	583	189	549		0.46 / 0.53
	XD							32.7	560	202			
5-37841	MD	1.44 / 1.39	0.937	2.69	10 /10 Views			35.0	572	198	544		0.50 / 0.52
	XD							31.7	548	206			
5-37842	MD	1.45 / 1.35	0.937	2.72	10 /10 Views			35.4	577	198	544		0.51 / 0.50
	XD							32.1	563	206			
5-37843	MD	1.44 / 1.38	0.937	2.72	10 /10 Views			35.4	577	192	543		0.50 / 0.56
	XD							32.2	563	206			
5-37846	MD	1.43 / 1.36	0.937	2.37	10 /10 Views			32.0	553	192	543		0.58 / 0.54
	XD							37.9	613	206			
5-37847	MD	1.43 / 1.36	0.937	2.37	10 /10 Views			32.0	553	192	543		0.59 / 0.52
	XD							38.0	613	206			
5-37848	MD	1.44 / 1.38	0.938	2.64	10 /10 Views			36.4	592	198	529		0.56 / 0.57
	XD							32.4	550	206			
5-37850	MD	1.44 / 1.34	0.938	2.40	10 /10 Views			35.3	574	198	529		0.53 / 0.54
	XD							30.9	538	206			
5-37851	MD	1.44 / 1.33	0.938	2.40	10 /10 Views			35.4	574	198	529		0.55 / 0.56
	XD							30.8	538	206			
5-37853	MD	1.46 / 1.35	0.938	2.59	10 /10 Views			36.3	588	191	535		0.51 / 0.57
	XD							30.8	539	202			
5-37880	MD	1.43 / 1.30	0.938	2.40	10 /10 Views			38.0	593	192	554		0.48 / 0.46
	XD							35.2	591	212			
5-37881	MD	1.47 / 1.39	0.938	2.70	10 /10 Views			37.1	576	192	554		0.47 / 0.45
	XD							33.8	568	212			
5-37882	MD	1.46 / 1.36	0.938	2.70	10 /10 Views			37.1	576	192	554		0.47 / 0.47
	XD							33.8	568	212			
5-37883	MD	1.47 / 1.41	0.938	2.57	10 /10 Views			38.6	596	192	554		0.47 / 0.47
	XD							32.3	540	212			
5-37884	MD	1.47 / 1.40	0.938	2.57	10 /10 Views			38.7	596	200	565		0.47 / 0.48
	XD							32.2	540	206			
5-37885	MD	1.44 / 1.34	0.938	2.43	10 /10 Views			35.2	553	200	565		0.47 / 0.45
	XD							32.4	546	206			

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225751

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37901	MD	1.47 / 1.35	0.934	2.55	10 /10 Views			34.8	564	193	546		0.50 / 0.48
	XD							32.9	569	201			

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LIST OF GEOMEMBRANE ROLLS

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225752

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37808	1008824	CJE810020	22-Jul-18	0.35	0.920	*100* > 120		N/A
5-37810	1008824	CJE810020	22-Jul-18	0.35	0.920	*100* > 120		N/A
5-37811	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37817	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37818	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37819	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37822	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37886	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A
5-37888	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A
5-37893	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37894	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37895	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37896	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37898	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37899	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37900	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37902	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37903	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A

Quantity (rolls) : **18**

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225752

SOLMAX APPROVED Quality Assurance

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37808	MD	1.46 / 1.39	0.938	2.19	10 /10 Views			37.0	593	190	524		0.45 / 0.49
	XD							32.3	553	192			
5-37810	MD	1.44 / 1.38	0.938	2.34	10 /10 Views			34.5	546	190	524		0.49 / 0.52
	XD							29.7	525	192			
5-37811	MD	1.43 / 1.37	0.938	2.34	10 /10 Views			34.5	546	190	524		0.51 / 0.53
	XD							29.6	525	192			
5-37817	MD	1.46 / 1.37	0.938	2.60	10 /10 Views			35.0	583	189	549		0.52 / 0.47
	XD							33.4	591	202			
5-37818	MD	1.45 / 1.36	0.938	2.25	10 /10 Views			37.7	598	198	536		0.47 / 0.45
	XD							30.0	514	207			
5-37819	MD	1.46 / 1.39	0.938	2.25	10 /10 Views			37.7	598	198	536		0.46 / 0.49
	XD							29.9	514	207			
5-37822	MD	1.47 / 1.39	0.938	2.55	10 /10 Views			36.3	582	198	536		0.48 / 0.47
	XD							31.5	540	207			
5-37886	MD	1.43 / 1.35	0.938	2.43	10 /10 Views			35.2	553	200	565		0.48 / 0.48
	XD							32.4	546	206			
5-37888	MD	1.45 / 1.37	0.938	2.40	10 /10 Views			37.0	592	200	565		0.46 / 0.46
	XD							33.3	562	206			
5-37893	MD	1.43 / 1.34	0.937	2.66	10 /10 Views			33.5	584	195	562		0.51 / 0.45
	XD							36.4	587	206			
5-37894	MD	1.44 / 1.36	0.937	2.66	10 /10 Views			33.6	584	202	544		0.54 / 0.49
	XD							36.4	587	201			
5-37895	MD	1.44 / 1.33	0.937	2.42	10 /10 Views			31.9	548	202	544		0.50 / 0.51
	XD							37.9	608	201			
5-37896	MD	1.44 / 1.40	0.937	2.42	10 /10 Views			31.9	548	202	544		0.47 / 0.55
	XD							37.8	608	201			
5-37898	MD	1.43 / 1.33	0.937	2.47	10 /10 Views			35.2	571	202	544		0.54 / 0.50
	XD							31.2	534	201			
5-37899	MD	1.45 / 1.37	0.934	2.56	10 /10 Views			32.1	555	193	546		0.58 / 0.50
	XD							37.5	602	201			
5-37900	MD	1.50 / 1.37	0.934	2.56	10 /10 Views			32.0	555	193	546		0.52 / 0.50
	XD							37.5	602	201			
5-37902	MD	1.45 / 1.28	0.934	2.55	10 /10 Views			34.9	564	193	546		0.52 / 0.49
	XD							32.9	569	201			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225752

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37903	MD	1.44 / 1.32	0.934	2.55	10 /10 Views			36.9	590	193	546		0.49 / 0.48
	XD							32.8	565	201			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225756

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 1.50 mm Black Textured								
5-37814	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37816	1008824	CJE810020	23-Jul-18	0.35	0.920	*100* > 120		N/A
5-37890	1008824	CJE810020	27-Jul-18	0.35	0.920	*100* > 120		N/A
5-37892	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
5-37897	1008824	CJE810060	27-Jul-18	0.38	0.918	*100* > 120		N/A
LLDPE 2.00 mm Black Textured								
5-37936	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37937	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37938	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37940	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37941	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37942	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37943	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37944	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37945	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37946	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37947	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37948	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37949	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A

Quantity (rolls) : 18

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225756



Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37814	MD	1.43 / 1.33	0.938	2.50	10 /10 Views			35.9	583	189	549		0.46 / 0.49
	XD							32.7	560	202			
5-37816	MD	1.43 / 1.36	0.938	2.60	10 /10 Views			35.0	583	189	549		0.47 / 0.49
	XD							33.4	591	202			
5-37890	MD	1.46 / 1.40	0.937	2.56	10 /10 Views			38.0	609	195	562		0.46 / 0.47
	XD							34.5	587	206			
5-37892	MD	1.43 / 1.31	0.937	2.54	10 /10 Views			30.3	524	195	562		0.51 / 0.49
	XD							38.0	606	206			
5-37897	MD	1.43 / 1.36	0.937	2.47	10 /10 Views			35.2	571	202	544		0.47 / 0.59
	XD							31.2	534	201			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225756

SOLMAX APPROVED Quality Assurance

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37936	MD	1.92 / 1.87	0.936	2.59	10 /10 Views			46.8	607	252	661		0.57 / 0.48
	XD							41.3	561	262			
5-37937	MD	1.93 / 1.74	0.936	2.41	10 /10 Views			45.0	583	252	661		0.55 / 0.46
	XD							42.1	568	262			
5-37938	MD	1.94 / 1.85	0.936	2.41	10 /10 Views			45.0	583	252	661		0.53 / 0.50
	XD							42.0	568	262			
5-37940	MD	1.94 / 1.78	0.938	2.64	10 /10 Views			45.3	577	249	656		0.50 / 0.49
	XD							40.4	544	259			
5-37941	MD	1.93 / 1.84	0.938	2.64	10 /10 Views			45.4	577	249	656		0.51 / 0.49
	XD							40.5	544	259			
5-37942	MD	1.90 / 1.85	0.938	2.55	10 /10 Views			45.0	582	249	656		0.50 / 0.47
	XD							41.9	569	259			
5-37943	MD	1.91 / 1.85	0.938	2.55	10 /10 Views			45.0	582	249	656		0.51 / 0.49
	XD							41.9	569	259			
5-37944	MD	1.91 / 1.88	0.938	2.51	10 /10 Views			44.3	573	249	656		0.52 / 0.46
	XD							41.3	559	259			
5-37945	MD	1.91 / 1.82	0.938	2.51	10 /10 Views			44.3	573	245	636		0.55 / 0.49
	XD							41.3	559	254			
5-37946	MD	1.90 / 1.76	0.938	2.44	10 /10 Views			43.1	561	245	636		0.54 / 0.48
	XD							42.6	585	254			
5-37947	MD	1.92 / 1.83	0.938	2.44	10 /10 Views			43.1	561	245	636		0.52 / 0.45
	XD							42.7	585	254			
5-37948	MD	1.90 / 1.85	0.938	2.60	10 /10 Views			45.2	589	245	636		0.50 / 0.44
	XD							43.0	586	254			
5-37949	MD	1.93 / 1.83	0.938	2.60	10 /10 Views			45.2	589	245	636		0.50 / 0.44
	XD							43.1	586	254			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225748

SOLMAX APPROVED Quality Assurance

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37809	MD	1.43 / 1.35	0.938	2.19	10 /10 Views			37.0	593	190	524		0.48 / 0.50
	XD							32.4	553	192			
5-37812	MD	1.43 / 1.35	0.938	2.52	10 /10 Views			35.1	570	190	524		0.48 / 0.53
	XD							31.4	545	192			
5-37820	MD	1.46 / 1.32	0.938	2.47	10 /10 Views			32.7	524	198	536		0.51 / 0.45
	XD							31.2	538	207			
5-37825	MD	1.44 / 1.28	0.938	2.25	10 /10 Views			35.6	580	196	534		0.49 / 0.55
	XD							33.1	579	203			
5-37835	MD	1.45 / 1.37	0.937	2.48	10 /10 Views			35.9	575	197	534		0.54 / 0.44
	XD							32.6	556	199			
5-37836	MD	1.46 / 1.39	0.937	2.50	10 /10 Views			36.7	585	197	534		0.51 / 0.45
	XD							32.9	566	199			
5-37837	MD	1.44 / 1.38	0.937	2.50	10 /10 Views			36.6	585	197	534		0.57 / 0.44
	XD							32.9	566	199			
5-37844	MD	1.43 / 1.33	0.937	2.22	10 /10 Views			35.4	577	192	543		0.55 / 0.53
	XD							32.2	563	206			
5-37845	MD	1.44 / 1.30	0.937	2.22	10 /10 Views			35.4	577	192	543		0.56 / 0.55
	XD							32.2	563	206			
5-37849	MD	1.43 / 1.41	0.938	2.64	10 /10 Views			36.4	592	198	529		0.55 / 0.51
	XD							32.4	550	206			
5-37852	MD	1.44 / 1.39	0.938	2.59	10 /10 Views			36.2	588	198	529		0.53 / 0.51
	XD							30.8	539	206			
5-37854	MD	1.44 / 1.36	0.938	2.30	10 /10 Views			37.2	598	191	535		0.47 / 0.51
	XD							30.4	524	202			
5-37855	MD	1.43 / 1.38	0.938	2.30	10 /10 Views			37.3	598	191	535		0.49 / 0.54
	XD							30.5	524	202			
5-37856	MD	1.43 / 1.33	0.938	2.50	10 /10 Views			36.8	595	191	535		0.48 / 0.47
	XD							31.9	547	202			
5-37857	MD	1.43 / 1.31	0.938	2.50	10 /10 Views			36.8	595	191	535		0.47 / 0.50
	XD							31.9	547	202			
5-37858	MD	1.43 / 1.37	0.936	2.66	10 /10 Views			36.7	587	191	543		0.49 / 0.51
	XD							34.2	584	205			
5-37859	MD	1.44 / 1.37	0.936	2.66	10 /10 Views			36.8	587	191	543		0.47 / 0.49
	XD							34.1	584	205			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754



Reference Number : 112017

Packing Slip Number : 225748

Product : 1008824

LLDPE 1.50 mm Black Textured

CE Certificate = LL-60-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.43 / 1.28	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			23	400	165	375	± 2	0.40
5-37860 MD	1.44 / 1.36	0.936	2.67	10 /10 Views			36.2	582	191	543		0.49 / 0.48
XD							32.8	556	205			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225754

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-37905	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37908	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37913	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37914	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37915	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37916	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37917	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37918	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37919	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37920	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37921	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37922	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37925	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37926	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37927	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37928	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37929	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37933	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A

Quantity (rolls) : 18

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225866

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-37911	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37912	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37930	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37931	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37983	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37984	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37985	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37986	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37995	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37996	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-37997	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38001	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38002	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38003	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38004	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38005	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38007	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38026	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : **18**

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225866

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37911	MD	1.90 / 1.83	0.938	2.57	10 /10 Views			46.8	612	257	648		0.52 / 0.49
	XD							43.6	591	261			
5-37912	MD	1.91 / 1.73	0.938	2.57	10 /10 Views			46.8	612	257	648		0.49 / 0.50
	XD							43.6	591	261			
5-37930	MD	1.91 / 1.80	0.938	2.41	10 /10 Views			44.1	570	253	652		0.55 / 0.47
	XD							43.9	584	252			
5-37931	MD	1.91 / 1.81	0.938	2.41	10 /10 Views			44.1	570	253	652		0.59 / 0.46
	XD							44.0	584	252			
5-37983	MD	1.94 / 1.80	0.933	2.64	10 /10 Views			45.4	590	233	634		0.50 / 0.45
	XD							40.3	538	246			
5-37984	MD	1.92 / 1.85	0.938	2.60	10 /10 Views			43.8	571	234	645		0.52 / 0.47
	XD							38.2	517	250			
5-37985	MD	1.92 / 1.87	0.938	2.60	10 /10 Views			43.8	571	234	645		0.51 / 0.52
	XD							38.2	517	250			
5-37986	MD	1.90 / 1.79	0.938	2.52	10 /10 Views			44.5	582	234	645		0.57 / 0.53
	XD							41.4	564	250			
5-37995	MD	1.94 / 1.89	0.937	2.67	10 /10 Views			42.7	543	275	661		0.56 / 0.47
	XD							43.8	577	256			
5-37996	MD	1.93 / 1.86	0.937	2.58	10 /10 Views			46.4	592	275	661		0.56 / 0.46
	XD							43.7	581	256			
5-37997	MD	1.90 / 1.78	0.937	2.58	10 /10 Views			46.4	592	275	661		0.52 / 0.50
	XD							43.8	581	256			
5-38001	MD	1.92 / 1.84	0.937	2.57	10 /10 Views			44.6	573	258	635		0.55 / 0.54
	XD							39.6	536	263			
5-38002	MD	1.93 / 1.83	0.937	2.57	10 /10 Views			44.7	573	258	635		0.54 / 0.49
	XD							39.6	536	263			
5-38003	MD	1.91 / 1.76	0.935	2.67	10 /10 Views			43.1	560	254	632		0.54 / 0.51
	XD							42.9	578	258			
5-38004	MD	1.90 / 1.80	0.935	2.67	10 /10 Views			43.1	560	254	632		0.53 / 0.54
	XD							42.9	578	258			
5-38005	MD	1.92 / 1.76	0.935	2.65	10 /10 Views			43.4	562	254	632		0.48 / 0.47
	XD							39.1	524	258			
5-38007	MD	1.92 / 1.79	0.935	2.39	10 /10 Views			43.3	549	254	632		0.56 / 0.51
	XD							39.1	525	258			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225866

SOLMAX APPROVED Quality Assurance

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-38026	MD	1.90 / 1.80	0.935	2.57	10 /10 Views			46.4	594	242	654		0.51 / 0.48
	XD							43.5	586	248			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225865

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-37909	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37987	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37988	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37989	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37994	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-38000	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38009	1011709	CJE811730	02-Aug-18	0.35	0.919	*100* > 120		N/A
5-38022	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38023	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38024	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38025	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38027	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38028	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38035	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38036	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38039	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38040	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38041	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : 18

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225865

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37909	MD	1.93 / 1.82	0.938	2.39	10 /10 Views			44.1	581	257	648		0.48 / 0.49
	XD							42.0	580	261			
5-37987	MD	1.91 / 1.76	0.938	2.58	10 /10 Views			44.5	582	234	645		0.54 / 0.53
	XD							41.5	564	250			
5-37988	MD	1.91 / 1.82	0.938	2.56	10 /10 Views			42.6	552	234	645		0.55 / 0.49
	XD							41.2	564	250			
5-37989	MD	1.93 / 1.85	0.938	2.56	10 /10 Views			42.6	552	246	643		0.53 / 0.49
	XD							41.2	564	259			
5-37994	MD	1.94 / 1.85	0.937	2.67	10 /10 Views			42.8	543	275	661		0.53 / 0.46
	XD							43.8	577	256			
5-38000	MD	1.95 / 1.89	0.937	2.43	10 /10 Views			46.9	590	258	635		0.53 / 0.47
	XD							41.0	541	263			
5-38009	MD	1.90 / 1.78	0.935	2.54	10 /10 Views			42.8	546	249	640		0.53 / 0.48
	XD							41.9	560	256			
5-38022	MD	1.91 / 1.78	0.937	2.54	10 /10 Views			45.7	588	247	642		0.47 / 0.48
	XD							41.8	568	250			
5-38023	MD	1.91 / 1.85	0.937	2.54	10 /10 Views			45.7	588	247	642		0.48 / 0.45
	XD							41.9	568	250			
5-38024	MD	1.90 / 1.79	0.935	2.53	10 /10 Views			47.4	602	242	654		0.48 / 0.46
	XD							44.0	584	248			
5-38025	MD	1.91 / 1.83	0.935	2.53	10 /10 Views			47.5	602	242	654		0.48 / 0.47
	XD							44.0	584	248			
5-38027	MD	1.91 / 1.87	0.935	2.57	10 /10 Views			46.4	594	242	654		0.50 / 0.49
	XD							43.6	586	248			
5-38028	MD	1.90 / 1.81	0.935	2.51	10 /10 Views			44.9	571	242	654		0.45 / 0.47
	XD							42.3	566	248			
5-38035	MD	1.91 / 1.81	0.933	2.60	10 /10 Views			46.6	594	242	652		0.47 / 0.47
	XD							44.2	587	247			
5-38036	MD	1.92 / 1.83	0.933	2.60	10 /10 Views			46.6	594	242	652		0.47 / 0.46
	XD							44.3	587	247			
5-38039	MD	1.93 / 1.86	0.933	2.47	10 /10 Views			46.5	584	242	652		0.48 / 0.48
	XD							44.8	592	247			
5-38040	MD	1.90 / 1.77	0.933	2.47	10 /10 Views			46.6	584	250	633		0.45 / 0.46
	XD							44.8	592	254			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225865

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-38041	MD	1.92 / 1.86	0.933	2.33	10 /10 Views			46.2	588	250	633		0.46 / 0.47
	XD							45.7	600	254			

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MANUFACTURING QUALITY CONTROL

Test Results ROD

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225865

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	39999A	LLDPE	CJE811730	0.922	2.44
ROD-LL-5-B	39999D	LLDPE	CJE811730	0.922	2.44
ROD-LL-5-B	40000A	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40000B	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40000C	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40000D	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40001A	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40001B	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40001C	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40001D	LLDPE	CJE811730	0.922	2.53
ROD-LL-5-B	40002A	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40002B	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40002C	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40002D	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40003A	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40003B	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40003C	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40003D	LLDPE	CJE811730	0.926	2.59
ROD-LL-5-B	40004A	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40004B	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40004C	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40004D	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40005A	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40005B	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40005C	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40005D	LLDPE	CJE811730	0.926	2.33
ROD-LL-5-B	40006A	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40006B	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40006C	LLDPE	CJE811730	0.926	2.30

MANUFACTURING QUALITY CONTROL

Test Results ROD

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225865

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	40006D	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40007A	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40007B	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40007C	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40007D	LLDPE	CJE811730	0.926	2.30
ROD-LL-5-B	40008A	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40008B	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40008C	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40008D	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40009A	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40009B	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40009C	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40009D	LLDPE	CJE811730	0.926	2.43
ROD-LL-5-B	40010A	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40010B	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40010C	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40010D	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40011A	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40011B	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40011C	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40011D	LLDPE	CJE811730	0.926	2.29
ROD-LL-5-B	40012A	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40012B	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40012C	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40012D	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40013A	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40013B	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40013C	LLDPE	CJE811730	0.926	2.20
ROD-LL-5-B	40013D	LLDPE	CJE811730	0.926	2.20

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MANUFACTURING QUALITY CONTROL

Test Results ROD

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225865

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	40014A	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40014B	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40014C	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40014D	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40015A	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40015B	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40015C	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40015D	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40017A	LLDPE	CJE811730	0.928	2.46
ROD-LL-5-B	40017B	LLDPE	CJE811730	0.928	2.46
ROD-LL-5-B	40017C	LLDPE	CJE811730	0.928	2.46
ROD-LL-5-B	40017D	LLDPE	CJE811730	0.928	2.46
ROD-LL-5-B	40018A	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40018B	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40018C	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40018D	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40019A	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40019B	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40019C	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40019D	LLDPE	CJE811730	0.928	2.51
ROD-LL-5-B	40020A	LLDPE	CJE811730	0.928	2.42
ROD-LL-5-B	40020B	LLDPE	CJE811730	0.928	2.42
ROD-LL-5-B	40020C	LLDPE	CJE811730	0.928	2.42
ROD-LL-5-B	40020D	LLDPE	CJE811730	0.928	2.42
ROD-LL-5-B	40021A	LLDPE	CJE811730	0.928	2.42
ROD-LL-5-B	40021B	LLDPE	CJE811730	0.928	2.42

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225755

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-37906	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37907	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37910	1011709	CJE810060	28-Jul-18	0.38	0.918	*100* > 120		N/A
5-37934	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37935	1011709	CJE810060	29-Jul-18	0.38	0.918	*100* > 120		N/A
5-37952	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37953	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37954	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37955	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37956	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37957	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37958	1011709	CJE810060	30-Jul-18	0.38	0.918	*100* > 120		N/A
5-37959	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37960	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37961	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37962	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37963	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37964	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A

Quantity (rolls) : 18

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754



Reference Number : 112017

Packing Slip Number : 225755

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37906	MD	1.93 / 1.86	0.938	2.40	10 /10 Views			46.4	591	254	656		0.48 / 0.47
	XD							43.0	574	264			
5-37907	MD	1.90 / 1.82	0.938	2.40	10 /10 Views			46.4	591	254	656		0.51 / 0.47
	XD							42.9	574	264			
5-37910	MD	1.90 / 1.82	0.938	2.57	10 /10 Views			46.8	612	257	648		0.48 / 0.53
	XD							43.6	591	261			
5-37934	MD	1.90 / 1.72	0.936	2.45	10 /10 Views			46.9	601	252	661		0.52 / 0.45
	XD							40.3	536	262			
5-37935	MD	1.92 / 1.85	0.936	2.59	10 /10 Views			46.8	607	252	661		0.47 / 0.55
	XD							41.4	561	262			
5-37952	MD	1.96 / 1.87	0.936	2.64	10 /10 Views			44.4	572	258	667		0.56 / 0.46
	XD							43.2	570	258			
5-37953	MD	1.92 / 1.81	0.936	2.64	10 /10 Views			44.5	572	258	667		0.52 / 0.46
	XD							43.3	570	258			
5-37954	MD	1.93 / 1.83	0.936	2.40	10 /10 Views			44.2	561	258	667		0.52 / 0.45
	XD							42.4	556	258			
5-37955	MD	1.94 / 1.86	0.936	2.40	10 /10 Views			44.3	561	258	667		0.48 / 0.45
	XD							42.4	556	258			
5-37956	MD	1.91 / 1.73	0.935	2.45	10 /10 Views			45.1	575	243	642		0.49 / 0.47
	XD							42.3	564	250			
5-37957	MD	1.93 / 1.87	0.935	2.45	10 /10 Views			45.0	575	243	642		0.48 / 0.45
	XD							42.4	564	250			
5-37958	MD	1.90 / 1.82	0.935	2.55	10 /10 Views			46.4	579	243	642		0.48 / 0.44
	XD							41.0	546	250			
5-37959	MD	1.91 / 1.74	0.935	2.55	10 /10 Views			46.4	579	243	642		0.50 / 0.44
	XD							41.0	546	250			
5-37960	MD	1.90 / 1.74	0.935	2.62	10 /10 Views			46.5	583	243	642		0.49 / 0.44
	XD							44.3	586	250			
5-37961	MD	1.90 / 1.84	0.935	2.62	10 /10 Views			46.6	583	254	631		0.47 / 0.47
	XD							44.3	586	251			
5-37962	MD	1.92 / 1.78	0.935	2.62	10 /10 Views			46.8	573	254	631		0.45 / 0.47
	XD							42.9	579	251			
5-37963	MD	1.91 / 1.82	0.935	2.62	10 /10 Views			46.8	573	254	631		0.45 / 0.47
	XD							42.9	579	251			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754



Reference Number : 112017

Packing Slip Number : 225755

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37964	MD	1.91 / 1.83	0.935	2.52	10 /10 Views			48.1	579	254	631		0.49 / 0.45
	XD							42.4	567	251			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225824

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-37965	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37966	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37967	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37968	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37969	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37970	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37971	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37972	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37973	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37974	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37975	1011709	CJE810060	31-Jul-18	0.38	0.918	*100* > 120		N/A
5-37976	1011709	CJE811730	31-Jul-18	0.35	0.919	*100* > 120		N/A
5-37977	1011709	CJE811730	31-Jul-18	0.35	0.919	*100* > 120		N/A
5-37978	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37979	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37980	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37981	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A
5-37982	1011709	CJE811730	01-Aug-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : **18**

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225824

SOLMAX APPROVED Quality Assurance

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37965	MD	1.92 / 1.84	0.935	2.52	10 /10 Views			48.2	579	254	631		0.47 / 0.45
	XD							42.4	567	251			
5-37966	MD	1.90 / 1.81	0.934	2.46	10 /10 Views			48.7	559	258	658		0.51 / 0.47
	XD							43.7	578	258			
5-37967	MD	1.92 / 1.85	0.934	2.46	10 /10 Views			48.7	559	258	658		0.52 / 0.47
	XD							43.8	578	258			
5-37968	MD	1.93 / 1.85	0.934	2.58	10 /10 Views			45.2	546	258	658		0.54 / 0.45
	XD							44.4	584	258			
5-37969	MD	1.92 / 1.86	0.934	2.58	10 /10 Views			45.2	546	258	658		0.52 / 0.49
	XD							44.5	584	258			
5-37970	MD	1.90 / 1.85	0.934	2.65	10 /10 Views			45.0	576	258	658		0.53 / 0.47
	XD							43.2	568	258			
5-37971	MD	1.93 / 1.88	0.934	2.65	10 /10 Views			45.0	576	231	645		0.55 / 0.52
	XD							43.3	568	245			
5-37972	MD	1.90 / 1.79	0.934	2.64	10 /10 Views			44.5	574	231	645		0.53 / 0.47
	XD							41.6	549	245			
5-37973	MD	1.93 / 1.79	0.934	2.64	10 /10 Views			44.5	574	231	645		0.48 / 0.52
	XD							41.7	549	245			
5-37974	MD	1.90 / 1.81	0.934	2.29	10 /10 Views			42.3	549	231	645		0.54 / 0.51
	XD							39.8	533	245			
5-37975	MD	1.91 / 1.78	0.934	2.29	10 /10 Views			42.4	549	231	645		0.48 / 0.49
	XD							39.8	533	245			
5-37976	MD	1.91 / 1.83	0.933	2.53	10 /10 Views			46.3	597	236	625		0.46 / 0.45
	XD							41.8	559	252			
5-37977	MD	1.90 / 1.80	0.933	2.53	10 /10 Views			46.4	597	236	625		0.46 / 0.48
	XD							41.7	559	252			
5-37978	MD	1.90 / 1.81	0.933	2.55	10 /10 Views			45.4	582	236	625		0.46 / 0.48
	XD							43.6	585	252			
5-37979	MD	1.90 / 1.86	0.933	2.55	10 /10 Views			45.5	582	236	625		0.48 / 0.48
	XD							43.6	585	252			
5-37980	MD	1.92 / 1.84	0.933	2.58	10 /10 Views			44.0	567	236	625		0.45 / 0.46
	XD							41.9	561	252			
5-37981	MD	1.90 / 1.84	0.933	2.58	10 /10 Views			44.0	567	233	634		0.45 / 0.46
	XD							41.9	561	246			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225824

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37982	MD	1.93 / 1.86	0.933	2.64	10 /10 Views			45.4	590	233	634		0.47 / 0.45
	XD							40.2	538	246			

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LIST OF GEOMEMBRANE ROLLS

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Heap Leach
Project Number : E30754
Reference Number : 112017
Packing Slip Number : 225867

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black Textured								
5-38029	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38030	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38032	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38033	1011709	CJE811730	03-Aug-18	0.35	0.919	*100* > 120		N/A
5-38034	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38037	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38038	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38042	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A
5-38043	1011709	CJE811730	04-Aug-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : 9

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754



Reference Number : 112017

Packing Slip Number : 225867

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-38029	MD	1.92 / 1.83	0.935	2.51	10 /10 Views			44.8	571	243	655		0.45 / 0.45
	XD							42.2	566	244			
5-38030	MD	1.92 / 1.84	0.935	2.57	10 /10 Views			43.9	554	243	655		0.46 / 0.48
	XD							41.0	553	244			
5-38032	MD	1.95 / 1.88	0.935	2.57	10 /10 Views			43.8	554	243	655		0.46 / 0.47
	XD							41.0	553	244			
5-38033	MD	1.93 / 1.83	0.935	2.49	10 /10 Views			49.5	621	243	655		0.45 / 0.46
	XD							41.5	554	244			
5-38034	MD	1.95 / 1.86	0.935	2.49	10 /10 Views			49.6	621	243	655		0.48 / 0.47
	XD							41.5	554	244			
5-38037	MD	1.93 / 1.78	0.933	2.80	10 /10 Views			46.3	588	242	652		0.46 / 0.48
	XD							40.8	548	247			
5-38038	MD	1.93 / 1.89	0.933	2.80	10 /10 Views			46.2	588	242	652		0.46 / 0.48
	XD							40.8	548	247			
5-38042	MD	1.91 / 1.85	0.933	2.33	10 /10 Views			46.2	588	250	633		0.46 / 0.48
	XD							45.7	600	254			
5-38043	MD	1.92 / 1.82	0.933	2.60	10 /10 Views			44.4	562	250	633		0.47 / 0.47
	XD							42.7	565	254			

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MANUFACTURING QUALITY CONTROL

Test Results ROD

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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225867

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	39918A	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39918B	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39918C	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39918D	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39919A	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39919B	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39919C	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39919D	LLDPE	CJE810060	0.925	2.11
ROD-LL-5-B	39920A	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39920B	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39920C	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39920D	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39921A	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39921B	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39921C	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39921D	LLDPE	CJE810060	0.925	2.29
ROD-LL-5-B	39922A	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39922B	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39922C	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39922D	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39923A	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39923B	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39923C	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39923D	LLDPE	CJE810060	0.924	2.28
ROD-LL-5-B	39924A	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39924B	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39924C	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39924D	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39925A	LLDPE	CJE810060	0.924	2.15

MANUFACTURING QUALITY CONTROL

Test Results ROD

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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225867

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	39925B	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39925C	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39925D	LLDPE	CJE810060	0.924	2.15
ROD-LL-5-B	39926A	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39926B	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39926C	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39926D	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39927A	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39927B	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39927C	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39927D	LLDPE	CJE810060	0.924	2.23
ROD-LL-5-B	39928A	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39928B	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39928C	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39928D	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39929A	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39929B	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39929C	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39929D	LLDPE	CJE810060	0.924	2.30
ROD-LL-5-B	39930A	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39930B	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39930C	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39930D	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39931A	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39931B	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39931C	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39931D	LLDPE	CJE810060	0.924	2.34
ROD-LL-5-B	39932A	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39932B	LLDPE	CJE810060	0.924	2.21

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MANUFACTURING QUALITY CONTROL

Test Results ROD

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PROJECT INFORMATION

Project Name : Eagle Gold Heap Leach **Reference Number :** 112017

Project Number : E30754 **Packing Slip Number :** 225867

Quantity (spools) : 84

Product Code	Spool No.	Type	Resin Lot	Density (g/cc)	Carbon Black Content (%)
ROD-LL-5-B	39932C	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39932D	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39933A	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39933B	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39933C	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39933D	LLDPE	CJE810060	0.924	2.21
ROD-LL-5-B	39934A	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39934B	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39934C	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39934D	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39935A	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39935B	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39935C	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39935D	LLDPE	CJE810060	0.923	2.27
ROD-LL-5-B	39936A	LLDPE	CJE810060	0.923	2.49
ROD-LL-5-B	39936B	LLDPE	CJE810060	0.923	2.49
ROD-LL-5-B	39936C	LLDPE	CJE810060	0.923	2.49
ROD-LL-5-B	39936D	LLDPE	CJE810060	0.923	2.49
ROD-LL-5-B	39937A	LLDPE	CJE811730	0.923	2.49
ROD-LL-5-B	39937B	LLDPE	CJE811730	0.923	2.49
ROD-LL-5-B	39937C	LLDPE	CJE811730	0.923	2.49
ROD-LL-5-B	39937D	LLDPE	CJE811730	0.923	2.49
ROD-LL-5-B	39938A	LLDPE	CJE811730	0.923	2.22
ROD-LL-5-B	39938B	LLDPE	CJE811730	0.923	2.22
ROD-LL-5-B	39938C	LLDPE	CJE811730	0.923	2.22
ROD-LL-5-B	39938D	LLDPE	CJE811730	0.923	2.22

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754

Reference Number : 112017

Packing Slip Number : 225754

SOLMAX APPROVED Quality Assurance

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37905	MD	1.97 / 1.92	0.938	2.58	10 /10 Views			44.3	557	254	656		0.52 / 0.44
	XD							41.2	544	264			
5-37908	MD	1.91 / 1.79	0.938	2.39	10 /10 Views			44.1	581	254	656		0.49 / 0.48
	XD							42.0	580	264			
5-37913	MD	1.93 / 1.82	0.938	2.57	10 /10 Views			46.8	612	257	648		0.49 / 0.46
	XD							43.6	591	261			
5-37914	MD	1.95 / 1.90	0.938	2.56	10 /10 Views			44.7	556	258	673		0.52 / 0.47
	XD							42.3	555	272			
5-37915	MD	1.92 / 1.79	0.938	2.56	10 /10 Views			44.7	556	258	673		0.49 / 0.50
	XD							42.4	555	272			
5-37916	MD	1.93 / 1.85	0.938	2.64	10 /10 Views			46.2	591	258	673		0.49 / 0.48
	XD							44.2	580	272			
5-37917	MD	1.94 / 1.89	0.938	2.64	10 /10 Views			46.2	591	258	673		0.53 / 0.47
	XD							44.1	580	272			
5-37918	MD	1.93 / 1.78	0.938	2.64	10 /10 Views			42.9	546	258	673		0.49 / 0.52
	XD							39.7	533	272			
5-37919	MD	1.97 / 1.85	0.938	2.64	10 /10 Views			42.9	546	255	654		0.50 / 0.49
	XD							39.8	533	261			
5-37920	MD	1.93 / 1.83	0.938	2.47	10 /10 Views			46.4	592	255	654		0.52 / 0.47
	XD							42.8	574	261			
5-37921	MD	1.94 / 1.86	0.938	2.47	10 /10 Views			46.4	592	255	654		0.51 / 0.47
	XD							42.9	574	261			
5-37922	MD	1.90 / 1.78	0.938	2.47	10 /10 Views			44.7	589	255	650		0.47 / 0.49
	XD							42.1	572	261			
5-37925	MD	1.92 / 1.81	0.938	2.60	10 /10 Views			44.3	579	255	650		0.50 / 0.50
	XD							42.2	574	261			
5-37926	MD	1.90 / 1.79	0.938	2.43	10 /10 Views			48.2	615	255	650		0.52 / 0.48
	XD							42.7	567	261			
5-37927	MD	1.92 / 1.85	0.938	2.43	10 /10 Views			48.3	615	253	652		0.50 / 0.45
	XD							42.7	567	252			
5-37928	MD	1.91 / 1.84	0.938	2.44	10 /10 Views			45.4	588	253	652		0.55 / 0.49
	XD							40.2	547	252			
5-37929	MD	1.90 / 1.85	0.938	2.50	10 /10 Views			45.4	588	253	652		0.50 / 0.46
	XD							40.1	547	252			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold Heap Leach

Project Number : E30754



Reference Number : 112017

Packing Slip Number : 225754

Product : 1011709

LLDPE 2.00 mm Black Textured

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.40
5-37933 MD	1.92 / 1.86	0.936	2.45	10 /10 Views			46.9	601	252	661		0.48 / 0.57
XD							40.2	536	262			

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LIST OF GEOMEMBRANE ROLLS

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226150

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38873	1007064	CJG812220	13-Sep-18	0.35	0.919	*100* > 120		N/A
5-38874	1007064	CJG812220	13-Sep-18	0.35	0.919	*100* > 120		N/A
5-38875	1007064	CJG812220	13-Sep-18	0.35	0.919	*100* > 120		N/A
5-38876	1007064	CJG812220	13-Sep-18	0.35	0.919	*100* > 120		N/A
5-38877	1007064	CJG812220	13-Sep-18	0.35	0.919	*100* > 120		N/A
5-38878	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38879	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38880	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38881	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38882	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38883	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38884	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38885	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38886	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38887	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38888	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38889	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38890	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : 18

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226151

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38907	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38910	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38924	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38925	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38926	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38927	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38928	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38929	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38930	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38931	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38932	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38933	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38934	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38935	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38936	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38937	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38938	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38939	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A

Quantity (rolls) : 18

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226151

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38907	MD	1.92 / 1.82	0.933	2.38	10 /10 Views			42.2	532	240	676		0.55 / 0.56
	XD							43.4	569	246			
5-38910	MD	1.96 / 1.83	0.933	2.48	10 /10 Views			44.0	557	240	676		0.54 / 0.55
	XD							40.0	523	246			
5-38924	MD	1.93 / 1.85	0.938	2.48	10 /10 Views			46.1	581	243	676		0.55 / 0.54
	XD							40.5	529	250			
5-38925	MD	1.92 / 1.85	0.938	2.45	10 /10 Views			43.8	560	243	676		0.56 / 0.55
	XD							42.5	570	250			
5-38926	MD	1.93 / 1.81	0.938	2.45	10 /10 Views			43.8	560	243	676		0.55 / 0.55
	XD							42.6	570	250			
5-38927	MD	1.94 / 1.86	0.937	2.40	10 /10 Views			43.6	559	242	659		0.55 / 0.53
	XD							41.1	543	244			
5-38928	MD	1.93 / 1.86	0.937	2.40	10 /10 Views			43.6	559	242	659		0.55 / 0.55
	XD							41.2	543	244			
5-38929	MD	1.93 / 1.87	0.937	2.61	10 /10 Views			43.2	551	242	659		0.55 / 0.54
	XD							42.5	564	244			
5-38930	MD	1.90 / 1.83	0.937	2.61	10 /10 Views			43.1	551	242	659		0.56 / 0.55
	XD							42.6	564	244			
5-38931	MD	1.91 / 1.80	0.937	2.57	10 /10 Views			44.6	575	242	659		0.56 / 0.57
	XD							39.8	527	244			
5-38932	MD	1.92 / 1.84	0.937	2.57	10 /10 Views			44.7	575	237	643		0.57 / 0.57
	XD							39.8	527	252			
5-38933	MD	1.93 / 1.78	0.937	2.51	10 /10 Views			45.2	579	237	643		0.57 / 0.55
	XD							41.2	541	252			
5-38934	MD	1.93 / 1.86	0.937	2.51	10 /10 Views			45.2	579	237	643		0.56 / 0.57
	XD							41.3	541	252			
5-38935	MD	1.97 / 1.87	0.937	2.59	10 /10 Views			43.6	567	237	643		0.55 / 0.53
	XD							40.4	539	252			
5-38936	MD	1.93 / 1.78	0.937	2.59	10 /10 Views			43.6	567	237	643		0.56 / 0.55
	XD							40.5	539	252			
5-38937	MD	1.96 / 1.87	0.935	2.53	10 /10 Views			45.1	582	239	641		0.55 / 0.56
	XD							40.8	537	250			
5-38938	MD	1.91 / 1.78	0.935	2.53	10 /10 Views			45.2	582	239	641		0.58 / 0.61
	XD							40.8	537	250			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226151



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38939 MD	1.92 / 1.83	0.935	2.48	10 /10 Views			41.9	552	239	641		0.59 / 0.57
XD							39.1	534	250			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226152

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38906	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38908	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38909	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38911	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38917	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38943	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38944	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38945	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38946	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38947	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38948	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38951	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38952	1007064	CJG810150	17-Sep-18	0.34	0.919	*100* > 120		N/A
5-38953	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38954	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38955	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38956	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38957	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : 18

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226152

SOLMAX APPROVED Quality Assurance

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38906	MD	1.95 / 1.88	0.933	2.38	10 /10 Views			42.2	532	240	676		0.54 / 0.56
	XD							43.5	569	246			
5-38908	MD	1.94 / 1.84	0.933	2.58	10 /10 Views			44.0	558	240	676		0.53 / 0.53
	XD							40.3	530	246			
5-38909	MD	1.94 / 1.84	0.933	2.58	10 /10 Views			44.0	558	240	676		0.55 / 0.54
	XD							40.3	530	246			
5-38911	MD	1.91 / 1.74	0.933	2.48	10 /10 Views			44.0	557	241	645		0.57 / 0.56
	XD							40.1	523	246			
5-38917	MD	1.97 / 1.80	0.938	2.46	10 /10 Views			43.1	547	245	649		0.57 / 0.55
	XD							42.0	549	254			
5-38943	MD	1.92 / 1.82	0.937	2.50	10 /10 Views			40.7	541	230	633		0.60 / 0.61
	XD							38.8	532	237			
5-38944	MD	1.92 / 1.84	0.937	2.50	10 /10 Views			40.8	541	230	633		0.57 / 0.59
	XD							38.9	532	237			
5-38945	MD	1.92 / 1.82	0.937	2.42	10 /10 Views			44.1	580	230	633		0.59 / 0.58
	XD							40.8	553	237			
5-38946	MD	1.93 / 1.86	0.937	2.42	10 /10 Views			44.1	580	230	633		0.59 / 0.59
	XD							40.8	553	237			
5-38947	MD	1.92 / 1.79	0.937	2.43	10 /10 Views			40.4	527	230	633		0.60 / 0.60
	XD							39.9	536	237			
5-38948	MD	1.90 / 1.81	0.937	2.43	10 /10 Views			40.5	527	239	636		0.68 / 0.59
	XD							39.9	536	250			
5-38951	MD	1.90 / 1.82	0.937	2.44	10 /10 Views			39.4	528	239	636		0.59 / 0.65
	XD							41.3	540	250			
5-38952	MD	1.90 / 1.85	0.937	2.41	10 /10 Views			41.5	545	239	636		0.68 / 0.58
	XD							38.7	532	250			
5-38953	MD	1.90 / 1.75	0.937	2.41	10 /10 Views			41.5	545	239	636		0.59 / 0.70
	XD							38.7	532	250			
5-38954	MD	1.90 / 1.77	0.937	2.44	10 /10 Views			38.5	518	237	626		0.67 / 0.60
	XD							39.6	522	246			
5-38955	MD	1.90 / 1.81	0.937	2.44	10 /10 Views			38.5	518	237	626		0.65 / 0.62
	XD							39.6	522	246			
5-38956	MD	1.90 / 1.81	0.937	2.42	10 /10 Views			43.9	570	237	626		0.67 / 0.56
	XD							35.1	481	246			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226152



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38957 MD	1.90 / 1.78	0.937	2.42	10 /10 Views			44.0	570	237	626		0.67 / 0.56
XD							35.2	481	246			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226153

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38912	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38916	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38918	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38919	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38921	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38922	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38964	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38965	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38966	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38967	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38968	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38969	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38970	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38971	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38972	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38973	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38974	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38975	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : 18

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226153

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38912	MD	1.90 / 1.77	0.933	2.40	10 /10 Views			43.8	567	241	645		0.61 / 0.60
	XD							40.5	540	246			
5-38916	MD	1.95 / 1.83	0.938	2.46	10 /10 Views			43.1	547	245	649		0.57 / 0.57
	XD							42.1	549	254			
5-38918	MD	1.94 / 1.84	0.938	2.50	10 /10 Views			43.6	557	245	649		0.57 / 0.55
	XD							42.0	552	254			
5-38919	MD	1.93 / 1.84	0.938	2.50	10 /10 Views			43.6	557	245	649		0.57 / 0.56
	XD							42.0	552	254			
5-38921	MD	1.91 / 1.84	0.938	2.55	10 /10 Views			45.0	580	243	676		0.56 / 0.54
	XD							41.3	553	250			
5-38922	MD	1.92 / 1.79	0.938	2.48	10 /10 Views			46.1	581	243	676		0.56 / 0.54
	XD							40.5	529	250			
5-38964	MD	1.92 / 1.81	0.938	2.43	10 /10 Views			44.2	577	233	629		0.56 / 0.58
	XD							41.9	568	249			
5-38965	MD	1.90 / 1.81	0.938	2.43	10 /10 Views			44.3	577	233	629		0.58 / 0.56
	XD							41.9	568	249			
5-38966	MD	1.94 / 1.86	0.938	2.46	10 /10 Views			43.5	565	233	629		0.64 / 0.56
	XD							40.7	548	249			
5-38967	MD	1.90 / 1.76	0.938	2.46	10 /10 Views			43.4	565	234	625		0.55 / 0.55
	XD							40.6	548	238			
5-38968	MD	1.90 / 1.78	0.938	2.54	10 /10 Views			41.8	554	234	625		0.60 / 0.55
	XD							42.5	579	238			
5-38969	MD	1.91 / 1.84	0.938	2.54	10 /10 Views			41.9	554	234	625		0.55 / 0.59
	XD							42.6	579	238			
5-38970	MD	1.92 / 1.81	0.938	2.34	10 /10 Views			42.8	564	234	625		0.57 / 0.53
	XD							39.3	540	238			
5-38971	MD	1.90 / 1.83	0.938	2.34	10 /10 Views			42.7	564	234	625		0.54 / 0.57
	XD							39.4	540	238			
5-38972	MD	1.90 / 1.81	0.937	2.42	10 /10 Views			43.3	576	227	637		0.60 / 0.54
	XD							39.8	537	245			
5-38973	MD	1.90 / 1.76	0.937	2.42	10 /10 Views			43.3	576	227	637		0.57 / 0.54
	XD							39.8	537	245			
5-38974	MD	1.90 / 1.88	0.937	2.53	10 /10 Views			41.1	558	227	637		0.54 / 0.55
	XD							42.5	558	245			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226153



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38975 MD	1.94 / 1.80	0.937	2.53	10 /10 Views			41.2	558	227	637		0.54 / 0.54
XD							42.6	558	245			

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LIST OF GEOMEMBRANE ROLLS

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226154

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38896	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38897	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38899	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38904	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38905	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38913	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38914	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38915	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38984	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38985	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38986	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38987	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38988	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38989	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38990	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38991	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38992	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38993	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : **18**

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226154

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38896	MD	1.92 / 1.83	0.935	2.62	10 /10 Views			43.3	556	241	669		0.55 / 0.54
	XD							41.1	536	243			
5-38897	MD	1.93 / 1.81	0.935	2.62	10 /10 Views			43.4	556	241	669		0.55 / 0.54
	XD							41.2	536	243			
5-38899	MD	1.92 / 1.79	0.935	2.53	10 /10 Views			42.9	546	241	669		0.56 / 0.54
	XD							42.7	561	243			
5-38904	MD	1.93 / 1.81	0.935	2.46	10 /10 Views			44.2	561	244	657		0.56 / 0.54
	XD							42.4	557	254			
5-38905	MD	1.94 / 1.84	0.935	2.46	10 /10 Views			44.3	561	244	657		0.54 / 0.55
	XD							42.4	557	254			
5-38913	MD	1.92 / 1.78	0.933	2.40	10 /10 Views			43.8	567	241	645		0.59 / 0.57
	XD							40.5	540	246			
5-38914	MD	1.90 / 1.81	0.933	2.59	10 /10 Views			42.1	541	241	645		0.58 / 0.59
	XD							40.4	529	246			
5-38915	MD	1.95 / 1.85	0.933	2.59	10 /10 Views			42.0	541	241	645		0.58 / 0.56
	XD							40.5	529	246			
5-38984	MD	1.95 / 1.90	0.937	2.41	10 /10 Views			44.7	567	242	646		0.55 / 0.53
	XD							39.8	530	250			
5-38985	MD	1.97 / 1.87	0.937	2.41	10 /10 Views			44.7	567	242	646		0.55 / 0.55
	XD							39.9	530	250			
5-38986	MD	1.97 / 1.86	0.937	2.59	10 /10 Views			44.9	573	242	646		0.56 / 0.57
	XD							40.5	535	250			
5-38987	MD	1.97 / 1.87	0.937	2.59	10 /10 Views			45.0	573	236	661		0.55 / 0.57
	XD							40.6	535	254			
5-38988	MD	1.97 / 1.90	0.937	2.47	10 /10 Views			40.5	514	236	661		0.55 / 0.56
	XD							40.6	538	254			
5-38989	MD	1.98 / 1.86	0.937	2.47	10 /10 Views			40.5	514	236	661		0.57 / 0.55
	XD							40.6	538	254			
5-38990	MD	1.92 / 1.87	0.937	2.67	10 /10 Views			43.9	560	236	661		0.54 / 0.56
	XD							43.0	571	254			
5-38991	MD	1.92 / 1.81	0.937	2.67	10 /10 Views			44.0	560	236	661		0.55 / 0.56
	XD							43.1	571	254			
5-38992	MD	1.96 / 1.89	0.936	2.72	10 /10 Views			44.3	560	242	678		0.54 / 0.55
	XD							40.0	522	246			

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226154

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38993 MD	1.94 / 1.86	0.936	2.72	10 /10 Views			44.3	560	242	678		0.54 / 0.53
XD							39.9	522	246			

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LIST OF GEOMEMBRANE ROLLS

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226155

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38982	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38994	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38995	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38996	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38997	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-38998	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39001	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39002	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39003	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39004	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39005	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39006	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39007	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39008	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39009	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39010	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39011	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39012	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : **18**

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226155

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38982	MD	1.90 / 1.77	0.937	2.60	10 /10 Views			41.3	538	242	646		0.57 / 0.53
	XD							39.6	529	250			
5-38994	MD	1.93 / 1.79	0.936	2.59	10 /10 Views			43.0	551	242	678		0.57 / 0.55
	XD							40.5	541	246			
5-38995	MD	1.92 / 1.85	0.936	2.59	10 /10 Views			43.1	551	242	678		0.56 / 0.55
	XD							40.5	541	246			
5-38996	MD	1.94 / 1.83	0.936	2.47	10 /10 Views			41.8	533	242	678		0.55 / 0.56
	XD							38.1	507	246			
5-38997	MD	1.92 / 1.75	0.936	2.47	10 /10 Views			41.9	533	234	646		0.55 / 0.54
	XD							38.2	507	243			
5-38998	MD	1.93 / 1.85	0.936	2.40	10 /10 Views			45.6	596	234	646		0.56 / 0.55
	XD							41.5	553	243			
5-39001	MD	1.92 / 1.83	0.935	2.47	10 /10 Views			41.0	536	239	636		0.56 / 0.54
	XD							43.6	584	250			
5-39002	MD	1.94 / 1.83	0.935	2.49	10 /10 Views			42.1	553	239	636		0.56 / 0.54
	XD							41.0	550	250			
5-39003	MD	1.95 / 1.85	0.935	2.49	10 /10 Views			42.0	553	239	636		0.56 / 0.56
	XD							41.0	550	250			
5-39004	MD	1.95 / 1.91	0.935	2.56	10 /10 Views			44.5	575	239	636		0.55 / 0.55
	XD							41.3	553	250			
5-39005	MD	1.98 / 1.89	0.935	2.56	10 /10 Views			44.5	575	234	649		0.57 / 0.53
	XD							41.3	553	245			
5-39006	MD	1.93 / 1.82	0.935	2.71	10 /10 Views			43.4	565	234	649		0.54 / 0.56
	XD							42.2	565	245			
5-39007	MD	1.91 / 1.86	0.935	2.71	10 /10 Views			43.4	565	234	649		0.55 / 0.55
	XD							42.2	565	245			
5-39008	MD	1.90 / 1.78	0.935	2.50	10 /10 Views			45.0	583	234	649		0.54 / 0.56
	XD							39.7	541	245			
5-39009	MD	1.93 / 1.86	0.935	2.50	10 /10 Views			45.0	583	234	649		0.56 / 0.56
	XD							39.8	541	245			
5-39010	MD	1.91 / 1.85	0.933	2.46	10 /10 Views			46.0	594	246	660		0.55 / 0.56
	XD							42.5	581	244			
5-39011	MD	1.90 / 1.84	0.933	2.46	10 /10 Views			46.1	594	246	660		0.58 / 0.54
	XD							42.6	581	244			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226155

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39012 MD	1.90 / 1.74	0.933	2.51	10 /10 Views			42.3	557	246	660		0.56 / 0.59
XD							40.1	545	244			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226156

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-39058	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39059	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39060	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39062	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39063	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39065	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39066	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39067	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39073	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39074	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39075	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39076	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39078	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39079	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39081	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39082	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39083	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39084	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A

Quantity (rolls) : 18

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226156

SOLMAX APPROVED Quality Assurance

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39058	MD	1.94 / 1.84	0.937	2.52	10 /10 Views			45.5	598	237	635		0.57 / 0.63
	XD							41.9	568	246			
5-39059	MD	1.95 / 1.84	0.937	2.52	10 /10 Views			40.0	527	237	635		0.57 / 0.58
	XD							40.3	549	246			
5-39060	MD	1.99 / 1.93	0.937	2.52	10 /10 Views			39.9	527	237	635		0.57 / 0.54
	XD							40.3	549	246			
5-39062	MD	1.95 / 1.92	0.938	2.45	10 /10 Views			44.1	582	238	644		0.59 / 0.56
	XD							42.7	574	249			
5-39063	MD	1.95 / 1.85	0.938	2.51	10 /10 Views			43.5	574	238	644		0.56 / 0.55
	XD							39.7	534	249			
5-39065	MD	1.99 / 1.92	0.938	2.57	10 /10 Views			44.3	578	238	644		0.55 / 0.54
	XD							40.7	547	249			
5-39066	MD	1.97 / 1.88	0.938	2.57	10 /10 Views			44.3	578	242	653		0.54 / 0.57
	XD							40.6	547	247			
5-39067	MD	1.97 / 1.90	0.938	2.40	10 /10 Views			40.8	535	242	653		0.54 / 0.57
	XD							44.7	600	247			
5-39073	MD	1.92 / 1.80	0.938	2.54	10 /10 Views			43.2	565	231	660		0.55 / 0.57
	XD							40.8	561	251			
5-39074	MD	1.97 / 1.86	0.938	2.54	10 /10 Views			43.3	565	231	660		0.55 / 0.57
	XD							40.8	561	251			
5-39075	MD	1.96 / 1.85	0.938	2.56	10 /10 Views			41.2	550	234	622		0.56 / 0.61
	XD							42.0	572	248			
5-39076	MD	1.91 / 1.85	0.938	2.56	10 /10 Views			41.2	550	234	622		0.55 / 0.61
	XD							42.0	572	248			
5-39078	MD	1.95 / 1.90	0.938	2.57	10 /10 Views			41.3	557	234	622		0.57 / 0.56
	XD							40.1	553	248			
5-39079	MD	1.91 / 1.80	0.938	2.60	10 /10 Views			41.0	545	236	633		0.57 / 0.59
	XD							38.5	535	246			
5-39081	MD	1.93 / 1.87	0.938	2.61	10 /10 Views			42.2	557	236	633		0.57 / 0.60
	XD							41.7	574	246			
5-39082	MD	1.93 / 1.86	0.938	2.61	10 /10 Views			42.2	557	236	633		0.57 / 0.58
	XD							41.7	574	246			
5-39083	MD	1.93 / 1.82	0.938	2.54	10 /10 Views			41.5	550	236	633		0.55 / 0.56
	XD							38.7	532	246			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226156



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39084 MD	1.94 / 1.85	0.938	2.54	10 /10 Views			41.5	550	230	634		0.54 / 0.56
XD							38.7	532	236			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226157

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-39021	1007064	CJG810120	21-Sep-18	0.35	0.918	*100* > 120		N/A
5-39033	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39034	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39035	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39036	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39037	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39038	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39040	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39041	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39042	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39043	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39044	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39045	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39046	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39048	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39049	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39050	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39051	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A

Quantity (rolls) : **18**

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226157

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39021	MD	1.96 / 1.83	0.938	2.49	10 /10 Views			42.2	541	241	645		0.58 / 0.60
	XD							39.1	517	245			
5-39033	MD	1.90 / 1.83	0.936	2.52	10 /10 Views			42.7	566	232	643		0.58 / 0.53
	XD							40.0	552	246			
5-39034	MD	1.91 / 1.85	0.936	2.52	10 /10 Views			42.7	566	232	643		0.60 / 0.54
	XD							39.9	552	246			
5-39035	MD	1.91 / 1.86	0.936	2.55	10 /10 Views			42.9	575	232	643		0.56 / 0.53
	XD							38.4	535	246			
5-39036	MD	1.92 / 1.79	0.936	2.55	10 /10 Views			42.9	575	232	643		0.55 / 0.57
	XD							38.4	535	246			
5-39037	MD	1.91 / 1.80	0.939	2.52	10 /10 Views			40.7	541	232	628		0.58 / 1.08
	XD							43.4	603	245			
5-39038	MD	1.91 / 1.86	0.939	2.52	10 /10 Views			40.6	541	232	628		0.58 / 0.60
	XD							43.4	603	245			
5-39040	MD	1.93 / 1.83	0.939	2.52	10 /10 Views			42.4	573	232	628		0.59 / 0.61
	XD							41.3	573	245			
5-39041	MD	1.91 / 1.85	0.938	2.59	10 /10 Views			39.3	524	237	638		0.57 / 0.60
	XD							40.2	550	242			
5-39042	MD	1.94 / 1.85	0.938	2.59	10 /10 Views			39.2	524	237	638		0.57 / 0.60
	XD							40.1	550	242			
5-39043	MD	1.92 / 1.82	0.938	2.55	10 /10 Views			42.3	560	237	638		0.57 / 0.57
	XD							40.3	553	242			
5-39044	MD	1.92 / 1.85	0.938	2.55	10 /10 Views			42.4	560	237	638		0.57 / 0.59
	XD							40.3	553	242			
5-39045	MD	1.93 / 1.88	0.938	2.55	10 /10 Views			41.9	552	237	638		0.61 / 0.61
	XD							39.8	554	242			
5-39046	MD	1.95 / 1.84	0.938	2.55	10 /10 Views			41.9	552	238	635		0.60 / 0.61
	XD							39.9	554	249			
5-39048	MD	1.93 / 1.88	0.938	2.57	10 /10 Views			40.8	530	238	635		0.59 / 0.57
	XD							41.5	559	249			
5-39049	MD	1.93 / 1.78	0.938	2.42	10 /10 Views			41.3	530	238	635		0.65 / 0.61
	XD							40.4	551	249			
5-39050	MD	1.93 / 1.79	0.938	2.42	10 /10 Views			41.3	530	238	635		0.57 / 0.55
	XD							40.5	551	249			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226157

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39051	MD	1.92 / 1.85	0.939	2.59	10 /10 Views			40.9	542	239	636		0.58 / 0.59
	XD							39.5	535	248			

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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226158

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38891	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38892	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38898	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38920	1007064	CJG812220	16-Sep-18	0.35	0.919	*100* > 120		N/A
5-38999	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39000	1007064	CJG810150	20-Sep-18	0.34	0.919	*100* > 120		N/A
5-39013	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39014	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39015	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39016	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39017	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39018	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39022	1007064	CJG810120	21-Sep-18	0.35	0.918	*100* > 120		N/A
5-39027	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39028	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39029	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39030	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39032	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A

Quantity (rolls) : **18**

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MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226158

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38891	MD	1.93 / 1.85	0.936	2.51	10 /10 Views			45.0	574	235	680		0.54 / 0.55
	XD							41.5	543	242			
5-38892	MD	1.91 / 1.86	0.936	2.53	10 /10 Views			43.6	557	235	680		0.55 / 0.56
	XD							41.8	549	242			
5-38898	MD	1.94 / 1.80	0.935	2.53	10 /10 Views			42.9	546	241	669		0.54 / 0.53
	XD							42.7	561	243			
5-38920	MD	1.92 / 1.84	0.938	2.55	10 /10 Views			45.0	580	245	649		0.56 / 0.55
	XD							41.4	553	254			
5-38999	MD	1.94 / 1.85	0.936	2.40	10 /10 Views			45.7	596	234	646		0.57 / 0.57
	XD							41.5	553	243			
5-39000	MD	1.94 / 1.78	0.935	2.47	10 /10 Views			41.0	536	239	636		0.57 / 0.53
	XD							43.7	584	250			
5-39013	MD	1.91 / 1.86	0.933	2.48	10 /10 Views			42.4	557	246	660		0.61 / 0.55
	XD							40.1	545	244			
5-39014	MD	1.92 / 1.85	0.933	2.53	10 /10 Views			43.7	575	246	660		0.59 / 0.64
	XD							40.3	542	244			
5-39015	MD	1.92 / 1.89	0.933	2.53	10 /10 Views			43.8	575	235	633		0.56 / 0.65
	XD							40.3	542	246			
5-39016	MD	1.92 / 1.78	0.933	2.49	10 /10 Views			42.2	556	235	633		0.66 / 0.58
	XD							41.0	564	246			
5-39017	MD	1.93 / 1.87	0.933	2.49	10 /10 Views			42.2	556	235	633		0.59 / 0.65
	XD							41.0	564	246			
5-39018	MD	1.90 / 1.77	0.938	2.51	10 /10 Views			42.5	546	241	645		0.64 / 0.57
	XD							40.7	540	245			
5-39022	MD	1.99 / 1.92	0.937	2.61	10 /10 Views			42.3	550	246	643		0.59 / 0.60
	XD							42.1	555	251			
5-39027	MD	1.92 / 1.83	0.936	2.42	10 /10 Views			41.0	555	247	624		0.58 / 0.59
	XD							38.4	522	254			
5-39028	MD	1.91 / 1.84	0.936	2.45	10 /10 Views			45.7	612	247	624		0.58 / 0.60
	XD							39.4	538	254			
5-39029	MD	1.90 / 1.79	0.936	2.45	10 /10 Views			45.7	612	247	624		0.62 / 0.54
	XD							39.4	538	254			
5-39030	MD	1.90 / 1.76	0.936	2.42	10 /10 Views			42.0	570	247	624		0.59 / 0.56
	XD							38.2	532	254			

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226158

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39032 MD	1.90 / 1.83	0.936	2.46	10 /10 Views			42.0	570	232	643		0.56 / 0.57
XD							38.2	532	246			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226159

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-39019	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39020	1007064	CJG810150	21-Sep-18	0.34	0.919	*100* > 120		N/A
5-39023	1007064	CJG810120	21-Sep-18	0.35	0.918	*100* > 120		N/A
5-39024	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39026	1007064	CJG810120	22-Sep-18	0.35	0.918	*100* > 120		N/A
5-39047	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39091	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39092	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39093	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39094	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39095	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39096	1007064	CJG810120	26-Sep-18	0.35	0.918	*100* > 120		N/A
5-39097	1007064	CJG810120	26-Sep-18	0.35	0.918	*100* > 120		N/A
5-39098	1007064	CJG810120	26-Sep-18	0.35	0.918	*100* > 120		N/A
5-39099	1007064	CJG810120	26-Sep-18	0.35	0.918	*100* > 120		N/A
5-39100	1007064	CJG810120	26-Sep-18	0.35	0.918	*100* > 120		N/A

Quantity (rolls) : **16**

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911



Reference Number : 112142

Packing Slip Number : 226159

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39019	MD	1.90 / 1.81	0.938	2.51	10 /10 Views			42.6	546	241	645		0.62 / 0.61
	XD							40.6	540	245			
5-39020	MD	1.97 / 1.83	0.938	2.49	10 /10 Views			42.2	541	241	645		0.58 / 0.59
	XD							39.1	517	245			
5-39023	MD	1.96 / 1.89	0.937	2.61	10 /10 Views			42.2	550	246	643		0.58 / 0.59
	XD							42.0	555	251			
5-39024	MD	1.93 / 1.88	0.937	2.56	10 /10 Views			42.5	547	246	643		0.59 / 0.61
	XD							41.8	555	251			
5-39026	MD	1.91 / 1.82	0.936	2.42	10 /10 Views			41.0	555	247	624		0.60 / 0.60
	XD							38.3	522	254			
5-39047	MD	1.93 / 1.81	0.938	2.57	10 /10 Views			40.8	530	238	635		0.57 / 0.58
	XD							41.5	559	249			
5-39091	MD	1.92 / 1.82	0.937	2.47	10 /10 Views			42.6	566	232	645		0.55 / 0.57
	XD							40.4	557	243			
5-39092	MD	1.90 / 1.74	0.937	2.47	10 /10 Views			42.6	566	232	645		0.59 / 0.61
	XD							40.5	557	243			
5-39093	MD	1.91 / 1.74	0.937	2.51	10 /10 Views			43.4	577	232	645		0.57 / 0.59
	XD							40.7	565	243			
5-39094	MD	1.92 / 1.86	0.937	2.51	10 /10 Views			43.4	577	234	627		0.58 / 0.60
	XD							40.8	565	240			
5-39095	MD	1.92 / 1.85	0.937	2.53	10 /10 Views			42.5	562	234	627		0.57 / 0.56
	XD							40.6	560	240			
5-39096	MD	1.90 / 1.79	0.937	2.53	10 /10 Views			42.6	562	234	627		0.61 / 0.61
	XD							40.6	560	240			
5-39097	MD	1.91 / 1.79	0.937	2.60	10 /10 Views			42.3	556	234	627		0.62 / 0.60
	XD							40.1	559	240			
5-39098	MD	1.92 / 1.82	0.937	2.60	10 /10 Views			42.4	556	234	627		0.60 / 0.60
	XD							40.1	559	240			
5-39099	MD	1.91 / 1.85	0.937	2.46	10 /10 Views			39.4	542	230	608		0.62 / 0.62
	XD							42.9	570	243			
5-39100	MD	1.90 / 1.83	0.937	2.46	10 /10 Views			39.4	542	230	608		0.59 / 0.57
	XD							42.9	570	243			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226160

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38940	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38958	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38979	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38980	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : 4

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226160

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38940	MD	1.91 / 1.81	0.935	2.48	10 /10 Views			41.9	552	239	641		0.58 / 0.59
	XD							39.1	534	250			
5-38958	MD	1.92 / 1.86	0.937	2.50	10 /10 Views			42.6	560	237	626		0.61 / 0.59
	XD							39.1	532	246			
5-38979	MD	1.91 / 1.86	0.937	2.54	10 /10 Views			41.7	543	236	625		0.56 / 0.54
	XD							40.5	549	248			
5-38980	MD	1.92 / 1.73	0.937	2.49	10 /10 Views			43.6	563	236	625		0.55 / 0.56
	XD							42.6	571	248			

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LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226161

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-38893	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38894	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38895	1007064	CJG812220	14-Sep-18	0.35	0.919	*100* > 120		N/A
5-38900	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38901	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38902	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38903	1007064	CJG812220	15-Sep-18	0.35	0.919	*100* > 120		N/A
5-38941	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38942	1007064	CJG812220	17-Sep-18	0.35	0.919	*100* > 120		N/A
5-38959	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38960	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38961	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38962	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38963	1007064	CJG810150	18-Sep-18	0.34	0.919	*100* > 120		N/A
5-38976	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38977	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38978	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A
5-38981	1007064	CJG810150	19-Sep-18	0.34	0.919	*100* > 120		N/A

Quantity (rolls) : **18**

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226161

SOLMAX APPROVED Quality Assurance

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38893	MD	1.91 / 1.83	0.936	2.53	10 /10 Views			43.6	557	235	680		0.57 / 0.57
	XD							41.9	549	242			
5-38894	MD	1.91 / 1.83	0.936	2.58	10 /10 Views			43.4	551	235	680		0.57 / 0.57
	XD							42.0	554	242			
5-38895	MD	1.93 / 1.78	0.936	2.58	10 /10 Views			43.4	551	235	680		0.55 / 0.55
	XD							42.0	554	242			
5-38900	MD	1.92 / 1.75	0.935	2.49	10 /10 Views			45.1	584	241	669		0.57 / 0.55
	XD							42.1	571	243			
5-38901	MD	1.95 / 1.83	0.935	2.49	10 /10 Views			45.0	584	244	657		0.55 / 0.54
	XD							42.0	571	254			
5-38902	MD	1.96 / 1.87	0.935	2.62	10 /10 Views			42.0	534	244	657		0.57 / 0.55
	XD							41.5	552	254			
5-38903	MD	1.92 / 1.88	0.935	2.62	10 /10 Views			42.0	534	244	657		0.54 / 0.56
	XD							41.5	552	254			
5-38941	MD	1.91 / 1.86	0.935	2.55	10 /10 Views			38.9	521	239	641		0.60 / 0.58
	XD							39.4	535	250			
5-38942	MD	1.90 / 1.80	0.935	2.55	10 /10 Views			38.9	521	236	628		0.58 / 0.59
	XD							39.4	535	250			
5-38959	MD	1.93 / 1.88	0.937	2.50	10 /10 Views			42.6	560	234	647		0.63 / 0.59
	XD							39.1	532	242			
5-38960	MD	1.90 / 1.78	0.937	2.46	10 /10 Views			41.6	549	234	647		0.58 / 0.57
	XD							40.0	540	242			
5-38961	MD	1.94 / 1.79	0.937	2.46	10 /10 Views			41.7	549	234	647		0.57 / 0.55
	XD							39.9	540	242			
5-38962	MD	1.94 / 1.82	0.938	2.50	10 /10 Views			45.6	591	233	629		0.57 / 0.55
	XD							40.9	551	249			
5-38963	MD	1.91 / 1.86	0.938	2.50	10 /10 Views			45.7	591	233	629		0.56 / 0.56
	XD							41.0	551	249			
5-38976	MD	1.92 / 1.80	0.937	2.60	10 /10 Views			44.9	577	227	637		0.58 / 0.55
	XD							40.6	546	245			
5-38977	MD	1.91 / 1.78	0.937	2.60	10 /10 Views			44.8	577	236	625		0.58 / 0.54
	XD							40.6	546	248			
5-38978	MD	1.93 / 1.78	0.937	2.54	10 /10 Views			41.6	543	236	625		0.54 / 0.54
	XD							40.4	549	248			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226161



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38981 MD	1.90 / 1.76	0.937	2.60	10 /10 Views			41.4	538	242	646		0.56 / 0.53
XD							39.6	529	250			

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CoA Date: 07/30/2018

Certificate of Analysis

Shipped To: SOLMAX
2801 BOUL MARIE-VICTORIN
VARENNES QC J3X 1P7
CANADA

Recipient: Giguere
Fax:

Delivery #: 89715248
PO #: 117170
Weight: 186200.000 LB
Ship Date: 07/30/2018
Package: BULK
Mode: Hopper Car
Car #: CITX703193
Seal No: 112216

Product:
MARLEX 7104 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).

Lot Number: CJG810150

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.34	g/10min
Density	D1505	0.919	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

T. KEVIN AYRES
QUALITY ASSURANCE SUPERINTENDENT

Page 1 of 1

CoA Date: 08/08/2018

Certificate of Analysis

Shipped To: SOLMAX
2801 BOUL MARIE-VICTORIN
VARENNES QC J3X 1P7
CANADA

Recipient: Giguere
Fax:

Delivery #: 89721842
PO #: 117257
Weight: 187350.000 LB
Ship Date: 08/08/2018
Package: BULK
Mode: Hopper Car
Car #: PSPX002528
Seal No: 126722

Product:
MARLEX 7104 POLYETHYLENE in Bulk
Additive levels have been tested and meet minimum the specification for this lot.
As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).

Lot Number: CJG812220

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.35	g/10min
Density	D1505	0.919	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

T. KEVIN AYRES
QUALITY ASSURANCE SUPERINTENDENT

Page 1 of 1

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226162

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
5-39052	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39053	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39054	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39055	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39056	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39057	1007064	CJG810120	23-Sep-18	0.35	0.918	*100* > 120		N/A
5-39061	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39068	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39069	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39070	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39071	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39072	1007064	CJG810120	24-Sep-18	0.35	0.918	*100* > 120		N/A
5-39085	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39086	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39087	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39088	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39089	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A
5-39090	1007064	CJG810120	25-Sep-18	0.35	0.918	*100* > 120		N/A

Quantity (rolls) : **18**

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226162

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39052	MD	1.91 / 1.84	0.939	2.59	10 /10 Views			41.0	542	239	636		0.58 / 0.60
	XD							39.4	535	248			
5-39053	MD	1.91 / 1.85	0.937	2.33	10 /10 Views			42.9	571	239	636		0.60 / 0.60
	XD							42.3	578	248			
5-39054	MD	1.92 / 1.81	0.937	2.33	10 /10 Views			42.9	571	239	636		0.63 / 0.59
	XD							42.4	578	248			
5-39055	MD	1.91 / 1.85	0.937	2.38	10 /10 Views			41.1	544	239	636		0.56 / 0.60
	XD							41.4	564	248			
5-39056	MD	1.94 / 1.86	0.937	2.38	10 /10 Views			41.2	544	233	628		0.57 / 0.63
	XD							41.5	564	241			
5-39057	MD	1.97 / 1.85	0.937	2.52	10 /10 Views			45.5	598	237	635		0.59 / 0.63
	XD							41.9	568	246			
5-39061	MD	1.98 / 1.91	0.938	2.45	10 /10 Views			44.1	582	238	644		0.56 / 0.55
	XD							42.7	574	249			
5-39068	MD	1.94 / 1.84	0.938	2.40	10 /10 Views			40.8	535	242	653		0.55 / 0.56
	XD							44.7	600	247			
5-39069	MD	1.94 / 1.85	0.938	2.59	10 /10 Views			42.5	555	242	653		0.54 / 0.56
	XD							39.2	528	247			
5-39070	MD	1.95 / 1.85	0.938	2.59	10 /10 Views			42.4	555	242	653		0.55 / 0.56
	XD							39.2	528	247			
5-39071	MD	1.94 / 1.87	0.938	2.42	10 /10 Views			43.3	564	231	660		0.55 / 0.55
	XD							42.1	573	251			
5-39072	MD	1.96 / 1.81	0.938	2.42	10 /10 Views			43.3	564	231	660		0.55 / 0.55
	XD							42.2	573	251			
5-39085	MD	1.92 / 1.78	0.938	2.55	10 /10 Views			41.6	545	230	634		0.55 / 0.54
	XD							40.3	541	236			
5-39086	MD	1.93 / 1.85	0.938	2.55	10 /10 Views			41.5	545	230	634		0.54 / 0.57
	XD							40.3	541	236			
5-39087	MD	1.93 / 1.86	0.938	2.63	10 /10 Views			42.2	550	230	634		0.54 / 0.56
	XD							41.9	564	236			
5-39088	MD	1.93 / 1.78	0.938	2.63	10 /10 Views			42.2	550	230	634		0.55 / 0.55
	XD							41.9	564	236			
5-39089	MD	1.94 / 1.83	0.937	2.44	10 /10 Views			41.8	553	232	645		0.55 / 0.57
	XD							39.9	546	243			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226162

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties	Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit	mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method	D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification	1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-39090 MD	1.92 / 1.79	0.937	2.44	10 /10 Views			41.9	553	232	645		0.54 / 0.54
XD							39.9	546	243			

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

LIST OF GEOMEMBRANE ROLLS

SOLMAX

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
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SOLMAX APPROVED Quality Assurance

Project Name : Eagle Gold Mine - Edmonton, AB

Project Number : E31158REV.02

Reference Number : 112725

Packing Slip Number : PRE-112725

Roll Number	Product Code	Resin Lot Number	Manufactured Date	Resin Melt Index 190/2.16 g/10 min D1238	Resin Density g/cc D1505	OIT Spec Result min D3895	HPOIT Spec Result min D5885	ESCR SP-NCTL Spec Roll Tested hours D5397
LLDPE 2.00 mm Black RT								
1-143487	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143488	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143489	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143490	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143492	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143493	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143494	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143495	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143496	1007064	DKC810430	01-May-19	0.36	0.920	*100* > 120		N/A
1-143497	1007064	DKB810980	01-May-19	0.36	0.919	*100* > 120		N/A
1-143498	1007064	DKB810980	01-May-19	0.36	0.919	*100* > 120		N/A
1-143499	1007064	DKB810980	01-May-19	0.36	0.919	*100* > 120		N/A
1-143500	1007064	DKB810980	01-May-19	0.36	0.919	*100* > 120		N/A

Quantity (rolls) : **13**

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold Mine - Edmonton, AB

Reference Number : 112725

Project Number : E31158REV.02

Packing Slip Number : PRE-112725



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
1-143487	MD	1.95 / 1.84	0.938	2.53	10 /10 Views			44.0	565	250	694		0.54 / 0.55
	XD							42.6	562	262			
1-143488	MD	1.95 / 1.87	0.938	2.35	10 /10 Views			44.7	567	250	694		0.55 / 0.54
	XD							43.7	570	262			
1-143489	MD	1.91 / 1.72	0.938	2.35	10 /10 Views			44.7	567	250	694		0.57 / 0.54
	XD							43.8	570	262			
1-143490	MD	1.90 / 1.74	0.938	2.71	10 /10 Views			44.9	576	250	694		0.62 / 0.57
	XD							40.6	540	262			
1-143492	MD	1.97 / 1.84	0.938	2.71	10 /10 Views			45.0	576	257	662		0.61 / 0.54
	XD							40.6	540	250			
1-143493	MD	1.90 / 1.78	0.938	2.71	10 /10 Views			42.5	566	257	662		0.58 / 0.55
	XD							43.3	589	250			
1-143494	MD	1.90 / 1.74	0.938	2.71	10 /10 Views			42.6	566	257	662		0.57 / 0.57
	XD							43.3	589	250			
1-143495	MD	1.93 / 1.77	0.937	2.32	10 /10 Views			42.6	563	248	682		0.55 / 0.56
	XD							40.9	539	256			
1-143496	MD	1.90 / 1.78	0.937	2.32	10 /10 Views			42.7	563	248	682		0.56 / 0.57
	XD							41.0	539	256			
1-143497	MD	1.91 / 1.80	0.937	2.67	10 /10 Views			46.5	604	248	682		0.55 / 0.54
	XD							40.7	529	256			
1-143498	MD	2.00 / 1.90	0.937	2.67	10 /10 Views			46.6	604	248	682		0.62 / 0.66
	XD							40.6	529	256			
1-143499	MD	1.95 / 1.81	0.937	2.77	10 /10 Views			47.4	601	248	682		0.59 / 0.73
	XD							41.3	549	256			
1-143500	MD	1.95 / 1.70	0.937	2.77	10 /10 Views			47.5	601	257	638		0.71 / 0.70
	XD							41.3	549	271			

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SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226150

SOLMAX APPROVED Quality Assurance

Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38873	MD	1.90 / 1.78	0.938	2.49	10 /10 Views			44.3	564	243	669		0.75 / 0.65
	XD							41.9	564	254			
5-38874	MD	1.97 / 1.89	0.938	2.60	10 /10 Views			44.2	560	243	669		0.69 / 0.57
	XD							39.4	518	254			
5-38875	MD	1.95 / 1.88	0.938	2.60	10 /10 Views			44.1	560	243	669		0.61 / 0.57
	XD							39.4	518	254			
5-38876	MD	1.96 / 1.90	0.937	2.49	10 /10 Views			42.7	538	248	663		0.58 / 0.59
	XD							43.3	567	259			
5-38877	MD	1.93 / 1.76	0.937	2.49	10 /10 Views			42.7	538	248	663		0.57 / 0.56
	XD							43.3	567	259			
5-38878	MD	1.92 / 1.84	0.937	2.50	10 /10 Views			45.5	577	248	663		0.56 / 0.58
	XD							41.3	545	259			
5-38879	MD	1.97 / 1.93	0.937	2.50	10 /10 Views			45.5	577	248	663		0.58 / 0.58
	XD							41.3	545	259			
5-38880	MD	1.92 / 1.82	0.937	2.51	10 /10 Views			41.0	525	248	663		0.58 / 0.57
	XD							41.5	542	259			
5-38881	MD	1.92 / 1.85	0.937	2.51	10 /10 Views			41.0	525	246	656		0.57 / 0.57
	XD							41.5	542	258			
5-38882	MD	1.95 / 1.87	0.937	2.56	10 /10 Views			44.4	572	246	656		0.55 / 0.55
	XD							41.2	554	258			
5-38883	MD	1.92 / 1.86	0.937	2.56	10 /10 Views			44.3	572	246	656		0.54 / 0.55
	XD							41.2	554	258			
5-38884	MD	1.94 / 1.79	0.937	2.43	10 /10 Views			42.6	550	246	656		0.55 / 0.54
	XD							41.9	558	258			
5-38885	MD	1.92 / 1.85	0.937	2.43	10 /10 Views			42.6	550	246	656		0.56 / 0.54
	XD							41.9	558	258			
5-38886	MD	1.94 / 1.87	0.936	2.49	10 /10 Views			45.6	579	239	653		0.55 / 0.54
	XD							40.9	544	271			
5-38887	MD	1.93 / 1.86	0.936	2.49	10 /10 Views			45.5	579	239	653		0.54 / 0.55
	XD							40.8	544	271			
5-38888	MD	1.93 / 1.84	0.936	2.41	10 /10 Views			40.6	514	239	653		0.56 / 0.55
	XD							41.6	548	271			
5-38889	MD	1.96 / 1.87	0.936	2.41	10 /10 Views			40.6	514	239	653		0.55 / 0.56
	XD							41.7	548	271			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Eagle Gold - Mayo, YT

Project Number : E30911

Reference Number : 112142

Packing Slip Number : 226150



Product : 1007064

LLDPE 2.00 mm Black RT

CE Certificate = LL-80-TT-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.90 / 1.70	≤ 0.939	2.0 - 3.0	Cat. 1 / Cat. 2			31	400	220	500	± 2	0.50
5-38890	MD	1.94 / 1.88	0.936	2.51	10 /10 Views			45.0	574	239	653		0.55 / 0.55
	XD							41.5	543	271			

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

October 16, 2018
Layfield Canada Ltd.
17720 - 129 Avenue NW
Edmonton, AB, T5V 0C4

Ref. : Eagle Gold Project, AB
Customer P.O. # E30758
Product : TN 350-2-6

We hereby certify that the TN 350-2-6 drainage geocomposite, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet[3]				
Thickness	ASTM D 5199	mil	350	MAV[6]
Carbon Black	ASTM D 4218	%	2.0	MAV
Tensile Strength	ASTM D 7179	lbs/in	100	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	MAV
Transmissivity[1a]	ASTM D 4716	m^2/sec	6.0×10^{-3}	MAV
Composite				
Ply Adhesion	ASTM D 7005	lb/in	0.5	MAV
Transmissivity[1b]	ASTM D 4716	m^2/sec	2.0×10^{-3}	MAV
Geotextile[3 & 4]				
Fabric Weight	ASTM D 5261	oz/yd^2	6.0	MARV[5]
Grab Strength	ASTM D 4632	lbs	160	MARV
Grab Elongation	ASTM D 4632	%	50	MARV
Trap Tear Strength	ASTM D 4533	lbs	65	MARV
CBR Puncture	ASTM D 6241	lbs	450	MARV
Water Flow Rate	ASTM D 4491	gpm/ft^2	125	MARV
Permittivity	ASTM D 4491	sec^{-1}	1.63	MARV
AOS	ASTM D 4751	US Sieve	70	MaxARV
UV Resistance	ASTM D 4355	%/hrs	70/500	MARV

Notes:

1a. Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 25,000 psf between steel plates after 15 minutes.

1b. Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 25,000 psf between steel plates after 15 minutes.

2. Condition 190/2.16

3. Geotextile and Geonet properties are prior to lamination.

4. Geotextile data is provided by the supplier.

5. MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.

6. Minium average value

Sincerely,

Rajesh Patel

Rajesh Patel
QA Manager

APPROVED 5 QA

*571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com*

Product: TN 350-2-6
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030001	2.73	3.66	2.41×10^{-3}	ECUX 881070	0.9527	365	2.59	150	6.37×10^{-3}
83211030002				ECUX 881070	0.9527				
83211030003				ECUX 881070	0.9527				
83211030004				ECUX 881070	0.9527				
83211030005				ECUX 881070	0.9527				
83211030006				ECUX 881070	0.9527				
83211030007				ECUX 881070	0.9527				
83211030008				ECUX 881070	0.9527				
83211030009				ECUX 881070	0.9527				
83211030010				ECUX 881070	0.9527				
83211030011				ECUX 881070	0.9527				
83211030012				ECUX 881070	0.9527				
83211030013				ECUX 881070	0.9527				
83211030014				ECUX 881070	0.9527				
83211030015				ECUX 881070	0.9527				
83211030016				ECUX 881070	0.9527				
83211030017				ECUX 881070	0.9527				
83211030018				ECUX 881070	0.9527				
83211030019				ECUX 881070	0.9527				
83211030020	2.43	2.89		ECUX 881070	0.9527	368	2.68	143	
83211030021				ECUX 881070	0.9527				
83211030022				ECUX 881070	0.9527				
83211030023				ECUX 881070	0.9527				
83211030024				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030025				ECUX 881070	0.9527				
83211030026				ECUX 881070	0.9527				
83211030027				ECUX 881070	0.9527				
83211030028				ECUX 881070	0.9527				
83211030029				ECUX 881070	0.9527				
83211030030				ECUX 881070	0.9527				
83211030031				ECUX 881070	0.9527				
83211030032				ECUX 881070	0.9527				
83211030033				ECUX 881070	0.9527				
83211030034				ECUX 881070	0.9527				
83211030035				ECUX 881070	0.9527				
83211030036				ECUX 881070	0.9527				
83211030037				ECUX 881070	0.9527				
83211030038				ECUX 881070	0.9527				
83211030039				ECUX 881070	0.9527				
83211030040	3.67	2.95		ECUX 881070	0.9527	362	2.48	152	
83211030041				ECUX 881070	0.9527				
83211030042				ECUX 881070	0.9527				
83211030043				ECUX 881070	0.9527				
83211030044				ECUX 881070	0.9527				
83211030045				ECUX 881070	0.9527				
83211030046				ECUX 881070	0.9527				
83211030047				ECUX 881070	0.9527				
83211030048				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030049				ECUX 881070	0.9527				
83211030050				ECUX 881070	0.9527				
83211030051				ECUX 881070	0.9527				
83211030052				ECUX 881070	0.9527				
83211030053				ECUX 881070	0.9527				
83211030054				ECUX 881070	0.9527				
83211030055				ECUX 881070	0.9527				
83211030056				ECUX 881070	0.9527				
83211030057				ECUX 881070	0.9527				
83211030058				ECUX 881070	0.9527				
83211030059				ECUX 881070	0.9527				
83211030060	2.83	2.34		ECUX 881070	0.9527	359	2.28	148	
83211030061				ECUX 881070	0.9527				
83211030062				ECUX 881070	0.9527				
83211030063				ECUX 881070	0.9527				
83211030064				ECUX 881070	0.9527				
83211030065				ECUX 881070	0.9527				
83211030066				ECUX 881070	0.9527				
83211030067				ECUX 881070	0.9527				
83211030068				ECUX 881070	0.9527				
83211030069				ECUX 881070	0.9527				
83211030070				ECUX 881070	0.9527				
83211030071				ECUX 881070	0.9527				
83211030072				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030073				ECUX 881070	0.9527				
83211030074				ECUX 881070	0.9527				
83211030075				ECUX 881070	0.9527				
83211030076				ECUX 881070	0.9527				
83211030077				ECUX 881070	0.9527				
83211030078				ECUX 881070	0.9527				
83211030079				ECUX 881070	0.9527				
83211030080	2.89	2.30		ECUX 881070	0.9527	356	2.71	144	
83211030081				ECUX 881070	0.9527				
83211030082				ECUX 881070	0.9527				
83211030083				ECUX 881070	0.9527				
83211030084				ECUX 881070	0.9527				
83211030085				ECUX 881070	0.9527				
83211030086				ECUX 881070	0.9527				
83211030087				ECUX 881070	0.9527				
83211030088				ECUX 881070	0.9527				
83211030089				ECUX 881070	0.9527				
83211030090				ECUX 881070	0.9527				
83211030091				ECUX 881070	0.9527				
83211030092				ECUX 881070	0.9527				
83211030093				ECUX 881070	0.9527				
83211030094				ECUX 881070	0.9527				
83211030095				ECUX 881070	0.9527				
83211030096				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030097				ECUX 881070	0.9527				
83211030098				ECUX 881070	0.9527				
83211030099				ECUX 881070	0.9527				
83211030100	2.79	3.84		ECUX 881070	0.9527	353	2.57	146	
83211030101				ECUX 881070	0.9527				
83211030102				ECUX 881070	0.9527				
83211030103				ECUX 881070	0.9527				
83211030104				ECUX 881070	0.9527				
83211030105				ECUX 881070	0.9527				
83211030106				ECUX 881070	0.9527				
83211030107				ECUX 881070	0.9527				
83211030108				ECUX 881070	0.9527				
83211030109				ECUX 881070	0.9527				
83211030110				ECUX 881070	0.9527				
83211030111				ECUX 881070	0.9527				
83211030112				ECUX 881070	0.9527				
83211030113				ECUX 881070	0.9527				
83211030114				ECUX 881070	0.9527				
83211030115				ECUX 881070	0.9527				
83211030116				ECUX 881070	0.9527				
83211030117				ECUX 881070	0.9527				
83211030118				ECUX 881070	0.9527				
83211030119				ECUX 881070	0.9527				
83211030120	3.28	3.00	2.31×10^{-3}	ECUX 881070	0.9527	361	2.36	157	6.81×10^{-3}

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030121				ECUX 881070	0.9527				
83211030122				ECUX 881070	0.9527				
83211030123				ECUX 881070	0.9527				
83211030124				ECUX 881070	0.9527				
83211030125				ECUX 881070	0.9527				
83211030126				ECUX 881070	0.9527				
83211030127				ECUX 881070	0.9527				
83211030128				ECUX 881070	0.9527				
83211030129				ECUX 881070	0.9527				
83211030130				ECUX 881070	0.9527				
83211030131				ECUX 881070	0.9527				
83211030132				ECUX 881070	0.9527				
83211030133				ECUX 881070	0.9527				
83211030134				ECUX 881070	0.9527				
83211030135				ECUX 881070	0.9527				
83211030136				ECUX 881070	0.9527				
83211030137				ECUX 881070	0.9527				
83211030138				ECUX 881070	0.9527				
83211030139				ECUX 881070	0.9527				
83211030140	2.77	3.06		ECUX 881070	0.9527	357	2.67	145	
83211030141				ECUX 881070	0.9527				
83211030142				ECUX 881070	0.9527				
83211030143				ECUX 881070	0.9527				
83211030144				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030145				ECUX 881070	0.9527				
83211030146				ECUX 881070	0.9527				
83211030147				ECUX 881070	0.9527				
83211030148				ECUX 881070	0.9527				
83211030149				ECUX 881070	0.9527				
83211030150				ECUX 881070	0.9527				
83211030151				ECUX 881070	0.9527				
83211030152				ECUX 881070	0.9527				
83211030153				ECUX 881070	0.9527				
83211030154				ECUX 881070	0.9527				
83211030155				ECUX 881070	0.9527				
83211030156				ECUX 881070	0.9527				
83211030157				ECUX 881070	0.9527				
83211030158				ECUX 881070	0.9527				
83211030159				ECUX 881070	0.9527				
83211030160	3.04	3.37		ECUX 881070	0.9527	367	2.42	158	
83211030161				ECUX 881070	0.9527				
83211030162				ECUX 881070	0.9527				
83211030163				ECUX 881070	0.9527				
83211030164				ECUX 881070	0.9527				
83211030165				ECUX 881070	0.9527				
83211030166				ECUX 881070	0.9527				
83211030167				ECUX 881070	0.9527				
83211030168				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030169				ECUX 881070	0.9527				
83211030170				ECUX 881070	0.9527				
83211030171				ECUX 881070	0.9527				
83211030172				ECUX 881070	0.9527				
83211030173				ECUX 881070	0.9527				
83211030174				ECUX 881070	0.9527				
83211030175				ECUX 881070	0.9527				
83211030176				ECUX 881070	0.9527				
83211030177				ECUX 881070	0.9527				
83211030178				ECUX 881070	0.9527				
83211030179				ECUX 881070	0.9527				
83211030180	3.27	2.54		ECUX 881070	0.9527	364	2.34	156	
83211030181				ECUX 881070	0.9527				
83211030182				ECUX 881070	0.9527				
83211030183				ECUX 881070	0.9527				
83211030184				ECUX 881070	0.9527				
83211030185				ECUX 881070	0.9527				
83211030186				ECUX 881070	0.9527				
83211030187				ECUX 881070	0.9527				
83211030188				ECUX 881070	0.9527				
83211030189				ECUX 881070	0.9527				
83211030190				ECUX 881070	0.9527				
83211030191				ECUX 881070	0.9527				
83211030192				ECUX 881070	0.9527				

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Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030193				ECUX 881070	0.9527				
83211030194				ECUX 881070	0.9527				
83211030195				ECUX 881070	0.9527				
83211030196				ECUX 881070	0.9527				
83211030197				ECUX 881070	0.9527				
83211030198				ECUX 881070	0.9527				
83211030199				ECUX 881070	0.9527				
83211030200	3.57	2.49		ECUX 881070	0.9527	360	2.44	154	
83211030201				ECUX 881070	0.9527				
83211030202				ECUX 881070	0.9527				
83211030203				ECUX 881070	0.9527				
83211030204				ECUX 881070	0.9527				
83211030205				ECUX 881070	0.9527				
83211030206				ECUX 881070	0.9527				
83211030207				ECUX 881070	0.9527				
83211030208				ECUX 881070	0.9527				
83211030209				ECUX 881070	0.9527				
83211030210				ECUX 881070	0.9527				
83211030211				ECUX 881070	0.9527				
83211030212				ECUX 881070	0.9527				
83211030213				ECUX 881070	0.9527				
83211030214				ECUX 881070	0.9527				
83211030215				ECUX 881070	0.9527				
83211030216				ECUX 881070	0.9527				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030217				ECUX 881070	0.9527				
83211030218				ECUX 881070	0.9527				
83211030219				ECUX 881070	0.9527				
83211030220	3.60	2.74		ECUX 881070	0.9527	363	2.30	149	
83211030221				ECUX 881070	0.9527				
83211030222				ECUX 881070	0.9527				
83211030223				ECUX 881070	0.9527				
83211030224				ECUX 881070	0.9527				
83211030225				ECUX 881070	0.9527				
83211030226				ECUX 881070	0.9527				
83211030227				ECUX 881070	0.9527				
83211030228				ECUX 881070	0.9527				
83211030229				ECUX 881070	0.9527				
83211030230				ECUX 881070	0.9527				
83211030231				ECUX 881070	0.9527				
83211030232				ECUX 881070	0.9527				
83211030233				ECUX 881070	0.9527				
83211030234				ECUX 880160	0.9531				
83211030235				ECUX 880160	0.9531				
83211030236				ECUX 880160	0.9531				
83211030237				ECUX 880160	0.9531				
83211030238				ECUX 880160	0.9531				
83211030239				ECUX 880160	0.9531				
83211030240	3.33	3.66	2.24×10^{-3}	ECUX 880160	0.9531	355	2.60	155	6.63×10^{-3}

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030241				ECUX 880160	0.9531				
83211030242				ECUX 880160	0.9531				
83211030243				ECUX 880160	0.9531				
83211030244				ECUX 880160	0.9531				
83211030245				ECUX 880160	0.9531				
83211030246				ECUX 880160	0.9531				
83211030247				ECUX 880160	0.9531				
83211030248				ECUX 880160	0.9531				
83211030249				ECUX 880160	0.9531				
83211030250				ECUX 880160	0.9531				
83211030251				ECUX 880160	0.9531				
83211030252				ECUX 880160	0.9531				
83211030253				ECUX 880160	0.9531				
83211030254				ECUX 880160	0.9531				
83211030255				ECUX 880160	0.9531				
83211030256				ECUX 880160	0.9531				
83211030257				ECUX 880160	0.9531				
83211030258				ECUX 880160	0.9531				
83211030259				ECUX 880160	0.9531				
83211030260	2.80	3.36		ECUX 880160	0.9531	366	2.78	147	
83211030261				ECUX 880160	0.9531				
83211030262				ECUX 880160	0.9531				
83211030263				ECUX 880160	0.9531				
83211030264				ECUX 880160	0.9531				

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Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030265				ECUX 880160	0.9531				
83211030266				ECUX 880160	0.9531				
83211030267				ECUX 880160	0.9531				
83211030268				ECUX 880160	0.9531				
83211030269				ECUX 880160	0.9531				
83211030270				ECUX 880160	0.9531				
83211030271				ECUX 880160	0.9531				
83211030272				ECUX 880160	0.9531				
83211030273				ECUX 880160	0.9531				
83211030274				ECUX 880160	0.9531				
83211030275				ECUX 880160	0.9531				
83211030276				ECUX 880160	0.9531				
83211030277				ECUX 880160	0.9531				
83211030278				ECUX 880160	0.9531				
83211030279				ECUX 880160	0.9531				
83211030280	2.44	2.77		ECUX 880160	0.9531	358	2.46	159	
83211030281				ECUX 880160	0.9531				
83211030282				ECUX 880160	0.9531				
83211030283				ECUX 880160	0.9531				
83211030284				ECUX 880160	0.9531				
83211030285				ECUX 880160	0.9531				
83211030286				ECUX 880160	0.9531				
83211030287				ECUX 880160	0.9531				
83211030288				ECUX 880160	0.9531				

*571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com*

Product: TN 350-2-6
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211030289				ECUX 880160	0.9531				
83211030290				ECUX 880160	0.9531				
83211030291				ECUX 880160	0.9531				
83211030292				ECUX 880160	0.9531				
83211030293				ECUX 880160	0.9531				
83211030294				ECUX 880160	0.9531				
83211030295				ECUX 880160	0.9531				
83211030296				ECUX 880160	0.9531				
83211030297				ECUX 880160	0.9531				
83211030298				ECUX 880160	0.9531				
83211030299				ECUX 880160	0.9531				
83211030300	3.76	2.37		ECUX 880160	0.9531	354	2.23	153	
83211030301				ECUX 880160	0.9531				
83211030302				ECUX 880160	0.9531				
83211030303				ECUX 880160	0.9531				
83211030304				ECUX 880160	0.9531				
83211030305				ECUX 880160	0.9531				
83211030306				ECUX 880160	0.9531				
83211030307				ECUX 880160	0.9531				
83211030308				ECUX 880160	0.9531				
83211030309				ECUX 880160	0.9531				

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POLYETHYLENE RESIN CERTIFICATION

Customer Name : Layfield Canada Ltd.
Project Name : Eagle Gold Project, AB
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 350-2-6

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manufacturer Value	Tested Value*
ExxonMobil Chemical	ECUX 881070	Density	ASTM D1505	g/cm^3	0.9480	0.9478
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.21	0.19
ExxonMobil Chemical	ECUX 880160	Density	ASTM D1505	g/cm^3	0.9480	0.9482
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.12	0.15

(a) Condition 190/2.16

* Data from SKAPS Quality Control

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Geotextile Certification

Product: TN 350-2-6
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

GEOCOMP ROLL #	FABRIC SIDE	WEIGHT oz/yd^2	GRAB lbs. (MD)	GRAB ELG % (MD)	GRAB lbs. (XMD)	GRAB ELG % (XMD)	TRAP lbs. (MD)	TRAP lbs. (XMD)	CBR PUNCTURE lbs	AOS us sieve	WATER-FLOW gpm/ft^2	PERM-ITY sec^{-1}
83211030001	Side A	6.42	169	75	176	80	78	89	496	70	131	1.75
	Side B	6.27	167	74	178	75	76	90	477	70	133	1.77
83211030035	Side A	6.69	165	66	179	84	75	85	482	70	131	1.75
	Side B	6.22	162	74	170	80	70	80	458	70	136	1.81
83211030070	Side A	6.66	170	69	174	79	70	88	480	70	133	1.77
	Side B	6.69	165	66	179	84	75	85	482	70	131	1.75
83211030105	Side A	6.52	161	72	180	77	77	80	471	70	133	1.77
	Side B	6.21	162	73	173	85	80	86	468	70	131	1.75
83211030140	Side A	6.31	166	67	177	83	71	87	462	70	133	1.77
	Side B	6.42	169	75	176	80	78	89	496	70	131	1.75
83211030175	Side A	6.64	170	68	176	82	73	87	455	70	136	1.81
	Side B	6.64	170	68	176	82	73	87	455	70	136	1.81
83211030210	Side A	6.37	166	65	178	78	78	85	483	70	136	1.81
	Side B	6.70	160	65	170	81	73	84	457	70	133	1.77
83211030245	Side A	6.42	169	75	176	80	78	89	496	70	131	1.75
	Side B	6.66	170	69	174	79	70	88	480	70	133	1.77
83211030280	Side A	6.65	168	71	175	76	79	81	479	70	136	1.81
	Side B	6.67	164	70	171	78	74	82	481	70	131	1.75

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October 16, 2018
Layfield Canada Ltd.
17720 - 129 Avenue NW
Edmonton, AB, T5V 0C4

Ref. : Eagle Gold Project, AB
Customer P.O. # E30758
Product : TN 220-2-8

We hereby certify that the TN 220-2-8 drainage geocomposite, meets or exceeds the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Value	Qualifier
Geonet[3]				
Thickness	ASTM D 5199	mil	200	MAV[6]
Carbon Black	ASTM D 4218	%	2.0	MAV
Tensile Strength	ASTM D 7179	lbs/in	45	MAV
Melt Flow	ASTM D 1238[2]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	MAV
Transmissivity[1]	ASTM D 4716	m^2/sec	1.0×10^{-3}	MAV
Composite				
Ply Adhesion	ASTM D 7005	lb/in	0.5	MAV
Geotextile[3 & 4]				
Fabric Weight	ASTM D 5261	oz/yd^2	8.0	MARV[5]
Grab Strength	ASTM D 4632	lbs	220	MARV
Grab Elongation	ASTM D 4632	%	50	MARV
CBR Puncture	ASTM D 6241	lbs	575	MARV
Water Flow Rate	ASTM D 4491	gpm/ft^2	95	MARV
Permittivity	ASTM D 4491	sec^{-1}	1.26	MARV
AOS	ASTM D 4751	US Sieve	80	MaxARV
UV Resistance	ASTM D 4355	%/hrs	70/500	MARV

Notes:

1. *Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 10,000 psf between steel plates after 15 minutes.*
2. *Condition 190/2.16*
3. *Geotextile and Geonet properties are prior to lamination.*
4. *Geotextile data is provided by the supplier.*
5. *MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.*
6. *Minium average value*

Sincerely,
Rajesh Patel
Rajesh Patel
QA Manager

APPROVED 5 QA

Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010001	4.27	1.78		ECUX 880160	0.9531	224	2.46	55	3.02×10^{-3}
83211010002				ECUX 880160	0.9531				
83211010003				ECUX 880160	0.9531				
83211010004				ECUX 880160	0.9531				
83211010005				ECUX 880160	0.9531				
83211010006				ECUX 880160	0.9531				
83211010007				ECUX 880160	0.9531				
83211010008				ECUX 880160	0.9531				
83211010009				ECUX 880160	0.9531				
83211010010				ECUX 880160	0.9531				
83211010011				ECUX 880160	0.9531				
83211010012				ECUX 880160	0.9531				
83211010013				ECUX 880160	0.9531				
83211010014				ECUX 880160	0.9531				
83211010015	2.56	2.17		ECUX 880160	0.9531	219	2.61	58	
83211010016				ECUX 880160	0.9531				
83211010017				ECUX 880160	0.9531				
83211010018				ECUX 880160	0.9531				
83211010019				ECUX 880160	0.9531				
83211010020				ECUX 880160	0.9531				
83211010021				ECUX 880160	0.9531				
83211010022				ECUX 880160	0.9531				
83211010023				ECUX 880160	0.9531				
83211010024				ECUX 880160	0.9531				

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010025				ECUX 880160	0.9531				
83211010026				ECUX 880160	0.9531				
83211010027				ECUX 880160	0.9531				
83211010028				ECUX 880160	0.9531				
83211010029				ECUX 880160	0.9531				
83211010030	2.01	1.52		ECUX 880160	0.9531	217	2.45	51	
83211010031				ECUX 880160	0.9531				
83211010032				ECUX 880160	0.9531				
83211010033				ECUX 880160	0.9531				
83211010034				ECUX 880160	0.9531				
83211010035				ECUX 880160	0.9531				
83211010036				ECUX 880160	0.9531				
83211010037				ECUX 880160	0.9531				
83211010038				ECUX 880160	0.9531				
83211010039				ECUX 880160	0.9531				
83211010040				ECUX 880160	0.9531				
83211010041				ECUX 880160	0.9531				
83211010042				ECUX 880160	0.9531				
83211010043				ECUX 880160	0.9531				
83211010044				ECUX 880160	0.9531				
83211010045	4.17	1.73		ECUX 880160	0.9531	226	2.67	54	
83211010046				ECUX 880160	0.9531				
83211010047				ECUX 880160	0.9531				
83211010048				ECUX 880160	0.9531				

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010049				ECUX 880160	0.9531				
83211010050				ECUX 880160	0.9531				
83211010051				ECUX 880160	0.9531				
83211010052				ECUX 880160	0.9531				
83211010053				ECUX 880160	0.9531				
83211010054				ECUX 880160	0.9531				
83211010055				ECUX 880160	0.9531				
83211010056				ECUX 880160	0.9531				
83211010057				ECUX 880160	0.9531				
83211010058				ECUX 880160	0.9531				
83211010059				ECUX 880160	0.9531				
83211010060	2.09	2.95		ECUX 880160	0.9531	223	2.32	59	
83211010061				ECUX 880160	0.9531				
83211010062				ECUX 880160	0.9531				
83211010063				ECUX 880160	0.9531				
83211010064				ECUX 880160	0.9531				
83211010065				ECUX 880160	0.9531				
83211010066				ECUX 880160	0.9531				
83211010067				ECUX 880160	0.9531				
83211010068				ECUX 880160	0.9531				
83211010069				ECUX 880160	0.9531				
83211010070				ECUX 880160	0.9531				
83211010071				ECUX 880160	0.9531				
83211010072				ECUX 880160	0.9531				

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010073				ECUX 880160	0.9531				
83211010074				ECUX 880160	0.9531				
83211010075	3.05	3.89		ECUX 880160	0.9531	216	2.72	52	3.08×10^{-3}
83211010076				ECUX 880160	0.9531				
83211010077				ECUX 880160	0.9531				
83211010078				ECUX 880160	0.9531				
83211010079				ECUX 880160	0.9531				
83211010080				ECUX 880160	0.9531				
83211010081				ECUX 880160	0.9531				
83211010082				ECUX 880160	0.9531				
83211010083				ECUX 880160	0.9531				
83211010084				ECUX 880160	0.9531				
83211010085				ECUX 880160	0.9531				
83211010086				ECUX 880160	0.9531				
83211010087				ECUX 880160	0.9531				
83211010088				ECUX 880160	0.9531				
83211010089				ECUX 880160	0.9531				
83211010090	2.04	3.85		ECUX 880160	0.9531	227	2.63	57	
83211010091				ECUX 880160	0.9531				
83211010092				ECUX 880160	0.9531				
83211010093				ECUX 880160	0.9531				
83211010094				ECUX 880160	0.9531				
83211010095				ECUX 880160	0.9531				
83211010096				ECUX 880160	0.9531				

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010097				ECUX 880160	0.9531				
83211010098				ECUX 880160	0.9531				
83211010099				ECUX 880160	0.9531				
83211010100				ECUX 880160	0.9531				
83211010101				ECUX 880160	0.9531				
83211010102				ECUX 880160	0.9531				
83211010103				ECUX 880160	0.9531				
83211010104				ECUX 880160	0.9531				
83211010105	4.76	1.92		ECUX 880160	0.9531	221	2.51	53	
83211010106				ECUX 880160	0.9531				
83211010107				ECUX 880160	0.9531				
83211010108				ECUX 880160	0.9531				
83211010109				ECUX 880160	0.9531				
83211010110				ECUX 880160	0.9531				
83211010111				ECUX 880160	0.9531				
83211010112				ECUX 880160	0.9531				
83211010113				ECUX 880160	0.9531				
83211010114				ECUX 880160	0.9531				
83211010115				ECUX 880160	0.9531				
83211010116				ECUX 880160	0.9531				
83211010117				ECUX 880160	0.9531				
83211010118				ECUX 880160	0.9531				
83211010119				ECUX 880160	0.9531				
83211010120	4.68	4.22		ECUX 880160	0.9531	215	2.24	56	

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010121				ECUX 880160	0.9531				
83211010122				ECUX 880160	0.9531				
83211010123				ECUX 880160	0.9531				
83211010124				ECUX 880160	0.9531				
83211010125				ECUX 880160	0.9531				
83211010126				ECUX 880160	0.9531				
83211010127				ECUX 880160	0.9531				
83211010128				ECUX 880160	0.9531				
83211010129				ECUX 880160	0.9531				
83211010130				ECUX 880160	0.9531				
83211010131				ECUX 880160	0.9531				
83211010132				ECUX 880160	0.9531				
83211010133				ECUX 880160	0.9531				
83211010134				ECUX 880160	0.9531				
83211010135	3.67	2.57		ECUX 880160	0.9531	225	2.76	51	
83211010136				ECUX 880160	0.9531				
83211010137				ECUX 880160	0.9531				
83211010138				ECUX 880160	0.9531				
83211010139				ECUX 880160	0.9531				
83211010140				ECUX 880160	0.9531				
83211010141				ECUX 880160	0.9531				
83211010142				ECUX 880160	0.9531				
83211010143				ECUX 880160	0.9531				
83211010144				ECUX 880160	0.9531				

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Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

Geocomposite				Geonet					
Roll Number	Ply Adhesion (lb/in)		Transmissivity (m^2/sec)	Resin Lot Number	Density (g/cm^3)	Thickness (mils)	Carbon Black (%)	Tensile Strength MD (lb/in)	Transmissivity (m^2/sec)
	Side "A"	Side "B"							
83211010145				ECUX 880160	0.9531				
83211010146				ECUX 880160	0.9531				
83211010147				ECUX 880160	0.9531				
83211010148				ECUX 880160	0.9531				
83211010149				ECUX 880160	0.9531				
83211010150	2.05	3.86		ECUX 880160	0.9531	218	2.71	55	2.86×10^{-3}
83211010151				ECUX 880160	0.9531				
83211010152				ECUX 880160	0.9531				
83211010153				ECUX 880160	0.9531				
83211010154				ECUX 880160	0.9531				
83211010155				ECUX 880160	0.9531				
83211010156				ECUX 880160	0.9531				
83211010157				ECUX 880160	0.9531				
83211010158				ECUX 880160	0.9531				
83211010159				ECUX 880160	0.9531				
83211010160				ECUX 880160	0.9531				
83211010161				ECUX 880160	0.9531				
83211010162				ECUX 880160	0.9531				
83211010163				ECUX 880160	0.9531				
83211010164				ECUX 880160	0.9531				
83211010165	4.73	2.90		ECUX 880160	0.9531	220	2.50	53	
83211010166				ECUX 880160	0.9531				
83211010167				ECUX 880160	0.9531				
83211010168				ECUX 880160	0.9531				

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POLYETHYLENE RESIN CERTIFICATION

Customer Name : Layfield Canada Ltd.
Project Name : Eagle Gold Project, AB
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN 220-2-8

We hereby certify the following test results for the above referenced product/project:

Resin Manufacturer	Resin Lot Number	Property	Test Method	Units	Resin Manufacturer Value	Tested Value*
ExxonMobil Chemical	ECUX 880160	Density	ASTM D1505	g/cm^3	0.9480	0.9482
		Melt flow Index	ASTM D1238[(a)]	g/10 min	0.12	0.15

(a) Condition 190/2.16

* Data from SKAPS Quality Control

*571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com*

Geotextile Certification

Product: TN 220-2-8
Project : Eagle Gold Project, AB

We hereby certify the following test results for the above referenced product/project :

GEOCOMP ROLL#	FABRIC SIDE	WEIGHT oz/yd^2	GRAB lbs. (MD)	GRAB ELG % (MD)	GRAB lbs. (XMD)	GRAB ELG % (XMD)	CBR PUNCTURE lbs	AOS us sieve	WATER-FLOW gpm/ft^2	PERM-ITY sec^{-1}
83211010001	Side A	8.32	226	67	240	76	740	80	104	1.39
	Side B	8.36	227	68	233	77	700	80	102	1.36
83211010025	Side A	8.25	225	66	231	82	651	80	102	1.36
	Side B	8.16	231	73	235	85	665	80	104	1.39
83211010050	Side A	8.30	228	75	232	78	668	80	104	1.39
	Side B	8.19	234	69	245	79	659	80	104	1.39
83211010075	Side A	8.14	230	74	234	83	666	80	104	1.39
	Side B	8.51	235	65	242	80	690	80	102	1.36
83211010100	Side A	8.14	230	74	234	83	666	80	104	1.39
	Side B	8.55	233	70	236	75	717	80	102	1.36
83211010125	Side A	8.11	235	72	237	75	685	80	100	1.34
	Side B	8.17	229	71	244	84	699	80	102	1.36
83211010150	Side A	8.15	232	75	241	77	676	80	102	1.36
	Side B	8.45	225	66	230	81	721	80	100	1.34

*571 Industrial Parkway, Commerce, GA 30529 * Ph : 706-336-7000 * Fax : 706-336-7007 * Email : contact@skaps.com*

Report Date
7/5/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Report Date
7/3/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502313644	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313645	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313646	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313647	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313648	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313649	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313650	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313651	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313652	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313653	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313654	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313655	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313656	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313657	BLI-075-06N-06W-D-60	28060212	15.50	30628181A	150.00
502313658	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313659	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313660	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313661	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313662	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313663	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313664	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313665	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313666	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313667	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313668	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313669	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313670	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313671	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313672	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313673	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313674	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	84.00
502313675	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313676	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313677	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313678	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313679	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313680	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313681	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313682	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313683	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	128.00
502313684	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313685	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313686	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313687	BLI-075-06N-06W-D-60	28060212	15.50	30629181A	150.00
502313688	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313689	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313690	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313691	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313692	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313693	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Jul/3/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313644	346	100	89.3	22.1	0.89	30.5	9.1	13.6
502313645	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313646	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313647	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313648	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313649	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313650	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313651	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313652	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313653	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313654	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313655	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313656	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313657	352	94	83.6	19.5	0.86	30.5	9.1	13.6
502313658	352	94	83.6	19.5	0.86	30.0	9.5	14.4
502313659	352	94	83.6	19.5	0.86	30.0	9.5	14.4
502313660	352	94	83.6	19.5	0.86	30.0	9.5	14.4
502313661	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313662	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313663	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313664	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313665	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313666	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313667	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313668	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313669	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313670	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313671	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313672	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313673	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313674	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313675	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313676	307	110	67.0	20.1	0.82	30.0	9.5	14.4
502313677	214	100	66.0	19.8	0.90	30.0	9.5	14.4

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Jul/3/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313678	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313679	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313680	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313681	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313682	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313683	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313684	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313685	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313686	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313687	214	100	66.0	19.8	0.90	30.0	9.5	14.4
502313688	214	100	66.0	19.8	0.90	27.0	9.6	14.2
502313689	214	100	66.0	19.8	0.90	27.0	9.6	14.2
502313690	214	100	66.0	19.8	0.90	27.0	9.6	14.2
502313691	214	100	66.0	19.8	0.90	27.0	9.6	14.2
502313692	214	100	66.0	19.8	0.90	27.0	9.6	14.2
502313693	272	79	65.2	15.8	0.83	27.0	9.6	14.2

Laboratory Manager

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906929	**06-29-18**	**1062818D**	**8.9**	**0.02**	**2.27**	**13.6**	**114**	**31**	**1001**

JUNE		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **67**	M AVG	**8.89**	**0.29**	**3.55**	**13.43**	**108.44**	**30.38**	**926.27**
	STD DEV	**0.84**	**0.55**	**1.94**	**1.22**	**5.73**	**1.08**	**60.56**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **325**	M AVG	**8.86**	**0.30**	**4.25**	**13.43**	**110.64**	**31.39**	**964.16**
	STD DEV	**0.94**	**0.50**	**2.04**	**1.04**	**5.18**	**1.88**	**74.67**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
06/29/18

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

Shipped From: **Bentonite Performance Minerals LLC**
789 Hwy. 14-A East
Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003905951	**904897396**	**6/28/2018**	**30628181A**	**8.6**	**16.8**	**96**	**31**	**858**	**2.6**	**1.0**
Habeck 24 B0003907043	**904897397**	**6/29/2018**	**30629181A**	**9.2**	**16.4**	**96**	**29**	**834**	**1.6**	**0.8**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
	M AVG	**8.6**	**16.1**	**98.1**	**29.4**	**811.5**	**1.7**	**0.9**
35	STD DEV	**0.3**	**0.8**	**3.2**	**1.5**	**34.2**	**0.7**	**0.5**

Sold To: **GSE Clay Lining Technology, Co.**
3150 1st Avenue
Spearfish, SD 57783

Shipped To: **GSE Clay Lining Technology, Co.**
3150 1st Avenue
Spearfish, SD 57783

Attn: Bob Stadler (rstadler@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
Chuck Taylor (ctaylor@gseworld.com)
E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

7/2/2018

Report Date
7/13/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502313870	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313871	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502314550	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314551	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314552	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314553	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314554	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	144.00
502314555	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314556	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314557	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314558	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314559	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314560	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314561	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314562	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314563	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314564	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314565	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314566	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314567	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314568	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314569	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314570	BLI-075-06N-06W-D-60	28071312	15.50	1071018C	150.00
502314571	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314572	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314573	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314574	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314575	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314582	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314583	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314584	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314585	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314586	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314587	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314588	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314589	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00
502314590	BLI-075-06N-06W-D-60	28071312	15.50	1071018D	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Jul/13/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313870	245	89	69.5	18.8	0.84	31.5	8.8	15.0
502313871	245	89	69.5	18.8	0.84	31.5	8.8	15.0
502314550	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314551	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314552	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314553	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314554	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314555	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314556	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314557	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314558	275	100	67.8	20.5	0.81	30.5	10.4	14.0
502314559	304	96	72.7	18.9	0.83	30.5	10.4	14.0
502314560	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314561	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314562	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314563	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314564	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314565	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314566	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314567	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314568	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314569	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314570	341	82	77.3	17.1	0.86	30.5	10.4	14.0
502314571	341	82	77.3	17.1	0.86	28.5	8.2	16.0
502314572	341	82	77.3	17.1	0.86	28.5	8.2	16.0
502314573	341	82	77.3	17.1	0.86	28.5	8.2	16.0
502314574	341	82	77.3	17.1	0.86	28.5	8.2	16.0
502314575	341	82	77.3	17.1	0.86	28.5	8.2	16.0
502314582	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314583	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314584	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314585	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314586	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314587	352	78	86.0	16.8	0.88	28.5	8.2	16.0

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Jul/13/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502314588	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314589	352	78	86.0	16.8	0.88	28.5	8.2	16.0
502314590	352	78	86.0	16.8	0.88	28.5	8.2	16.0

Laboratory Manager _____

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906796	**07-02-18**	**1070218A**	**7.9**	**0.04**	**4.20**	**12.4**	**112**	**30**	**999**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**8.80**	**0.04**	**4.70**	**12.80**	**114.00**	**31.50**	**1009.50**
	STD DEV	**0.90**	**0.00**	**0.49**	**0.40**	**2.00**	**1.50**	**10.50**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **330**	M AVG	**8.86**	**0.30**	**4.24**	**13.42**	**110.65**	**31.39**	**964.65**
	STD DEV	**0.93**	**0.50**	**2.04**	**1.04**	**5.16**	**1.88**	**74.28**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
07/02/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003912679	**07-10-18**	**1071018C**	**10.0**	**0.03**	**3.78**	**12.4**	**110**	**32**	**994**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **21**	M AVG	**8.94**	**0.35**	**3.62**	**13.51**	**108.71**	**30.75**	**900.96**
	STD DEV	**0.77**	**0.59**	**1.72**	**1.54**	**7.10**	**1.21**	**74.79**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **349**	M AVG	**8.86**	**0.30**	**4.19**	**13.43**	**110.50**	**31.34**	**959.86**
	STD DEV	**0.92**	**0.51**	**2.03**	**1.08**	**5.35**	**1.85**	**76.21**

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Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
07/10/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003912680	**07-11-18**	**1071018D**	**7.7**	**0.02**	**3.72**	**12.6**	**114**	**31**	**989**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **22**	M AVG	**8.90**	**0.34**	**3.62**	**13.48**	**108.90**	**30.76**	**904.00**
	STD DEV	**0.79**	**0.58**	**1.69**	**1.52**	**7.04**	**1.19**	**75.22**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **350**	M AVG	**8.86**	**0.30**	**4.19**	**13.43**	**110.51**	**31.34**	**959.93**
	STD DEV	**0.92**	**0.51**	**2.02**	**1.08**	**5.35**	**1.84**	**76.13**

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3150 FIRST AVENUE
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Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
07/11/18

Report Date
8/17/2018

Quality Assurance Laboratory Test Results

Project: Layfield/Eagle Gold Heap Leach Facility
Sales Order: 84739
Product: BLI-075-06N-06W-D-60 BentoLiner NWL

Required Testing: ASTM D5887 - Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter

Frequency: 1/270,000sf

Effective Stress: 5psi

Daily Lot	Roll Number	Production Date	Index Flux ($m^3/m^2/sec$)	Hydraulic Conductivity (cm/sec)
28060212	502313644	7/2/2018	6.82E-09	2.88E-09
28070312	502313763	7/3/2018	4.28E-09	1.77E-09
28071312	502314559	7/13/2018	3.13E-09	1.40E-09
28080112	502316105	8/1/2018	5.26E-09	2.03E-09
28080212	502316241	8/2/2018	5.24E-09	2.13E-09
28080312	502316355	8/3/2018	5.29E-09	2.16E-09
28081012	502316949	8/10/2018	4.00E-09	1.72E-09

Approved By:	Chuck Taylor
Date Approved:	August 8, 2018

Report Date
8/14/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316941	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316942	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316943	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316944	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	108.00
502316945	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316946	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316947	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316948	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316949	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316950	BLI-075-06N-06W-D-60	28081012	15.50	1080618D	150.00
502316951	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316952	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316953	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316954	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316955	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316957	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316958	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316959	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316960	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316961	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316962	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316963	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316964	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316965	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316966	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316967	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316968	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316969	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316970	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316971	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316972	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316973	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316974	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316975	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316977	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316978	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316979	BLI-075-06N-06W-D-60	28081012	15.50	1080818A	150.00
502316980	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316981	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316982	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316983	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316984	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316985	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316986	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316987	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316988	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316990	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316991	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316992	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316993	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502316998	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	122.00
502317000	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317001	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317002	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317003	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317004	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317005	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317006	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317007	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502317008	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317009	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317010	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317011	BLI-075-06N-06W-D-60	28081012	15.50	1080818B	150.00
502317012	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317015	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317016	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317017	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317018	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317019	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317020	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317023	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317024	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317025	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317026	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317027	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317028	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317029	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317030	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317032	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317033	BLI-075-06N-06W-D-60	28081012	15.50	1080818C	150.00
502317045	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	150.00
502317046	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	90.00
502317048	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	150.00
502317049	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	120.00
502317051	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	150.00
502317052	BLI-075-06N-06W-D-60	28081312	15.50	1080818D	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

Report Date: Aug/14/2018

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316941	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316942	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316943	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316944	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316945	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316946	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316947	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316948	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316949	254	93	56.3	14.2	0.81	33.5	12.0	13.8
502316950	231	85	53.8	15.7	0.83	33.5	12.0	13.8
502316951	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316952	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316953	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316954	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316955	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316957	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316958	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316959	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316960	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316961	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316962	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316963	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316964	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316965	231	85	53.8	15.7	0.83	34.0	10.1	14.2
502316966	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316967	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316968	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316969	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316970	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316971	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316972	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316973	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316974	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316975	264	88	57.8	14.7	0.86	34.0	10.1	14.2

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Aug/14/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316977	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316978	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316979	264	88	57.8	14.7	0.86	34.0	10.1	14.2
502316980	264	88	57.8	14.7	0.86	32.0	10.9	13.4
502316981	264	88	57.8	14.7	0.86	32.0	10.9	13.4
502316982	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316983	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316984	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316985	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316986	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316987	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316988	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316990	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316991	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316992	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316993	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502316998	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502317000	284	95	56.4	17.8	0.78	32.0	10.9	13.4
502317001	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317002	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317003	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317004	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317005	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317006	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317007	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317008	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317009	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317010	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317011	275	96	53.8	15.2	0.85	32.0	10.9	13.4
502317012	275	96	53.8	15.2	0.85	34.0	9.3	13.8
502317015	275	96	53.8	15.2	0.85	34.0	9.3	13.8
502317016	275	96	53.8	15.2	0.85	34.0	9.3	13.8
502317017	277	99	57.1	20.0	0.80	34.0	9.3	13.8
502317018	277	99	57.1	20.0	0.80	34.0	9.3	13.8

GSE Environmental, LLC

ROLL TEST DATA REPORT

Report Date: Aug/14/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502317019	277	99	57.1	20.0	0.80	34.0	9.3	13.8
502317020	277	99	57.1	20.0	0.80	34.0	9.3	13.8
502317023	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317024	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317025	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317026	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317027	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317028	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317029	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317030	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317032	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317033	275	96	59.5	20.9	0.85	34.0	9.3	13.8
502317045	278	86	61.4	16.2	0.78	31.5	10.4	13.8
502317046	278	95	64.2	19.0	0.88	31.5	10.4	13.8
502317048	278	95	64.2	19.0	0.88	31.5	10.4	13.8
502317049	278	95	64.2	19.0	0.88	31.5	10.4	13.8
502317051	278	95	64.2	19.0	0.88	31.5	10.4	13.8
502317052	278	95	64.2	19.0	0.88	31.5	10.4	13.8

Laboratory Manager

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003936407	**08-07-18**	**1080618C**	**10.5**	**0.05**	**3.93**	**14.0**	**108**	**29**	**985**
B0003936408	**08-07-18**	**1080618D**	**10.7**	**0.05**	**4.69**	**14.2**	**108**	**28**	**976**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**10.60**	**0.05**	**4.31**	**14.10**	**108.00**	**28.50**	**980.50**
	STD DEV	**0.10**	**0.00**	**0.38**	**0.10**	**0.00**	**0.50**	**4.50**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**10.60**	**0.05**	**4.31**	**14.10**	**108.00**	**28.50**	**980.50**
	STD DEV	**0.10**	**0.00**	**0.38**	**0.10**	**0.00**	**0.50**	**4.50**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
08/14/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003936409	**08-08-18**	**1080818A**	**9.4**	**0.03**	**2.01**	**14.0**	**110**	**31**	**1011**
B0003939269	**08-08-18**	**1080818B**	**9.8**	**0.05**	**1.92**	**13.8**	**106**	**30**	**984**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **17**	M AVG	**9.06**	**0.05**	**4.30**	**13.99**	**108.35**	**29.82**	**989.06**
	STD DEV	**1.00**	**0.02**	**1.43**	**0.20**	**1.57**	**0.98**	**17.65**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **426**	M AVG	**8.90**	**0.30**	**4.16**	**13.58**	**110.12**	**31.14**	**960.22**
	STD DEV	**0.92**	**0.55**	**1.98**	**1.13**	**5.30**	**1.81**	**72.41**

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Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
08/08/18

CC: Thomas Anderson
Jason Tawse

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003939270	**08-08-18**	**1080818C**	**7.7**	**0.05**	**3.60**	**14.0**	**106**	**30**	**991**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **18**	M AVG	**8.98**	**0.05**	**4.26**	**13.99**	**108.22**	**29.83**	**989.17**
	STD DEV	**1.02**	**0.02**	**1.40**	**0.19**	**1.62**	**0.96**	**17.15**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **427**	M AVG	**8.90**	**0.30**	**4.16**	**13.58**	**110.11**	**31.14**	**960.29**
	STD DEV	**0.93**	**0.55**	**1.98**	**1.13**	**5.30**	**1.81**	**72.34**

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(ezimmel@gseworld.com)

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Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
08/08/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003939271	**08-09-18**	**1080818D**	**9.0**	**0.09**	**3.70**	**13.6**	**108**	**32**	**1019**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **19**	M AVG	**8.98**	**0.05**	**4.23**	**13.97**	**108.21**	**29.95**	**990.74**
	STD DEV	**0.99**	**0.02**	**1.37**	**0.21**	**1.58**	**1.05**	**17.98**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **428**	M AVG	**8.90**	**0.30**	**4.16**	**13.58**	**110.10**	**31.14**	**960.41**
	STD DEV	**0.92**	**0.55**	**1.98**	**1.13**	**5.30**	**1.81**	**72.32**

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Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
08/09/18

Report Date
8/3/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316105	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316106	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316107	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316108	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	118.00
502316109	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316110	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316111	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316114	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	134.00
502316115	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316116	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316121	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	120.00
502316126	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316127	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316128	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316129	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316130	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316131	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316132	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316133	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316134	BLI-075-06N-06W-D-60	28080112	15.50	1072618D	150.00
502316135	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316136	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316137	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316138	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316139	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316141	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316142	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316143	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316144	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316145	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316146	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316147	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316148	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316149	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316150	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316151	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316152	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316153	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316154	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316155	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316156	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316157	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316158	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316159	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316160	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316161	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316162	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316163	BLI-075-06N-06W-D-60	28080112	15.50	1072718A	150.00
502316164	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316165	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316166	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316167	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316168	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316169	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316170	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316171	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316172	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316173	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316174	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316175	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316176	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316177	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316178	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316179	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316180	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316181	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316182	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316183	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316184	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316185	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316186	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316187	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316188	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316189	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316190	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316191	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316192	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316193	BLI-075-06N-06W-D-60	28080112	15.50	1072718B	150.00
502316194	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316195	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316196	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316197	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316198	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316199	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316200	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316201	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316202	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316203	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316204	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316205	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316206	BLI-075-06N-06W-D-60	28080112	15.50	1072718C	150.00
502316207	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316208	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316209	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316210	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316211	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316212	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316213	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316214	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316215	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316216	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316217	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316218	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316219	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316222	BLI-075-06N-06W-D-60	28080212	15.50	1072718C	150.00
502316223	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316224	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316225	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316226	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316227	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316228	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316229	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316230	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316231	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316232	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316233	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316234	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316235	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316236	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316237	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316238	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316239	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316240	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316241	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316242	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316243	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316244	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316245	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316246	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316247	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316248	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316249	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316250	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316251	BLI-075-06N-06W-D-60	28080212	15.50	1072718D	150.00
502316252	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316253	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316254	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316255	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316256	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316257	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316258	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316259	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316260	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316261	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316262	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316263	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316264	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316265	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316266	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316267	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316268	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	112.00
502316269	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316270	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	100.00
502316271	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316272	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316273	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316274	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316275	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316276	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316277	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316278	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316279	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316280	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316281	BLI-075-06N-06W-D-60	28080212	15.50	1072918A	150.00
502316282	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316283	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316284	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316285	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316286	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316287	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316288	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316289	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316290	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316291	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316292	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316293	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00
502316294	BLI-075-06N-06W-D-60	28080212	15.50	1072918B	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316295	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316296	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316297	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316298	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316299	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316300	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316301	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316302	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316303	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316304	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316305	BLI-075-06N-06W-D-60	28080312	15.50	1072918B	150.00
502316306	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	112.00
502316309	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316310	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316311	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316312	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316313	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316314	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316315	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316316	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316317	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316318	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316319	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316320	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316321	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316322	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316323	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316324	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316325	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316326	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316327	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316328	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316329	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316330	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316331	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316332	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316333	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316334	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316335	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316336	BLI-075-06N-06W-D-60	28080312	15.50	1072918C	150.00
502316337	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316338	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	116.00
502316339	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316340	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316341	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316342	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316343	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316344	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316345	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316346	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316347	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316348	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316349	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316350	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316351	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316352	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316353	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316354	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316355	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	88.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502316357	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316358	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316359	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	120.00
502316360	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316361	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316362	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316363	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316364	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316368	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316369	BLI-075-06N-06W-D-60	28080312	15.50	1072918D	150.00
502316370	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316371	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316372	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316373	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316374	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316375	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316376	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	128.00
502316378	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316379	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	82.00
502316380	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316381	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316382	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00
502316384	BLI-075-06N-06W-D-60	28080312	15.50	1073018A	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

Report Date: Aug/3/2018

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316105	290	100	64.1	18.6	0.82	34.0	10.7	12.6
502316106	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316107	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316108	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316109	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316110	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316111	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316114	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316115	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316116	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316121	332	83	67.0	16.6	0.86	34.0	10.7	12.6
502316126	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316127	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316128	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316129	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316130	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316131	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316132	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316133	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316134	247	93	55.2	18.6	0.80	34.0	10.7	12.6
502316135	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316136	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316137	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316138	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316139	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316141	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316142	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316143	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316144	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316145	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316146	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316147	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316148	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316149	298	91	70.2	16.9	0.86	32.0	8.8	14.2

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316150	298	91	70.2	16.9	0.86	32.0	8.8	14.2
502316151	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316152	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316153	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316154	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316155	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316156	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316157	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316158	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316159	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316160	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316161	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316162	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316163	297	98	68.1	18.6	0.85	32.0	8.8	14.2
502316164	297	98	68.1	18.6	0.85	32.0	7.7	13.2
502316165	297	98	68.1	18.6	0.85	32.0	7.7	13.2
502316166	297	98	68.1	18.6	0.85	32.0	7.7	13.2
502316167	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316168	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316169	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316170	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316171	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316172	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316173	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316174	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316175	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316176	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316177	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316178	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316179	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316180	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316181	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316182	258	110	61.9	19.2	0.84	32.0	7.7	13.2
502316183	311	86	67.1	16.6	0.84	32.0	7.7	13.2

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SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316184	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316185	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316186	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316187	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316188	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316189	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316190	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316191	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316192	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316193	311	86	67.1	16.6	0.84	32.0	7.7	13.2
502316194	311	86	67.1	16.6	0.84	32.0	9.5	14.0
502316195	311	86	67.1	16.6	0.84	32.0	9.5	14.0
502316196	311	86	67.1	16.6	0.84	32.0	9.5	14.0
502316197	311	86	67.1	16.6	0.84	32.0	9.5	14.0
502316198	311	86	67.1	16.6	0.84	32.0	9.5	14.0
502316199	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316200	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316201	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316202	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316203	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316204	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316205	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316206	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316207	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316208	206	96	56.4	19.6	0.79	32.0	9.5	14.0
502316209	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316210	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316211	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316212	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316213	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316214	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316215	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316216	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316217	259	110	63.4	21.9	0.85	32.0	9.5	14.0

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316218	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316219	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316222	259	110	63.4	21.9	0.85	32.0	9.5	14.0
502316223	259	110	63.4	21.9	0.85	35.0	8.6	13.8
502316224	259	110	63.4	21.9	0.85	35.0	8.6	13.8
502316225	259	110	63.4	21.9	0.85	35.0	8.6	13.8
502316226	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316227	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316228	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316229	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316230	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316231	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316232	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316233	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316234	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316235	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316236	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316237	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316238	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316239	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316240	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316241	287	92	71.7	17.8	0.82	35.0	8.6	13.8
502316242	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316243	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316244	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316245	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316246	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316247	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316248	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316249	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316250	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316251	308	88	65.7	17.4	0.85	35.0	8.6	13.8
502316252	308	88	65.7	17.4	0.85	34.0	9.1	13.0
502316253	308	88	65.7	17.4	0.85	34.0	9.1	13.0

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SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316254	308	88	65.7	17.4	0.85	34.0	9.1	13.0
502316255	308	88	65.7	17.4	0.85	34.0	9.1	13.0
502316256	308	88	65.7	17.4	0.85	34.0	9.1	13.0
502316257	308	88	65.7	17.4	0.85	34.0	9.1	13.0
502316258	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316259	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316260	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316261	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316262	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316263	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316264	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316265	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316266	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316267	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316268	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316269	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316270	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316271	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316272	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316273	311	100	61.8	19.0	0.82	34.0	9.1	13.0
502316274	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316275	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316276	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316277	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316278	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316279	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316280	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316281	258	94	56.0	16.5	0.86	34.0	9.1	13.0
502316282	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316283	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316284	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316285	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316286	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316287	258	94	56.0	16.5	0.86	34.5	10.5	13.6

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SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316288	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316289	258	94	56.0	16.5	0.86	34.5	10.5	13.6
502316290	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316291	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316292	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316293	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316294	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316295	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316296	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316297	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316298	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316299	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316300	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316301	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316302	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316303	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316304	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316305	277	91	62.6	18.2	0.84	34.5	10.5	13.6
502316306	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316309	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316310	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316311	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316312	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316313	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316314	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316315	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316316	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316317	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316318	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316319	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316320	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316321	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316322	271	86	63.1	15.6	0.87	33.5	8.3	14.6
502316323	271	86	63.1	15.6	0.87	33.5	8.3	14.6

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Report Date: Aug/3/2018

Sales Order No.	***Customer Name***	***Project Location***	***Product Name***	***BOL Number***
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316324	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316325	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316326	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316327	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316328	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316329	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316330	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316331	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316332	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316333	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316334	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316335	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316336	281	91	60.0	18.0	0.83	33.5	8.3	14.6
502316337	281	91	60.0	18.0	0.83	32.5	9.9	14.8
502316338	281	91	60.0	18.0	0.83	32.5	9.9	14.8
502316339	281	91	60.0	18.0	0.83	32.5	9.9	14.8
502316340	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316341	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316342	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316343	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316344	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316345	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316346	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316347	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316348	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316349	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316350	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316351	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316352	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316353	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316354	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316355	256	94	67.6	19.7	0.87	32.5	9.9	14.8
502316357	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316358	287	110	66.4	25.3	0.81	32.5	9.9	14.8

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Aug/3/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502316359	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316360	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316361	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316362	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316363	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316364	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316368	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316369	287	110	66.4	25.3	0.81	32.5	9.9	14.8
502316370	287	110	66.4	25.3	0.81	32.0	9.3	13.8
502316371	287	110	66.4	25.3	0.81	32.0	9.3	13.8
502316372	287	110	66.4	25.3	0.81	32.0	9.3	13.8
502316373	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316374	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316375	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316376	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316378	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316379	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316380	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316381	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316382	297	93	52.7	20.8	0.82	32.0	9.3	13.8
502316384	297	93	52.7	20.8	0.82	32.0	9.3	13.8

Laboratory Manager

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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003926381	**07-27-18**	**1072618D**	**9.7**	**0.11**	**3.26**	**14.6**	**102**	**32**	**996**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **68**	M AVG	**9.10**	**0.40**	**3.67**	**14.05**	**108.20**	**30.39**	**933.13**
	STD DEV	**0.86**	**0.78**	**1.76**	**1.42**	**6.08**	**1.31**	**67.48**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **396**	M AVG	**8.90**	**0.32**	**4.13**	**13.54**	**110.18**	**31.20**	**958.64**
	STD DEV	**0.93**	**0.56**	**2.00**	**1.15**	**5.43**	**1.83**	**74.18**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

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CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
07/27/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

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554 US HWY 212
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BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003926382	**07-27-18**	**1072718A**	**8.3**	**0.05**	**6.08**	**14.0**	**106**	**32**	**1003**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **69**	M AVG	**9.10**	**0.40**	**3.70**	**14.05**	**108.17**	**30.41**	**933.98**
	STD DEV	**0.86**	**0.78**	**1.77**	**1.41**	**6.05**	**1.32**	**67.50**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **397**	M AVG	**8.90**	**0.32**	**4.14**	**13.54**	**110.17**	**31.20**	**958.74**
	STD DEV	**0.93**	**0.56**	**2.00**	**1.14**	**5.43**	**1.83**	**74.12**

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Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

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BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003926383	**07-27-18**	**1072718B**	**7.0**	**0.03**	**8.54**	**14.0**	**114**	**33**	**906**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **70**	M AVG	**9.07**	**0.39**	**3.76**	**14.05**	**108.24**	**30.44**	**933.64**
	STD DEV	**0.88**	**0.77**	**1.83**	**1.40**	**6.04**	**1.34**	**67.16**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **398**	M AVG	**8.90**	**0.32**	**4.15**	**13.54**	**110.18**	**31.21**	**958.62**
	STD DEV	**0.93**	**0.56**	**2.01**	**1.14**	**5.42**	**1.83**	**74.08**

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BOL #	LOAD DATE	LOT CODE	% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC MEQ 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
B0003926385	**07-28-18**	**1072718C**	**8.7**	**0.02**	**4.98**	**16.0**	**114**	**31**	**1033**

JULY		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS **71**	M AVG	**9.07**	**0.39**	**3.77**	**14.07**	**108.31**	**30.45**	**934.81**
	STD DEV	**0.88**	**0.77**	**1.83**	**1.41**	**6.04**	**1.33**	**67.62**

YTD		% MOIST 12 MAX	Mesh % + 20 15 MAX	Mesh % - 200 10 MAX	FL 18 MAX	MBC meq 70 MIN	SWELL INDEX 25 MIN	PWA 750 MIN
No. of CARS **399**	M AVG	**8.90**	**0.32**	**4.15**	**13.55**	**110.19**	**31.21**	**958.79**
	STD DEV	**0.93**	**0.56**	**2.01**	**1.15**	**5.42**	**1.82**	**74.08**

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Jason Tawse

For any questions contact.
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Shannon Pollmiller
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(Shannon.Pollmiller@halliburton.com

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GSE BENTOLINER

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003926386	**07-29-18**	**1072718D**	**8.3**	**0.04**	**5.06**	**15.4**	**110**	**32**	**1013**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **72**	M AVG	**9.06**	**0.39**	**3.79**	**14.08**	**108.33**	**30.47**	**935.72**
	STD DEV	**0.88**	**0.77**	**1.82**	**1.41**	**6.01**	**1.34**	**67.75**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **400**	M AVG	**8.90**	**0.31**	**4.15**	**13.55**	**110.19**	**31.21**	**958.91**
	STD DEV	**0.93**	**0.56**	**2.01**	**1.15**	**5.41**	**1.82**	**74.04**

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003930311	**07-29-18**	**1072918A**	**8.7**	**0.06**	**3.49**	**14.6**	**108**	**31**	**960**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **73**	M AVG	**9.05**	**0.38**	**3.79**	**14.09**	**108.32**	**30.47**	**936.00**
	STD DEV	**0.87**	**0.76**	**1.81**	**1.40**	**5.97**	**1.33**	**67.41**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **401**	M AVG	**8.90**	**0.31**	**4.15**	**13.55**	**110.19**	**31.21**	**958.91**
	STD DEV	**0.93**	**0.56**	**2.01**	**1.15**	**5.41**	**1.82**	**73.96**

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003930312	**07-29-18**	**1072918B**	**9.5**	**0.03**	**3.04**	**14.8**	**106**	**28**	**913**
B0003930313	**07-30-18**	**1072918C**	**7.9**	**0.02**	**3.73**	**15.0**	**104**	**30**	**971**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**8.70**	**0.03**	**3.39**	**14.90**	**105.00**	**29.00**	**942.00**
	STD DEV	**0.80**	**0.01**	**0.35**	**0.10**	**1.00**	**1.00**	**29.00**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**8.70**	**0.03**	**3.39**	**14.90**	**105.00**	**29.00**	**942.00**
	STD DEV	**0.80**	**0.01**	**0.35**	**0.10**	**1.00**	**1.00**	**29.00**

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CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
08/03/18

GSE BENTOLINER

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003930314	**07-30-18**	**1072918D**	**9.0**	**0.03**	**3.81**	**13.8**	**108**	**30**	**940**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **76**	M AVG	**9.04**	**0.37**	**3.78**	**14.10**	**108.24**	**30.43**	**936.18**
	STD DEV	**0.87**	**0.75**	**1.78**	**1.38**	**5.89**	**1.33**	**66.42**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **404**	M AVG	**8.89**	**0.31**	**4.14**	**13.56**	**110.16**	**31.20**	**958.79**
	STD DEV	**0.92**	**0.56**	**2.00**	**1.15**	**5.40**	**1.82**	**73.76**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
07/30/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003930315	**07-30-18**	**1073018A**	**8.2**	**0.00**	**5.43**	**14.0**	**112**	**31**	**977**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **77**	M AVG	**9.04**	**0.37**	**3.79**	**14.10**	**108.29**	**30.44**	**936.63**
	STD DEV	**0.87**	**0.75**	**1.78**	**1.37**	**5.87**	**1.33**	**66.19**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **405**	M AVG	**8.89**	**0.31**	**4.15**	**13.56**	**110.16**	**31.20**	**958.83**
	STD DEV	**0.92**	**0.56**	**2.00**	**1.15**	**5.40**	**1.82**	**73.68**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
07/30/18

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502313694	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313695	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313696	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313697	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313698	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313699	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313700	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313701	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313702	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313703	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313704	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313705	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313706	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313707	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313708	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313709	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313710	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313711	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313712	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313713	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313714	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313715	BLI-075-06N-06W-D-60	28060212	15.50	1062818D	150.00
502313716	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313717	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313718	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313719	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313720	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	96.00
502313721	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313722	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313723	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313724	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313725	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313726	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313727	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313728	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313729	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313730	BLI-075-06N-06W-D-60	28070312	15.50	1062918A	150.00
502313731	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313732	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313733	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313734	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313735	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313736	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313737	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313738	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313739	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313740	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313741	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313742	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313743	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313744	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313745	BLI-075-06N-06W-D-60	28060212	15.50	1062918A	150.00
502313746	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313747	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313748	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313749	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313750	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313751	BLI-075-06N-06W-D-60	28060212	15.50	1062918B	150.00
502313752	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502313753	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313754	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313755	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313756	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	140.00
502313757	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313758	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313759	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313760	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313761	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313762	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313763	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313764	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313765	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313766	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313767	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313768	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313769	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313770	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313771	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313773	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313774	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313775	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313777	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	80.00
502313778	BLI-075-06N-06W-D-60	28070312	15.50	1062918B	150.00
502313779	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313780	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313781	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313782	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313783	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313784	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	140.00
502313785	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313786	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313787	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313788	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313789	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313790	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313791	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313792	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313793	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313794	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313795	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313796	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313797	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313798	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313799	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313800	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313801	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313802	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313803	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313804	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313805	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313806	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313807	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313808	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313809	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313811	BLI-075-06N-06W-D-60	28070312	15.50	1062918C	150.00
502313812	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313813	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313814	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502313815	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313816	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313817	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313818	BLI-075-06N-06W-D-60	28070312	15.50	1062918D	150.00
502313819	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313820	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313821	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313822	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313823	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313824	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313825	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313826	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313827	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313828	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313829	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313830	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313831	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313832	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313833	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313834	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313835	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313837	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313838	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313839	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313840	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313841	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313842	BLI-075-06N-06W-D-60	28070412	15.50	1062918D	150.00
502313843	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313844	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313845	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313846	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313847	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313848	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313849	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313850	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313851	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313852	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313853	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313854	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313855	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313856	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313857	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313858	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313859	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313860	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313861	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313862	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313863	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313864	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313865	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313866	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313867	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	150.00
502313868	BLI-075-06N-06W-D-60	28070412	15.50	1070218A	96.00
502313872	BLI-075-06N-06W-D-60	28070412	15.50	1070218B	150.00
502313873	BLI-075-06N-06W-D-60	28070412	15.50	1070218B	150.00
502313874	BLI-075-06N-06W-D-60	28070412	15.50	1070218B	150.00
502313875	BLI-075-06N-06W-D-60	28070412	15.50	1070218B	88.00
502313876	BLI-075-06N-06W-D-60	28070412	15.50	1070218B	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Jul/5/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313694	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313695	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313696	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313697	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313698	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313699	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313700	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313701	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313702	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313703	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313704	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313705	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313706	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313707	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313708	272	79	65.2	15.8	0.83	27.0	9.6	14.2
502313709	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313710	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313711	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313712	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313713	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313714	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313715	269	95	81.7	20.2	0.80	27.0	9.6	14.2
502313716	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313717	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313718	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313719	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313720	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313721	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313722	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313723	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313724	269	95	81.7	20.2	0.80	29.5	9.3	12.8
502313725	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313726	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313727	330	83	82.1	16.9	0.83	29.5	9.3	12.8

GSE Environmental, LLC

ROLL TEST DATA REPORT

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313728	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313729	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313730	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313731	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313732	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313733	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313734	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313735	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313736	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313737	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313738	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313739	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313740	330	83	82.1	16.9	0.83	29.5	9.3	12.8
502313741	346	77	78.1	14.5	0.83	29.5	9.3	12.8
502313742	346	77	78.1	14.5	0.83	29.5	9.3	12.8
502313743	346	77	78.1	14.5	0.83	29.5	9.3	12.8
502313744	346	77	78.1	14.5	0.83	29.5	9.3	12.8
502313745	346	77	78.1	14.5	0.83	29.5	9.3	12.8
502313746	346	77	78.1	14.5	0.83	30.5	10.0	14.0
502313747	346	77	78.1	14.5	0.83	30.5	10.0	14.0
502313748	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313749	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313750	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313751	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313752	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313753	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313754	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313755	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313756	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313757	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313758	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313759	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313760	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313761	305	110	76.6	24.1	0.82	30.5	10.0	14.0

GSE Environmental, LLC

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313762	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313763	305	110	76.6	24.1	0.82	30.5	10.0	14.0
502313764	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313765	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313766	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313767	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313768	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313769	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313770	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313771	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313773	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313774	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313775	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313777	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313778	378	80	86.7	16.4	0.82	30.5	10.0	14.0
502313779	378	80	86.7	16.4	0.82	31.0	8.6	13.6
502313780	378	80	86.7	16.4	0.82	31.0	8.6	13.6
502313781	378	80	86.7	16.4	0.82	31.0	8.6	13.6
502313782	378	80	86.7	16.4	0.82	31.0	8.6	13.6
502313783	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313784	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313785	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313786	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313787	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313788	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313789	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313790	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313791	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313792	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313793	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313794	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313795	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313796	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313797	272	93	66.0	18.6	0.83	31.0	8.6	13.6

GSE Environmental, LLC

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313798	272	93	66.0	18.6	0.83	31.0	8.6	13.6
502313799	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313800	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313801	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313802	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313803	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313804	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313805	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313806	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313807	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313808	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313809	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313811	307	85	83.0	15.5	0.83	31.0	8.6	13.6
502313812	307	85	83.0	15.5	0.83	32.5	10.6	13.8
502313813	307	85	83.0	15.5	0.83	32.5	10.6	13.8
502313814	307	85	83.0	15.5	0.83	32.5	10.6	13.8
502313815	307	85	83.0	15.5	0.83	32.5	10.6	13.8
502313816	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313817	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313818	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313819	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313820	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313821	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313822	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313823	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313824	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313825	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313826	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313827	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313828	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313829	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313830	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313831	291	87	72.2	17.9	0.78	32.5	10.6	13.8
502313832	282	84	72.0	15.4	0.83	32.5	10.6	13.8

GSE Environmental, LLC

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313833	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313834	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313835	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313837	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313838	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313839	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313840	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313841	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313842	282	84	72.0	15.4	0.83	32.5	10.6	13.8
502313843	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313844	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313845	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313846	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313847	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313848	282	84	72.0	15.4	0.83	31.5	8.8	15.0
502313849	239	93	55.7	18.7	0.83	31.5	8.8	15.0
502313850	239	93	55.7	18.7	0.83	31.5	8.8	15.0
502313851	239	93	55.7	18.7	0.83	31.5	8.8	15.0
502313852	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313853	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313854	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313855	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313856	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313857	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313858	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313859	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313860	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313861	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313862	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313863	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313864	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313865	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313866	340	84	95.0	15.6	0.82	31.5	8.8	15.0
502313867	340	84	95.0	15.6	0.82	31.5	8.8	15.0

GSE Environmental, LLC

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502313868	245	89	69.5	18.8	0.84	31.5	8.8	15.0
502313872	245	89	69.5	18.8	0.84	35.0	8.7	14.0
502313873	245	89	69.5	18.8	0.84	35.0	8.7	14.0
502313874	245	89	69.5	18.8	0.84	35.0	8.7	14.0
502313875	245	89	69.5	18.8	0.84	35.0	8.7	14.0
502313876	245	89	69.5	18.8	0.84	35.0	8.7	14.0

Laboratory Manager

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906929	**06-29-18**	**1062818D**	**8.9**	**0.02**	**2.27**	**13.6**	**114**	**31**	**1001**

JUNE		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **67**	M AVG	**8.89**	**0.29**	**3.55**	**13.43**	**108.44**	**30.38**	**926.27**
	STD DEV	**0.84**	**0.55**	**1.94**	**1.22**	**5.73**	**1.08**	**60.56**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **325**	M AVG	**8.86**	**0.30**	**4.25**	**13.43**	**110.64**	**31.39**	**964.16**
	STD DEV	**0.94**	**0.50**	**2.04**	**1.04**	**5.18**	**1.88**	**74.67**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
06/29/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906932	**06-29-18**	**1062918A**	**8.9**	**0.02**	**3.46**	**13.0**	**110**	**30**	**988**

JUNE		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **1**	M AVG	**8.90**	**0.02**	**3.46**	**13.00**	**110.00**	**30.00**	**988.00**
	STD DEV	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **1**	M AVG	**8.90**	**0.02**	**3.46**	**13.00**	**110.00**	**30.00**	**988.00**
	STD DEV	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
06/30/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906936	**06-30-18**	**1062918B**	**9.0**	**0.00**	**2.52**	**12.6**	**108**	**32**	**1002**

JUNE		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **69**	M AVG	**8.90**	**0.28**	**3.54**	**13.42**	**108.45**	**30.40**	**927.99**
	STD DEV	**0.83**	**0.54**	**1.92**	**1.21**	**5.67**	**1.08**	**60.77**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **327**	M AVG	**8.86**	**0.30**	**4.24**	**13.43**	**110.64**	**31.39**	**964.33**
	STD DEV	**0.94**	**0.50**	**2.04**	**1.04**	**5.17**	**1.88**	**74.50**

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PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
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BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906934	**06-30-18**	**1062918C**	**8.5**	**0.02**	**2.23**	**12.8**	**110**	**31**	**989**

JUNE		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **70**	M AVG	**8.89**	**0.28**	**3.52**	**13.41**	**108.47**	**30.41**	**928.74**
	STD DEV	**0.83**	**0.54**	**1.92**	**1.21**	**5.63**	**1.07**	**60.76**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **328**	M AVG	**8.86**	**0.30**	**4.23**	**13.42**	**110.63**	**31.39**	**964.40**
	STD DEV	**0.93**	**0.50**	**2.04**	**1.04**	**5.16**	**1.88**	**74.41**

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Prepared by: TLG
07/02/18

GSE BENTOLINER

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PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906795	**07-02-18**	**1062918D**	**9.7**	**0.04**	**5.19**	**13.2**	**116**	**33**	**1020**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **1**	M AVG	**9.70**	**0.04**	**5.19**	**13.20**	**116.00**	**33.00**	**1020.00**
	STD DEV	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **329**	M AVG	**8.86**	**0.30**	**4.24**	**13.42**	**110.65**	**31.39**	**964.55**
	STD DEV	**0.93**	**0.50**	**2.04**	**1.04**	**5.17**	**1.88**	**74.36**

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Jason Tawse

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Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

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07/02/18

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COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906796	**07-02-18**	**1070218A**	**7.9**	**0.04**	**4.20**	**12.4**	**112**	**30**	**999**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **2**	M AVG	**8.80**	**0.04**	**4.70**	**12.80**	**114.00**	**31.50**	**1009.50**
	STD DEV	**0.90**	**0.00**	**0.49**	**0.40**	**2.00**	**1.50**	**10.50**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **330**	M AVG	**8.86**	**0.30**	**4.24**	**13.42**	**110.65**	**31.39**	**964.65**
	STD DEV	**0.93**	**0.50**	**2.04**	**1.04**	**5.16**	**1.88**	**74.28**

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Shannon Pollmiller
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Prepared by: TLG
07/02/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **700 MIN**
B0003906800	**07-02-18**	**1070218B**	**8.1**	**0.05**	**3.50**	**12.6**	**112**	**31**	**988**

JULY		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **3**	M AVG	**8.57**	**0.04**	**4.30**	**12.73**	**113.33**	**31.33**	**1002.33**
	STD DEV	**0.81**	**0.00**	**0.69**	**0.34**	**1.89**	**1.25**	**13.27**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **331**	M AVG	**8.86**	**0.30**	**4.24**	**13.42**	**110.66**	**31.39**	**964.71**
	STD DEV	**0.93**	**0.50**	**2.03**	**1.04**	**5.15**	**1.87**	**74.19**

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Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TLG
07/02/18

Report Date
8/30/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502318141	BLI-075-06N-06W-D-60	28082712	15.50	1082318A	150.00
502318142	BLI-075-06N-06W-D-60	28082712	15.50	1082318A	150.00
502318143	BLI-075-06N-06W-D-60	28082712	15.50	1082318A	150.00
502318144	BLI-075-06N-06W-D-60	28082712	15.50	1082318A	150.00
502318145	BLI-075-06N-06W-D-60	28082712	15.50	1082318A	150.00
502318146	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318147	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318154	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318155	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318156	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318157	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318158	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318159	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318160	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318161	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318162	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318163	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318164	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318167	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318171	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318172	BLI-075-06N-06W-D-60	28082712	15.50	1082318B	150.00
502318180	BLI-075-06N-06W-D-60	28082712	15.50	1082318C	150.00
502318181	BLI-075-06N-06W-D-60	28082712	15.50	1082318C	150.00
502318182	BLI-075-06N-06W-D-60	28082712	15.50	1082318C	150.00
502318183	BLI-075-06N-06W-D-60	28082712	15.50	1082318C	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Aug/30/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502318141	188	83	77.0	16.9	0.88	36.0	9.6	12.8
502318142	188	83	77.0	16.9	0.88	36.0	9.6	12.8
502318143	188	83	77.0	16.9	0.88	36.0	9.6	12.8
502318144	188	83	77.0	16.9	0.88	36.0	9.6	12.8
502318145	188	83	77.0	16.9	0.88	36.0	9.6	12.8
502318146	188	83	77.0	16.9	0.88	31.0	10.8	14.0
502318147	188	83	77.0	16.9	0.88	31.0	10.8	14.0
502318154	244	82	58.3	17.1	0.93	31.0	10.8	14.0
502318155	244	82	58.3	17.1	0.93	31.0	10.8	14.0
502318156	244	82	58.3	17.1	0.93	31.0	10.8	14.0
502318157	351	100	79.1	21.6	0.85	31.0	10.8	14.0
502318158	351	100	79.1	21.6	0.85	31.0	10.8	14.0
502318159	351	100	79.1	21.6	0.85	31.0	10.8	14.0
502318160	351	100	79.1	21.6	0.85	31.0	10.8	14.0
502318161	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318162	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318163	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318164	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318167	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318171	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318172	260	79	65.4	17.0	0.83	31.0	10.8	14.0
502318180	323	85	71.9	16.9	0.81	31.5	10.0	12.8
502318181	323	85	71.9	16.9	0.81	31.5	10.0	12.8
502318182	323	85	71.9	16.9	0.81	31.5	10.0	12.8
502318183	323	85	71.9	16.9	0.81	31.5	10.0	12.8

Laboratory Manager 

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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003953177	**08-23-18**	**1082318A**	**9.1**	**0.03**	**1.53**	**13.8**	**112**	**31**	**1002**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **51**	M AVG	**8.74**	**0.19**	**4.07**	**14.17**	**107.89**	**30.16**	**958.19**
	STD DEV	**0.87**	**0.36**	**1.99**	**0.94**	**5.21**	**1.89**	**68.18**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **460**	M AVG	**8.88**	**0.30**	**4.14**	**13.63**	**109.93**	**31.07**	**959.05**
	STD DEV	**0.92**	**0.54**	**2.00**	**1.14**	**5.41**	**1.86**	**72.88**

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Shannon Pollmiller
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Prepared by: TO
08/24/18

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003953178	**08-24-18**	**1082318B**	**9.6**	**0.06**	**3.28**	**14.0**	**108**	**30**	**949**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **52**	M AVG	**8.76**	**0.19**	**4.06**	**14.17**	**107.90**	**30.16**	**958.03**
	STD DEV	**0.87**	**0.36**	**1.97**	**0.93**	**5.17**	**1.87**	**67.60**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **461**	M AVG	**8.88**	**0.30**	**4.14**	**13.63**	**109.93**	**31.07**	**959.03**
	STD DEV	**0.92**	**0.54**	**1.99**	**1.14**	**5.41**	**1.85**	**72.81**

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(ezimmel@gseworld.com)

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
08/25/18

CC: Thomas Anderson
Jason Tawse

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003853179	**08-25-18**	**1082318C**	**9.2**	**0.08**	**2.17**	**13.6**	**106**	**31**	**1002**

AUGUST		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **53**	M AVG	**8.76**	**0.19**	**4.03**	**14.16**	**107.86**	**30.17**	**958.78**
	STD DEV	**0.86**	**0.36**	**1.97**	**0.92**	**5.13**	**1.86**	**67.26**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **462**	M AVG	**8.88**	**0.29**	**4.14**	**13.63**	**109.92**	**31.07**	**959.11**
	STD DEV	**0.92**	**0.54**	**1.99**	**1.14**	**5.40**	**1.85**	**72.76**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Prepared by: TO
08/25/18

CC: Thomas Anderson
Jason Tawse

Report Date
8/30/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502318971	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	84.00
502318972	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318973	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318974	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318975	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318976	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318977	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318978	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318979	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318980	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318981	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318982	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318983	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318984	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318985	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318986	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318987	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318988	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318989	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318990	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318991	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318992	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318993	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318994	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318995	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318996	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318997	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318998	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502318999	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319000	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319001	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319002	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319003	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319004	BLI-075-06N-06W-D-60	28091112	15.50	1090118A	150.00
502319005	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319006	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319007	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319008	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319009	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319010	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319011	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319012	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319013	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319014	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319015	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319016	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319018	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319019	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319020	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319022	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319023	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319024	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319025	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319026	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319027	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319028	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319029	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319030	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319031	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319032	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319033	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319034	BLI-075-06N-06W-D-60	28091112	15.50	1090118B	150.00
502319035	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319036	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319037	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319038	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319039	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319040	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319041	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319042	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319043	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319044	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319045	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319046	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319047	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319048	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319049	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319050	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319051	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319052	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319053	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319054	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319055	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319056	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319057	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319058	BLI-075-06N-06W-D-60	28091112	15.50	1090118C	150.00
502319059	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319060	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319061	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319062	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319063	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319064	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319065	BLI-075-06N-06W-D-60	28091212	15.50	1090118C	150.00
502319066	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319067	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319068	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319069	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319070	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319071	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319072	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319073	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319074	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	138.00
502319075	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319076	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319077	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319078	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319079	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319080	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319081	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319082	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319083	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319084	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319085	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319086	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319087	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319088	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319089	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319090	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319091	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319092	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319093	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319094	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	150.00
502319095	BLI-075-06N-06W-D-60	28091212	15.50	1090118D	90.00
502319097	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319098	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319099	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319100	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319101	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319103	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319104	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319105	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319106	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319107	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319108	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319109	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319110	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319111	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319112	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319113	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319114	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319115	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319116	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319117	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319118	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319119	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319120	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319121	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319122	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319123	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319124	BLI-075-06N-06W-D-60	28091212	15.50	1090418A	150.00
502319125	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319126	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319127	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319128	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319129	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319130	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319131	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319132	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319133	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319134	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319135	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319136	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319137	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319138	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319139	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319140	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319141	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319142	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319143	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319144	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319145	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319146	BLI-075-06N-06W-D-60	28091212	15.50	1090418B	150.00
502319147	BLI-075-06N-06W-D-60	28091312	15.50	1090418B	150.00
502319148	BLI-075-06N-06W-D-60	28091312	15.50	1090418B	150.00
502319149	BLI-075-06N-06W-D-60	28091312	15.50	1090418B	150.00
502319150	BLI-075-06N-06W-D-60	28091312	15.50	1090418B	124.00
502319152	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319153	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319154	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319155	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319156	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319157	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319158	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319159	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319160	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319161	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319162	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319163	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319164	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319165	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319166	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319167	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319168	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319169	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319170	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319171	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319172	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319173	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319174	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319175	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319176	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319177	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319178	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319179	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319180	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319181	BLI-075-06N-06W-D-60	28091312	15.50	1090418C	150.00
502319182	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319189	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319190	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319191	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	118.00
502319192	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319193	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319194	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319195	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319196	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319197	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319198	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319199	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319200	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319201	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319202	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319203	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319204	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319205	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319206	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319207	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319208	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319209	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319210	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319211	BLI-075-06N-06W-D-60	28091312	15.50	1090418D	150.00
502319212	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319213	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319214	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319215	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319216	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319217	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319218	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319219	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319220	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319221	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319223	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319224	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319225	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00
502319226	BLI-075-06N-06W-D-60	28091312	15.50	1090918A	150.00

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502318971	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318972	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318973	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318974	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318975	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318976	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318977	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318978	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318979	296	84	66.6	17.9	0.84	35.0	10.7	13.6
502318980	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318981	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318982	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318983	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318984	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318985	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318986	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318987	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318988	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318989	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318990	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318991	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318992	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318993	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318994	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318995	313	84	72.7	17.9	0.80	35.0	10.7	13.6
502318996	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502318997	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502318998	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502318999	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502319000	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502319001	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502319002	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502319003	248	94	56.4	21.2	0.80	35.0	10.7	13.6
502319004	248	94	56.4	21.2	0.80	35.0	10.7	13.6

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319005	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319006	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319007	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319008	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319009	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319010	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319011	248	94	56.4	21.2	0.80	34.5	10.2	13.6
502319012	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319013	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319014	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319015	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319016	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319018	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319019	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319020	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319022	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319023	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319024	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319025	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319026	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319027	309	100	68.2	23.6	0.80	34.5	10.2	13.6
502319028	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319029	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319030	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319031	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319032	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319033	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319034	321	85	52.6	15.5	0.79	34.5	10.2	13.6
502319035	321	85	52.6	15.5	0.79	35.0	10.6	13.8
502319036	321	85	52.6	15.5	0.79	35.0	10.6	13.8
502319037	321	85	52.6	15.5	0.79	35.0	10.6	13.8
502319038	321	85	52.6	15.5	0.79	35.0	10.6	13.8
502319039	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319040	319	95	61.7	16.8	0.82	35.0	10.6	13.8

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319041	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319042	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319043	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319044	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319045	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319046	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319047	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319048	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319049	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319050	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319051	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319052	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319053	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319054	319	95	61.7	16.8	0.82	35.0	10.6	13.8
502319055	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319056	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319057	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319058	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319059	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319060	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319061	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319062	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319063	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319064	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319065	303	95	70.2	18.0	0.81	35.0	10.6	13.8
502319066	303	95	70.2	18.0	0.81	34.0	11.7	12.8
502319067	303	95	70.2	18.0	0.81	34.0	11.7	12.8
502319068	303	95	70.2	18.0	0.81	34.0	11.7	12.8
502319069	303	95	70.2	18.0	0.81	34.0	11.7	12.8
502319070	303	95	70.2	18.0	0.81	34.0	11.7	12.8
502319071	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319072	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319073	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319074	311	89	52.2	17.5	0.82	34.0	11.7	12.8

GSE Environmental, LLC

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Report Date: Sep/14/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319075	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319076	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319077	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319078	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319079	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319080	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319081	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319082	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319083	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319084	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319085	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319086	311	89	52.2	17.5	0.82	34.0	11.7	12.8
502319087	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319088	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319089	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319090	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319091	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319092	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319093	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319094	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319095	266	100	57.9	20.0	0.82	34.0	11.7	12.8
502319097	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319098	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319099	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319100	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319101	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319103	266	100	57.9	20.0	0.82	30.5	10.5	13.6
502319104	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319105	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319106	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319107	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319108	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319109	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319110	292	94	68.0	18.8	0.77	30.5	10.5	13.6

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319111	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319112	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319113	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319114	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319115	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319116	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319117	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319118	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319119	292	94	68.0	18.8	0.77	30.5	10.5	13.6
502319120	254	99	61.7	18.3	0.85	30.5	10.5	13.6
502319121	254	99	61.7	18.3	0.85	30.5	10.5	13.6
502319122	254	99	61.7	18.3	0.85	30.5	10.5	13.6
502319123	254	99	61.7	18.3	0.85	30.5	10.5	13.6
502319124	254	99	61.7	18.3	0.85	30.5	10.5	13.6
502319125	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319126	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319127	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319128	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319129	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319130	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319131	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319132	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319133	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319134	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319135	254	99	61.7	18.3	0.85	35.5	7.9	14.0
502319136	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319137	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319138	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319139	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319140	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319141	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319142	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319143	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319144	253	84	60.2	15.3	0.94	35.5	7.9	14.0

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Sep/14/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319145	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319146	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319147	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319148	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319149	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319150	253	84	60.2	15.3	0.94	35.5	7.9	14.0
502319152	253	84	60.2	15.3	0.94	37.5	8.8	14.8
502319153	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319154	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319155	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319156	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319157	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319158	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319159	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319160	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319161	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319162	301	84	54.3	17.4	0.92	37.5	8.8	14.8
502319163	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319164	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319165	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319166	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319167	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319168	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319169	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319170	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319171	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319172	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319173	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319174	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319175	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319176	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319177	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319178	364	76	68.9	15.8	0.84	37.5	8.8	14.8
502319179	320	95	80.3	18.5	0.85	37.5	8.8	14.8

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ROLL TEST DATA REPORT

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319180	320	95	80.3	18.5	0.85	37.5	8.8	14.8
502319181	320	95	80.3	18.5	0.85	37.5	8.8	14.8
502319182	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319189	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319190	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319191	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319192	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319193	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319194	320	95	80.3	18.5	0.85	36.0	10.2	13.8
502319195	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319196	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319197	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319198	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319199	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319200	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319201	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319202	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319203	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319204	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319205	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319206	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319207	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319208	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319209	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319210	366	77	72.9	15.6	0.78	36.0	10.2	13.8
502319211	326	91	70.3	13.0	0.80	36.0	10.2	13.8
502319212	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319213	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319214	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319215	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319216	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319217	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319218	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319219	326	91	70.3	13.0	0.80	35.0	10.2	13.6

GSE Environmental, LLC

ROLL TEST DATA REPORT

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319220	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319221	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319223	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319224	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319225	326	91	70.3	13.0	0.80	35.0	10.2	13.6
502319226	326	91	70.3	13.0	0.80	35.0	10.2	13.6

Laboratory Manager

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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956975	**09-02-18**	**1090118A**	**9.7**	**0.12**	**3.74**	**11.8**	**112**	**35**	**991**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **3**	M AVG	**9.33**	**0.11**	**3.00**	**12.40**	**109.33**	**34.33**	**992.67**
	STD DEV	**0.29**	**0.02**	**0.99**	**0.71**	**2.49**	**0.94**	**15.15**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **481**	M AVG	**8.90**	**0.30**	**4.12**	**13.63**	**109.78**	**31.10**	**958.48**
	STD DEV	**0.91**	**0.55**	**2.00**	**1.16**	**5.40**	**1.85**	**72.21**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/02/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956977	**09-02-18**	**1090118B**	**8.9**	**0.09**	**4.67**	**11.6**	**110**	**33**	**1054**
B0003956979	**09-03-18**	**1090118C**	**9.6**	**9.60**	**3.14**	**14.2**	**110**	**33**	**1055**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS								
5	M AVG	**9.30**	**2.01**	**3.36**	**12.60**	**109.60**	**33.80**	**1017.40**
	STD DEV	**0.32**	**3.80**	**1.01**	**1.02**	**1.96**	**0.98**	**32.49**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS								
483	M AVG	**8.90**	**0.32**	**4.12**	**13.63**	**109.78**	**31.11**	**958.83**
	STD DEV	**0.91**	**0.68**	**2.00**	**1.17**	**5.39**	**1.85**	**72.31**

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Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

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GSE BENTOLINER

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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956980	**09-04-18**	**1090118D**	**10.6**	**0.11**	**0.91**	**14.4**	**108**	**31**	**1037**
B0003956981	**09-04-18**	**1090418A**	**9.5**	**0.05**	**2.17**	**13.4**	**112**	**34**	**1041**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **7**	M AVG	**9.51**	**1.46**	**2.84**	**12.97**	**109.71**	**33.43**	**1023.57**
	STD DEV	**0.52**	**3.32**	**1.23**	**1.08**	**1.98**	**1.29**	**29.16**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **485**	M AVG	**8.90**	**0.32**	**4.11**	**13.63**	**109.78**	**31.11**	**959.13**
	STD DEV	**0.91**	**0.67**	**2.00**	**1.16**	**5.38**	**1.85**	**72.34**

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Jason Tawse

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Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/04/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

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SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956982	**09-06-18**	**1090418B**	**10.0**	**0.05**	**4.01**	**13.8**	**114**	**34**	**1034**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **8**	M AVG	**9.58**	**1.28**	**2.99**	**13.08**	**110.25**	**33.50**	**1024.88**
	STD DEV	**0.51**	**3.14**	**1.22**	**1.04**	**2.33**	**1.22**	**27.49**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **486**	M AVG	**8.91**	**0.32**	**4.11**	**13.63**	**109.79**	**31.12**	**959.26**
	STD DEV	**0.91**	**0.67**	**2.00**	**1.16**	**5.38**	**1.86**	**72.34**

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SPEARFISH, SD 57783

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SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/06/18

GSE BENTOLINER

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PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
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BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956983	**09-08-18**	**1090418C**	**8.3**	**1.79**	**3.22**	**12.2**	**114**	**33**	**966**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **10**	M AVG	**9.42**	**1.76**	**2.68**	**14.85**	**106.82**	**31.94**	**928.65**
	STD DEV	**0.48**	**2.26**	**1.29**	**2.15**	**5.18**	**2.41**	**99.96**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **488**	M AVG	**8.91**	**0.35**	**4.08**	**13.67**	**109.69**	**31.11**	**957.38**
	STD DEV	**0.91**	**0.71**	**2.00**	**1.22**	**5.43**	**1.87**	**73.53**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/08/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956984	**09-08-18**	**1090418D**	**9.1**	**0.19**	**3.71**	**13.6**	**110**	**31**	**1002**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **11**	M AVG	**9.40**	**1.67**	**2.73**	**14.78**	**107.00**	**31.89**	**932.72**
	STD DEV	**0.47**	**2.22**	**1.28**	**2.11**	**5.09**	**2.35**	**98.58**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **489**	M AVG	**8.91**	**0.35**	**4.08**	**13.67**	**109.69**	**31.11**	**957.46**
	STD DEV	**0.91**	**0.71**	**2.00**	**1.22**	**5.42**	**1.86**	**73.49**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/09/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003956987	**09-10-18**	**1090918A**	**9.2**	**0.36**	**2.64**	**13.8**	**106**	**33**	**999**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **12**	M AVG	**9.39**	**1.60**	**2.73**	**14.73**	**106.95**	**31.95**	**936.21**
	STD DEV	**0.46**	**2.18**	**1.24**	**2.06**	**4.96**	**2.30**	**97.09**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **490**	M AVG	**8.91**	**0.35**	**4.08**	**13.67**	**109.69**	**31.11**	**957.53**
	STD DEV	**0.91**	**0.71**	**2.00**	**1.22**	**5.42**	**1.86**	**73.45**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/10/18

Report Date
9/18/2018

Quality Assurance Laboratory Test Results

Project: Layfield/Eagle Gold Heap Leach Facility
Sales Order: 84739
Product: BLI-075-06N-06W-D-60 BentoLiner NWL

Required Testing: ASTM D5887 - Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter

Frequency: 1/270,000sf

Effective Stress: 5psi

Daily Lot	Roll Number	Production Date	Index Flux ($m^3/m^2/sec$)	Hydraulic Conductivity (cm/sec)
28060212	502313644	7/2/2018	6.82E-09	2.88E-09
28070312	502313763	7/3/2018	4.28E-09	1.77E-09
28071312	502314559	7/13/2018	3.13E-09	1.40E-09
28080112	502316105	8/1/2018	5.26E-09	2.03E-09
28080212	502316241	8/2/2018	5.24E-09	2.13E-09
28080312	502316355	8/3/2018	5.29E-09	2.16E-09
28081012	502316949	8/10/2018	4.00E-09	1.72E-09
28082712	502318141	8/27/2018	3.86E-09	1.47E-09
28090408	502318414	9/4/2018	5.43E-09	2.37E-09
28090512	502318550	9/5/2018	3.99E-09	1.64E-09
28090612	502318682	9/6/2018	4.74E-09	2.04E-09
28091112	502318975	9/11/2018	5.77E-09	2.11E-09
28091212	502319094	9/12/2018	5.33E-09	2.11E-09
28091312	502319218	9/13/2018	6.65E-09	2.43E-09

Approved By:	Chuck Taylor
Date Approved:	9/18/2018

Report Date
8/30/2018

BentoLiner Manufacturing Certification

Sales Order: 84739

Customer: Layfield Canada Ltd

Project: Layfield/Eagle Gold Heap Leach Facility

Product Type: BLI-075-06N-06W-D-60 BentoLiner NWL

The GCL purchased and shipped for the above referenced project does meet or exceed the project specifications.

The GCL supplied to this project has been continuously inspected for the presence of needles and is certified to be needle free.

Chuck Taylor
Laboratory Technician

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319364	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319365	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319366	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319367	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319368	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319369	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319370	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319371	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319372	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319373	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319374	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319375	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319376	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319377	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319378	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319379	BLI-075-06N-06W-D-60	28091712	15.50	30904181A	150.00
502319380	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319381	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319382	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319383	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319384	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319385	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319386	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319387	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319388	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319389	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319390	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319391	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319392	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319393	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319394	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319395	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319396	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319397	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319398	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319399	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319400	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319401	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319402	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319403	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319404	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319406	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319407	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319408	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319409	BLI-075-06N-06W-D-60	28091712	15.50	30905181A	150.00
502319410	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319412	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319413	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319414	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319415	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319416	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319417	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319418	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319419	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319420	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319421	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319423	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319424	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319425	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319426	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319427	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319428	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319429	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319430	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319431	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319432	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319433	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319434	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319435	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319436	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319437	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319438	BLI-075-06N-06W-D-60	28091712	15.50	30906182A	150.00
502319439	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319440	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319441	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319442	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319443	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319444	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319445	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319446	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319447	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319448	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319449	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319450	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319451	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319452	BLI-075-06N-06W-D-60	28091712	15.50	30909182A	150.00
502319453	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319454	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319455	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319456	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319457	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319458	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319459	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319460	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319462	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319463	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319464	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319465	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319466	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319467	BLI-075-06N-06W-D-60	28091812	15.50	30909182A	150.00
502319468	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319469	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319470	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319471	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319473	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319474	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319475	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319476	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319477	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319478	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319479	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319480	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319481	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319482	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319483	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319484	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319485	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319486	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319487	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319488	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319489	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319490	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319491	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319492	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319496	BLI-075-06N-06W-D-60	28091812	15.50	30911182A	150.00
502319497	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319498	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319499	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319500	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319501	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319502	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319503	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319504	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319505	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319506	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319507	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319509	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319510	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319511	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319512	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319513	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319514	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319515	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319516	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319517	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319518	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319519	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319520	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319521	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319522	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319523	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319524	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319525	BLI-075-06N-06W-D-60	28091812	15.50	30913182A	150.00
502319527	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319528	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319529	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319530	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319531	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319532	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319533	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319534	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319535	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319536	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319537	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319538	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319539	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319540	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319541	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319542	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319543	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319544	BLI-075-06N-06W-D-60	28091812	15.50	30915181A	150.00
502319545	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319546	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319547	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319548	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319549	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319550	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319551	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319552	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319553	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319554	BLI-075-06N-06W-D-60	28091912	15.50	30915181A	150.00
502319555	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319556	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319557	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319558	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319559	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319561	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319562	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319563	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319564	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319565	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319566	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319567	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319568	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319569	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319570	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319571	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319572	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319573	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319574	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319575	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319576	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319577	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319579	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319580	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319581	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319582	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319583	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319584	BLI-075-06N-06W-D-60	28091912	15.50	1091118B	150.00
502319585	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319586	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319587	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319588	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319589	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319590	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319591	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	146.00
502319593	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319594	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319595	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319596	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319597	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319598	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319599	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319600	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319601	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319602	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319603	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319604	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319605	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319608	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319609	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319610	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319611	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319612	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319613	BLI-075-06N-06W-D-60	28091912	15.50	1091118C	150.00
502319614	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00

Roll Allocation List

Sales Order SO-084739
Customer Name Layfield Canada Ltd
Project Name Layfield/Eagle Gold Heap Leach Facility

Serial number	Item Number	Daily lot	Roll width	Clay	Length
502319615	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319616	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319617	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319618	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319619	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319620	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319621	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319622	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319623	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319624	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319625	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319626	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319627	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319628	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319629	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319630	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319631	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319632	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	104.00
502319633	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319634	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319635	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00
502319636	BLI-075-06N-06W-D-60	28091912	15.50	1091118D	150.00

GSE Environmental, LLC

ROLL TEST DATA REPORT

Report Date: Sep/20/2018

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319364	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319365	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319366	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319367	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319368	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319369	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319370	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319371	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319372	236	95	58.9	13.5	0.83	30.0	9.6	14.2
502319373	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319374	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319375	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319376	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319377	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319378	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319379	255	86	61.3	15.2	0.82	30.0	9.6	14.2
502319380	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319381	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319382	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319383	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319384	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319385	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319386	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319387	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319388	255	86	61.3	15.2	0.82	30.0	9.5	14.0
502319389	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319390	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319391	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319392	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319393	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319394	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319395	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319396	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319397	240	79	50.8	16.5	0.78	30.0	9.5	14.0

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Sep/20/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319398	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319399	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319400	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319401	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319402	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319403	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319404	240	79	50.8	16.5	0.78	30.0	9.5	14.0
502319406	298	96	58.8	18.0	0.80	30.0	9.5	14.0
502319407	298	96	58.8	18.0	0.80	30.0	9.5	14.0
502319408	298	96	58.8	18.0	0.80	30.0	9.5	14.0
502319409	298	96	58.8	18.0	0.80	30.0	9.5	14.0
502319410	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319412	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319413	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319414	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319415	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319416	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319417	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319418	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319419	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319420	298	96	58.8	18.0	0.80	32.0	9.9	15.0
502319421	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319423	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319424	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319425	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319426	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319427	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319428	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319429	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319430	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319431	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319432	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319433	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319434	284	76	55.0	15.4	0.80	32.0	9.9	15.0

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Sep/20/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319435	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319436	284	76	55.0	15.4	0.80	32.0	9.9	15.0
502319437	245	89	53.8	16.5	0.88	32.0	9.9	15.0
502319438	245	89	53.8	16.5	0.88	32.0	9.9	15.0
502319439	245	89	53.8	16.5	0.88	32.0	9.4	14.8
502319440	245	89	53.8	16.5	0.88	32.0	9.4	14.8
502319441	245	89	53.8	16.5	0.88	32.0	9.4	14.8
502319442	245	89	53.8	16.5	0.88	32.0	9.4	14.8
502319443	245	89	53.8	16.5	0.88	32.0	9.4	14.8
502319444	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319445	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319446	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319447	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319448	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319449	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319450	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319451	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319452	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319453	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319454	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319455	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319456	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319457	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319458	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319459	239	84	55.4	14.6	0.85	32.0	9.4	14.8
502319460	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319462	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319463	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319464	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319465	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319466	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319467	247	91	55.0	16.9	0.83	32.0	9.4	14.8
502319468	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319469	247	91	55.0	16.9	0.83	28.5	9.4	14.0

GSE Environmental, LLC

ROLL TEST DATA REPORT

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Report Date: Sep/20/2018

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319470	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319471	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319473	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319474	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319475	247	91	55.0	16.9	0.83	28.5	9.4	14.0
502319476	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319477	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319478	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319479	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319480	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319481	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319482	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319483	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319484	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319485	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319486	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319487	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319488	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319489	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319490	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319491	194	91	53.4	14.7	0.85	28.5	9.4	14.0
502319492	248	82	54.7	16.8	0.85	28.5	9.4	14.0
502319496	248	82	54.7	16.8	0.85	28.5	9.4	14.0
502319497	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319498	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319499	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319500	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319501	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319502	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319503	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319504	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319505	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319506	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319507	248	82	54.7	16.8	0.85	29.5	9.0	14.8

GSE Environmental, LLC

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Sales Order No.	***Customer Name***	***Project Location***	***Product Name***	***BOL Number***
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319509	248	82	54.7	16.8	0.85	29.5	9.0	14.8
502319510	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319511	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319512	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319513	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319514	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319515	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319516	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319517	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319518	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319519	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319520	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319521	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319522	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319523	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319524	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319525	302	98	55.2	17.5	0.80	29.5	9.0	14.8
502319527	229	77	54.4	13.1	0.83	29.5	9.0	14.8
502319528	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319529	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319530	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319531	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319532	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319533	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319534	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319535	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319536	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319537	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319538	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319539	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319540	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319541	229	77	54.4	13.1	0.83	30.0	9.8	14.6
502319542	287	98	61.4	17.8	0.85	30.0	9.8	14.6
502319543	292	79	64.5	13.0	0.89	30.0	9.8	14.6

GSE Environmental, LLC

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319544	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319545	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319546	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319547	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319548	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319549	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319550	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319551	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319552	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319553	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319554	292	79	64.5	13.0	0.89	30.0	9.8	14.6
502319555	292	79	64.5	13.0	0.89	34.5	11.0	14.2
502319556	292	79	64.5	13.0	0.89	34.5	11.0	14.2
502319557	292	79	64.5	13.0	0.89	34.5	11.0	14.2
502319558	292	79	64.5	13.0	0.89	34.5	11.0	14.2
502319559	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319561	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319562	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319563	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319564	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319565	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319566	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319567	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319568	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319569	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319570	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319571	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319572	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319573	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319574	260	78	57.8	14.5	0.81	34.5	11.0	14.2
502319575	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319576	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319577	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319579	234	100	64.5	25.0	0.75	34.5	11.0	14.2

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Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319580	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319581	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319582	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319583	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319584	234	100	64.5	25.0	0.75	34.5	11.0	14.2
502319585	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319586	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319587	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319588	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319589	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319590	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319591	234	100	64.5	25.0	0.75	31.5	12.0	13.6
502319593	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319594	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319595	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319596	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319597	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319598	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319599	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319600	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319601	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319602	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319603	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319604	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319605	296	77	75.4	15.4	0.85	31.5	12.0	13.6
502319608	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319609	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319610	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319611	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319612	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319613	286	110	59.3	19.0	0.80	31.5	12.0	13.6
502319614	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319615	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319616	286	110	59.3	19.0	0.80	33.0	12.0	13.4

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SO-084739	Layfield Canada Ltd	MAYO CA	BLI-075-06N-06W-D-60	

Roll Number	ASTM D4632 Grab Strength (lbs)	ASTM D4632 Peel Strength (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content @ 0% Moisture (lbs/sf)	ASTM D5890 Free Swell (ml/2g)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502319617	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319618	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319619	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319620	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319621	286	110	59.3	19.0	0.80	33.0	12.0	13.4
502319622	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319623	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319624	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319625	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319626	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319627	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319628	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319629	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319630	269	91	66.9	19.0	0.79	33.0	12.0	13.4
502319631	288	110	67.2	23.9	0.88	33.0	12.0	13.4
502319632	277	100	64.6	16.8	0.96	33.0	12.0	13.4
502319633	277	100	64.6	16.8	0.96	33.0	12.0	13.4
502319634	277	100	64.6	16.8	0.96	33.0	12.0	13.4
502319635	277	100	64.6	16.8	0.96	33.0	12.0	13.4
502319636	277	100	64.6	16.8	0.96	33.0	12.0	13.4

Laboratory Manager

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GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003963750	**09-11-18**	**1091118A**	**10.3**	**0.67**	**3.01**	**13.0**	**110**	**30**	**997**
B0003963785	**09-13-18**	**1091118B**	**9.5**	**0.53**	**2.64**	**12.8**	**112**	**31**	**975**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **17**	M AVG	**9.47**	**1.37**	**2.96**	**14.34**	**107.75**	**31.75**	**945.83**
	STD DEV	**0.47**	**2.00**	**1.28**	**1.99**	**4.77**	**2.15**	**88.85**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **495**	M AVG	**8.92**	**0.35**	**4.08**	**13.67**	**109.70**	**31.11**	**957.75**
	STD DEV	**0.91**	**0.71**	**1.99**	**1.22**	**5.40**	**1.86**	**73.18**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/13/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003963786	**09-13-18**	**1091118C**	**10.4**	**1.06**	**3.26**	**12.6**	**112**	**32**	**978**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **18**	M AVG	**9.51**	**1.36**	**2.98**	**14.27**	**107.92**	**31.76**	**947.12**
	STD DEV	**0.49**	**1.96**	**1.26**	**1.98**	**4.75**	**2.10**	**87.28**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **496**	M AVG	**8.92**	**0.35**	**4.08**	**13.66**	**109.70**	**31.11**	**957.79**
	STD DEV	**0.91**	**0.71**	**1.99**	**1.22**	**5.40**	**1.86**	**73.12**

SOLD TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

Attn: **Bob Stadler (rstadler@gseworld.com)**
Chuck Taylor (ctaylor@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

SHIPPED TO: **GSE CLAY LINING TECHNOLOGY, Co.**
3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/13/18

GSE BENTOLINER

CERTIFICATE OF ANALYSIS 2018

PRODUCT : NATIONAL® 30

SHIPPED FROM: **BENTONITE PERFORMANCE MINERALS LLC**
554 US HWY 212
COLONY PLANT
BELLE FOURCHE, S.D. 57717

BOL #	LOAD DATE	**LOT CODE**	% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC MEQ **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
B0003963787	**09-13-18**	**1091118D**	**10.7**	**0.63**	**3.01**	**12.0**	**108**	**30**	**1000**

SEPTEMBER		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **19**	M AVG	**9.55**	**1.33**	**2.98**	**14.18**	**107.92**	**31.69**	**949.15**
	STD DEV	**0.53**	**1.93**	**1.23**	**1.99**	**4.66**	**2.09**	**86.19**

YTD		% MOIST **12 MAX**	Mesh % + 20 **15 MAX**	Mesh % - 200 **10 MAX**	FL **18 MAX**	MBC meq **70 MIN**	SWELL INDEX **25 MIN**	PWA **750 MIN**
No. of CARS **497**	M AVG	**8.93**	**0.35**	**4.07**	**13.66**	**109.70**	**31.11**	**957.86**
	STD DEV	**0.91**	**0.71**	**1.99**	**1.22**	**5.39**	**1.86**	**73.08**

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Cheryl Hofer (chofer@gseworld.com)
(ezimmel@gseworld.com)

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3150 FIRST AVENUE
SPEARFISH, SD 57783

CC: Thomas Anderson
Jason Tawse

For any questions contact.
Q.A. SUPERVISOR
Shannon Pollmiller
307-896-8505 or
(Shannon.Pollmiller@halliburton.com

Prepared by: TO
09/14/18

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

Shipped From: **Bentonite Performance Minerals LLC**
789 Hwy. 14-A East
Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003961835	**905034243**	**9/5/2018**	**30904181A**	**9.1**	**15.6**	**108**	**33**	**951**	**2.0**	**1.4**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
65	M AVG	**8.8**	**16.2**	**98.8**	**29.3**	**814.8**	**1.7**	**1.2**
	STD DEV	**0.4**	**0.8**	**4.0**	**2.2**	**43.7**	**0.8**	**0.8**

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Spearfish, SD 57783

Attn: Bob Stadler (rstadler@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
Chuck Taylor (ctaylor@gseworld.com)
E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/5/2018

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

Shipped From: **Bentonite Performance Minerals LLC**
789 Hwy. 14-A East
Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003963091	**905034244**	**9/5/2018**	**30905181A**	**9.1**	**16.0**	**106**	**31**	**906**	**1.7**	**0.9**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
66	M AVG	**8.8**	**16.2**	**98.9**	**29.4**	**816.2**	**1.7**	**1.2**
	STD DEV	**0.4**	**0.8**	**4.0**	**2.2**	**44.8**	**0.7**	**0.8**

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Cheryl Hofer (chofer@gseworld.com)
Chuck Taylor (ctaylor@gseworld.com)
E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/7/2018

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

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Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003963099	**905034245**	**9/10/2018**	**30906182A**	**9.5**	**14.8**	**108**	**31**	**915**	**1.8**	**0.9**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
67	M AVG	**8.8**	**16.2**	**99.1**	**29.4**	**817.7**	**1.7**	**1.2**
	STD DEV	**0.4**	**0.8**	**4.1**	**2.2**	**46.0**	**0.7**	**0.8**

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Cheryl Hofer (chofer@gseworld.com)
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E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/10/2018

GSE Bentoliner Clay Lining Technology, Co.

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PRODUCT: National 30

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Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003965067	**905034246**	**9/11/2018**	**30909182A**	**9.0**	**16.0**	**104**	**32**	**858**	**2.8**	**0.4**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
68	M AVG	**8.8**	**16.2**	**99.1**	**29.4**	**818.3**	**1.7**	**1.2**
	STD DEV	**0.4**	**0.8**	**4.2**	**2.2**	**45.9**	**0.7**	**0.8**

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3150 1st Avenue
Spearfish, SD 57783

Attn: Bob Stadler (rstadler@gseworld.com)
Cheryl Hofer (chofer@gseworld.com)
Chuck Taylor (ctaylor@gseworld.com)
E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/11/2018

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

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Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003967956	**905034247**	**9/11/2018**	**30911182A**	**9.0**	**16.0**	**116**	**30**	**831**	**1.8**	**0.5**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
69	M AVG	**8.8**	**16.2**	**99.4**	**29.4**	**818.4**	**1.7**	**1.2**
	STD DEV	**0.4**	**0.8**	**4.6**	**2.2**	**45.6**	**0.7**	**0.8**

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E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/13/2018

GSE Bentoliner Clay Lining Technology, Co.

CERTIFICATE OF ANALYSIS

PRODUCT: National 30

Shipped From: **Bentonite Performance Minerals LLC**
789 Hwy. 14-A East
Lovell, WY 82431

Trk. & BOL No.	Order No.	LOAD DATE	LOT CODE	MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
Habeck 24 B0003970053	**905034248**	**9/13/2018**	**30913182A**	**8.6**	**16.0**	**108**	**30**	**798**	**3.9**	**0.3**
Habeck 24 B0003971038	**905034249**	**9/15/2018**	**30915181A**	**9.5**	**16.4**	**106**	**29**	**811**	**1.8**	**1.3**

YTD NUMBER OF CARS/TRKS		% MOIST 12 max	F.L. 18 max	MBC MEQ	Free Swell 25 min	PWA 700 min	Mesh % + 20 (15.0 Max)	Mesh % - 200 (10.0 Max)
	M AVG	**8.8**	**16.2**	**99.6**	**29.4**	**818.1**	**1.7**	**1.2**
71	STD DEV	**0.4**	**0.8**	**4.7**	**2.1**	**45.0**	**0.8**	**0.8**

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Spearfish, SD 57783

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Cheryl Hofer (chofer@gseworld.com)
Chuck Taylor (ctaylor@gseworld.com)
E. Zimmel (ezimmel@gseworld.com)

Q A Supervisor
David Hayes

9/17/2018

Report Date
9/27/2018

Quality Assurance Laboratory Test Results

Project: Layfield/Eagle Gold Heap Leach Facility
Sales Order: 84739
Product: BLI-075-06N-06W-D-60 BentoLiner NWL

Required Testing: ASTM D5887 - Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter

Frequency: 1/270,000sf

Effective Stress: 5psi

Daily Lot	Roll Number	Production Date	Index Flux ($m^3/m^2/sec$)	Hydraulic Conductivity (cm/sec)
28060212	502313644	7/2/2018	6.82E-09	2.88E-09
28070312	502313763	7/3/2018	4.28E-09	1.77E-09
28071312	502314559	7/13/2018	3.13E-09	1.40E-09
28080112	502316105	8/1/2018	5.26E-09	2.03E-09
28080212	502316241	8/2/2018	5.24E-09	2.13E-09
28080312	502316355	8/3/2018	5.29E-09	2.16E-09
28081012	502316949	8/10/2018	4.00E-09	1.72E-09
28082712	502318141	8/27/2018	3.86E-09	1.47E-09
28090408	502318414	9/4/2018	5.43E-09	2.37E-09
28090512	502318550	9/5/2018	3.99E-09	1.64E-09
28090612	502318682	9/6/2018	4.74E-09	2.04E-09
28091112	502318975	9/11/2018	5.77E-09	2.11E-09
28091212	502319094	9/12/2018	5.33E-09	2.11E-09
28091312	502319218	9/13/2018	6.65E-09	2.43E-09
28091712	502319364	9/17/2018	6.17E-09	2.53E-09
28091812	502319491	9/18/2018	5.70E-09	2.21E-09
28091912	502319605	9/19/2018	3.05E-09	1.24E-09

Approved By:	Chuck Taylor
Date Approved:	9/27/2018

APPENDIX B

SUPPORTING DOCUMENTATION FOR SECTION 3.10

Section 3.10.1	Email stating acceptability to install liner on slopes greater than 3:1 slope	8 pages
Section 3.10.2	FM007 Regarding approved equipment on completed liner	43 pages
	Sieves of ODF Material	3 pages
Section 3.10.3	Email stating acceptance of proposed liner alternative to Specs	13 pages
Section 3.10.5	EPCM-RFI 022	1 page
	BGC-RFI-020	1 page
	Layfield Valid Testing Information	8 pages
Section 3.10.6	BGC-RFI-028	3 pages
Section 3.10.8	BGC-RFI-016	2 pages
	Layfield Cold Weather Installation Procedures and Supporting Documentation	37 pages

Rogers, Kate

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Sunday, October 28, 2018 7:30 AM
To: Roy Morlan; Dimitroff, Scott
Subject: RE: HLF Shaping

Roy:
I'm ok with this grading plan. If Scott is ok with it, we can go ahead and approve.

From: Roy Morlan
Sent: Friday, October 26, 2018 9:55 AM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>
Subject: FW: HLF Shaping

Hi guys. Below is a heat map showing the slopes for a grading plan JDS has come up with. The area above 940 in the center valley under the pipe trench is more of an estimate as this area is frozen and final shape will depend on ice excavation. The rest of the Heap area above 940 is already thawed so there would be no reason they could not make the shape below. The vast majority meets the design criteria (2.5:1 or less). The 950-960 elevation looks to be up to 2:1 but that was approved so I think its ok. There are small bits that are 1.5:1 (red on the map) but they are so small I assume they are probably artifacts and these areas can be shaped at least at a 2:1.

Let me know if you have any issues with this shaping as far as liner placement goes.

Thanks.

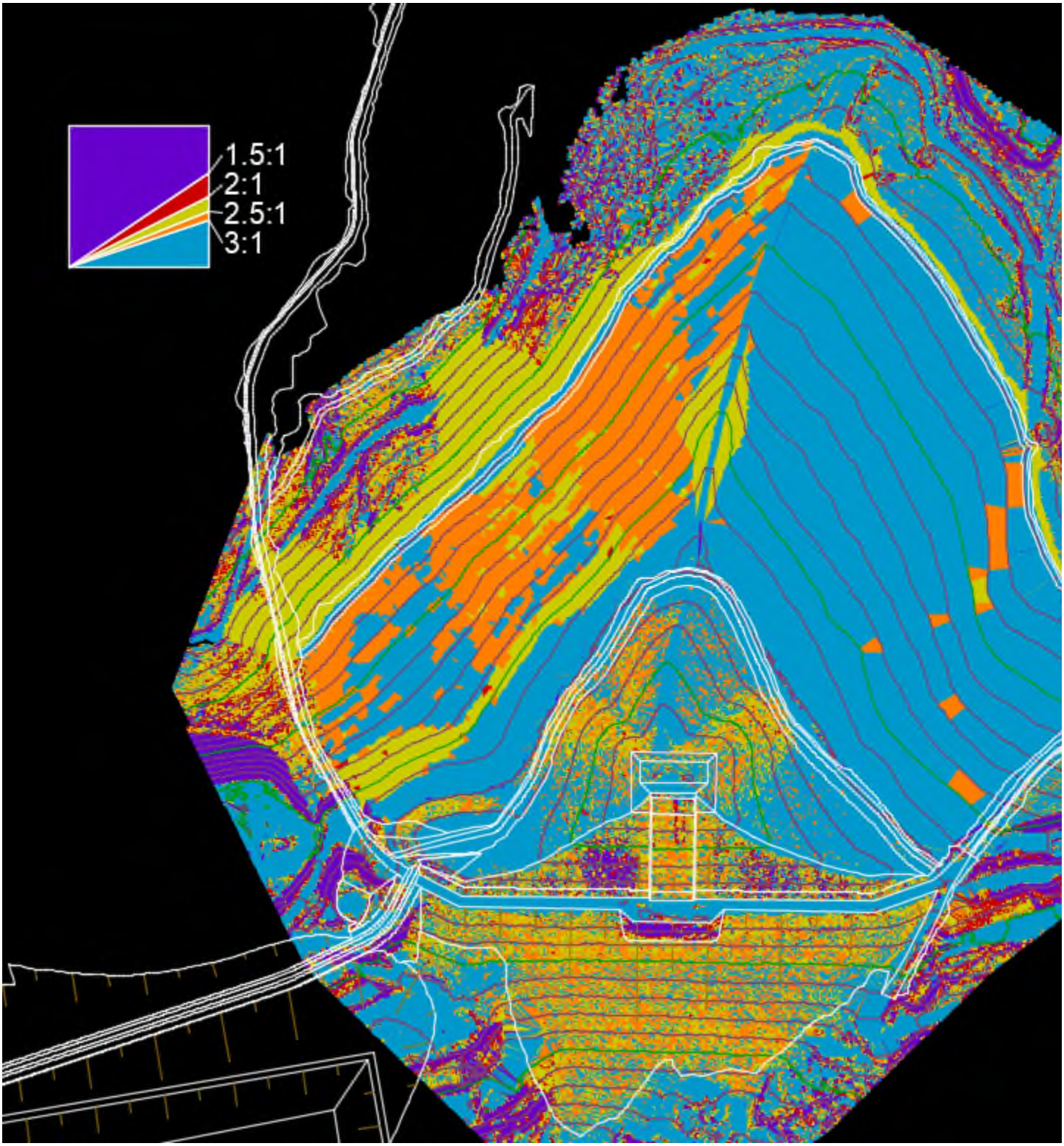
From: Dustin Gehrett
Sent: Thursday, October 25, 2018 2:04 PM
To: Roy Morlan <RMorlan@bgcengineering.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Subject: RE: HLF Shaping

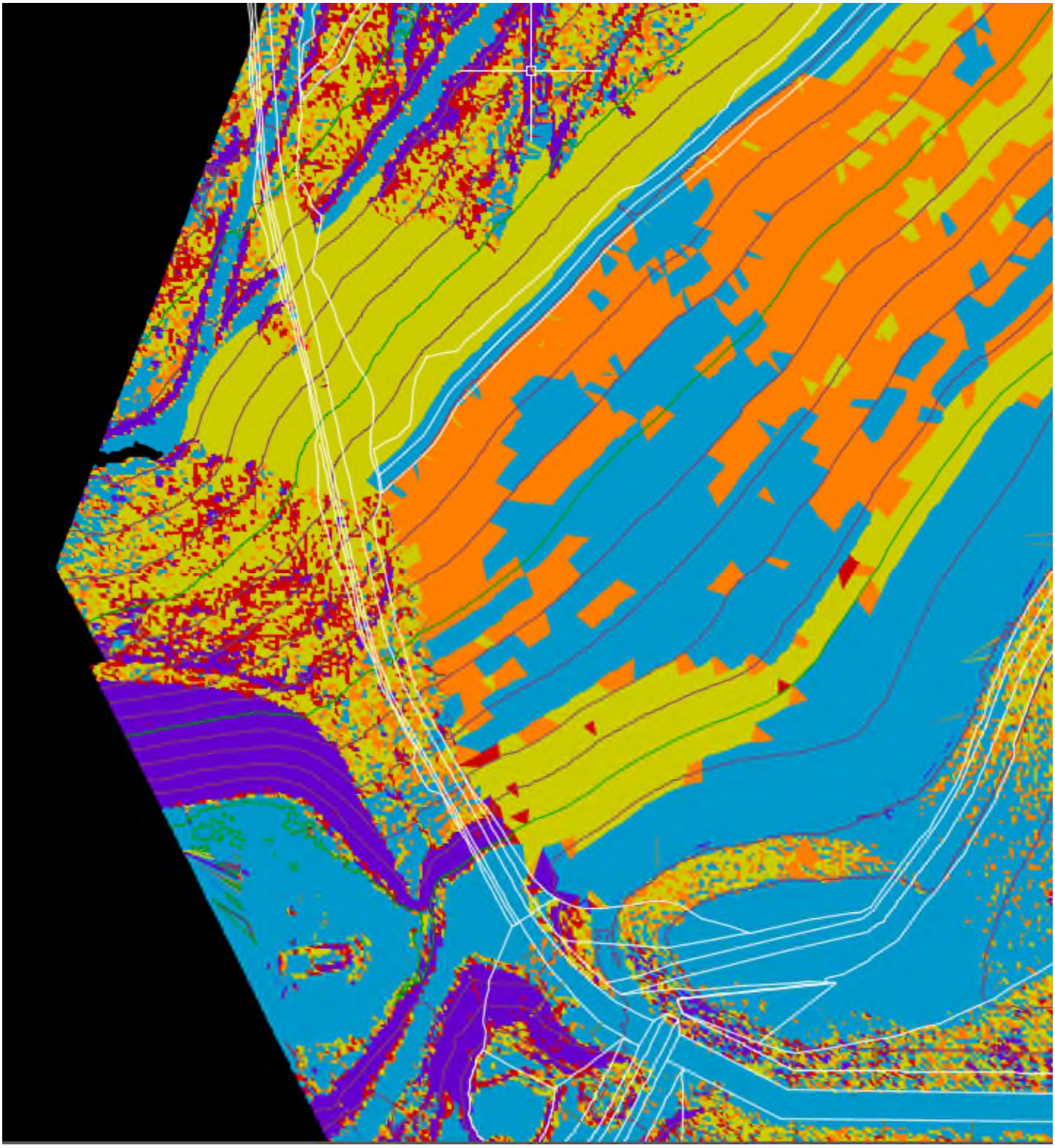
Roy,

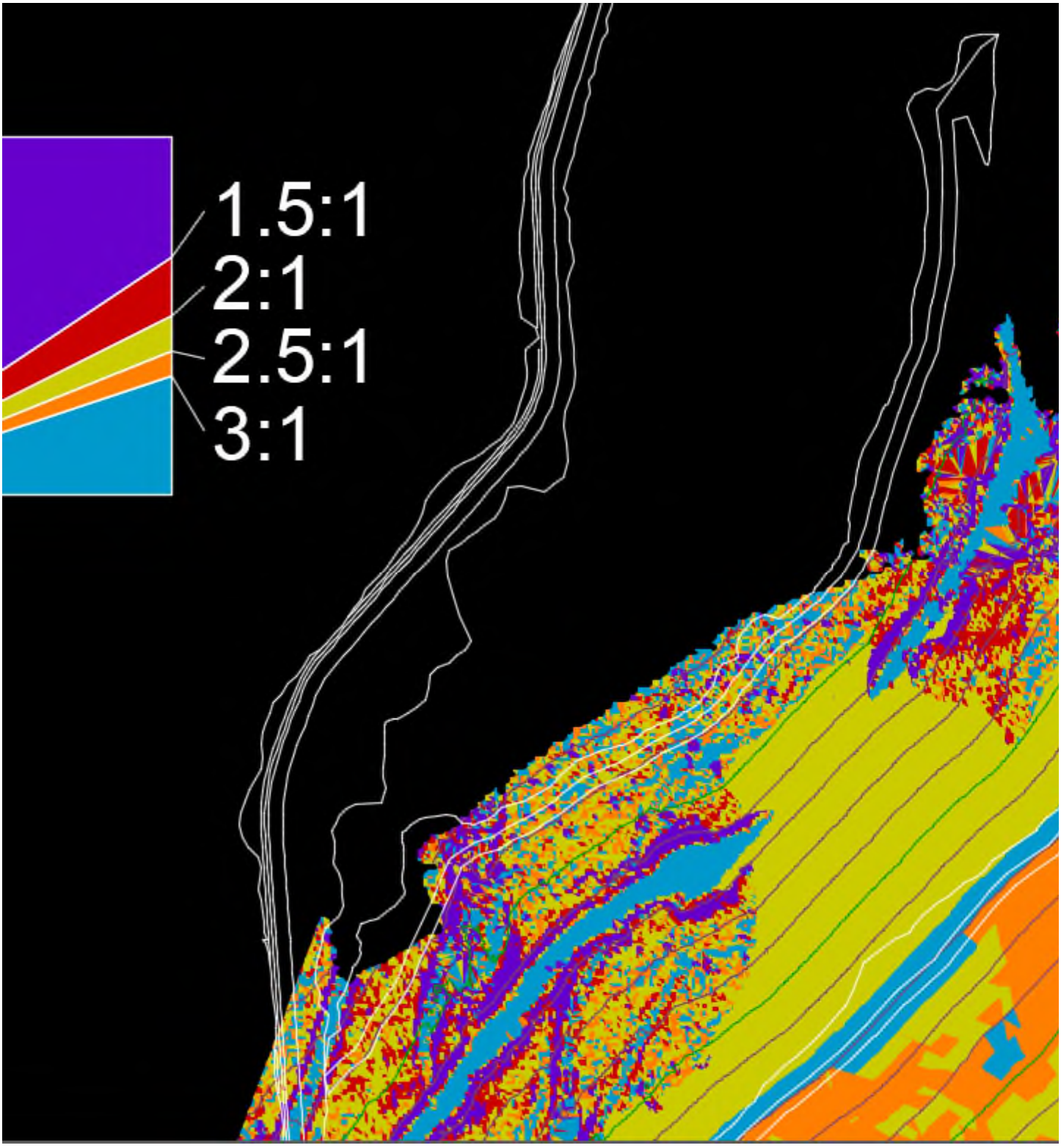
Here are some screen shots of the latest JDS grading with a slope range map. The first image shows the color legend on the top left corner (colors are new on here for more detailed analysis). Yellow areas are probably what you want to look at as they can be very large up-to-2:1 sloped areas.

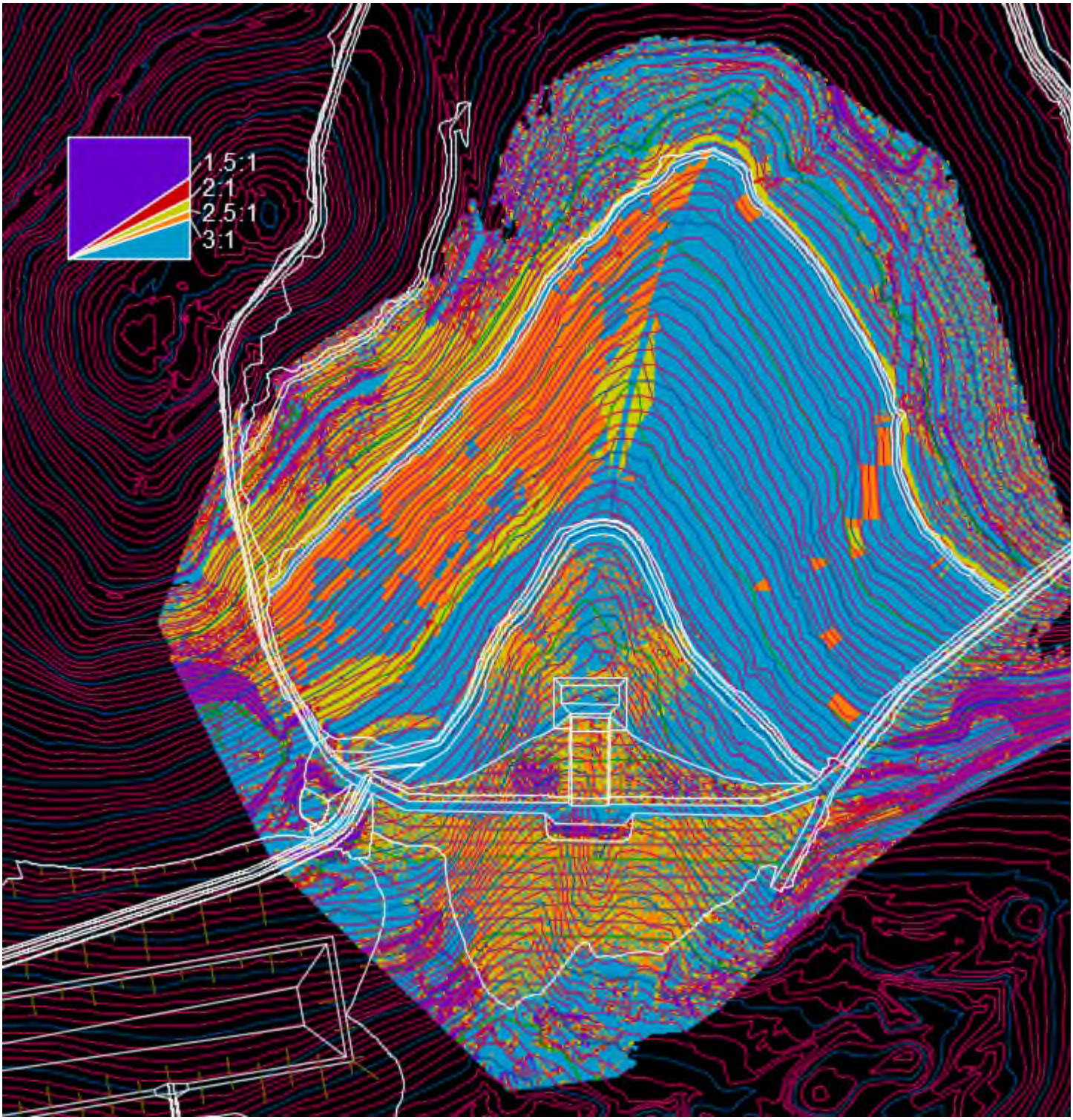
I took some cross sections through this surface and the original ground and it looks like they daylighted this grading correctly and the design can be tied into EG outside of the pad limits.

Let me know what else you need or if you want to do a screen share to look at things in more detail.


1.5:1
2:1
2.5:1
3:1




1.5:1
2:1
2.5:1
3:1



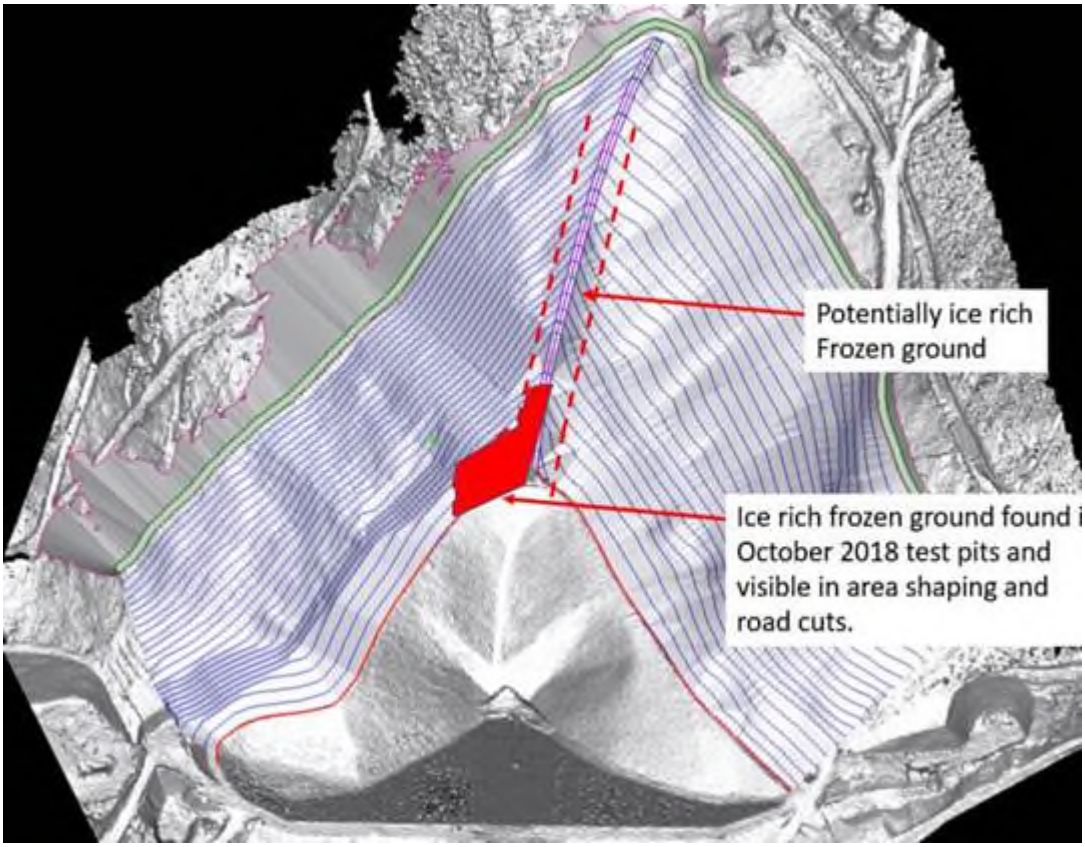
Dustin Gehrett
CAD/Designer
970-201-2088 DGehrett@BGCengineering.ca

From: Roy Morlan
Sent: Tuesday, October 23, 2018 9:25 AM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Matt Coverdale <MattC@jdsmining.ca>; Dustin Gehrett <DGehrett@bgcengineering.ca>
Subject: RE: HLF Shaping

Hi guys. The general layout provided looks ok. However, our designer, Dustin, is going to verify some of the steeper looking areas on the west side. We would also have to ensure that cuts in the Phase 1 pad area do not undercut the natural slopes above and pose a failure risk. It likely would not result in a major material cleanup effort if that happened but it could affect water/ice control efforts.

Something to note that will affect this shape is the ice rich frozen ground found in the center valley. This ice rich region was initially discovered in the July test pitting (and noted in previous test pitting done back in 2011, 2016, ect). What we are doing now is delineating it to determine how much excavation is needed. It looks like some of the ice has melted away, especially on the side slopes so we are looking at potentially just having over excavation in the center valley. The good news is that a lot of the ice found during shaping on west side and near the spillway has either melted away or been removed during shaping.

Thanks



From: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Sent: Saturday, October 20, 2018 7:53 AM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>
Cc: Matt Coverdale <MattC@jdsmining.ca>
Subject: FW: HLF Shaping

Roy,

As discussed see below upper pad shaping for review.

Regards

JF

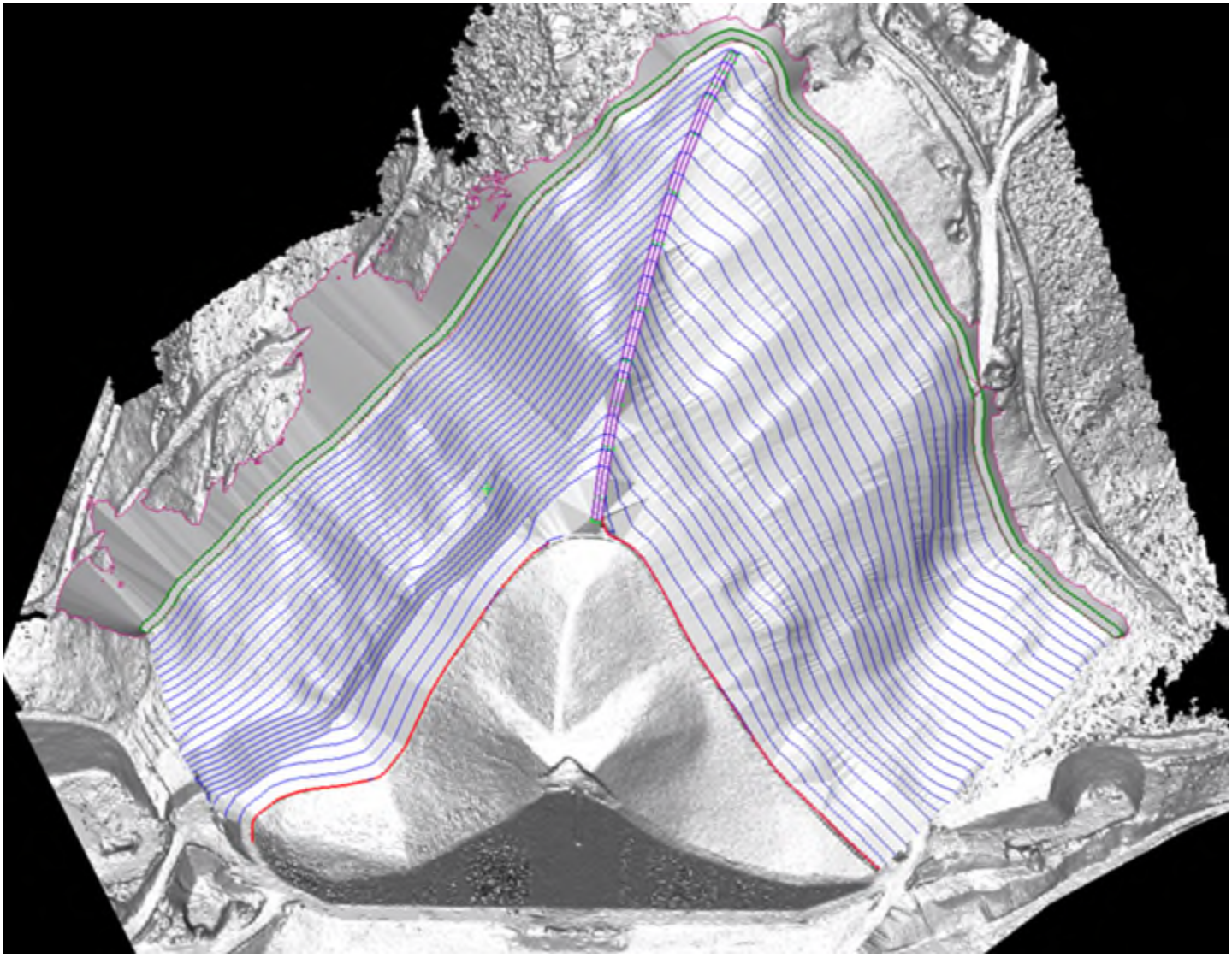
From: Matt Coverdale
Sent: October 19, 2018 10:21 PM
To: Chris Copley <chrisc@jdsmining.ca>; Jean-Francois Maille <jeanfrancoism@jdsmining.ca>
Subject: RE: HLF Shaping

Below 990 Bench Shaping

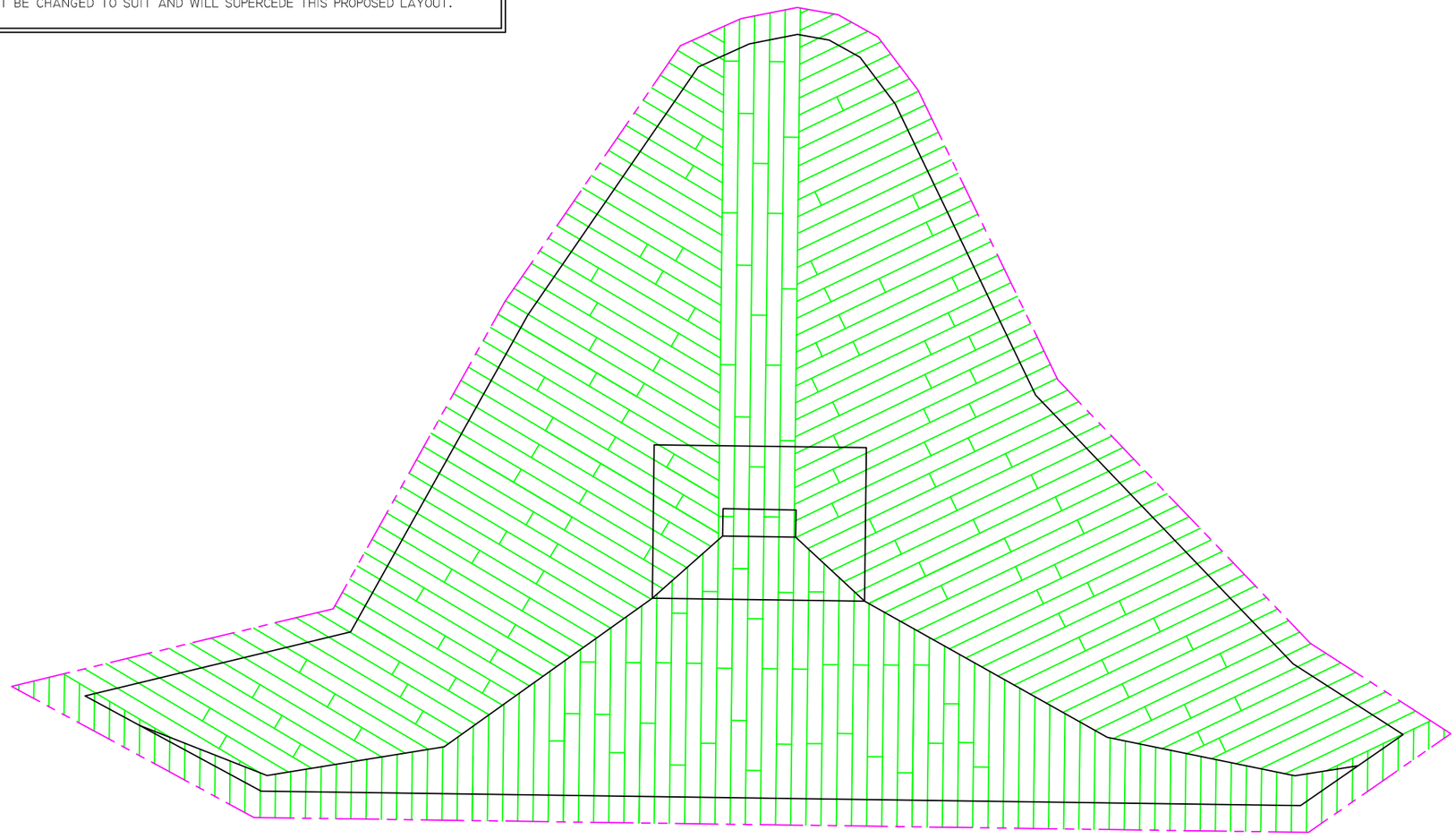
- Cut = 100,000m3
- Fill = 9,000m3

990Bench – 6m Deployment Bench

- Cut = 40,000m3 (@2:1)



THE PROPOSED LINER PANEL DEPLOYMENT LAYOUT SHOWN HERE IS INTENDED TO BE CONCEPTUAL AND MAY NOT REFLECT THE FINAL AS-BUILT CONDITION. SITE CONDITIONS AND SEQUENCING OF EARTHWORKS OPERATIONS MAY REQUIRE THAT THE DEPLOYMENT LAYOUT BE CHANGED TO SUIT AND WILL SUPERCEDE THIS PROPOSED LAYOUT.



NWL-60 GCL - CONCEPTUAL PANEL LAYOUT

SUBJECT TO CHANGE TO SUIT CONDITIONS IN THE FIELD

LEGEND

ANCHOR TRENCH AND SLOPE FACTOR

NOTES

LAYFIELD CANADA LTD.

EAGLE GOLD MINE
IN-HEAP POND
CONCEPTUAL PANEL LAYOUT
STRATA GOLD CORPORATION
MAYO, YT

Quote No.	PROJECT No.
P10348	CT000xxx

DWG: 1 OF 1		SCALE: N.T.S.
DWN: MJ	CHKD: GVP	APP'D: JW
DATE: 04/26/2018	REVISION:	0

B-SIZE

ANSI B Size Page (Horizontal)

Clint Abel

From: Daniel Granda <DGranda@bgcengineering.ca>
Sent: Sunday, October 07, 2018 9:04 AM
To: Clint Abel
Subject: FW: HN Equipment List and Specs

From: Troy Meyer
Sent: Tuesday, October 2, 2018 8:43 AM
To: Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>
Subject: FW: HN Equipment List and Specs

List of equipment approved for liner pipework install

From: Matthew MacEachen <matthew.maceachen@heavynorth.com>
Sent: Monday, October 1, 2018 1:02 PM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Aaron Wagner <aaron.wagner@heavynorth.com>; Paul Farrell <paul.farrell@heavynorth.com>
Subject: HN Equipment List and Specs

Hey JF,

List of all HN equipment on site with link to spec sheets.

Type	Code	Model 1	Model 2	Spec Link
Excavator 1	EXC045	CAT 324 EXC	324 E EXC045	324 Specs
Excavator 2	EXC014	CAT 314 EXC	314E LCR	314 Specs
Excavator 3	EXC140	DOOSAN DX140 EXC	DX140 LC	DX140 Specs
Dozer	DZR016	CAT D6T Dozer	D6T LGP	D6T Specs
Loader	LDR004	CAT 950 Loader	950K LDR 004	950 Specs
Skid Steer	LDR040	CAT 279 Skidsteer	279D	279 Specs
Rock Truck 1	TRK512	CAT 40T RT	740B	40T Specs
Rock Truck 2	TRK513	CAT 30T RT	730C	30T Specs
Packer	PKR009	CAT CS56B Packer	PKR009	CS56B Specs

Matthew Mac Eachen
Senior Project Manager

HEAVY NORTH

625 Parsons Road SW
Edmonton, Alberta T6X 0N9
Telephone: 780.742.2094
Fax: 780.743.2097
Cell: 780.919.4103

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-019

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 30, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)**	**Record:**	**BGC-RFI-019**

Re: BGC-RFI-019: Closure Sump Steel Plate Detail

BGC requests JDS provide acknowledgment of receipt of the following design detail clarification.

The pipework contractor (Heavy North) asked for clarification regarding the size, location and orientation of the steel protection plate to be installed in the closure sump as show in Detail 33 on Drawing EGHLF XD-05-04and Detail 37 on Drawing EGHLF XD-05-05. The configuration of the Closure Pipe Casings was modified per BGC-RFI-013. As a result the Closure Pipe Casings have been shifted up and away from the HLF Embankment face as show in **Figure 1**. This requies modification of the position of the steel plate. **Figure 2** shows the revised configuration. The steel plate will be positioned at the north edge of the sump at a 20 degree angle from horizontal, as shown. The dimensions of the steel plate are 3m long by 1.2m wide with a 25 cm 90 degree angle. This revised orientation requires a modification to the closure sump pipe drainage loop (see **Figure 3**). This RFI supercedes RFI-015.

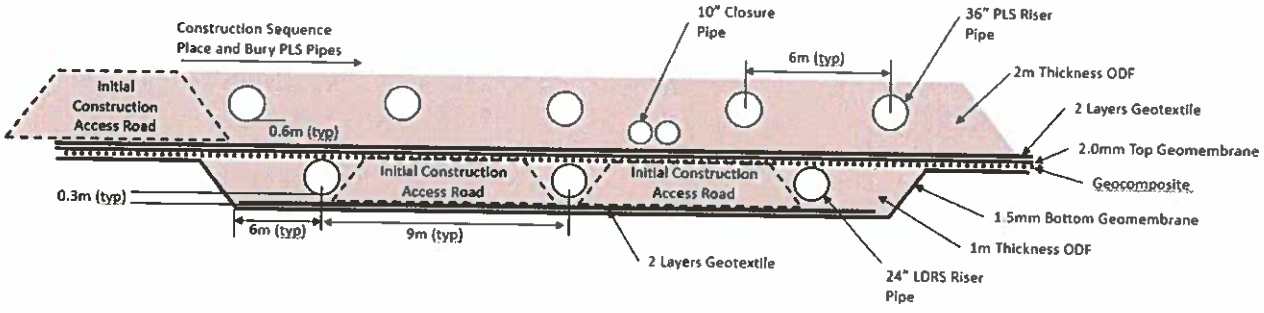


Figure 1: Revised Detail 28, Drawing EGHLF-XD-05-03.

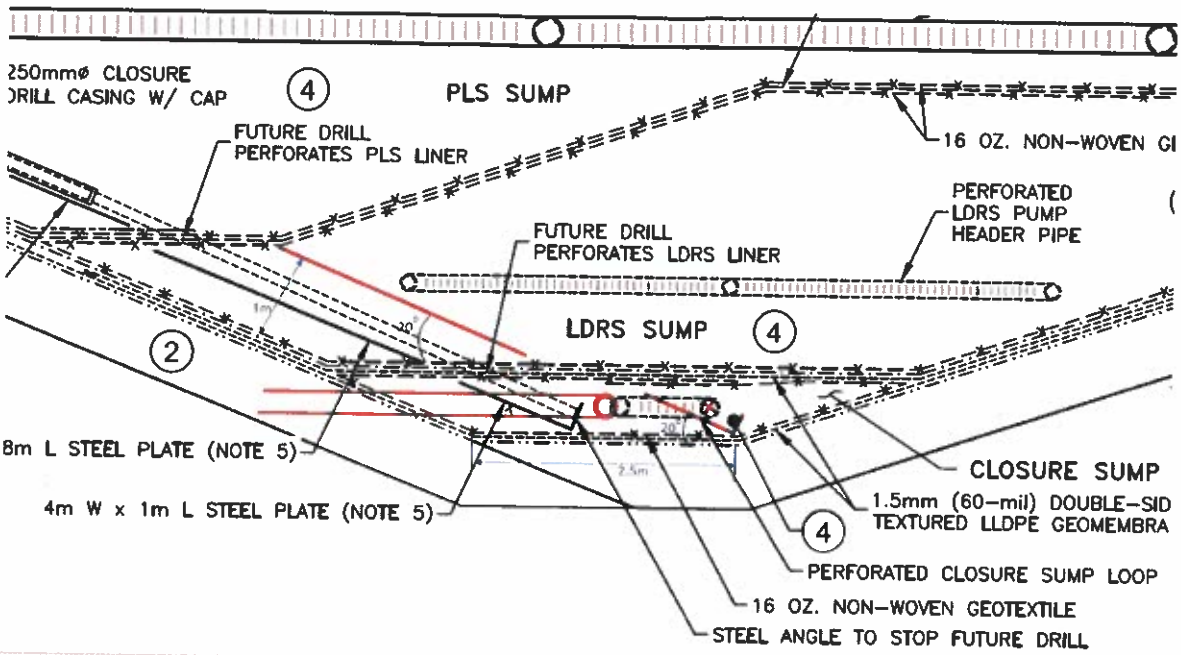


Figure 2. Revised Detail 33.

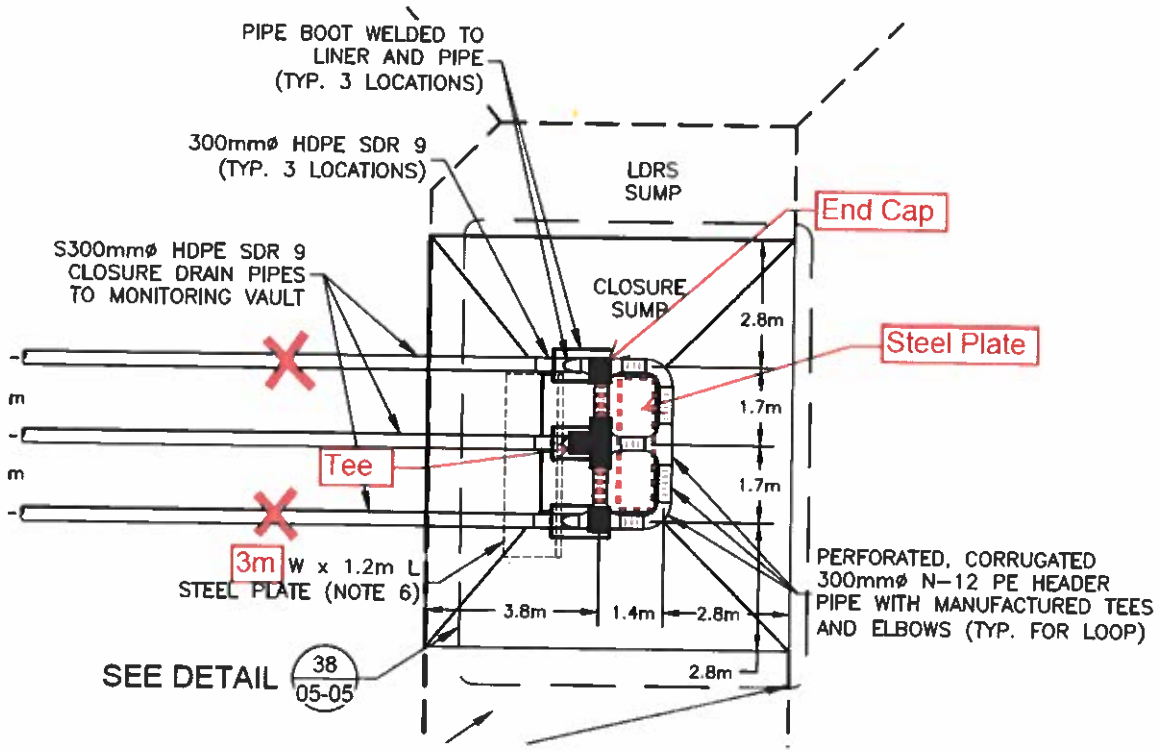


Figure 3. Revised Detail.

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Field Memorandum
FM-007

To:	**Calvin Goldschmidt**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0972021**
From:	**Troy Meyer**	**Date:**	**August 19, 2018**
Copied:	**Scott Dimitroff (Tetra Tech)** **Roy Morlan; Dan Granda (BGC)**	**Record:**	**FM-007**

Re: Liner Test Pad Procedure

1.0 INTRODUCTION AND OBJECTIVE

A test pad was constructed to define acceptable haulage, placement and spreading procedures for overliner drain fill (ODF) over the Heap Leach Facility (HLF) liner system using the proposed equipment. The HLF design incorporates two separate liner systems. The test pad was constructed over two days (August 18th and 19th) and supervised by Troy Meyer, P.Eng. of BC. The lining system for the In-Heap Pond areas are comprised of the following, from top to bottom:

- A min. 1m thick layer of overliner drain fill (ODF) with imbedded perforated drainage piping
- A 2.0mm (80-mil) LLDPE double-textured primary liner
- A geonet that is part of the LDRS and located between the primary and secondary liners
- A 1.5mm (60-mil) low-linear density polyethylene (LLDPE) secondary liner
- A geosynthetic clay liner (GCL)
- Prepared subgrade beneath the GCL.

The lining system for the HLF pad (up-gradient of the In-Heap Pond) are comprised of the following, from top to bottom:

- A min. 0.6m thick layer of overliner drain fill (ODF with imbedded perforated drainage piping
- A 2.0mm (80-mil) LLDPE double-textured liner
- A geosynthetic clay liner (GCL)
- Prepared subgrade beneath the GCL.

A dedicated access/haul road on the liner is planned to allow construction of the sump components and ODF behind the dam. It is envisioned that this road will be constructed of a thickened section of ODF with a geotextile cushion placed between the ODF and liner. To best simulate the construction of the ODF layer, three test pad sections were constructed:

- Section A - 1.5m layer of ODF over 2 layers of geotextile
- Section B – 1.0m layer of ODF over 2.0mm liner over GCL
- Section C - 0.6m layer of ODF over 2.0mm liner over GCL

The Sections B and C pads allows evaluation of both the single and double liner systems to be constructed at the HLF, while the Section A pad allows evaluation of the planned ODF haul road over the liner.

2.0 TEST PAD MATERIALS AND EQUIPMENT

2.1. Material 4 – ODF

The Overliner Drain Fill (ODF) for the leach pad liner cover fill shall consist of free-draining granular material with 38-mm maximum particle size and a maximum of 5 percent fines passing the No. 200 ASTM sieve size (0.075-mm). No moisture conditioning or compaction is required. The ODF material shall be placed in such a manner as to reduce segregation and protect the liner from damage and keep compaction of the ODF material to a minimum. The ODF above the geomembrane will be placed in a single lift by suitable dozer and truck equipment, as approved by the Engineer.

2.2. Geosynthetics

The geomembrane for the test pad was Solmax (RT) 2.0mm LLDPE. The GCL was GSE NWL 60. The geotextile was 12 oz non-woven. Data sheets for the material used in the test pad are included in Attachment A.

2.3. Equipment

JDS indicated the primary equipment planned for ODF construction is 40T rock trucks and D6 dozers. Data sheets for the equipment used in the test pad are included in Attachment A. The test pad was also trafficked with a CAT 3250 trackhoe excavator and a 30T dump truck during construction.

3.0 TEST PAD CONSTRUCTION AND EXECUTION

The constructed test fill configuration with liner sample locations is depicted in Figure 1. The configuration was developed to simulate haul traffic operations with stopping and turning on the haul road portion (Section A).

The surface was prepared by spreading subgrade material with a dozer and packing and smoothing with the excavator bucket. The material was imported from the ADR borrow area and was broken and weathered rock fragments in a matrix of sand and silt (**Photos 1 and 2 in Attachment B**).

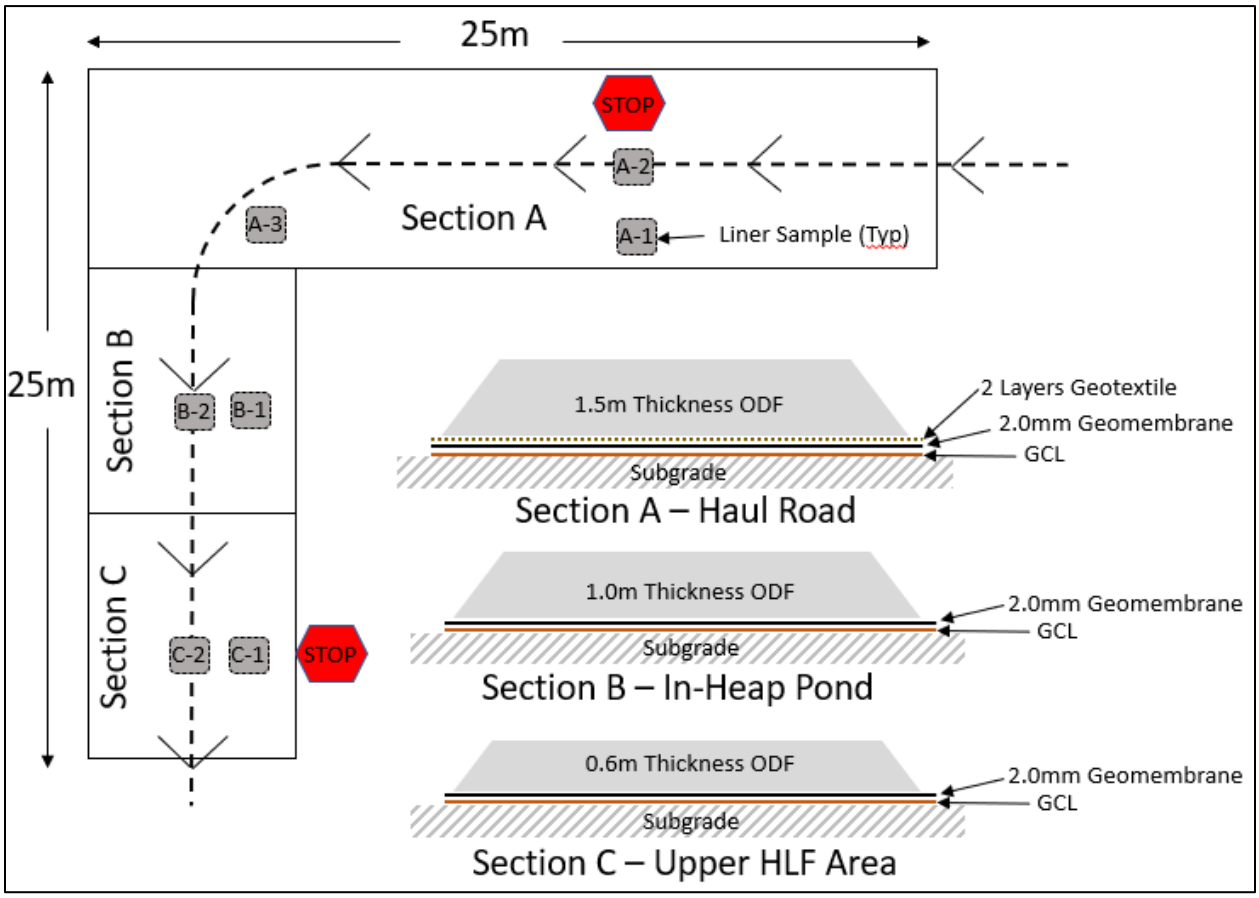


Figure 1: Liner test pad configuration and sampling locations.

Deployment of the geosynthetics was then performed (**Photos 3 through 9**), and the ODF thickness was checked by survey (**Photo 10**).

A loaded haul truck were then trafficked over the pad as shown in Figure 1 with speeds envisioned for actual construction (**Photo 12**). Two full stops and a turn with the loaded haul truck was incorporated in the Section A pad to simulate operations along the access road. A total of 10 passes were made over the pad with the loaded haul truck.

4.0 POST CONSTRUCTION EVALUATION AND TESTING

The loaded haul truck was able to traffic the surface without slipping or excessive rutting or ODF lateral displacement. After completion of the test pad trafficking, the surface of the ODF was visually inspected (**Photo 13**) and the liner was carefully uncovered with an excavator (**Photo 14**) with the last foot hand dug.

Photos 15 through 20 present the condition of the liner and subgrade. Light to moderate dimpling and scratching was observed on liner Sample C-1 (directly under truck tire track). All other

samples exhibited only light dimpling, which relaxed significantly within a few hours of uncovering. No deep scratches, gouges, abrasion, or holes were observed in any samples. No damage was observed in any of the GCL samples.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The liner test pad results indicate that the proposed materials and equipment will result in a low risk of liner puncture damage during construction with placement of a single lift as thin as 0.6m. Cushioning from 2 layers of geotextile appears adequate for protecting the liner under repeated haul truck traffic at slow speeds.

The test pad did not simulate construction on slopes. Care must be tacked to avoid tearing the liner due to slippage on slopes. ODF must be placed from downhill to uphill. Haul truck speeds, braking and turning during drain cover fill placement must be strictly controlled to prevent damage to the underlying geomembrane and pipework. Turning equipment in place should be avoided.

The cover fill thickness should be increased to a minimum of 1.5m in concentrated traffic areas or across collection pipes, as required, to prevent damage to the geomembrane and pipework. Haul traffic on the cover fill surface shall be spread out as much as practical to prevent over-compaction of the cover fill in localized areas.

6.0 LIMITATIONS

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Attachment A
Data Sheets

PRODUCT DATA SHEET

GSE BentoLiner NWL-60 Geosynthetic Clay Liner

GSE BentoLiner "NWL-60" is a heavily needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a nonwoven and a scrim-nonwoven geotextile for dimensional stability. The product is intended for steep slopes and high load applications where increased internal shear strength is required.

[*]

AT THE CORE:

This composite clay liner is intended for steep slopes and high load applications where increased internal shear strength is required.

Product Specifications

Tested Property	Test Method	Frequency	VALUE
Geotextile Property			
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	6.0 oz/yd^2 MARV(1)
Carrier Scrim Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	6.0 oz/yd^2 MARV
Bentonite Property			
Swell Index	ASTM D 5890	1/100,000 lb	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb	18 ml max
Finished GCL Property			
Bentonite, Mass/Unit Area(2)	ASTM D 5993	1/40,000 ft^2	0.75 lb/ft^2 MARV
Tensile Strength(3)	ASTM D 6768	1/40,000 ft^2	50 lb/in MARV
Peel Strength	ASTM D 6496 ASTM D 4632(4)	1/40,000 ft^2	12 lb/in MARV 60 lb MARV
Hydraulic Conductivity(5)	ASTM D 5887	1/Week	5 x 10^{-9} cm/sec max
Index Flux(5)	ASTM D 5887	1/Week	1 x 10^{-8} m^3/m^2/sec max
Internal Shear Strength(6)	ASTM D 6243	Periodically	500 psf Typical
TYPICAL ROLL DIMENSIONS			
Width x Length(7)	Typical	Every Roll	15.5 ft x 150 ft
Area per Roll	Typical	Every Roll	2,325 ft^2
Packaged Weight	Typical	Every Roll	2,600 lb

NOTES:

- (1)Minimum Average Roll Value.
- (2)At 0% moisture content.
- (3)Tested in machine direction.
- (4)Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- (5)Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- (6)Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- (7)Roll widths and lengths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

GSE ENVIRONMENTAL™

[DURABILITY RUNS DEEP]

For more information on this product and others, please visit us at GSEworld.com, call 800.435.2008 or contact your local sales office.

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LAYFIELD *Leaders in Film & Geosynthetic Technology*

Mill Certification Report

Sales Order #	325808
Order Date	10/24/2017
Req Ship Date	2/2/2018

Customer Name FG & RM - CP & EC EDMONTON

17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Result	Core Width (273 in +/- 0.5 in)	Roll Length (420 ft +/- 0 ft)	Roll Weight - Net (3993 lbs +/- 0 lbs)	Sheet Width (270 in +/- 2 in)	Roll Area m2	Thickness - Average ASTM D5994 (76 mils to 84 mils)
3322708s2-e0006803-001	Pass	271.50	420	4076.2	270.00	877.9	81.9
3322708s2-e0006803-002	Pass	272.50	420	4086.2	270.00	877.9	80.0
3322708s2-e0006803-003	Pass	271.50	420	4111.2	269.75	877.9	78.6
3322708s2-e0006803-004	Pass	271.50	420	4126.2	269.75	877.9	79.9
3322708s2-e0006803-005	Pass	271.50	420	4111.2	269.50	877.9	80.4
3322708s2-e0006803-006	Pass	271.50	420	4111.2	269.50	877.9	79.9
3322708s2-e0006803-007	Pass	271.50	420	4116.2	270.00	877.9	80.0

LAYFIELD Leaders in Film & Geosynthetic Technology

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Sales Order # 325808
Order Date 10/24/2017
Req Ship Date 2/2/2018

Customer Name FG & RM - CP & EC EDMONTON

17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Thickness - Minimum ASTM D5994 (68 mils to 84 mils)	Asperity - Printed Average ASTM D7466 (18 mils to 30 mils)	Asperity - Unprinted Average ASTM D7466 (18 mils to 30 mils)	Break Strength - MD Average ASTM D638 (120 lbs/in to 325 lbs/in)	Break Elongation - MD Average ASTM D638 (250 % to 1200 %)	Break Strength - TD Average ASTM D638 (120 lbs/in to 325 lbs/in)	Break Elongation - TD Average ASTM D638 (250 % to 1200 %)
3322708s2-e0006803-001	69.00	24.3	29.4	274.4	591	292.0	559
3322708s2-e0006803-002	72.80	21.6	28.8	274.4	591	292.0	559
3322708s2-e0006803-003	77.10	25.7	24.5	274.4	591	292.0	559
3322708s2-e0006803-004	75.00	22.9	23.7	274.4	591	292.0	559
3322708s2-e0006803-005	76.00	20.9	22.5	274.4	591	292.0	559
3322708s2-e0006803-006	72.90	21.3	22.5	300.3	637	306.6	632
3322708s2-e0006803-007	76.00	22.0	23.3	300.3	637	306.6	632

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Sales Order # 325808
Order Date 10/24/2017
Req Ship Date 2/2/2018

Customer Name FG & RM - CP & EC EDMONTON

17720 129th Avenue NW
EDMONTON, AB
CANADA
780-453-6731
LAYFIELD

Inspection #	28984	**Job**	E0006803	**Status**	Active	**Result**	Pass
Stock Code	3322708S2	EL 4280 270" 80 MIL SE TEX-2		**Inspection Date**	2/1/2018	**Completion Date**	

Serial	Tear Strength - MD Average ASTM D1004 (44 lbs to 70 lbs)	Tear Strength - TD Average ASTM D1004 (44 lbs to 70 lbs)	Puncture Strength - Average ASTM D4833 (88 lbs to 170 lbs)	Density ASTM D1505 (0.925 g/cc to 0.939 g/cc)	Carbon Black Content ASTM D4218 (2 % to 3 %)	Carbon Black Dispersion ASTM D5596	OIT - High Pressure ASTM D5885
3322708s2-e0006803-001	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-002	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-003	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-004	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-005	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-006	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins
3322708s2-e0006803-007	61	65	153	0.931	2.11	>= 9 in Cat 1 or 2	Pass > 400 mins

GEOTEX® BY PROPEX

Product Data
GEOTEX® 801

GEOTEX® 801 is a polypropylene, staple fiber, needlepunched nonwoven geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

GEOTEX 801 conforms to the property values listed below[1]. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). This product is NTPEP approved for AASHTO standards.

PROPERTY	TEST METHOD	MARV[2] ENGLISH	MARV[2] METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
MECHANICAL			
Tensile Strength (Grab)	ASTM D-4632	205 lbs	912 N
Elongation	ASTM D-4632	50%	50%
CBR Puncture	ASTM D-6241	525 lbs	2336 N
Trapezoidal Tear	ASTM D-4533	80 lbs	356 N
ENDURANCE			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%
HYDRAULIC			
Apparent Opening Size (AOS)[3]	ASTM D-4751	80 US Std. Sieve	0.180 mm
Permittivity	ASTM D-4491	1.5 sec^{-1}	1.5 sec^{-1}
Water Flow Rate	ASTM D-4491	110 gpm/ft^2	4482 $l/min/m^2$

ROLL SIZES	12.5 ft x 360 ft 15 ft x 300 ft	3.81 m x 109.8 m 4.57 m x 91.5 m

NOTES:
1. The property values listed above are effective 04/2011 and are subject to change without notice.
2. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
3. Maximum average roll value.

Propex™ Geotextile Systems

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Specifications

REFILL CAPACITIES

		A35G	A40G
Crankcase	l	50	50
Fuel tank	l	480	480
Cooling system	l	44	44
Brake cooling system	l	188	188
Transmission	l	43	43
Dropbox	l	9	9
Axles, front/bogie	l	25/51	26/53
Hydraulic tank	l	174	174
DEF/AdBlue®	l	39	39

®registered trademark of the Verband der Automobilindustrie e.V. (VDA)

SPEED

		A35G	A40G
Forward			
1	km/h	5.9	5.8
2	km/h	8.6	8.5
3	km/h	10.3	10.4
4	km/h	15.2	15
5	km/h	21.9	21.6
6	km/h	27.7	27.3
7	km/h	36.6	36.1
8	km/h	48.5	47.8
9	km/h	57	57
Reverse			
1	km/h	6.6	6.5
2	km/h	9.5	9.4
3	km/h	18	18

OPERATING WEIGHT UNLOADED

		A35G	A40G
Tires		26.5R25*	29.5R25**
Front	kg	15 950	16 200
Rear	kg	13 000	13 700
Total	kg	28 950	29 900
Payload	kg	34 500	39 000

Operating weight includes all fluids and operator

*) A35G with tires 775/65R25, add 200 kg /axle

**) A40G with tires 875/65R25, add 300 kg /axle

TOTAL WEIGHT

		A35G	A40G
Tires		26.5R25*	29.5R25**
Front	kg	19 100	20 200
Rear	kg	44 350	48 700
Total	kg	63 450	68 900

*) A35G with tires 775/65R25, add 200 kg /axle

**) A40G with tires 875/65R25, add 300 kg /axle

GROUND PRESSURE

		A35G	A40G	A35G	A40G
Tires		**26.5R25**	**29.5R25**	**775/65R25**	**875/65R25**
Unloaded					
Front	kPa	132	111	115	98
Rear	kPa	54	47	48	42
Loaded					
Front	kPa	158	139	138	121
Rear	kPa	183	167	160	146

Excavator PASS MATCHING

	EC380	EC480	EC750
	Number of passes		
A35G	9	7	5
A40G	10	8	5

	Well matched, 4-6 buckets.
	Excavator under capacity, 7 buckets or more.
	Excavator undersized for optimum match.

Wheel loader PASS MATCHING

	L150	L180	L220	L250	L350
	Number of passes				
A35G	5	4	4	3	3
A40G	5	5	4	4	3

	Well matched, 2-3 buckets.
	Loader under capacity, 4 buckets or more.
	Loader undersized for optimum match, reach might be an issue.

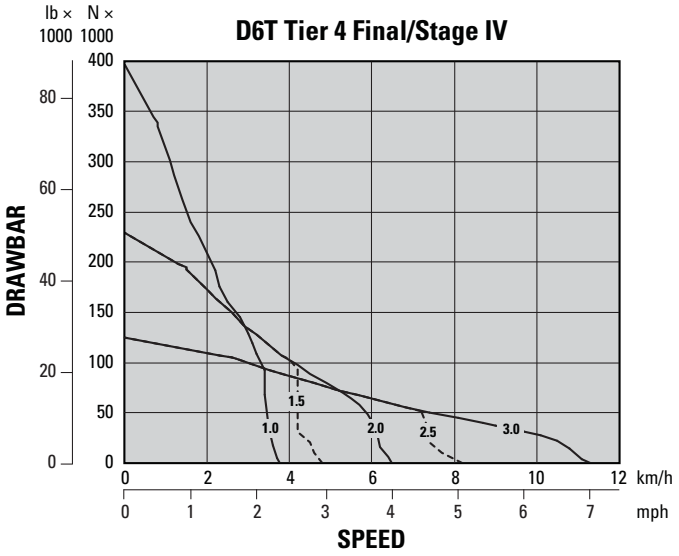
Engine

Engine Model	Cat C9.3 ACERT	
Emissions	U.S. EPA Tier 4 Final	
Engine Power (Maximum)		
SAE J1995	192 kW	257 hp
ISO 14396	190 kW	255 hp
ISO 14396 (DIN)		258 hp
Net Power (Rated)		
ISO 9249/SAE J1349	154 kW	207 hp
ISO 9249/SAE J1349 (DIN)		210 hp
Net Power (Maximum)		
ISO 9249/SAE J1349	180 kW	241 hp
ISO 9249/SAE J1349 (DIN)		244 hp
Bore	115 mm	4.5 in
Stroke	149 mm	5.9 in
Displacement	9.3 L	567 in^3

- Rated power occurs at 2,000 rpm.
- Maximum power occurs at 1,600 rpm.
- Net power advertised is the power available at the engine flywheel when the engine is equipped with a fan at maximum speed, air cleaner, muffler and alternator.
- No deratings required up to 2286 m (7,500 ft) automatic derating occurs.
- All non road Tier 4, Stage IIIB and IV, Japan 2011 and 2014 (Tier 4 Interim and Tier 4 Final) and Korea Tier 4 diesel engines are required to use only Ultra Low Sulfur Diesel (ULSD) fuels containing 15 ppm (mg/kg) sulfur or less. Biodiesel blends up to B20 (20% blend by volume) are acceptable when blended with 15 ppm (mg/kg) sulfur or less ULSD. B20 should meet ASTM D7467 specification (biodiesel blend stock should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEO-ULS™ or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.
- Diesel Exhaust Fluid (DEF) used in Cat Selective Catalytic Reduction (SCR) systems must meet the requirements outlined in the International Organization for Standardization (ISO) standard 22241.

Transmission

0.5 Forward	2.7 km/h	1.7 mph
0.7 Forward	3.3 km/h	2.1 mph
1.0 Forward	3.7 km/h	2.3 mph
1.5 Forward	4.7 km/h	3.0 mph
1.7 Forward	5.8 km/h	3.6 mph
2.0 Forward	6.5 km/h	4.1 mph
2.5 Forward	8.2 km/h	5.1 mph
2.7 Forward	10.0 km/h	6.2 mph
3.0 Forward	11.3 km/h	7.0 mph
0.5 Reverse	3.5 km/h	2.2 mph
0.7 Reverse	4.2 km/h	2.6 mph
1.0 Reverse	4.8 km/h	3.0 mph
1.5 Reverse	6.1 km/h	3.8 mph
1.7 Reverse	7.4 km/h	4.6 mph
2.0 Reverse	8.3 km/h	5.2 mph
2.5 Reverse	10.5 km/h	6.5 mph
2.7 Reverse	12.7 km/h	7.9 mph
3.0 Reverse	14.4 km/h	9.0 mph
Drawbar Pull		
0.5-1.0 Forward	382 kN	86,000 lbf
1.5-2.0 Forward	221 kN	49,800 lbf
2.5-3.0 Forward	119 kN	26,800 lbf
2.5-3.0 Forward	119 kN	26,800 lbf



D6T Track-Type Tractor Specifications

Service Refill Capacities

Fuel Tank	411 L	108.7 gal
DEF Tank	17.1 L	4.5 gal
Cooling System	51 L	13.4 gal
Engine Crankcase	24.6 L	6.5 gal
Power Train	148.0 L	39.1 gal
Final Drives (each)	13.5 L	3.6 gal
Roller Frames (each)	25.0 L	6.6 gal
Pivot Shaft Compartment	5.0 L	1.3 gal
Hydraulic Tank	65.5 L	17.3 gal

Hydraulic Controls – Pressures

Maximum Operating Pressures		
Non-VPAT	19 300 kPa	2,800 psi
VPAT	21 550 kPa	3,125 psi
Steering	40 000 kPa	5,800 psi
Relief Pressures		
Non-VPAT	21 700 kPa	3,150 psi
VPAT	24 400 kPa	3,540 psi

Hydraulic Controls – Pump

Pump Output		
Fan	93 L/min	25 gal/min
Implement	205 L/min	54 gal/min
Steering	195 L/min	52 gal/min
Lift Cylinder Flow	205 L/min	54 gal/min
Tilt Cylinder Flow	110 L/min	29 gal/min
Ripper Cylinder Flow	205 L/min	54 gal/min
Angle Cylinder Flow – VPAT	190 L/min	50 gal/min

Ripper

Type	Fixed Parallelogram	
Ramp Angle	26 degrees	
Pocket Spacing	1000 mm	39.4 in
Shank Gauge	2000 mm	78.8 in
Shank Section	74 mm × 175 mm	2.9 in × 6.9 in
Number of Pockets	3	
Overall Beam Width	2202 mm	87 in
Beam Cross Section	219 mm × 304 mm	8.8 in × 12 in
Maximum Clearance Raised (under tip)	514 mm	20.2 in
Maximum Penetration	457 mm	18.0 in
Maximum Penetration Force	65.6 kN	14,747 lb
Pryout Force	116.5 kN	26,190 lb
Weight		
With One Shank	1498 kg	3,302 lb
Each Additional Shank	73 kg	161 lb

Weights

Operating Weight		
XL A	21 306 kg	46,791 lb
XL SU	20 985 kg	46,263 lb
XL VPAT	23 663 kg	52,167 lb
XW A	22 191 kg	48,922 lb
XW SU	21 788 kg	48,034 lb
XW VPAT	24 118 kg	53,170 lb
LGP S	22 902 kg	50,490 lb
LGP A	24 020 kg	52,954 lb
LGP VPAT	24 336 kg	53,651 lb
Shipping Weight		
XL A/SU	17 753 kg	39,138 lb
XL VPAT	21 394 kg	47,165 lb
XW A/SU	18 414 kg	40,596 lb
XW VPAT	20 793 kg	45,840 lb
LGP S/A	19 806 kg	43,664 lb
LGP VPAT	22 009 kg	48,521 lb

- Operating weight includes blade, lubricants, coolant, full fuel tank, standard track, ROPS/FOPS cab, drawbar and operator.
- Shipping weight includes blade lift cylinders (C-frame for VPAT), lubricants, coolant, ROPS/FOPS cab, standard track and 10% fuel.

Blades

	6 SU – XL		6A – XL		6 VPAT – XL	
Capacity	5.55 m^3	7.26 yd^3	3.95 m^3	5.17 yd^3	4.64 m^3	6.07 yd^3
Width	3260 mm	10.7 ft	4160 mm	13.7 ft	3880 mm	12.8 ft
Height	1407 mm	4.6 ft	1151 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	501 mm	19.7 in	555 mm	21.8 in	792 mm	31.2 in
Ground Clearance	1180 mm	46.5 in	1112 mm	43.8 in	1053 mm	41.5 in
Maximum Tilt	812 mm	32.0 in	424 mm	16.7 in	410 mm	16.1 in
Weight	1338.0 kg	2,949.8 lb	1194.6 kg	2,633.6 lb	1669.5 kg	3,680.6 lb

	6 SU – XW		6A – XW		6 VPAT – XW	
Capacity	5.64 m^3	7.38 yd^3	4.35 m^3	5.69 yd^3	5.02 m^3	6.57 yd^3
Width	3560 mm	11.7 ft	4520 mm	14.8 ft	4160 mm	13.7 ft
Height	1407 mm	4.6 ft	1153 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	502 mm	19.7 in	541 mm	21.3 in	743 mm	29.3 in
Ground Clearance	1180 mm	46.5 in	1139 mm	44.8 in	1102 mm	43.4 in
Maximum Tilt	791 mm	31.2 in	424 mm	16.7 in	442 mm	17.4 in
Weight	1415.4 kg	3,120.4 lb	1299.6 kg	2,865.2 lb	1763.8 kg	3,888.4 lb

	6S LGP		6A – LGP		6 VPAT – LGP	
Capacity	3.79 m^3	4.96 yd^3	4.94 m^3	6.46 yd^3	5.02 m^3	6.57 yd^3
Width	4063 mm	13.3 ft	5070 mm	16.7 ft	4160 mm	13.7 ft
Height	1108 mm	3.6 ft	1150 mm	3.8 ft	1294 mm	4.2 ft
Digging Depth	590 mm	23.2 in	853 mm	33.6 in	743 mm	29.3 in
Ground Clearance	1094 mm	43.1 in	1004 mm	39.5 in	1102 mm	43.4 in
Maximum Tilt	735 mm	28.9 in	618 mm	24.3 in	442 mm	17.4 in
Weight	1189.7 kg	2,622.2 lb	1456.5 kg	3,211.0 lb	1763.8 kg	3,888.4 lb

Winch

Winch Model	PA56	
Winch Drive	Mechanical	
Control	Mechanical	
Weight	1203 kg	2,652 lb
Oil Capacity	67 L	17.8 gal
Increased Tractor Length		
XL/XW	516 mm	20.4 in
LGP	365 mm	14.4 in
Drum Diameter	254 mm	10.0 in
Rope Diameter		
Recommended	22 mm	0.88 in
Optional	25 mm	1.00 in
Drum Capacity		
22 mm (0.88 in)	88 m	288.7 ft
25 mm (1.0 in)	67 m	219.8 ft
Cable Ferrule Size (O.D. × Length)	54 mm × 67 mm	2.1 in × 2.6 in
Maximum Bare Drum		
Line Pull*	40 700 kg	89,800 lb
Line Speed	39.6 m/min	130 ft/min
Maximum Full Drum		
Line Pull*	34 600 kg	76,300 lb
Line Speed	68.3 m/min	224 ft/min

* Maximum line pull is lesser of calculated line pull at maximum tractor PTO output torque or catalog breaking strength of maximum optional size new IWRC IPS wire rope.

Drive Train

Type	Mechanical

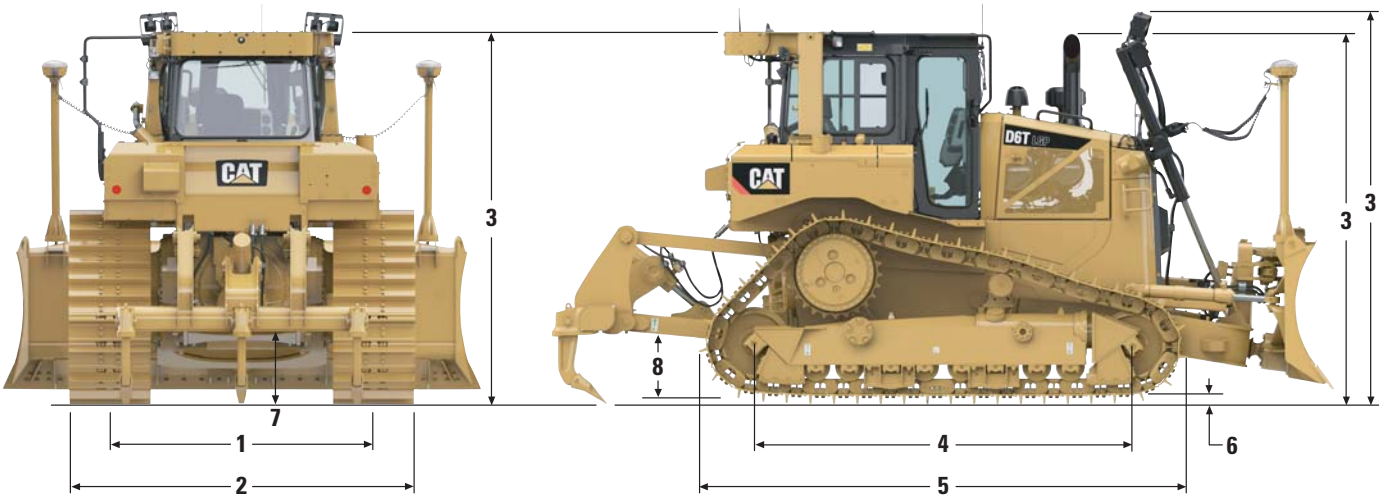
Standards

ROPS/FOPS	ROPS meets ISO 3471:2008, FOPS meets ISO 3449:2005 Level II
Brakes	Brakes meet the International Standard ISO 10265:2008
Cab	Meets appropriate standards as listed below

- The declared dynamic operator sound pressure level is 76 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.
- **Sound Level Information for Machines in European Union Countries and in Countries that Adopt the "European Union Directives"** – The information below applies to only the machine configurations that have the "CE" mark on the Product Identification Plate.
- The declared dynamic operator sound pressure level is 75 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.
- Hearing protection is recommended when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.
- The declared exterior sound power level is 111 dB(A) when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.

Dimensions

All dimensions are approximate.



	XL		XW		LGP	
1 Track gauge	1880 mm	6 ft 2 in	2032 mm	6 ft 8 in	2286 mm	7 ft 6 in
2 Width of tractor over trunnions	2690 mm	8 ft 10 in	2944 mm	9 ft 8 in	3480 mm	11 ft 5 in
Width of tractor without trunnions (standard track)	2590 mm	8 ft 6 in	2792 mm	9 ft 2 in	3201 mm	10 ft 6 in
3 Machine height** from tip of grouser:						
ROPS	3185 mm	10 ft 5 in	3185 mm	10 ft 5 in	3235 mm	10 ft 7 in
Premium Light Package	3341 mm	11 ft 0 in	3341 mm	11 ft 0 in	3097 mm	11 ft 1 in
Height to top of Sweeps (not shown)	3199 mm	10 ft 6 in	3199 mm	10 ft 6 in	3249 mm	10 ft 8 in
4 Length of track on ground	2860 mm	9 ft 5 in	2860 mm	9 ft 5 in	3270 mm	10 ft 9 in
5 Length of basic tractor	4250 mm	13 ft 9 in	4250 mm	13 ft 9 in	4546 mm	14 ft 11 in
With following attachments add:						
Drawbar	218 mm	9 in	218 mm	9 in	229 mm	9 in
Ripper Multi-shank (tip at ground line)	1395 mm	4 ft 7 in	1395 mm	4 ft 7 in	1259 mm	4 ft 2 in
Winch	570 mm	22 in	570 mm	22 in	435 mm	17 in
S Blade	—	—	—	—	947 mm	3 ft 1 in
SU Blade	1068 mm	3 ft 6 in	1068 mm	3 ft 6 in	—	—
A Blade	1007 mm	3 ft 4 in	1068 mm	3 ft 6 in	1305 mm	4 ft 4 in
A Blade angled approximately 25° for transport	837 mm	33 in	889 mm	35 in	989 mm	38.9 in
6 Height of grouser	65 mm	2.6 in	65 mm	2.6 in	65 mm	2.6 in
7 Ground clearance	372 mm	15 in	372 mm	15 in	406 mm	16 in
Oscillation at front idler	141 mm	5.5 in	137 mm	5.4 in	163 mm	6.4 in
Track pitch	203 mm	8 in	203 mm	8 in	203 mm	8 in
Number of shoes per side	41		41		45	
Track rollers/carrier rollers per side	7/1		7/1		8/1	
Standard shoe width (moderate service)	560 mm	22 in	760 mm	30 in	915 mm	36 in
Ground contact area (standard track)*	3.54 m^2	5,489 in^2	4.81 m^2	7,449 in^2	6.53 m^2	10,122 in^2
Ground pressure*	58.1 kPa	8.4 psi	44.5 kPa	6.4 psi	34.4 kPa	4.99 psi
8 Drawbar height	576 mm	23 in	576 mm	23 in	626 mm	25 in
From ground face of shoe	511 mm	20 in	511 mm	20 in	561 mm	22 in

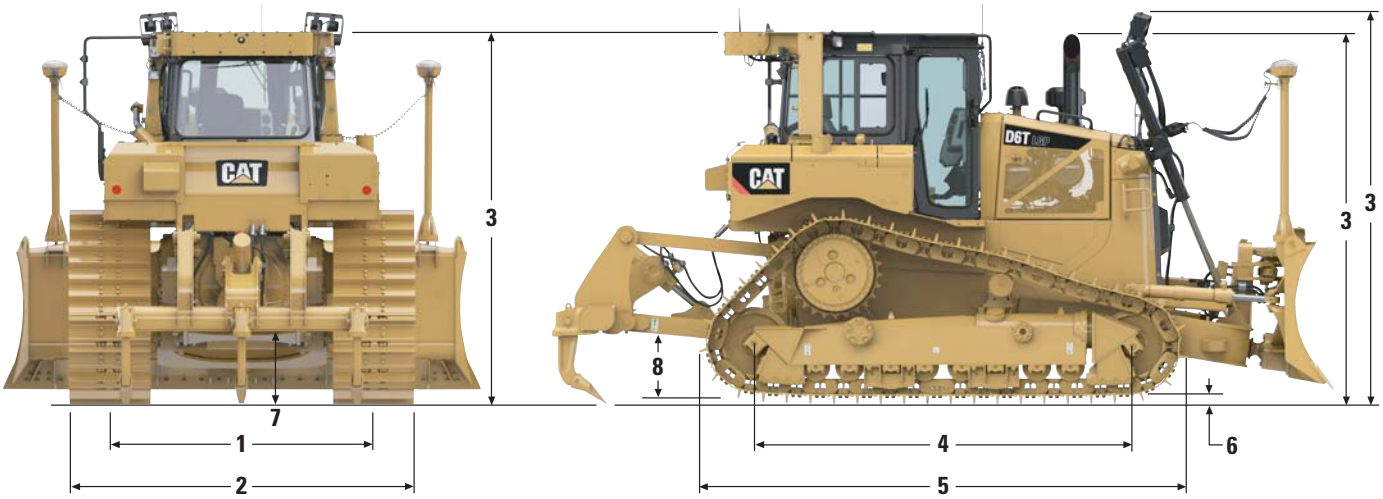
*All dimensions above with SystemOne undercarriage. XL and XW with SU blade, LGP with S blade with no rear attachments unless otherwise specified and calculated per ISO 16754.

**When Cat Grade Control 3D antennas are installed, overall machine height increases by approximately 82 mm/3.2 in.

D6T Track-Type Tractor Specifications

Dimensions

All dimensions are approximate.



		XL VPAT		XW VPAT		LGP VPAT	
1	Track gauge	2134 mm	7 ft 0 in	2286 mm	7 ft 6 in	2286 mm	7 ft 6 in
2	Width of tractor over trunnions	—	—	—	—	—	—
	Width of tractor without trunnions (standard track)	2717 mm	8 ft 11 in	2996 mm	9 ft 10 in	3143 mm	10 ft 4 in
3	Machine height** from tip of grouser:						
	ROPS	3185 mm	10 ft 5 in	3235 mm	10 ft 7 in	3235 mm	10 ft 7 in
	Premium Light Package	3308 mm	10 ft 10 in	3358 mm	11 ft 1 in	3358 mm	11 ft 1 in
	Height to top of Sweeps (not shown)	3199 mm	10 ft 6 in	3249 mm	10 ft 8 in	3249 mm	10 ft 8 in
4	Length of track on ground	2860 mm	9 ft 5 in	3270 mm	10 ft 9 in	3270 mm	10 ft 9 in
5	Length of basic tractor	4950 mm	16 ft 3 in	5086 mm	16 ft 8 in	5086 mm	16 ft 8 in
	With following attachments add:						
	Drawbar	218 mm	9 in	229 mm	9 in	229 mm	9 in
	Ripper Multi-shank (tip at ground line)	1395 mm	4 ft 7 in	1259 mm	4 ft 2 in	1259 mm	4 ft 2 in
	Winch	570 mm	22 in	435 mm	17 in	435 mm	17 in
	S Blade	—	—	—	—	—	—
	SU Blade	—	—	—	—	—	—
	VPAT Blade	420 mm	1 ft 5 in	420 mm	1 ft 5 in	420 mm	1 ft 5 in
	VPAT Blade angled approximately 25° for transport	670 mm	26.4 in	720 mm	28.3 in	720 mm	28.3 in
6	Height of grouser	65 mm	2.6 in	65 mm	2.6 in	65 mm	2.6 in
7	Ground clearance	372 mm	15 in	406 mm	16 in	406 mm	16 in
	Oscillation at front idler	141 mm	5.5 in	163 mm	6.4 in	163 mm	6.4 in
	Track pitch	203 mm	8 in	203 mm	8 in	203 mm	8 in
	Number of shoes per side	41		45		45	
	Track rollers/carrier rollers per side	7/1		8/1		8/1	
	Standard shoe width (moderate service)	560 mm	22 in	710 mm	28 in	785 mm	31 in
	Ground contact area (standard track)*	3.54 m^2	5,489 in^2	5.10 m^2	7,909 in^2	5.60 m^2	8,684 in^2
	Ground pressure*	65.5 kPa	9.5 psi	46.4 kPa	6.7 psi	42.6 kPa	6.2 psi
8	Drawbar height	576 mm	23 in	626 mm	25 in	626 mm	25 in
	From ground face of shoe	511 mm	20 in	561 mm	22 in	561 mm	22 in

*All dimensions above with SystemOne undercarriage. XL and XW with SU blade, LGP with S blade with no rear attachments unless otherwise specified and calculated per ISO 16754.

**When Cat Grade Control 3D antennas are installed, overall machine height increases by approximately 82 mm/3.2 in.

TECHNICAL DATA SHEET

LLDPE Series, 2.00 mm

Black, Textured

2801 Marie-Victorin Blvd. Varennes, Quebec Canada J3X 1P7
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America:1-800-571-3904 www.Solmax.com www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Metric	1007064
SPECIFICATIONS				
Nominal Thickness	-	-	mm	2.00
Thickness (min. avg.)	ASTM D-5994	Every roll	mm	1.90
Lowest ind. for 8 out of 10 values			mm	1.80
Lowest ind. for 10 out of 10 values			mm	1.70
Asperity Height (min. avg.) (3)	ASTM D-7466	Every roll	mm	0.50
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≤ 0.939
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 / Cat. 2
OIT - standard (avg.)	ASTM D-3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Break			kN/m	31
Elongation at Break			%	400
2% Modulus (max.)	ASTM D-5323	Per formulation	kN/m	840
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	N	220
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	N	500
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
STD OIT (min. avg.)	ASTM D-3895		%	35
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Res. - % retained after 1600 hr	ASTM D-7238	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	35
Low Temperature Brittleness	ASTM D-746	Certified	°C	- 77
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		m	6.80
Roll Dimension - Length	-		m	121.9
Area (Surface/Roll)	-		m²	828.9

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. ASTM D7466 is identical to GRI-GM12.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Attachment B
Photos



Photo 1: Preparation of subgrade.



Photo 2: Preparation of subgrade.



Photo 3: Deployment of GCL over subgrade.



Photo 4: Deployment of geomembrane liner over GCL.



Photo 5: Section A pad with CGL, liner, 2 layers of geotextile and ODF.



Photo 6: ODF material.



Photo 7: Placement of ODF.



Photo 8: Placement of ODF.



Photo 9: Spreading of ODF with D6 dozer on Section C.



Photo 10: Survey check for ODF thickness.



Photo 11: Trafficking test pad with trackhoe excavator.



Photo 12: Trafficking test pad with loaded 40T rock truck.



Photo 13: ODF surface after traffic.



Photo 14: Uncovering liner with trackhoe excavator.

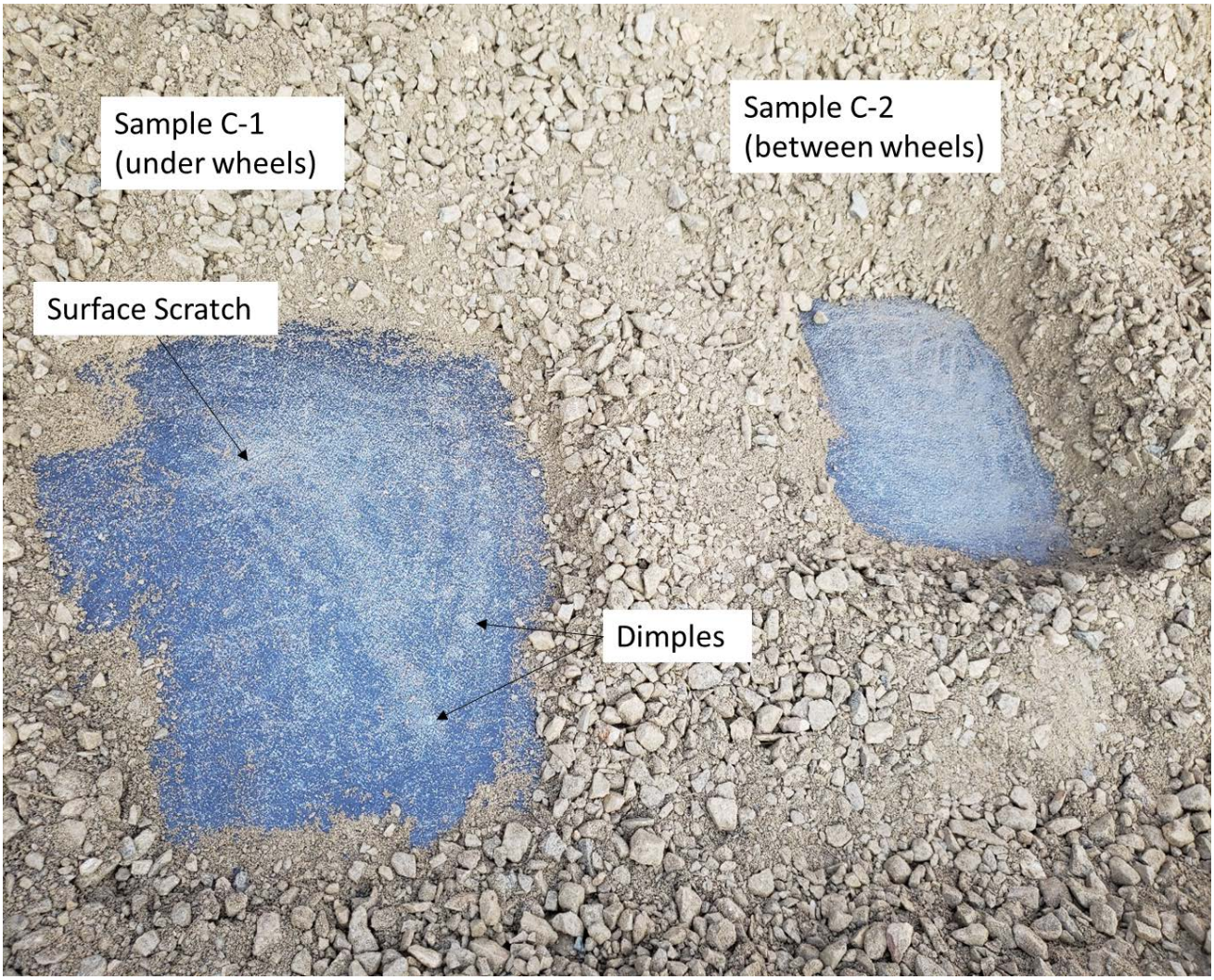


Photo 15: Uncovered liner at Section C.



Photo 16: Uncovered subgrade at Sample C-1 location.



Photo 17: Uncovered subgrade at Sample C-2 location.

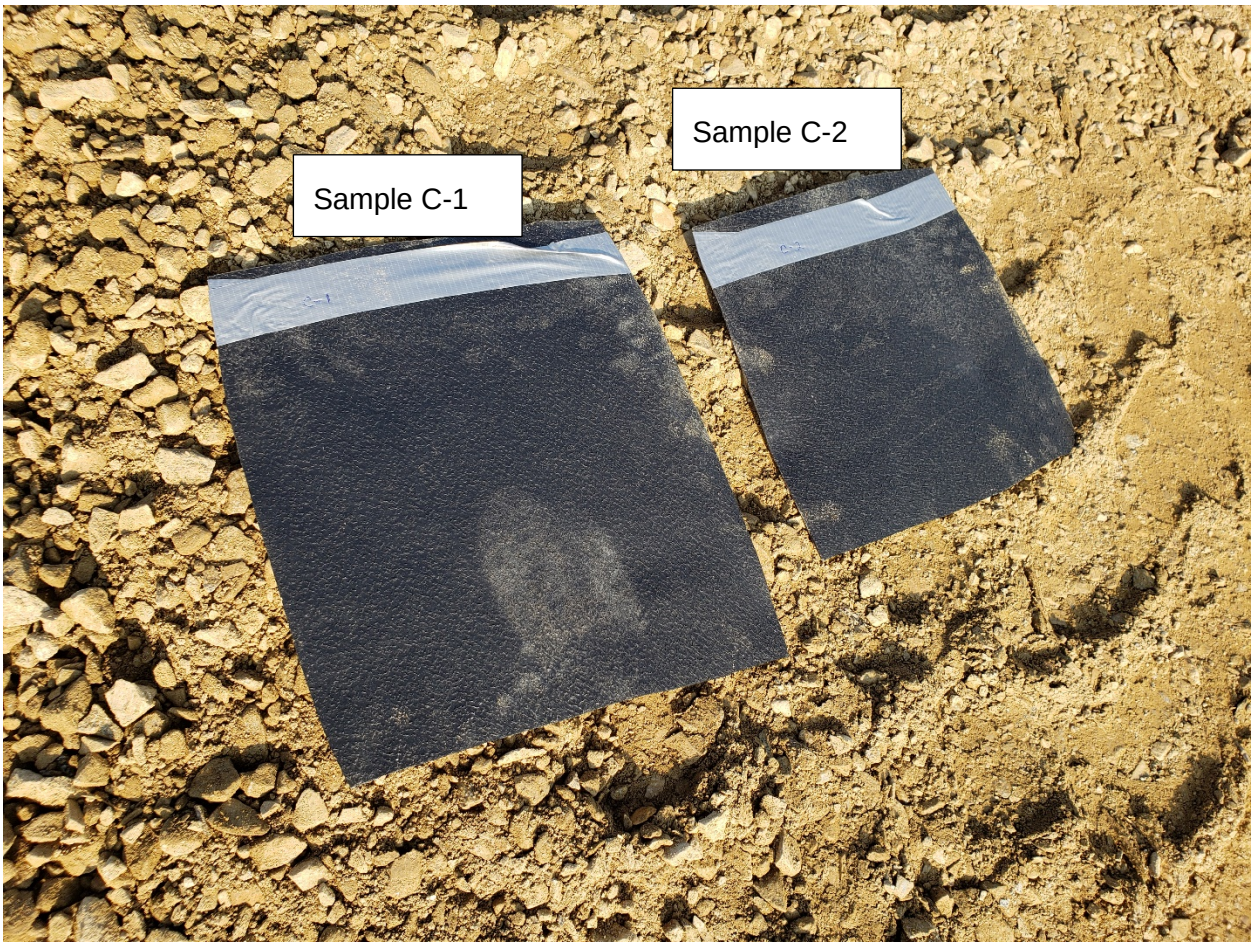


Photo 18: Samples C-1 and C-2.

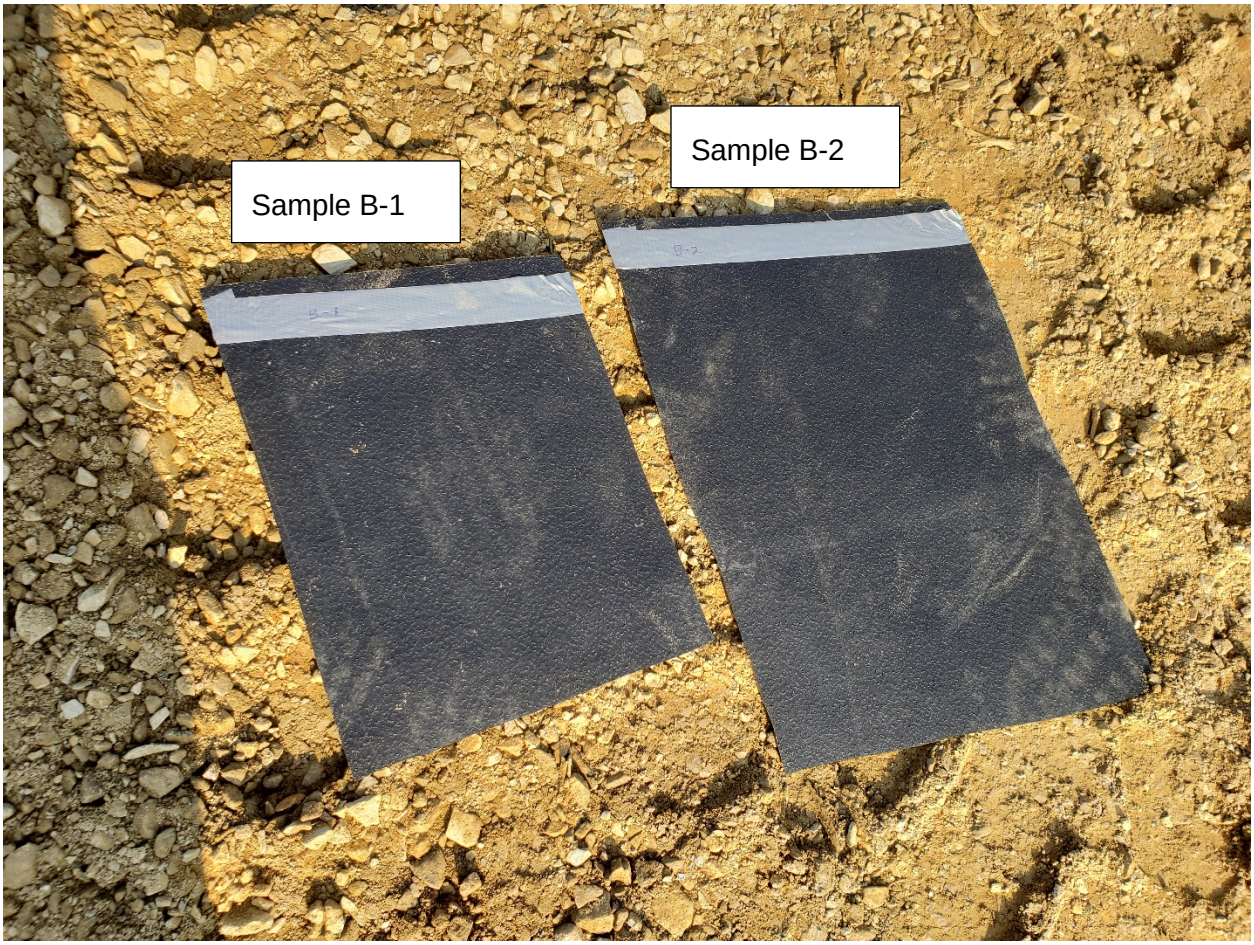


Photo 19: Samples B-1 and B-2.

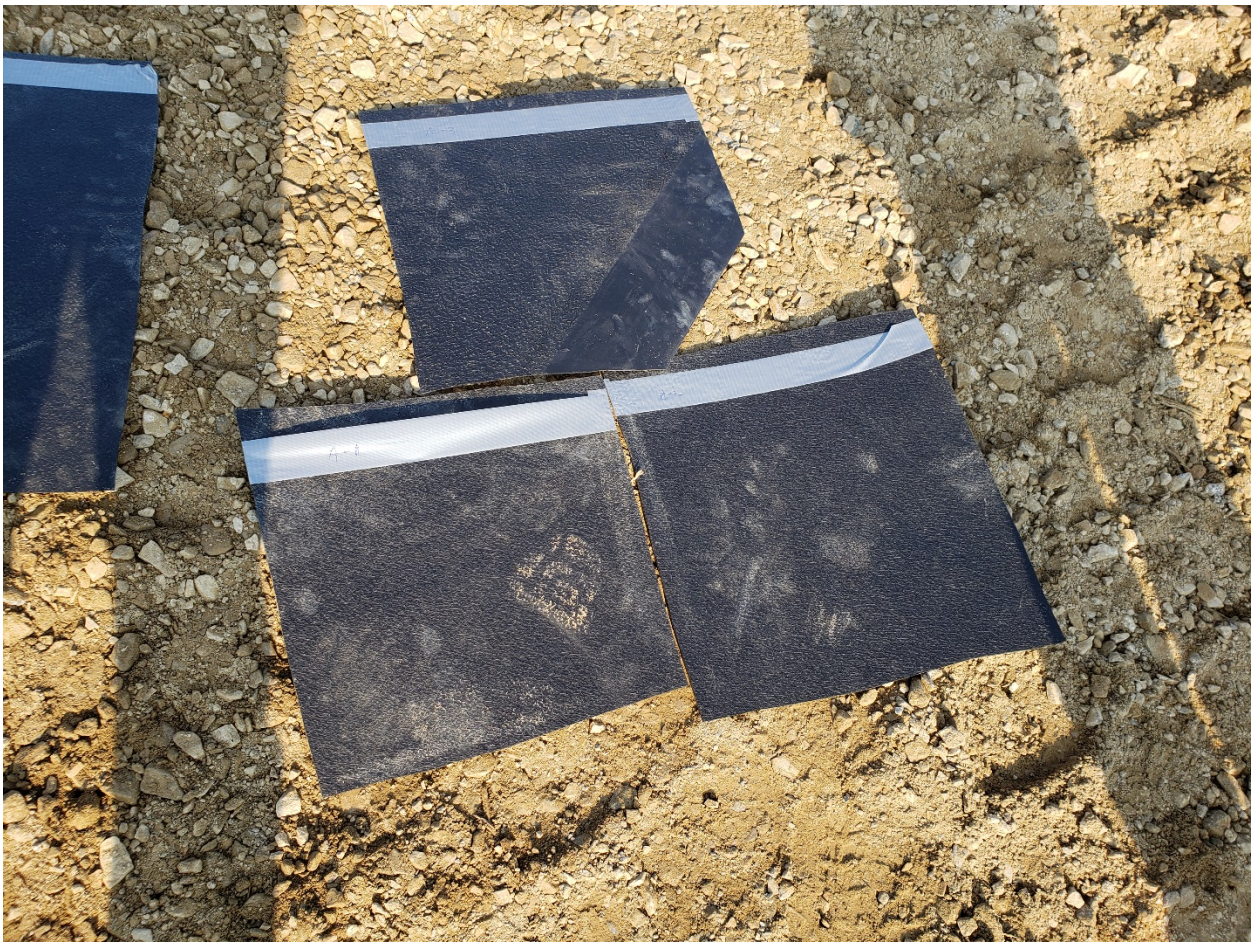


Photo 20: Samples A-1, A-2, and A-3.

SIEVE ANALYSIS REPORT

ASTM C136 & C117

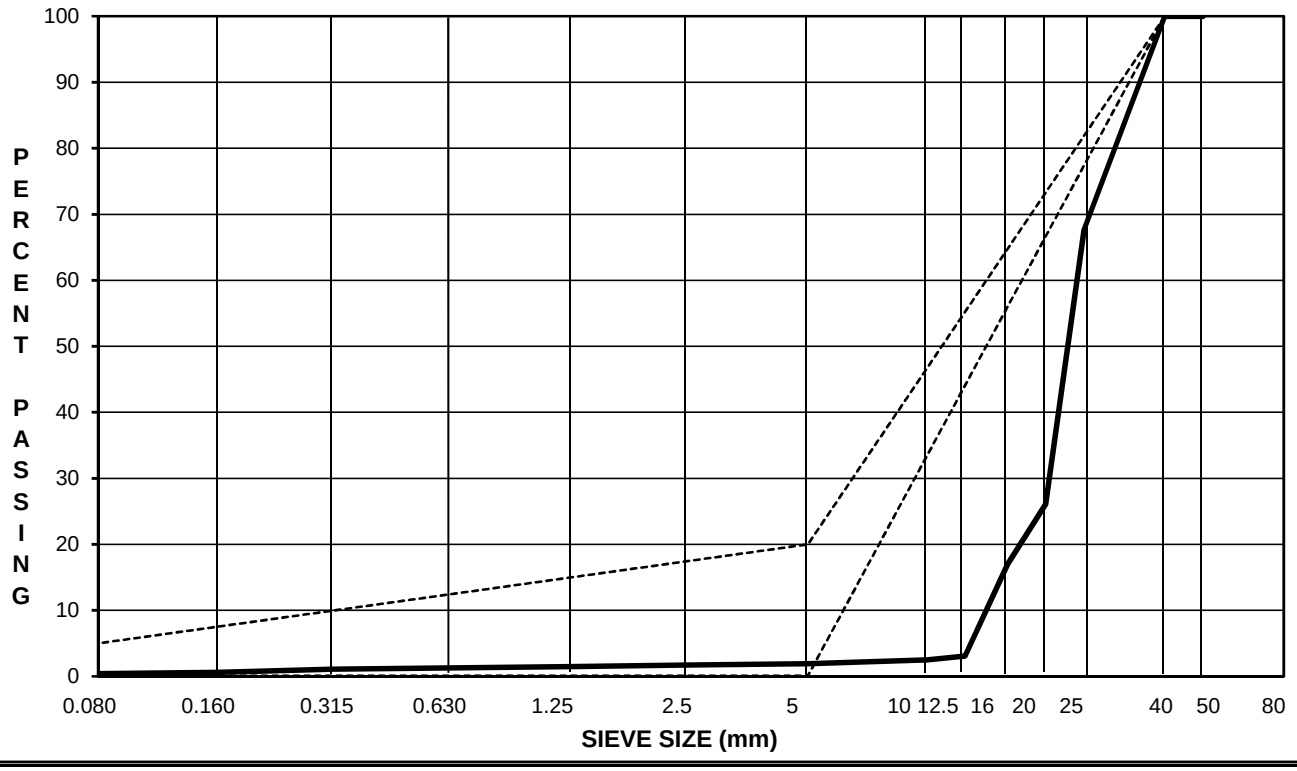
Project:	Dublin Gulch Project	Sample Number:	SA03 - 10:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	November 27, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus screened Drain Rock	Fracture (2 faces):	
Location:	Crusher area stockpile	Moisture Content:	2.9%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**67.7**	**26.1**	**17.0**	**3.1**	**2.5**	**1.9**	**1.7**	**1.5**	**1.3**	**1.1**	**0.6**	**0.4**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

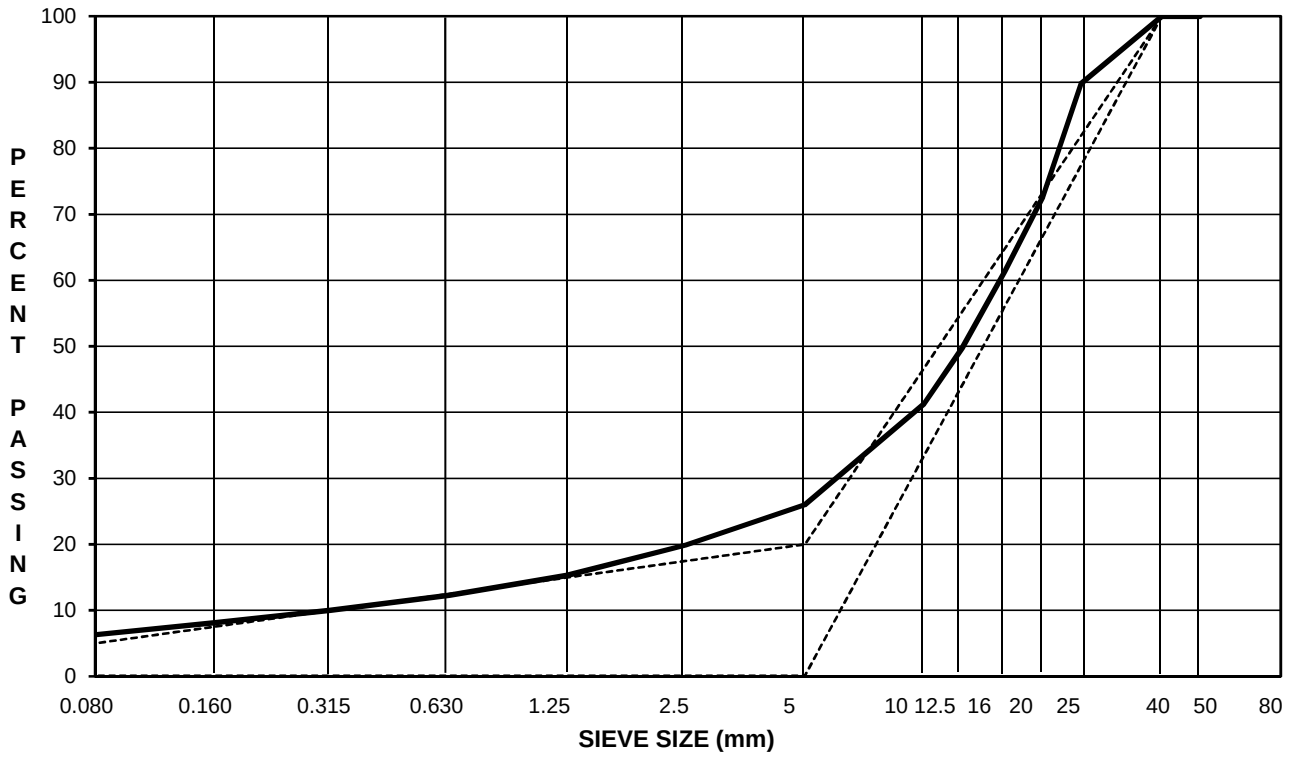
Project:	Dublin Gulch Project	Sample Number:	SA01 - 13:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	October 12, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	
Location:	Heap Leach Pond	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**89.8**	**72.6**	**61.3**	**49.7**	**41.3**	**26.0**	**19.9**	**15.3**	**12.3**	**10.0**	**8.1**	**6.3**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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TETRA TECH

SIEVE ANALYSIS REPORT

ASTM C136 & C117

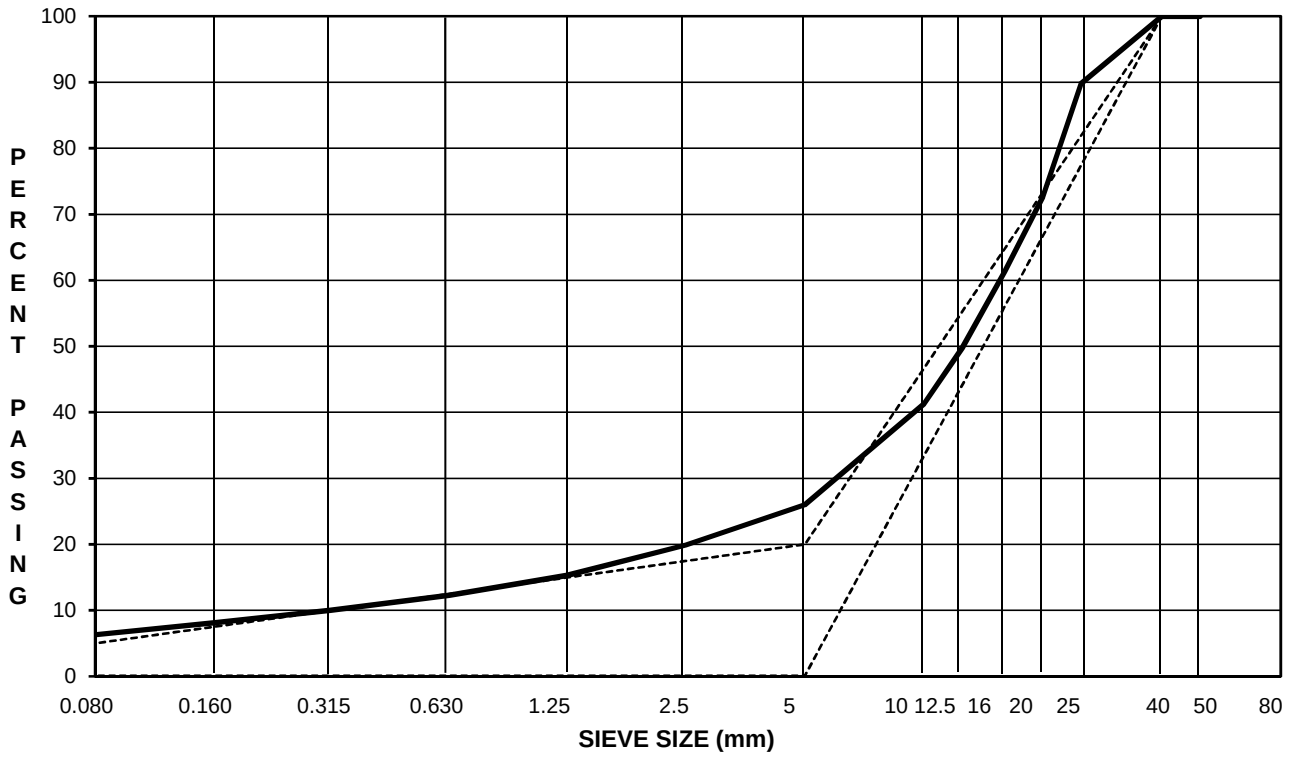
Project:	Dublin Gulch Project	Sample Number:	SA02 - 13:30 hrs
Project No.:	704-ENG.WARC03532-05	Date Sampled:	November 26, 2018
Client:	JDS	Sampled By:	SD Tested By: SD
Attention:	Chris Copley	Specification:	See Remarks
Description:	38 mm Minus Drain Rock	Fracture (2 faces):	
Location:	Heap Leach Pond - Sump Area elev. 912	Moisture Content:	3.4%

Aggregate Gradation (% Passing)

Sieve Size (*um*)	50000	40000	25000	20000	16000	12500	10000	5000	2500	1250	630	315	160	80
Upper Limit		100						20						5
Lower Limit		100						0.1						0.1
Test Result	**100**	**100**	**84.9**	**69.3**	**53.1**	**42.7**	**34.7**	**23.2**	**18.1**	**13.9**	**11.0**	**8.8**	**7.1**	**5.5**

Remarks: 100% Passing 38mm: Less than 20% Passing No 4; Less than 5% Passing No. 200

Reviewed By: C.E.T.



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TETRA TECH

Rogers, Kate

From: Dimitroff, Scott
Sent: Friday, March 22, 2019 12:05 PM
To: Rogers, Kate
Subject: FW: Eagle Gold - geotextile seams

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Thursday, July 19, 2018 8:45 AM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>
Subject: RE: Eagle Gold - geotextile seams

Jason:

Please include Scott Dimitroff Scott.Dimitroff@tetratech.com in all correspondence going forward.

Scott will be the lead QA engineer for the liner system.

Thanks.

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Sent: Wednesday, July 18, 2018 4:36 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>
Subject: RE: Eagle Gold - geotextile seams

Hey Troy,

I am responding to this old email just to refresh our memory from the bidding stage

Now that the Solmax RT has passed and we are getting it ordered, I thought I should send the data sheet for the LLDPE RT material to verify we are still ok with the GM-13 and GM-17 specs as per email below.

Regards,

Jason

From: Troy Meyer [mailto:TMeyer@bgcengineering.ca]
Sent: Monday, July 31, 2017 2:07 PM
To: Richard Boehnke <richardb@jdsmining.ca>
Cc: Derek Hrubes <DHrubes@bgcengineering.ca>; Kevin Mather <Kevinm@jdsmining.ca>; Mark Ayranto

(mayranto@vitgoldcorp.com) <mayranto@vitgoldcorp.com>; Tony George (TGeorge@vitgoldcorp.com) <TGeorge@vitgoldcorp.com>; Chris Copley <chrisc@jdsmining.ca>; Jeff DePape <jdepape@jdsmining.ca>
Subject: RE: Eagle Gold - GRI standard liner price

1. GRI values will be ok
2. Seam efficiencies for woven geotextiles must be at least 80% as measured by the grab tensile test, or at least 50% when measured by wide width tensile strength equipment.

From: Richard Boehnke [mailto:richardb@jdsmining.ca]
Sent: Monday, July 31, 2017 2:38 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Derek Hrubes <DHrubes@bgcengineering.ca>; Kevin Mather <Kevinm@jdsmining.ca>; Mark Ayranto (mayranto@vitgoldcorp.com) <mayranto@vitgoldcorp.com>; Tony George (TGeorge@vitgoldcorp.com) <TGeorge@vitgoldcorp.com>; Chris Copley <chrisc@jdsmining.ca>; Jeff DePape <jdepape@jdsmining.ca>
Subject: FW: Eagle Gold - GRI standard liner price

Hi Troy,

I hope your wife's surgery went well, and things are progressing alright.

Two things we would like clarification on.

1. wrt to the BGC liner specs vs GRI GM 13 and GM 17. Some of the values in the BGC spec are higher than the GRI manufacturer standards for GM 13 and GM 17. Can you confirm that the higher values are required? You specification table is below, and the **red** values are from the GSI standards

Table 4-1. Geomembrane properties.

Tested Property	Test Method	Frequency	Minimum Average Value			
			1.50 mm HDPE Textured	2.0 mm HDPE Textured	1.50 mm LLDPE Textured	2.0 mm LLDPE Textured
Thickness, (minimum average), mm Lowest individual reading	ASTM D 5994	every roll	1.50 1.28	2.00 1.70	1.50 1.28	2.00 1.70
Density, g/cm^3 (min.)	ASTM D 1505	90,000 kg	0.940	0.940	0.939	0.939
Tensile Properties (each direction) Strength at Break, N/mm Strength at Yield, N/mm Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 50 mm/min G.L.=50mm G.L.= 33 mm	9,000 kg	23.1 **(22)** 23.1 **(16)** 350 **(100)** 13 **(12)**	30.8 **(29)** 30.8 **(53)** 350 **(100)** 13 **(12)**	29.4 **(16)** 400 **(250)**	39.2 **(21)** 400 **(250)**
Tear Resistance, N	ASTM D 1004	20,000 kg	200	267 **(249)**	160 **(150)**	222 **(200)**
Puncture Resistance, N	ASTM D 4833	20,000 kg	534	667 **(534)**	310 **(300)**	400

Tested Property	Test Method	Frequency	Minimum Average Value			
Carbon Black Content, % (Range)	ASTM D 1603*/4218	9,000 kg	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	20,000 kg	Note	Note	Note	Note
Asperity Height, mm	ASTM D 7466	second roll	0.51	0.46	0.51	0.46
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	90,000 kg	>140	>140	>140	>140

2. BGC Spec, in section 4.3.2 (for installation of Geotextile) has the following:

   All joints shall have a 0.15 m minimum overlap and shall be heat fused or sewn. The integrity of each seam is important. As a means of regulating the fusion machines, frequent samples of seams will be tested for grab strength. *Minimum grab strength of 80 percent of the fabric strength, as defined above, will be required*. Any machine that produces failing samples shall be repaired or removed from the Work.

   The supplier indicates this 80% non-woven geotextile seam strength is not possible.

If necessary, are you available for a call with the potential vendor in the next couple of days?

Regards,

Richard Boehnke P Eng
JDS Energy & Mining inc.
☏ Cell (250) 801-9474

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Rogers, Kate

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Sunday, September 9, 2018 2:48 PM
To: Dimitroff, Scott
Subject: FW: Eagle - Geomembrane Shear Testing Jun21 update

fyi

From: Troy Meyer
Sent: Tuesday, July 17, 2018 8:00 AM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Cc: Greg Van Petten <Greg.VanPetten@layfieldgroup.com>; Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

Jason:
The results from the Solmax RT geomembrane meet the project requirements.
The RT product actually performs better than the XRT product in this liner system and loading condition.
Troy

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Sent: Monday, July 16, 2018 1:08 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Greg Van Petten <Greg.VanPetten@layfieldgroup.com>; Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

Hey Troy,

Have you had the chance to review the results from the shear test?

Regards,

Jason

From: Jason Wheeler
Sent: Friday, July 13, 2018 9:54 AM
To: David Oldford <DOldford@bgcengineering.ca>
Cc: Gisele Rudderham <GRudderham@bgcengineering.ca>; Troy Meyer <TMeyer@bgcengineering.ca>; Greg Van Petten <Greg.VanPetten@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

Thanks David

Troy,

Will you be able to share results as soon as possible so we know where we stand with this?

Regards,

Jason

From: David Oldford <DOldford@bgcengineering.ca>
Sent: Friday, July 13, 2018 7:58 AM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Cc: Gisele Rudderham <GRudderham@bgcengineering.ca>; Troy Meyer <TMeyer@bgcengineering.ca>
Subject: Re: Eagle - Geomembrane Shear Testing Jun21 update

Hi Jason,
The testing has been completed and I've sent all the results to Troy.

Thanks,

Dave

Sent from my iPhone

On Jul 13, 2018, at 10:55 AM, Jason Wheeler <Jason.Wheeler@layfieldgroup.com> wrote:

> Hey David,
>
> Sorry to keep bothering you about this but just wanted to check again on these test
>
> Regards,
>
> Jason
>
> ---
>
> **From:** David Oldford <DOldford@bgcengineering.ca>
> **Sent:** Wednesday, July 4, 2018 8:33 AM
> **To:** Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
> **Cc:** Gisele Rudderham <GRudderham@bgcengineering.ca>
> **Subject:** Re: Eagle - Geomembrane Shear Testing Jun21 update
>
> Hi Jason,
> Last week we did three tests on the 80mil liner. I haven't processed the data yet and this week we are going to start testing the 40mil liner.
>
> Thanks,
>
> Dave
>
> Sent from my iPhone
>
> On Jul 4, 2018, at 11:29 AM, Jason Wheeler <Jason.Wheeler@layfieldgroup.com> wrote:
>
> > Hey David,
> >
> > Was just curious how the testing has come along?
> >
> > Regards,

Jason

From: David Oldford <DOldford@bgcengineering.ca>
Sent: Friday, June 22, 2018 9:40 AM
To: Troy Meyer <TMeyer@bgcengineering.ca>; 'Chris Copley' <chrisc@jdsmining.ca>; Greg Van Petten <Greg.VanPetten@layfieldgroup.com>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; 'Mark Ayranto' <mayranto@vitgoldcorp.com>; Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Derek Hrubes <DHrubes@bgcengineering.ca>; Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; Fred Cross <Fred.Cross@layfieldgroup.com>; 'Dan Russell (dan@pelly.net)' <dan@pelly.net>; Calvin Goldschmidt <calving@jdsmining.ca>; Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

Hi Troy,

I'll start the testing on Monday!

Thanks,

Dave

From: Troy Meyer
Sent: June 22, 2018 11:39 AM
To: David Oldford <DOldford@bgcengineering.ca>; 'Chris Copley' <chrisc@jdsmining.ca>; Greg Van Petten <greg.vanpetten@layfieldgroup.com>
Cc: Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; 'Mark Ayranto' <mayranto@vitgoldcorp.com>; Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Derek Hrubes <DHrubes@bgcengineering.ca>; Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; Fred Cross <fred.cross@layfieldgroup.com>; 'Dan Russell (dan@pelly.net)' <dan@pelly.net>; Calvin Goldschmidt <calving@jdsmining.ca>; Jason Wheeler <jason.wheeler@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

David:
Your assumptions are correct.
Thanks.

From: David Oldford
Sent: Friday, June 22, 2018 8:37 AM
To: Troy Meyer <TMeyer@bgcengineering.ca>; 'Chris Copley' <chrisc@jdsmining.ca>; Greg Van Petten <greg.vanpetten@layfieldgroup.com>
Cc: Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; 'Mark Ayranto' <mayranto@vitgoldcorp.com>; Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Derek Hrubes <DHrubes@bgcengineering.ca>; Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; Fred Cross <fred.cross@layfieldgroup.com>; 'Dan Russell (dan@pelly.net)' <dan@pelly.net>; Calvin Goldschmidt <calving@jdsmining.ca>; Jason Wheeler

<jason.wheeler@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing Jun21 update

Hi Troy,
I'll make sure to take lots of before and after photos of the different liners that we are going to test and will note any dumpling after shearing.
Please confirm the number of tests we need on each liner and the loads.
Previous loads were
200kPa,
400kPa,
800kPa
And I'm assuming the same set up as before - subgrade, GCL (GSE BentoLiner NWL-60), Geomembrane(RT 40mil LLDPE and then XRT 80mil HDPE material), PT material.

Thanks,

Dave

From: Troy Meyer
Sent: June 21, 2018 11:27 PM
To: 'Chris Copley' <chrisc@jdsmining.ca>; Greg Van Petten <greg.vanpetten@layfieldgroup.com>
Cc: Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; 'Mark Ayranto' <mayranto@vitgoldcorp.com>; Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Derek Hrubes <DHrubes@bgcengineering.ca>; David Oldford <DOldford@bgcengineering.ca>; Sujay Ramganesh <sujay.ramganesh@layfieldgroup.com>; Fred Cross <fred.cross@layfieldgroup.com>; 'Dan Russell (dan@pelly.net)' <dan@pelly.net>; Calvin Goldschmidt <calving@jdsmining.ca>; Jason Wheeler <jason.wheeler@layfieldgroup.com>
Subject: Re: Eagle - Geomembrane Shear Testing Jun21 update

Greg I think this approach is good and this additional testing should get us to a final product selection and approval. Given the firm subgrade I don't think the thinner liner will dimple too much more than the 80 mil. The dimpling from the gravel can sometimes affect results. I think given the timeline we should test the 40 mil and pay attention to the dimpling compared to the 80 mil.
Any thoughts David?

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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From: Greg Van Petten
Sent: Thursday, June 21, 16:23
Subject: Eagle - Geomembrane Shear Testing Jun21 update
To: 'Chris Copley', Troy Meyer
Cc: Sujay Ramganesh, 'Mark Ayranto', Daniel Granda, Roy Morlan, Derek Hrubes, David Oldford, Sujay Ramganesh, Fred Cross, 'Dan Russell (dan@pelly.net)', Calvin Goldschmidt, Jason Wheeler

Hi Chris – we have been working with Solmax to review asperity height options as they relate to BGC's interface requirements. Solmax has requested project requirements for interface shear, however in speaking with Troy, they don't have a documented project spec for this – they just need to test samples and see if they pass. Solmax has noticed that previous BGC interface test reports show some variability in testing speed (displacement rate), and that this can impact results. We have recommended that Solmax speak direct with BGC to review the testing protocol being used – so that test results from this next round of tests are well understood (and so that further discussion, if required, can key in on specific items). We have been told by the technical rep at Solmax that interface shear testing results can vary up to 30-40% - which is why it makes sense for Solmax to speak directly to BGC in regards to testing protocol.

So in the absence of clear project interface requirements (which Solmax could review and recommend a product), Solmax is sending 2 additional samples (today) into BGC Fredericton for interface testing. These samples will be their RT (rough texture) & XRT (extra rough texture) series of products, which they feel will yield good results.

- The RT sample available is a 40mil LLDPE material and they have indicated that normally the thickness is irrelevant on the shear test
- The XRT sample is an 80mil HDPE material – which Solmax feels the HDPE will have minimal impact on test results versus LLDPE
- Troy – can you please confirm that these 2 samples indicated above are ok? Otherwise there may be significant lead times to source out precise samples for this interface shear testing.

Jason has left a voicemail with David Oldford at BGC Fredericton, to confirm whether they have enough GCL remaining to complete these 2 additional tests.

Again, all materials for the Event Pond & In-Heap Pond have been approved with expected delivery on site starting mid/late July.

Regards,
Greg

From: Chris Copley [mailto:chrisc@jdsmining.ca]
Sent: Thursday, June 21, 2018 8:55 AM
To: Greg Van Petten; Jason Wheeler; 'Troy Meyer'; Calvin Goldschmidt
Cc: Sujay Ramganesh; 'Mark Ayranto'; 'Daniel Granda'; 'Roy Morlan'; 'Derek Hrubes'; 'David Oldford'; Sujay Ramganesh; Fred Cross; 'Dan Russell (dan@pelly.net)'

Subject: RE: Eagle - Geomembrane Shear Testing

Greg,

Please provide an update on this matter.

Thanks,
Chris

From: Greg Van Petten [mailto:Greg.VanPetten@layfieldgroup.com]
Sent: June 15, 2018 12:36 PM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; 'Troy Meyer' <TMeyer@bgcengineering.ca>; Chris Copley <chrisc@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; 'Mark Ayranto' <mayranto@vitgoldcorp.com>; 'Daniel Granda' <DGranda@bgcengineering.ca>; 'Roy Morlan' <RMorlan@bgcengineering.ca>; 'Derek Hrubes' <DHrubes@bgcengineering.ca>; 'David Oldford' <DOldford@bgcengineering.ca>; Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; Fred Cross <Fred.Cross@layfieldgroup.com>; 'Dan Russell (dan@pelly.net)' <dan@pelly.net>
Subject: RE: Eagle - Geomembrane Shear Testing

Sorry, missed the attachment…

Regards,
Greg

From: Greg Van Petten
Sent: Friday, June 15, 2018 12:02 PM
To: Jason Wheeler; Troy Meyer; Chris Copley; Calvin Goldschmidt
Cc: Sujay Ramganesh; Mark Ayranto; Daniel Granda; Roy Morlan; Derek Hrubes; David Oldford; Sujay Ramganesh; Fred Cross; Dan Russell (dan@pelly.net)
Subject: RE: Eagle - Geomembrane Shear Testing

Just to keep everyone up to date, we have spoken with Solmax and also with BGC to review the project requirements & options. We are pursuing alternate product options with higher asperity, and gathering information on their cost impacts.
As indicated in the attached email, the Layfield sample from last November was higher than normal in asperity (this was not intentional, it just happened based on the small production run to expedite a sample of non-stock material for that first interface shear test). By chance, this sample has barely passed Troy's requirements for the Heap Leach pad. Troy has also confirmed that these stringent interface shear requirements are only required for the Heap Leach Pads, therefore the procurement of 80mil LLDPE DST for the critical path Event Pond and In-Heap Pond can continue as planned (with industry standard GRI GM17 liner).
The recent sample supplied by Solmax does meet the physical spec properties outlined in the project spec. The interface shear pass/fail criteria are not included in the project spec for us to review & comment, however Troy has indicated that the Layfield sample test report can be used as the minimum project requirements for the Heap Pad area. What complicates the matter further is that this is a non-stock product with a unique asperity– and the manufacturing requirements to get

samples produced for further precise testing will require considerable time & cost to produce an order of size - to dial in the manufacturing equipment to such stringent tolerances (to produce the unique product that can be replicated with confidence on a large quantity order). Our plan is to work with Solmax when they run the standard 80mil LLDPE DST products for the Event Pond and the In-Heap Pond in mid July, and hope they can run the required high-asperity sample options at the end of this production run.

Regards,
Greg

From: Jason Wheeler
Sent: Wednesday, June 13, 2018 3:02 PM
To: Troy Meyer; Chris Copley; Greg Van Petten; Calvin Goldschmidt
Cc: Sujay Ramganesh; Mark Ayranto; Daniel Granda; Roy Morlan; Derek Hrubes; David Oldford
Subject: RE: Eagle - Geomembrane Shear Testing

Troy,

Thanks for sending that quickly. We will be talking to Solmax right away to see what options we have to resolve this.

Regards,

Jason

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Wednesday, June 13, 2018 2:20 PM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; Chris Copley <chrisc@jdsmining.ca>; Greg Van Petten <Greg.VanPetten@layfieldgroup.com>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>; Mark Ayranto <mayranto@vitgoldcorp.com>; Daniel Granda <DGranda@bgcengineering.ca>; Roy Morlan <RMorlan@bgcengineering.ca>; Derek Hrubes <DHrubes@bgcengineering.ca>; David Oldford <DOldford@bgcengineering.ca>
Subject: RE: Eagle - Geomembrane Shear Testing

Jason:
The preliminary results of the multi-interface testing with Solmax LLDPE are attached. These are still under internal BGC review.
Our evaluation of the results indicates that this Solmax geomembrane does not meet the project requirements. A comparison of the results for the Layfield and Solmax products is provided below. Both the peak and residual interface strength values are lower for the Solmax product. Since the failure interface was between the liner and the GCL, we believe the difference is due to more aggressive (rougher) texturing on the Layfield liner compared to the Solmax liner.

Perhaps the Solmax can be made with more aggressive texturing? The adhesion between the textured liner and the GCL is dictating the results.

<image001.jpg>

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>

Sent: Monday, June 4, 2018 12:43 PM
To: Chris Copley <chrisc@jdsmining.ca>; Greg Van Petten <Greg.VanPetten@layfieldgroup.com>; Troy Meyer <TMeyer@bgcengineering.ca>
Cc: Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>
Subject: RE: Eagle - Geomembrane Shear Testing

Hello Chris,

I talked to David at BGC who is doing the testing. He has received the samples and has completed 1 of the 3 necessary test. He anticipates he will be complete all the testing by the end of the week.

Regards,

Jason Wheeler | Project Manager | Geosynthetics
T: (780) 733.6337 | **M:** (403) 470.9123 | **E:** Jason.Wheeler@layfieldgroup.com | LayfieldGroup.com
<image002.jpg>

From: Chris Copley <chrisc@jdsmining.ca>
Sent: Monday, June 4, 2018 12:34 PM
To: Greg Van Petten <Greg.VanPetten@layfieldgroup.com>; 'Troy Meyer' <TMeyer@bgcengineering.ca>
Cc: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; Sujay Ramganesh <Sujay.Ramganesh@layfieldgroup.com>
Subject: Eagle - Geomembrane Shear Testing

Hi All,

Following up on the geomembrane shear testing program schedule.

Have the samples been received at the lab?
If so, do we have an estimated date for the results?

Time is obviously critical here for purchasing of the liner.

Thanks,
Chris

<image003.jpg>
<image004.jpg>

Project Manager

JDS Energy & Mining

Cell

250.826.2356

Site

604.424.9745 x122

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REQUEST FOR INFORMATION

EPCM RFI No.: EPCM-RFI-022	**Site Location:** Eagle Gold
Sub-Contractor RFI No.: EPCM-RFI-022	**Date Submitted:** July 6, 2018
Subject: HLF liner testing method	**Project Zone/Area:** Heap Leach Facility
Sub-contractor: Layfield	**Station/Location:** Heap Leach Facility
Attention: BGC	**Discipline:** Civil

REQUEST

Type of Change:	☐ Owner Change	☐ Clarification/Info	☐ Field Change		
	☐ Vendor Change	☐ Design Change	☒ Other		

Related Drawings: EGHLF-XD-02-06	**Other Related Documents:**

Information Request/Description of Issue:

1. EPCM proposes to remove the requirement for a conductive backed liner.

Proposed Corrective Action

1. EPCM proposes remove conductive backed liner and use a valid-test (vacuum) to validate liner in the LDS layer

Cost Impact:			
Schedule Impact:			
Requested by:	**D'Arcy Comerford**		**July 6, 2018**
	Name	Signature	Date

RESPONSE

☒	Approved	☐	Approved as noted	☐	Rejected as noted

Response:

Answered by:	Troy Meyer, P.Eng.		11 July 2018
	Name	Signature	Date

Note: *Response to this RFI does not constitute authorization to perform a change to any Contract. The Requestor may proceed with the response only on the basis that the Requestor agrees that it is not a contract change. If the Requestor believes that the response does constitute a contract change, the Requestor shall immediately notify JDS. Work undertaken without JDS written authorization is at the Sub-contractor's risk and expense.*

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-020

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**October 2, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)** **Jason Wheeler (Layfield)**	**Record:**	**BGC-RFI-020**

Re: BGC-RFI-020: HLF VALID Liner Testing

BGC requests JDS provide acknowledgment of receipt of the following design specification clarification.

The project specifications call for Leak Location (or approved equal) for post-installation damage utilizing spark testing technology in the HLF in-heap pond. EPCM-RFI-022 approved vacuum (VALID) testing in place of spark testing. VALID testing is not possible once the liner is covered with Overliner Drain Fill (ODF). The current project schedule will not likely allow opportunity to fully place ODF in acceptable conditions (see BGC-RFI-016 regarding cold temperature liner system installation). The risk of leaving the liner exposed over the winter is significant with a high probability of damage due to environmental stress cracking from wind and snow induced loading and movement at temperatures below minus 25 degrees C. BGC made StrataGold aware of these risks and the decision was made to place ODF on the liner as soon as possible after incremental placement of the 2.0 mm LLDPE top liner to protect the liner over winter. VALID testing may be completed on the portion of the liner exposed and not yet covered with ODF once the top liner is completed. The final decision to complete the VALID testing will be made at that time.

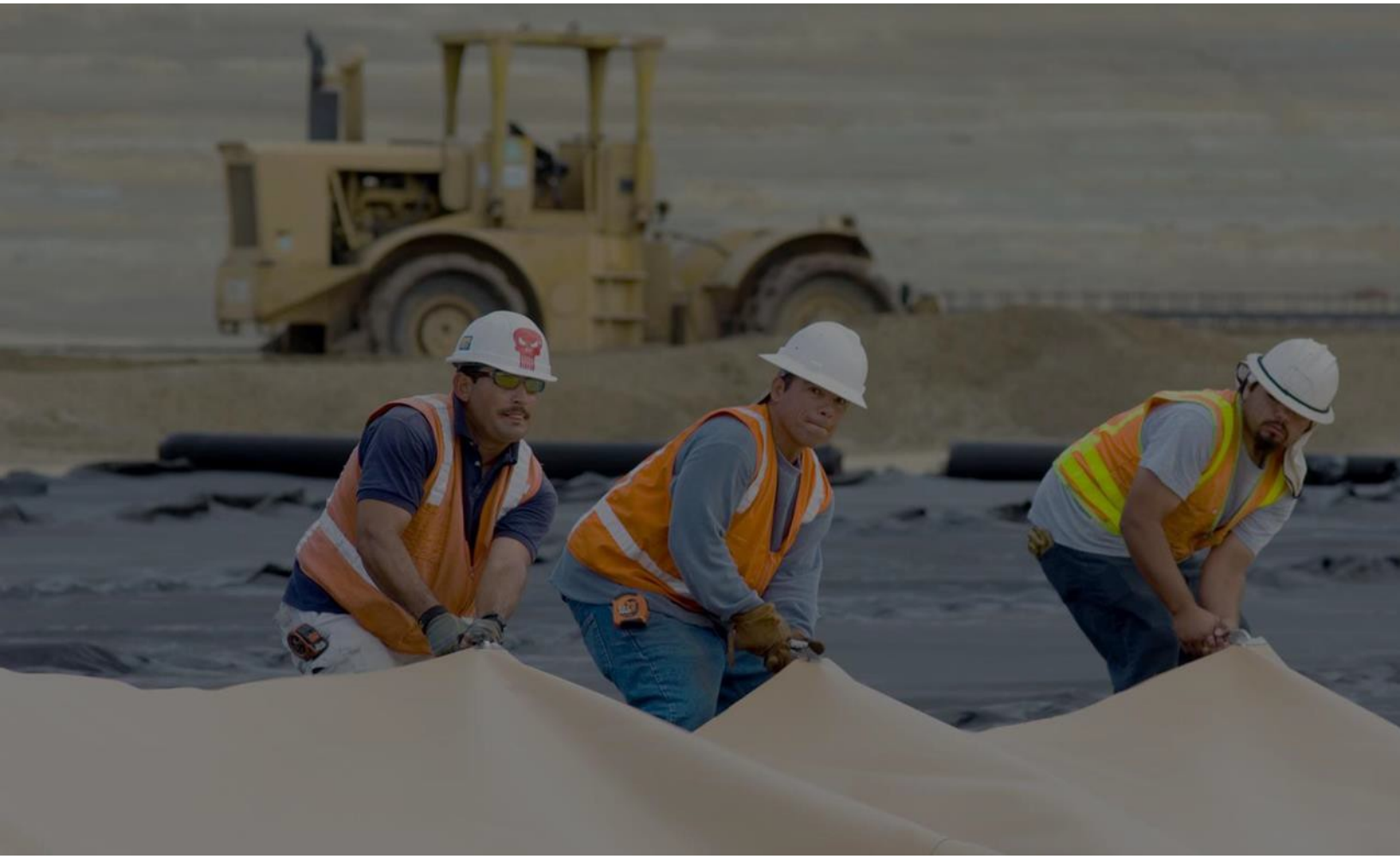
Response:

Answered by:

Name Signature Date

LAYFIELD
ENVIRONMENTAL CONTAINMENT

Technical Note: Vacuum Acoustic Leak IDentification (VALID™) Testing



Overview:

The potential for damage to the liner during liner installation is inevitable. At Layfield we recognize that no matter how careful one is during the liner installation, discontinuities in the liner can occur from accidental damages. Over the years we have witnessed damages to the liner caused by poor installation techniques, subgrade imperfections and post installation damages. There are a number of leak location methods available for testing the integrity of geomembranes. These methods can be used immediately after installation as a final check of quality; or, as part of a maintenance program in the future. Electrical leak location is perhaps the most common method for leak testing on geomembrane containment systems.



Our VALID system however is based on acoustic principles wherein discontinuities in the liner can be detected by our acoustic sensors.

There are currently two types of containment systems utilized by the industry: 1.Single lined containment, 2. Double lined containment. Our VALID testing is designed for Double lined containment applications where the liquid contained is generally considered to be harmful and the impact of such leaks can be costly and can cause severe damage to the environment.



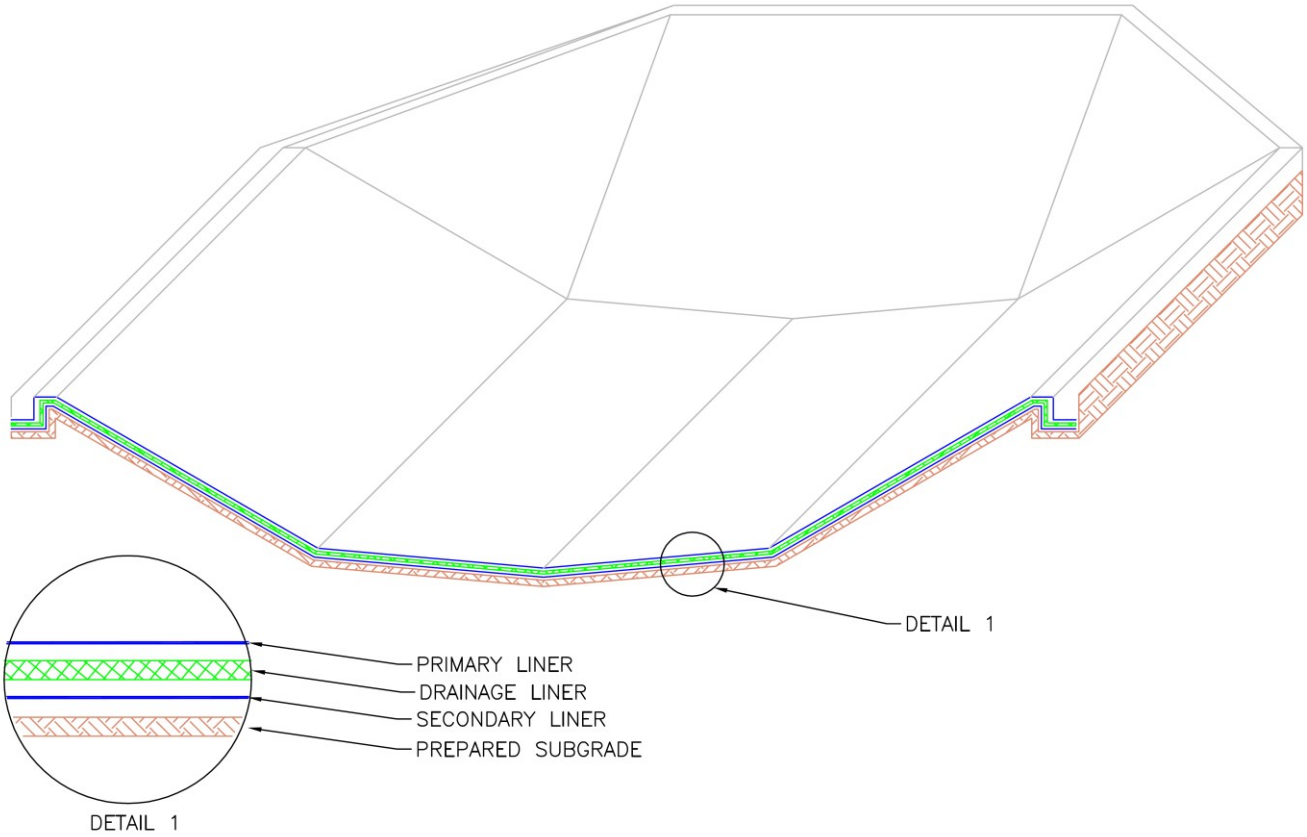


Figure 1. Schematic of a double lined pond

VALID Description

VALID is the only method currently available that can test two layers of a double lined system in a single pass! It is designed to test both the primary and secondary liners in a double lined system simultaneously using a single survey. In the VALID method, the top and bottom geomembranes are joined at the perimeter bywelding or mechanical means. Then a vacuum is applied to the interstitial space between the geomembranes. The top surface of the geomembrane is scanned with ultrasonic microphones that pick up the distinctive sounds of a vacuum leak. Vacuum leaks can be detected in the primary or the secondary liner with this method. The VALID method works best on clean, dry geomembrane and does not require a conductive subgrade. It is also one of the most efficient to find discontinuities in a containment system.

Existing Methods

In other leak test methods the layers in a double lined system have to be independently tested prior to putting the containment system in service. Once the secondary layer has been placed and tested, the installation of drainage layer and primary liner follows. The installation of these two geosynthetic layers above the secondary geomembrane liner can cause accidental damages to the secondary layer.

One of the issues associated with other types of leak survey methods is the testing of the primary (top) liner. To test the primary liner using other methods[1], you will need to create a conductive media in leak detection zone. A conductive media can be created by using:

a. Conductive geotextile
b. Clay layer (composite liner system)
c. Flood the leak zone/interstitial space with water

These come with additional cost of materials and can add substantial costs towards leak testing.



Picture 1. Soil Survey Method



Picture 2. Water Survey Method

VALID testing works on the principle of detecting ultrasonic frequencies as air is pulled through holes in the liner. One of unique aspects of VALID testing is that it can detect leaks in the primary liner layer and the secondary liner layer at the same time with a single scan. Since the detection of leakage is done by sound, the location of the leak can be located in either geomembrane layer by changes in the volume of the signal.

One or more vacuum trucks are used (depending on the size of the containment) to apply vacuum to the interstitial zone through an induction board welded to the top of the primary liner. The surface of the lined area is then systematically scanned for leaks using a calibrated sensor.

1 Arc Testing, Water puddle/water lance, Water survey (need water on top), Soil survey (need soil on top)

In comparison to conventional electrical leak testing methods, VALID testing does not require that water be placed in the pond or in the leak detection zone to be effective, nor does VALID testing require the additional cost of a conductive geomembrane.



Pic 3. A truck pulling vacuum



Pic 4. Fitting to the primary liner



Pic 5. Hole found in the secondary liner

VALID System Requirements

The design of the pond needs to incorporate certain features for a VALID test scan.

- The containment area to be tested should be dry.
- At minimum, the liner system must be a double lined system and the primary and secondary liner layers must be sealed around the perimeter. Typically these are systems with a primary and secondary geomembrane. However a primary geomembrane with a low permeability soil acting as the secondary liner may also be suitable.
- There must be an interstitial space for leak monitoring. This space should incorporate a geonet or geocomposite layer suitable for the leak detection requirements of the pond.
- Induction boards must be installed into the top geomembrane. A layer of the geonet/geocomposite must extend all the way to the location of these induction boards.
- Geomembrane vents (if required) cannot be installed in the primary liner until after the VALID testing is completed. If vents are already in place, they must be sealed prior to beginning VALID testing.







Pic 6. Seaming of the primary and secondary layer, Ultrasonic meter showing strong signal indicating potential leak

Comparison of existing tests methods for a newly constructed dual- lined containment

	Water lance/puddle/Soil Survey	Spark Tester	Arc Tester	VALID
Geomembrane Type	A standard, non-conductive geomembrane	Conductive Geomembrane	A standard, non-conductive geomembrane	Not Required
Subgrade Conductivity	Sufficiently conductive	Tested only on conductive geomembranes	Sufficiently conductive	Not relevant
Water Source	Required, May be Required to moist the soil	Not required	Not required	Not required
Power Supply	12-36 volts	6000-35,000 volts	6000-35,000 volts	Not required[1]
Tolerant to wet and dirty geomembrane	Yes	Tolerant to slightly dirty but dry site is recommended	Tolerant to slightly dirty but dry site is recommended	Tolerant to slightly dirty but dry site is recommended
Set up and Calibration	Half a day	Half a day	Half a day	Half a day/Equipment can be calibrated to ASTM method[2]
Speed of Testing[3]	Upto 5000 m^2/day	Upto 5000 m^2/day	Upto 5000 m^2/day	Upto 6000 m^2/day
Ability to test the dual lined system in single pass	Only Primary layer can be tested	Only Primary layer can be tested	Only Primary layer can be tested	Yes, can even find defects in secondary.
Leak detection Sensitivity	Smaller than 1mm diameter	Smaller than 1mm diameter	Smaller than 1mm diameter	Smaller than 1mm diameter

[1] Power supply required for creating vacuum between the interstitial space. Battery operated equipment to detect ultrasonic signals.

[2] Please contact Layfield for more information.

3 Speed of testing based on our experience.



Another pond, done RIGHT!

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-028

To:	**Jean-Francois Maille (JDS)** **Mike Blusson (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**Nov 7, 2018**
Copied:	**Roy Morlan (BGC)**	**Record:**	**BGC-RFI-028**

Re: BGC-RFI-028: PLS Sump and Piping Configuration

BGC requests JDS provide acknowledgment of receipt of the following design clarification. This RFI supersedes BGC-RFI-013.

In discussions between BGC, JDS and Heavy North regarding the construction approach for PLS pipe risers installations, a preferred approach was jointly developed to better match the proposed equipment while protecting the installed pipes and geosynthetic liner system.

The approach will involve conventional equipment (dozer and excavator) traffic within the pipe corridor, as opposed to using a crane or side-boom. This approach requires a modification to the pipe and liner arrangement to ensure protection of the liner system and placed LDRS pipes. Design drawings EGHLF XD-05-01 through 05-04. **Figure 1** presents the revised section through the pipe corridor (looking downstream) on the face of the HLF embankment. This section replaces Detail 28 on Drawing XD-05-03. The PLS pipes will be placed on the embankment face from access points on placed ODF from bottom to top.

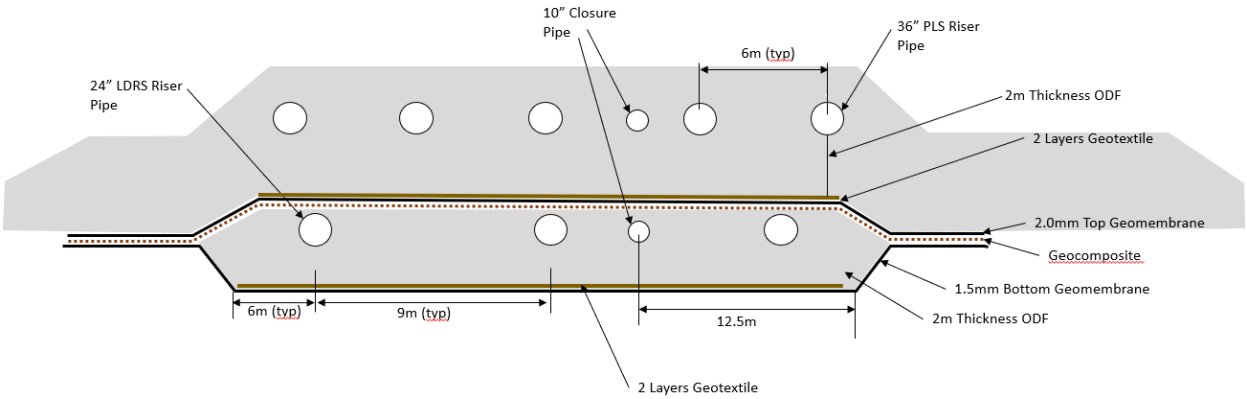


Figure 1: Revised Detail 28, Drawing EGHLF-XD-05-03.

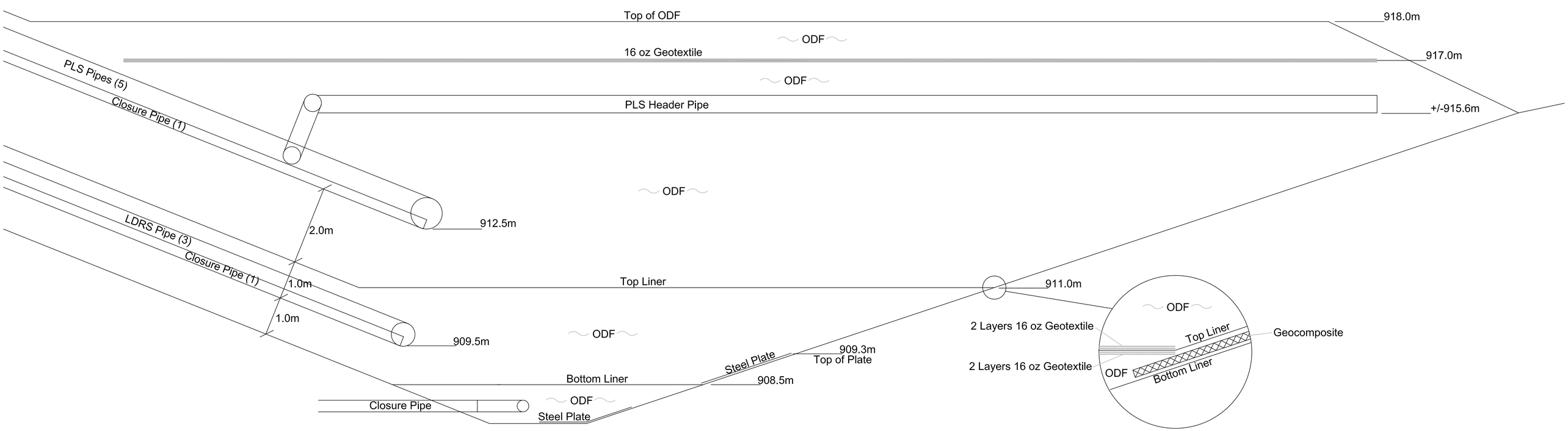
A 2m thick layer of ODF will be placed beneath the riser pipes. The outward shift of the PLS pipes will be accommodated at the bottom by adjusting the dimensions of the PE pipe network in the PLS sump as shown on **Figure 2**. This figure replaces Detail 33 of EGHLF-XD-05-04. A layer of 16 oz. geotextile must be placed at Elevation 917.0m within the ODF over the PLS pipework. This layer is for operational filtering purposes. The top ODF elevation is now 918.0m.

A field test pad has been conducted (BGC Field Memo FM-007) to demonstrate the protection of the liner with ODF thickness from 0.6m to 1.5m and traffic from loaded 40T rock trucks, CAT 3250 trackhoe excavator and D6 dozer. The proposed equipment for pipe placement includes a CAT 349F and Linkbelt 490 excavator (data sheets attached). Based on our estimates of the maximum ground pressure exerted from this equipment with the PLS hammerhead pipes, a minimum of 2m thickness ODF underlain by 2 non-woven geotextile layers to cushion the geomembrane liner will be required. Other equipment must be approved by BGC prior to use. Equipment movement must be slow and turning on the access roads built over the liner will not be allowed.

Response:

Answered by:

Name	Signature	Date



@EA Cleglccpgle*Gla,

Figure 2. PLS Sump Cross Section

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

BGC-RFI-016

To:	**Jean-Francois Maille (JDS)** **Calvin Goldschmidt (JDS)**	**Project:**	**Eagle Gold HLF**
Company:	**JDS**	**Project No.**	**0792021**
From:	**Troy Meyer (BGC)**	**Date:**	**September 27, 2018**
Copied:	**Roy Morlan, Dan Granda (BGC)** **Scott Dimitroff, Kate Rogers (Tetra Tech), Chad Messervey (Layfield)**	**Record:**	**BGC-RFI-016**

Re: BGC-RFI-016: Geomembrane and ODF Placement in Freezing Conditions

BGC requests JDS provide acknowledgment of receipt of the following technical specification clarification.

Section 4.1.7.2 of the project technical specifications addresses placement of liner in cold weather:

> *No seaming shall be conducted if the temperature measured at 15 cm above the geomembrane is lower than 5°C or above 38°C, without written acceptance by the Engineer. When the temperature is below 10°C, the Installer shall preheat the weld zone by a hot air device.*

The following guidance is provided and shall replace the above specification:

Cold weather installations should follow guidelines as outlined in GRI GM9: *Standard Practice for Cold Weather Seaming of Geomembranes.* No geomembrane material shall be seamed when liner (sheet) temperatures are less than 0 degrees C (32 degrees F) unless the following conditions are complied with:

1. Seaming of the geomembrane at material temperatures below 0 degrees C (32 degrees F) is allowed if the Geomembrane Installer (Layfield) can demonstrate to the Owner's Representatives (Tetra Tech and BGC), using pre-qualification test seams, that field seams comply with the project specifications, the safety of the crew is ensured, and geomembrane material can be fabricated (i.e. pipeboots, penetrations, repairs, etc.) at sub-freezing temperatures.
2. The Geomembrane Installer shall submit to the Owner's Representative for approval, detailed procedures for seaming at low temperatures, including the following:
    a. Preheating of the geomembrane, if necessary.
    b. The provision of a tent or other device if necessary to prevent heat losses during seaming and rapid heat losses subsequent to seaming.

c. Number of test welds to determine appropriate seaming parameters

Trial welds shall always be done in the environment (temperature) and geometry in which production welding is to be done.

Freezing temperatures can cause geomembrane sheets to crack when unrolled, folded, impacted or loaded. Geomembranes when unrolled or folded in cold weather should not crack, craze, or distort in texture. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that a geomembrane shall be unrolled unless it is shown otherwise to the satisfaction of the Owner's Representative.

Section 3.8.1.2 of the project technical specifications addresses placement of Overliner Drain Fill (ODF) on the installed liner. A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that ODF shall be placed on the geomembrane unless it is shown otherwise to the satisfaction of the Owner's Representative.

Response:

Answered by:

Name	Signature	Date

Rogers, Kate

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Sent: Tuesday, October 2, 2018 1:50 PM
To: Troy Meyer; Jean-Francois Maille; Calvin Goldschmidt
Cc: Roy Morlan; Roman Bilobrowka; Daniel Granda; Dimitroff, Scott; Rogers, Kate; Chad Messervey; Elliot Matthews
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions
Attachments: Winter Installation Parameters.pdf

Hello Troy,

Please see attached our winter installation procedure

Regards,

Jason

From: Jason Wheeler
Sent: Friday, September 28, 2018 1:15 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Hello Troy,

I will submit our cold weather installation procedure too you shortly for review.

We are confident that we are able to weld in temperatures below 0 degrees by adjusting our temperatures and speeds accordingly. Please note that preheating the geomembrane or using tents does not work but we will have no issue showing tetra tech and BGC on site with trial welds and seam testing that installation is still possible in cold temperatures

Below is just a quick chart for you information on handling different types materials in relation to the Cold weather deployment

Table1. Cold Temperature Handling Guide

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Regular PVC 20 mil	-26°C, -15°F (D1790)	-5°C, +23°F

Regular PVC 30 mil and up	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 100 30mil (U)	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 250 38mil (S)	-40°C, -40°F (D2136)	-15°C, +5°F
HAZGARD 1000 (S)	-40°C, -40°F (D2136)	-20°C, -4°F
HAZGARD 5000 HT (S)	-30°C, -22°F (D2136))	-10°C, +14°F
HDPE 60mil	-70°C, -94°F (D746)	-25°C, -13°F (Welding Limited)
EPDM 45mil	-45°C, -49°F (D746)	+5°C, +41°F (Issues with sealant tape)

Regards,

Jason Wheeler | Project Manager | Geosynthetics
17720 - 129 Avenue NW | Edmonton, AB T5V 0C4
phone: 780-733-6337 | mobile: 403-470-9123 | www.layfieldgroup.com

---

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Thursday, September 27, 2018 4:46 PM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Please see attached.
Thanks.

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.

Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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This ... national standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D2136 – 02 (Reapproved 2012)

Standard Test Method for Coated Fabrics—Low-Temperature Bend Test[1]

This standard is issued under the fixed designation D2136; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 Fabrics coated with rubber or rubber-like materials display increased stiffening when exposed to decreasing ambient temperatures. This test method describes a simple pass/fail procedure whereby material flexibility at a specified low temperature can be determined. Failure is indicative of unacceptability of the coated fabric for use at that temperature.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statement see 8.1.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D751 Test Methods for Coated Fabrics

2.2 *ASTM Adjuncts:*

Bending Fixture Drawings[3]

3. Summary of Test Method

3.1 Specimens cut from the coated fabric are conditioned at a selected low temperature for a specified duration. While remaining exposed at that temperature, they are then individually placed in a bending apparatus and bent through a specified angle. Failure of the coated fabric is indicated by fracture of the specimen or the appearance of surface cracks in the coating.

4. Significance and Use

4.1 This test method evaluates the ability of coated fabrics to withstand a prescribed bend at an established low temperature. Fabrics coated with polymeric materials are used in many applications requiring low temperature flexing. Data obtained using this test method may be used to predict in-use behavior only in applications in which the conditions of deformation are similar to those specified in this test method. This test method has been found useful for specification purposes but does not necessarily indicate the lowest temperature at which the material may be used.

5. Apparatus

5.1 *Low-Temperature Chamber*—The chamber in which the test specimens are exposed to low temperature shall be sufficient in size to contain the bending fixture used for testing the specimens and to permit the operation of the fixture to bend the specimens without removal from the chamber. The chamber shall also have sufficient work space to permit the conditioning of test specimens in accordance with Section 8 of this test method. It shall be capable of maintaining a uniform atmosphere of cold dry air or any suitable gas at specified temperatures within a tolerance of ±1°C (±1.8°F).

5.2 *Bending Fixture*[3]—The basic requirements for the device used for bending the test specimens are shown in Fig. 1 and Fig. 2. Dimensions and mass shall conform to Fig. 2.

5.3 *Glass Plates*—A sufficient number of glass plates approximately 125 by 175 mm (5 by 7 in.) shall be used when conditioning all test specimens. All test specimens shall be placed between glass plates during the exposure period to eliminate any curling or bending. The thickness of the glass plates shall be of such size as to permit ease of handling.

5.4 *Gloves*—A pair of gloves shall be required for handling test specimens within the low-temperature chamber.

5.5 *Lubrication*—A suitable low-temperature grease, if needed, should be applied to the trigger release and hinge pin of the bending apparatus to prevent stiffening during the conditioning period.

---

[1] This test method is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.37 on Coated Fabrics, Rubber Threads and Seals.

Current edition approved Dec. 1, 2012. Published February 2013. Originally approved in 1962. Last previous edition approved in 2007 as D2136 – 02 (2007). DOI: 10.1520/D2136-02R12.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Detail drawings of this apparatus are available at a nominal cost from ASTM International Headquarters. Order Adjunct No. ADJD2136. Original adjunct produced in 1988.

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10.1.1 Results of the tests expressed as "passed" or "failed," and the number of specimens tested,

10.1.2 Temperature at which the specimens were tested,

10.1.3 Duration of the exposure period, and

10.1.4 Identification, date of manufacture, and date of test.

11. Precision and Bias

11.1 Since this testing makes use of a pass/fail performance criterion, the application of the usual precision and bias analysis is not possible.

12. Keywords

12.1 bend test; coated fabrics; flexibility; low temperature; low temperature bend test; rubber-coated fabrics; subnormal test temperature

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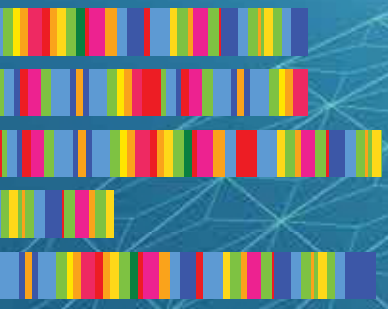
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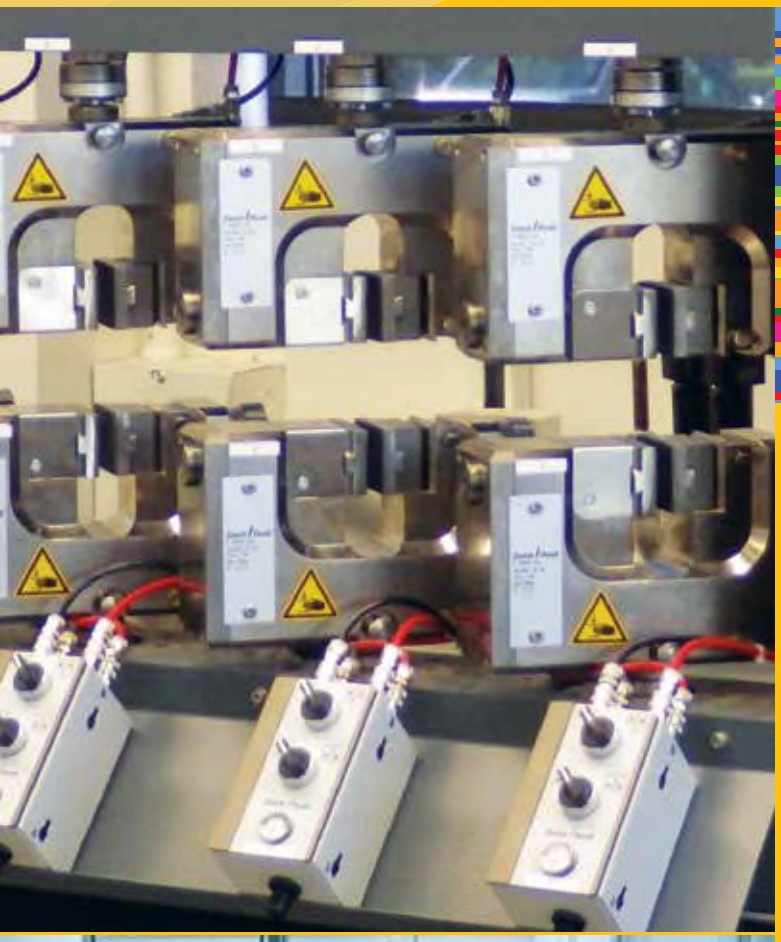
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technology

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ISO 17025

GENERAL REQUIREMENTS FOR THE COMPETENCE OF TESTING AND CALIBRATION LABORATORIES

ISO 9001:2008

QUALITY MANAGEMENT SYSTEMS

EVALUATION TESTING



GAI-LAP

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French & English

MARKING

CE

40,000 sq.ft.

STATE-OF-THE-ART LABORATORY

TEAM OF **65**

HIGHLY QUALIFIED EXPERTS

$ 10 M

STATE-OF-THE-ART SPECIALIZED EQUIPMENT

GroupeCTTGroup

SAGEOS is a division of the CTT Group; a not-for-profit technology transfer center specialized in technical textiles, geosynthetics and flexible advanced materials.

The CTT Group employs 65 professionals:

- Ph.D. and M.Sc.A. scientists and researchers specializing in Chemistry, Civil Engineering/Geotechnical, Materials/Physics, Mechanical/Composites, Plastics/Polymers and Textiles;
- Engineers with backgrounds in Textiles, Mechanical, Electrical, Civil, Geotechnical, Electronic, Polymers, and Microbiology;
- Technicians holding technical degrees in Civil, Textile, Polymer, Pharmaceutical and other related fields.

SERVICES

CHARACTERIZATION AND PERFORMANCE

- Physical: Mechanical, abrasion and bending
- Chemistry: Fibre analysis, finishing products
- Optical and electronic microscopy
- Creep, long term properties
- Durability resistance to accelerated aging
- Testing in controlled thermal environment (-70°C to +250°C)
- Volatile organic compounds (VOCs)
- Toxicity

CERTIFICATION, CONFORMANCE AND THIRD PARTY EVALUATIONS

- Standards & specifications compliance assessment
- Analysis of the causes of failure / forensic investigations
- Testing for ICC or CCMC evaluations
- CE Marking

RESEARCH & DEVELOPMENT

- Eligible for federal and provincial programs in R&D funding (Canada)
- Assistance in finding R&D funding (Canada)

EQUIPMENT & RESOURCES

STATE-OF-THE-ART EQUIPMENT

- Tensile and compression testing machines: long spans, 0.5kN to 300kN capacity, Demgen clamps, Instron and Zwick
- Tensile testing machines with high resolution contact extensometers, Zwick, video extensometers, Instron and Zwick
- Environmental chambers for testing at high / low temperature (-70°C to +250°C)
- Accelerated creep testing chambers (TTS / SIM)
- Multiaxial elongation and Hydrostatic Pressure, up to 5000kPa
- Several Impact Resistance Tests (Izod, Gardner, Dart...)
- Shear box / friction tester
- Porometer and several Opening size Measurement techniques (dry, wet, hydrodynamic sieving)
- Transmissivity, standard and radial
- Gradient Ratio cell
- Vapor Permeability
- Gas transmission rate
- GCL Permeability, with harsh and chemically corrosive liquids
- UV exposure: Xenon arc (4 units), Fluorescent (4 units), Carbon arc
- Stress-cracking / SP-NCTL (100+ specimens)
- Chemical compatibility tanks, testing per EPA 9090
- Microscopic Analysis (Electronic, Optic)
- OIT and HP-OIT
- Comprehensive polymer science laboratory (FTIR-ATR, DSC, with Cooling Unit [-70°C], TGA, DSC, HPLC-MS, GC-MS, Ionic Chromatography, ICP)
- Dynamic Mechanical Analyser, DMA
- Volatile Organic Compounds sampling chambers
- Spectrophotometer UV – Near Infrared
- Thermal Conductivity Analyser
- Thermal Imaging Camera

PROTOTYPING AND SMALL SCALE PRODUCTION UNITS

- Non-Woven (Needle-Punched) with several finishing options
- Woven textiles
- 3D Weaving, 3D textiles / Dry 3D preforms
- Plasma Treatment
- Narrow Weaving Machine equipped with Jacquard Head
- Flat Knitting Machine
- E-embroidery Machine
- Warp Knitting Machine
- Smart textiles Design
- Surface treatment / Polymers (dyeing and finishing)
- Coating and lamination

FIRE RESISTANCE LABORATORY

- Fire Resistance Evaluations: Accredited by ISO 17025 Transport Canada
- Radiant Panel (ASTM E162)
- Vertical Flame Test (Federal Aviation Regulation)
- Smoke Density (ASTM E662)
- Flooring Radiant Panel Test (ASTM E648)





POLYMERIC GEOMEMBRANES

PHYSICAL PROPERTIES

Asperity Height	ASTM D7466, GRI GM12
Density	ASTM D792
Thickness (PVC)	ASTM D1593
Thickness (Smooth PE)	ASTM D751, D5199, ISO9863-1
Thickness (Textured PE)	ASTM D5994
Weight	ASTM D751, ISO 9864

COMPOSITION / GENERAL PROPERTIES

Brittleness Temperature	ASTM D746
Carbon Black Content	ASTM D1603, D4218
Carbon Black Dispersion	ASTM D5596, D3015, ISO 18553
Coefficient of Thermal Expansion	ASTM D696
Dimensional Stability	ASTM D1204
Extractable Content	EPA 600/2-88/052-App.E
Extraction	ASTM D3421
Hardness	ASTM D2240
Melt Index	ASTM D1238, ISO 1133
Microscopic Analysis	--
OIT	ASTM D3895, EN728
HP-OIT	ASTM D5885
PVC Plasticizers (Content, Molecular Weight)	ASTM D2124
Volatile Loss	ASTM D1203
Water Extraction	ASTM D1239, D3083

BARRIER PROPERTIES

Water Vapor Transmission Rate	ASTM F1249, E96 (A, B, BW)
Water permeability	EN 14150
Gas permeability	ASTM D1434, ISO 15105
Oxygen Transmission Rate	ASTM D3985

MECHANICAL PROPERTIES

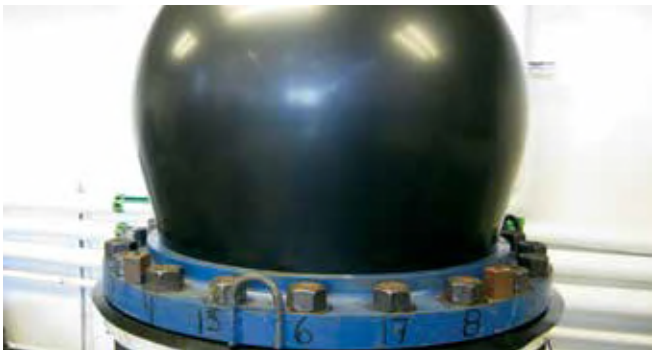
2% Secant Modulus	ASTM D5323
Adhesion of Coating	ASTM D751, D903
Flexural Strength (2 directions)	ASTM D790
Grab Tensile (Reinforced Geomembranes)	ASTM D751, D7004
Hydrostatic Resistance	ASTM D751A
Impact	ASTM D746
Pin Puncture	ASTM D4833, FTMS 101C/2065
Pyramidal Puncture	ASTM D5494, EN 14574
Seams (PE)	ASTM D6392, D4437, D6214, ASTM D3083, D4545
Seams (Tape)	ASTM D7272
Seams (PVC)	D882 mod., D7408
Seams (Reinforced)	ASTM D751, D7747 (Strip) D7749 (Grab)
Tear (unreinforced)	ASTM D1004
Tear (Reinforced)	ASTM D751, D5884
Tensile (Multiaxial)	ASTM D5617, ISO 14151
Tensile (PE)	ASTM D6693, ISO 527
Tensile (PVC)	ASTM D882
Tensile (Reinforced)	ASTM D751, D7003 (Strip), D7004 (Grab)
Tensile (Wide Width - 10 % / min)	ASTM D4885
Tensile With Extensometer	ASTM D638

PERFORMANCE & DURABILITY

Guidelines for the assessment of durability	ASTM D5819, ISO 13434, EN 12226
Chemical Compatibility	ASTM D5747, D5322, EPA 9090
Chemical resistance for landfill applications	EN 14414
Hydrostatic Puncture / Truncated Cones	ASTM D5514
Interface Shear Strength	ASTM D5321, ISO 12957-1
Low Temperature Bend Test	ASTM D2136
Resistance to oxidation	ISO 13438, EN 14575
Resistance to leaching	EN 14415
Oven Aging	ASTM D5721
Microbiological Resistance / Soil Burial	ASTM G160, D3083, EN 12225
Stress Cracking Resistance	ASTM D5397, EN 14576
UV (Fluorescent)	ASTM D7238, G154, GRI GM11, EN 12224
UV (Xenon)	ASTM D4355, G155, ISO 4892

MATERIAL SPECIFICATIONS AND TEST SELECTION GUIDES

Guide for Selection of Rate of Fluid Permeation Through Geomembranes	D5886
Guide for Flexible Polypropylene Geomembranes	D6434
Guide for Mechanical Attachment to Penetrations or Structures	D6497
Guide for EPDM Geomembranes	D7106



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Specification for PVC Geomembranes	D7176
Specification for EPDM Geomembrane	D7465
Specification for fPP-R and fPP Geomembranes	D7613
Guide for Selecting Test Methods for Geomembrane Seams	D7700
Practice for Electrical Leak Location - Water Lance System	D7703
Characteristics / construction of reservoirs and dams	EN 13361
Characteristics / construction of canals	EN 13362
Characteristics / tunnels and underground structures	EN 13491
Characteristics / liquid waste disposal sites or transfer sites	EN 13492
Characteristics / solid waste storage and disposal sites	EN 13493
Characteristics / transportation infrastructures	EN 15382

GEOSYNTHETIC CLAY LINERS (GCL)

PHYSICAL PROPERTIES

Thickness	ASTM D5199, ISO 9863-1
Weight, Water Content, Bentonite Content	ASTM D5993, ISO 9864
Weight (Geotextiles)	ASTM D5261

PROPERTIES OF THE MINERAL FRACTION

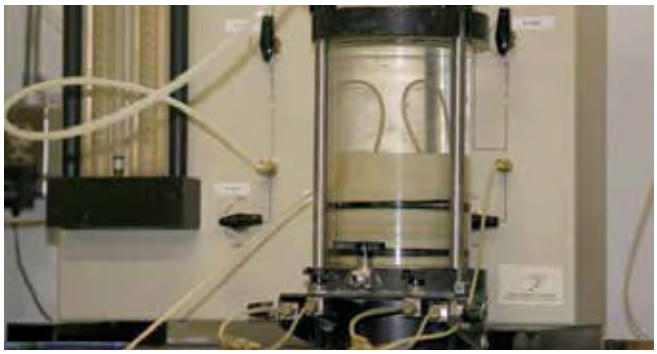
Swell Index	ASTM D5890
Fluid Loss	ASTM D5891
Water absorption of bentonite	ISO 10769

MECHANICAL PROPERTIES

GCL Tensile	ASTM D6768, D4632
Wide Width Tensile properties	ASTM D4595, ISO 10319
Peel Strength	ASTM D6496, ASTM, D4632 mod.
Puncture (50mm Probe)	ASTM D6241, ISO 12236
Tensile Strength (Grab)	ASTM D4632

HYDRAULIC PROPERTIES

Hydraulic Conductivity (Water)	ASTM D5887, ASTM, D5084
Clay geosynthetic barriers Permeability to gases	ISO 10773



PERFORMANCE & DURABILITY

Internal / Interface Shear Strength	ASTM D6243, ISO 12957-1
Large Scale Hydrostatic Puncture	ASTM D5514
Guidelines for the assessment of durability	ASTM D5819, ISO/TS 13434
Chemical Compatibility (Mineral Fraction)	ASTM D6141
Hydraulic Conductivity (With Contaminants)	ASTM D6766
Chemical Compatibility	SAGEOS GC001
Chemical resistance for landfill applications	EN 14414

MATERIAL SPECIFICATIONS AND TEST SELECTION GUIDES

Manufacturing Quality Control	ASTM D5889
Acceptance testing of GCL	ASTM D6495
Guide for consideration when evaluating Direct Sheer Results	ASTM D7702
Characteristics / construction of reservoirs and dams	EN 13361
Characteristics / construction of canals	EN 13362
Characteristics / tunnels and underground structures	EN 13491
Characteristics / liquid waste disposal sites or transfer sites	EN 13492
Characteristics / solid waste storage and disposal sites	EN 13493
Characteristics / transportation infrastructures	EN 15382

BITUMINOUS GEOMEMBRANES

PHYSICAL PROPERTIES

Density	ASTM D792
Mass per Unit Area	ASTM D5261, ASTM D3776, ISO 9864
Thickness	ASTM D5199, ASTM D5147, ISO 9863-1

MECHANICAL PROPERTIES

Wide Width Tensile	ASTM D4595, ISO 10319
Tensile	ASTM D7275, ISO 527, EN 12311-1, NF-P-84-501
Puncture Resistance	ASTM D4833, ASTM D6241, ISO 12236
Seams Shear Resistance	ASTM D7056
Tear Resistance	ASTM D4073, ASTM D1970

GENERAL PROPERTIES

Coefficient of Thermal Expansion	ASTM D696
Low Temperature Flexibility	ASTM D1970

Thermal Stability	ASTM D1970
Water Absorption	ASTM D1970, ASTM D95

PERFORMANCE & DURABILITY

Guidelines for the assessment of durability	ASTM D5819, ISO 13434, EN 12226
Dimensional Stability	ASTM D1204
Hydrostatic Puncture / Truncated Cones	ASTM D5514
Interface Shear Strength	ASTM D5321, ISO 12957-1
Low Temperature Flexibility	ASTM D5147, ASTM D1970
Chemical Compatibility	ASTM D5747, D5322, EPA 9090
Chemical resistance for landfill applications	EN 14414
Resistance to oxidation	ISO 13438, EN 14575
Resistance to leaching	EN 14415
Oven Aging	ASTM D5721
Microbiological Resistance / Soil Burial	ASTM G160, D3083, EN 12225
UV (Fluorescent)	ASTM D7238, G154, EN 12224
UV (Xenon)	ASTM D4798, G155, ISO 4892

BARRIER PROPERTIES

Water Vapor Transmission Rate	ASTM F1249, ASTM E96 (B, BW)

MATERIAL SPECIFICATIONS AND TEST SELECTION GUIDES

Guide for Selection of Rate of Fluid Permeation Through Geomembranes	ASTM D5886
Guide for Prefabricated Bituminous Geomembranes (PBGM)	ASTM D6455
Specification for Bituminous Geomembrane (Canal and Ditch Liner)	ASTM D2643
Characteristics / construction of reservoirs and dams	EN 13361
Characteristics / construction of canals	EN 13362
Characteristics / tunnels and underground structures	EN 13491
Characteristics / liquid waste disposal sites or transfer sites	EN 13492
Characteristics / solid waste storage and disposal sites	EN 13493
Characteristics / transportation infrastructures	EN 15382

GEOTEXTILES

PHYSICAL PROPERTIES

Thickness	ASTM D5199, D1777, ISO 9863-1, CAN/CGSB 148.1-3
Thickness (Each Layer/Multilayered Products)	ISO 9863-2
Thickness Under Load	ISO 9863-1, EN 964-1
Weight	ASTM D5261, D3776, ISO 9864, EN 965, CAN/CGSB 148.1-2

FIBERS / MICROSCOPIC PROPERTIES

Carboxyl End Group	GRI GG7
Crimp	ASTM D3937
Fiber Analysis	ASTM D276, CAN/CGSB 14.1 to 14.18
Fiber Analysis (DSC)	ASTM E793, E794, D3417, D3418
Fiber Length	ASTM D5103
Fibers Breaking Strength	ASTM D3822
Microscopic Analysis (SEM, Optic)	--

MECHANICAL PROPERTIES

Abrasion	ASTM D4886, ISO 13427
Burst (Ball)	ASTM D3787, CAN/CGSB 4.2-11.2
Burst (Mullen)	ASTM D3786, CAN/CGSB 4.2-11.1
Hydrostatic Resistance	ASTM D751A, EN 13562
Puncture	ASTM D4833, FTMS 101C/2065
Puncture (50 mm Probe / 'CBR Test')	ASTM D6241, ISO 12236
Puncture (Dynamic / cone drop)	ISO 13433, EN 918
Pyramid Puncture	ASTM D5495, NF G38- 019
Sewn Seam Strength	ASTM D4884, ISO 10321
Stiffness	ASTM D1388, D5732, CAN/CGSB 148.1-14
Tear	ASTM D4533, D1117, CAN/CGSB 4.2-12.2
Tensile (Grab)	ASTM D4632, D5034, CAN/CGSB 148.1-7.3
Tensile (Strip)	ASTM D5035
Wide Width Tensile	ASTM D4595, ISO 10319

HYDRAULIC PROPERTIES

Opening Size (AOS)	ASTM D4751
Opening Size (Bubble Point)	ASTM F316, SAGEOS GX005
Opening Size (FOS)	NFG 38017, CAN/CGSB 148.1-10
Opening Size (Wet Sieving)	ISO 12956
Number of Constrictions	ASTM D7178
Percent Open Area (POA)	COE CW 22125
Permeability	ASTM D4491, ISO 11058, NFG 38016, CAN/CGSB 148.1-4
Permittivity Under Load	ASTM D5493, ISO 10776
Resistance to Water Penetration	ISO 811, CAN/CGSB 4.2-26.3



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Transmissivity (Radial)	ASTM D6574
Transmissivity	ISO 12958
Water Retention Capacity	SAGEOS GX010
Behavior / Water Supply by Capillarity	SAGEOS GX011
Capillarity	SAGEOS GX012
Water Front Speed (Capillary Mats)	SAGEOS GX013

PERFORMANCE & DURABILITY

Guidelines for the assessment of durability	ASTM D5819, ISO 13434, EN 12226
Asphalt Retention	ASTM D6140
Biological Clogging Resistance	ASTM D1987
Chemical Compatibility	ASTM D6389, D5322, ISO 12960
Chemical resistance for landfill applications	EN 14414
Filtration, suspended solid retention, hanging bag test	ASTM 7880
Gradient Ratio	ASTM D5101, SAGEOS GX006
Hydraulic Conductivity Ratio (Filtration)	ASTM D5567
Hydrostatic Puncture (Large Scale)	ASTM D5514
Installation Damage	ASTM D5818, ISO 10722
Interface Shear Strength	ASTM D5321, ISO 12957-1
Resistance to oxidation	ISO 13438, EN 14575
Outdoor Exposure	ASTM D5970
Silt Fence Efficiency	ASTM D5141
Flow Rate of Water and Suspended Solids from a Geotextile Bag	ASTM D7701
UV (Fluorescent)	ASTM G154, EN 12224
UV (Xenon)	ASTM D4355, G155, ISO 4892

MATERIAL SPECIFICATIONS AND TEST SELECTION GUIDES

Specification for Circular-Knit Geotextile	ASTM D6707
Hybrid Geosynthetic Paving Mat Specification	ASTM D7239
Characteristics required for use in earthworks, foundations and retaining structures	EN13251
Resistance to acid and alkaline liquids	ISO 12960, EN14030
Characteristics required for use in liquid waste containment projects	EN 13265
Chemical resistance for landfill applications	EN 14414

GEONETS AND DRAINAGE PRODUCTS

PHYSICAL PROPERTIES

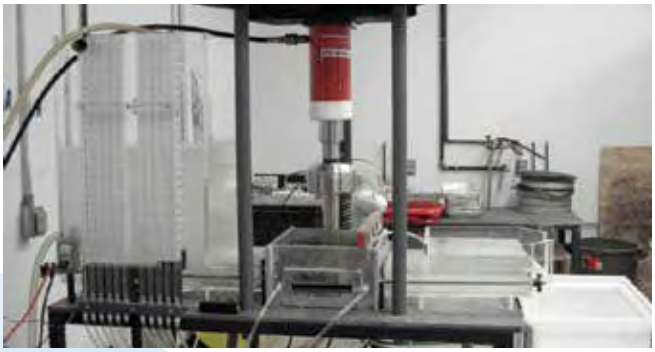
Carbon Black Content	ASTM D1603, ASTM D4218
Density	ASTM D792
Melt Index	ASTM D1238
Thickness	ASTM D5199, D1777, ISO 9863-1
Thickness / Individual layers of multilayered products	ISO 9863-2
Mass per unit area	ASTM D5261, D3776, ISO 9864

MECHANICAL PROPERTIES

Compression	ASTM D6364, D1621, ISO 25619-2
Peel Strength	ASTM D7005, F904, D413, ISO 13426-2
Tensile	ASTM D7179, D5035
WW Tensile	ASTM D4595, ISO 10319
Vertical Compression of Geocomposite Pavement Panel Drains	ASTM D6244
Static puncture test (CBR test)	ISO 12236

HYDRAULIC PROPERTIES

Transmissivity	ASTM D4716, ISO 12958
Vertical Strip Drains in the Crimped Condition	ASTM D6918



PERFORMANCE & DURABILITY

Guidelines for the assessment of durability	ASTM D5819, ISO 13434, EN 12226
Accelerated compressive creep properties	ISO 25619-1, ASTM D7361
Chemical Compatibility	ASTM D6388, D5322, ISO/TR 12960
Chemical resistance for landfill applications	EN 14414
Interface Shear Strength	ASTM D5321, ISO 12957-1 (direct shear), 12957-2 (inclined plane)
Resistance to oxidation	ISO 13438
UV (Fluorescent)	ASTM G154, EN 12224
UV (Xenon)	ASTM D4355, G155, ISO 4892
Vertical Strip Drains testing / Large Scale Consolidation Test	ASTM D7498
Soil burial	ISO 13437
Resistance to oxidation	ISO 13438

MATERIAL SPECIFICATIONS AND TEST SELECTION GUIDES

Prefabricated Vertical Drains (PVD) Guide	ASTM D6917
Edge Drains Specification	ASTM D7001
Acceptance Testing of Geonets and Drainage Geocomposites	ASTM D7273
Design guidances for PVDs	EN-15237



GEOGRIDS

PHYSICAL PROPERTIES

Thickness	ASTM D5947, D5199, D1777, ISO 9863-1
Mass per unit area	ASTM D5261, ISO 9864

MECHANICAL PROPERTIES

Wide Width Tensile Properties	ASTM D4595, D6637(B), ISO 10319
Tensile Strength (Single Rib)	ASTM D6637(A), GRI GG1
Junction Strength	ASTM D7737, GRI GG2
Flexural Stiffness	ASTM D1388, D5732
Flexural Rigidity	ASTM D7748
Torsional Stiffness / Aperture Stability	ASTM WK24635 (draft)

PERFORMANCE & DURABILITY

Carboxyl End Group	GRI GG7, ASTM D7409
Chemical Compatibility	ASTM D5322, D6213, ISO/TR 12960
Chemical resistance for landfill applications	EN 14414
Soil burial	ISO 13437
Resistance to oxidation	ISO 13438
Resistance to hydrolysis	EN 12447
Concrete Blocks Shear Strength	ASTM D6916
Connection Strength	ASTM D6638
Creep Properties	ASTM D5262, ISO 13431
Accelerated Creep	ASTM D6992
Installation Damage	ASTM D5818, ISO 13437
Installation Damage (index)	ISO 10722
Interface Shear Strength	ASTM D5321, ISO 12957-1
Intrinsic Viscosity / Molecular Weight (PET)	ASTM D4603
Pull-Out Resistance	ASTM D6706, GRI GG5
Small-Strain Tensile Properties / In-Air Cyclic Tension Tests	ASTM D7556
UV (Xenon)	ASTM D4355, G155, ISO 4892

DESIGN GUIDANCES

Guidelines for the assessment of durability	ASTM D5819, ISO/TS 13434
Long-term strength of geosynthetics for soil reinforcement	ISO/TR 20432

EROSION CONTROL PRODUCTS

PHYSICAL PROPERTIES

Absorbency	ASTM D1117
Light Penetration	ASTM D6567
Mass	ASTM D6475, D6566
Resiliency	ASTM D6524
Stiffness	ASTM D6575
Thickness	ASTM D6525

MECHANICAL PROPERTIES

Compression	ASTM D6454
Tensile	ASTM D6818

SYNTHETIC TURFS, SPORT SURFACES

PHYSICAL PROPERTIES

Abrasiveness	ASTM F1015
Apparent Density	ASTM D1895 (B)
Component Masses	ASTM D418, D5848
Linear Density	ASTM D1577
Number of Binding Sites	ASTM D418, D5793
Pile Thickness	ASTM D418
Pile Yarn Mass	ASTM D418, D5848
Total Mass	ASTM D418, D5848
Tuft Height	ASTM D418, D5823

MECHANICAL PROPERTIES

Compression Set	ASTM D1667 (suffix B)
Seam Resistance	ASTM D4884, EN 12228
Tear Resistance	ASTM D624
Tensile (Elastomeric Material)	NF EN 12230
Tensile (Grab)	ASTM D1682, D5034
Tensile (Tuft / Yarn)	ASTM D2256, ISO 4919
Tuft Bind Resistance	ASTM D1335

HYDRAULIC PROPERTIES

Water Permeability	ASTM D4491, F1551, DIN 18-035

THERMAL PROPERTIES

DSC Analysis	ASTM E794
Melting point	ASTM D789

FIRE RESISTANCE PROPERTIES

Flammability Tests	ASTM D2859, E648, D4804

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■ Fax: 780 452-9495
■ Web: www.layfieldgroup.com
■ E-Mail: edm@layfieldgroup.com

Cold Weather Seaming Protocols

Welding can be completed in colder temperatures provided some additional procedures are followed and the trial welds (prequalification welds) are performed in the same environment as the main production seams. The trial welds are very important, as they will verify that the welding equipment has been properly set to meet the site and ambient temperature conditions. Below are some of additional guidelines to follow for the various temperature ranges. The onsite superintendent shall also have the experience to determine whether satisfactory seams can be achieved given the weather and site conditions.

Temperatures between 0˚C and -10˚C: The welding procedure on this temperature range is the same as warm weather welding procedures; however you may require slight adjustments to the welding units' temperature and/or speed settings. When the weather is clear and sunny and the wind is minimal, only very slight adjustments may be required, but when it is overcast, windy and cooler considerable adjustments may be required.

Temperatures between -10˚C and -20˚C+: Additional care must be taken to ensure that the welding units are operating properly in the cold and that the welding temperatures and speeds are adjusted to accommodate the colder temperatures. During the seaming operation, the technician will monitor the welding unit to ensure that the set welding speeds and temperatures are maintained throughout the length of the seam. No welding can take place when it is raining, sleeting, snowing and the moisture caused from these conditions cannot be removed to ensure that the seam areas are 100% dry during the seaming procedure. Extra care must be taken when working when wet, snowy or icy conditions prevail as the liner becomes very slippery under these conditions and is a safety concern. Removal of snow and ice can be completed using various types of low impact snow blowers, brushes, or plastic shovels that will have minimal impact on liner itself

Preparation of the Geomembrane Surfaces to be Seamed

• Extra precautions must be made if it is snowing, sleeting or hailing on the geomembrane in the area to be seamed.

• In the area to be seamed, all frost must be removed from the opposing surfaces of the geomembrane sheets in the regions where the actual seaming is to be performed. The residual moisture left after removing frost must be wiped dry. This can prove more difficult to on textured geomembranes where the texturing extends to the roll edges or roll ends.

• The application of heat to remove moisture using a hand held hot air device may be used; however care must be exercised to prevent excessive heat being applied to the liner. It is recommended an assessment is made by performing a trial seam using the same equipment in the exact site and temperature conditions.

• The specific area to be seamed must be free of soil particles and other foreign matter.

• Take measures for thermal fusion welding that the underside of the lower sheet should also be free of frost and moisture so that the lower drive wheels of the device can move freely and do not slip. It may be necessary to use a rub sheet beneath the area being seamed to separate the geomembrane from frozen soil subgrade. Various materials have been used for rub sheets including smooth membranes, smooth films and even certain types of geotextiles.

• For fillet extrusion welding the thermal tacking of the sheets together should proceed as with similar welding at temperatures above freezing.

Thermal Fusion Seaming (e.g., using a hot wedge welding device)

• In general, the rate of seaming, i.e., the speed of the hot wedge device, is usually slower than when seaming at temperatures above 0°C (32°F). Furthermore, the rate should decrease with decreasing sheet temperature.

• Additional trial seams may be required in colder temperatures. These will be performed at the discretion of the supervisor on site.

• Cold temperature seaming may also require more destructive tests on production seams than when welding above freezing. For example, in addition to the CQA plan written around above freezing temperatures, additional destructive seam samples may be taken at the end(s) of each continuous production seams. *Note 3: The actual schedule for destructive test samples is at the discretion of the CQA Engineer.*

Extrusion Fillet Seaming

• The necessary grinding of the geomembrane surfaces in preparation of placing extradite should be no further ahead of the extrusion gun than 20 minutes.

• In general, the rate of seaming, i.e., the speed of travel, is slower than when seaming at temperatures above 0° (32°F). Furthermore, the rate should decrease with decreasing sheet temperatures.

• Additional trial seams may be required in colder temperatures. These will be performed at the discretion of the supervisor on site.

• Cold temperature seaming may also require more destructive tests on production seams than when welding above freezing. For example, in addition to the CQA plan written around above freezing temperatures, additional destructive seam samples may be taken at the end(s) of each continuous production seam. *Note 4: The actual schedule for destructive test samples is at the discretion of the CQA Engineer.*

Seam Testing

• In general, destructive testing of seams (both shear and peel) made in cold temperatures should follow the same protocol and test methods as for temperatures above freezing.

• Seam tests from trial seams should be taken to a field trailer or other heated enclosure to allow the seam to acclimatize to the designated test temperature (20 degrees Celsius) and tested accordingly. However, seam tests from trial seams which are tested with a tensiometer on-site at temperatures less than freezing is sometimes unavoidable. Weather conditions can change often throughout the day, the supervisor and on site engineer can decide to increase trial seems and destructs as deemed necessary.

Rogers, Kate

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Tuesday, October 2, 2018 4:10 PM
To: Dimitroff, Scott; Rogers, Kate
Subject: FW: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

fyi

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Sent: Tuesday, October 2, 2018 4:07 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Hey Troy,

Its hard to say what is riskier. I have asked solmax if they have any recommendations as it is Solmax liner on site. But as far as doing backfill we don't like to see it at any temperature past -20. The biggest risk for leaving this exposed in the Yukon, in my opinion, is depending on how cold it gets and the wind creating some uplift you can get environmental stress cracking which would be a big mess.

I am not in the office right now so Ill see if we have anything for recommendations I can send you in the morning

Regards,

Jason

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Tuesday, October 2, 2018 3:36 PM
To: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Jason:
Thanks. Any thoughts on low temperature limit for placement of the overliner gravel? Is the risk higher if we try to cover in low temps or leave it exposed over winter.?

From: Jason Wheeler <Jason.Wheeler@layfieldgroup.com>
Sent: Tuesday, October 2, 2018 2:50 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Hello Troy,

Please see attached our winter installation procedure

Regards,

Jason

From: Jason Wheeler
Sent: Friday, September 28, 2018 1:15 PM
To: Troy Meyer <TMeyer@bgcengineering.ca>; Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Hello Troy,

I will submit our cold weather installation procedure too you shortly for review.

We are confident that we are able to weld in temperatures below 0 degrees by adjusting our temperatures and speeds accordingly. Please note that preheating the geomembrane or using tents does not work but we will have no issue showing tetra tech and BGC on site with trial welds and seam testing that installation is still possible in cold temperatures

Below is just a quick chart for you information on handling different types materials in relation to the Cold weather deployment

Table1. Cold Temperature Handling Guide

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Regular PVC 20 mil	-26°C, -15°F (D1790)	-5°C, +23°F
Regular PVC 30 mil and up	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 100 30mil (U)	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 250 38mil (S)	-40°C, -40°F (D2136)	-15°C, +5°F
HAZGARD 1000 (S)	-40°C, -40°F (D2136)	-20°C, -4°F
HAZGARD 5000 HT (S)	-30°C, -22°F (D2136))	-10°C, +14°F
HDPE 60mil	-70°C, -94°F (D746)	-25°C, -13°F (Welding Limited)

EPDM 45mil	-45°C, -49°F (D746)	+5°C, +41°F (Issues with sealant tape)

Regards,

Jason Wheeler | Project Manager | Geosynthetics
17720 - 129 Avenue NW | Edmonton, AB T5V 0C4
phone: 780-733-6337 | mobile: 403-470-9123 | www.layfieldgroup.com

---

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Thursday, September 27, 2018 4:46 PM
To: Jean-Francois Maille <jeanfrancoism@jdsmining.ca>; Calvin Goldschmidt <Calving@jdsmining.ca>
Cc: Roy Morlan <RMorlan@bgcengineering.ca>; Roman Bilobrowka <romanb@jdsmining.ca>; Daniel Granda <DGranda@bgcengineering.ca>; Dimitroff, Scott <Scott.Dimitroff@tetratech.com>; Kate.Rogers@tetratech.com; Chad Messervey <Chad.Messervey@layfieldgroup.com>; Jason Wheeler <Jason.Wheeler@layfieldgroup.com>; Elliot Matthews <EMatthews@bgcengineering.ca>
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions

Please see attached.
Thanks.

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Metric	1007064
SPECIFICATIONS				
Nominal Thickness	-	-	mm	2.00
Thickness (min. avg.)	ASTM D-5994	Every roll	mm	1.90
Lowest ind. for 8 out of 10 values			mm	1.80
Lowest ind. for 10 out of 10 values			mm	1.70
Asperity Height (min. avg.) (3)	ASTM D-7466	Every roll	mm	0.50
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≤ 0.939
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 / Cat. 2
OIT - standard (avg.)	ASTM D-3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Break			kN/m	31
Elongation at Break			%	400
2% Modulus (max.)	ASTM D-5323	Per formulation	kN/m	840
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	N	220
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	N	500
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
STD OIT (min. avg.)	ASTM D-3895		%	35
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Res. - % retained after 1600 hr	ASTM D-7238	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	35
Low Temperature Brittleness	ASTM D-746	Certified	°C	- 77
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		m	6.80
Roll Dimension - Length	-		m	121.9
Area (Surface/Roll)	-		m²	828.9

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. ASTM D7466 is identical to GRI-GM12.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
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Title: Cold Temp Handling Guide

Summary: **Although it is preferable to avoid installing lining materials in cold temperatures, occasionally it can not be avoided. Cold weather usually requires a modification of installation techniques, or may involve substitution of materials to ones which have superior cold weather handling capabilities.**

Details:



Plastic lining materials are designed for installation in moderate temperatures. Most lining materials become rigid and brittle in the cold climates and seaming, handling, and testing require additional care. In most cases it is better to wait for a break in the weather rather than to attempt an installation in cold/poor weather. If site conditions or construction schedules require installation in cold temperatures please take into account the information in this Tech Note, and call Layfield prior to proceeding.

There are a number of complications that may result from installing geomembrane in cold weather. First of all, most lining materials become progressively stiffer and become much more difficult to handle. It becomes more difficult to place the liners over complex subgrades and attaching stiff liners to pipes and appurtenances can be very difficult if not impossible.

Lining materials that are designed to be backfilled often have low temperature handling restrictions. A regular flexible PVC lining material may crack if folded and impacted at less than -10°C (0°F). This PVC lining material was designed to be backfilled, and relies on the backfill to prevent movement at very low temperatures. Once backfilled, the lining is prevented from flexing and much lower temperatures can be handled. HDPE is a very difficult to handle in cold weather and normally has a has a practical welding restriction of -25°C (-13°F). Other materials with a low temperature handling restriction are Polyurethane (ester based types) and the unsupported grade of Arctic Liner (U). A practical guide to the handling of lining materials is contained in Table 1.

Table1. Cold Temperature Handling Guide

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Regular PVC 20 mil	-26°C, -15°F (D1790)	-5°C, +23°F

Regular PVC 30 mil and up	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 100 30mil (U)	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 250 38mil (S)	-40°C, -40°F (D2136)	-15°C, +5°F
HAZGARD 1000 (S)	-40°C, -40°F (D2136)	-20°C, -4°F
HAZGARD 5000 HT (S)	-30°C, -22°F (D2136))	-10°C, +14°F
HDPE 60mil	-70°C, -94°F (D746)	-25°C, -13°F (Welding Limited)
EPDM 45mil	-45°C, -49°F (D746)	+5°C, +41°F (Issues with sealant tape)

Some lining materials may have been designed to be left exposed but may not be appropriate to your location. Exposed linings employing some materials may not be practical in northern Canada, Alaska, the Prairies, the Canadian Shield, and many parts of the northern Midwest States. **As a general rule of thumb, a liner should not be left exposed where the temperature can be expected to go below its practical handling temperature.**

All lining materials are tested for cold temperature performance. The tests used vary by material, each type of material may have a different test. Only when we gain experience by handling lining materials in the field can we gauge how the test values relate to field results. There are many problems associated with field installations that will affect the comparison between the tested value and field performance. One of the most dramatic changes is caused by solar heating. Even on a -30°C (-20°F) day dark lining materials can reach a surface temperature of over +30°C (+80°F) through solar heating. By waiting until later in the day, a liner can often be placed in otherwise prohibitive temperatures. Cloud cover, wind, snow, and ice can all reduce the ability to handle the liner in cold temperatures.

Seaming of lining materials in adverse weather conditions can be a real challenge. Solvent bonding techniques used for PVC and Arctic Liner welding cease to work at temperatures below +10°C (+45°F). At temperatures below this the solvent does not evaporate fast enough to create a good bond. Application of heat to a solvent bonded seam until the liner is warm to the touch will normally create a good seam (Caution; Solvents are inflammable and extreme care should be taken whenever heat is applied in the vicinity of solvents). Glues and tapes used for repairs are also subject to cold temperature limitations and may not work at less than +10°C (45°F).

Heat welded seaming of lining materials can take place at much lower temperatures. In cold weather installations the presence of moisture in the form of snow, frost, or ice is a bigger problem than actual ambient temperature. Most heat welding techniques do not make good welds when moisture in present. The material most sensitive to this is HDPE which must be completely dry before welding begins. In practical application this usually means waiting until the sun has driven the frost off the liner later in the day before welding. Extreme cold weather can also lead to problems with HDPE in that the seams can be cooled too quickly which can lead to internal stresses in the seams. HDPE installations are typically limited to temperatures above -25°C (-13°F) and can usually only proceed on sunny days at these temperatures.

Heat welding of Polyurethane, Arctic Liner (U) and (S), XR-5, Hypalon, and and Polypropylenes can take place at lower temperatures than gluing or solvent bonding. Usually a hand-held hot air welder is used, and frost and moisture are driven off with the hot air as the weld is made. Cold temperature welding is normally limited to repairs and short joints because it is a slow and labor intensive process.

Probably the most important practical limit to cold temperature installations is the requirement that backfill be finely divided and free flowing. Use of backfill that is frozen, or that contains lumps of frozen fill or ice is not recommended as it can cause damage to the liner. Often it is the freezing of the backfill which brings the winter lining project to a halt. The use of tarpaulins and heaters to keep backfill dry and unfrozen may help extend the temperature range of the project.

In placing backfill it is important to remember that the lining material becomes more sensitive as the temperature drops. Extreme care needs to be taken in placing backfill at low temperatures so that the fill is not dropped, or otherwise permitted to “shock” the liner. Dumping the backfill on an area off the liner and then rolling into place is the preferred method. Please see the Layfield's Tech Note on Backfill for further details.

If installation must go ahead in extreme cold then there are a number of techniques that may help. First of all, keep the liner panel warm until the moment before installation. Keep the panel in a heated building or under a tarpaulin with a heater. Use a heater directed at the panel to keep the liner material a few degrees above the air temp. Do not attempt to place the liner on an overcast day or on a day with extremely high wind chills. Heat your backfill so that it is warm and free flowing. The final technique to install liners in extreme cold weather is to use a low temp material. Table 2 contains a list of materials that are suitable for extended cold temp installation.

Table 2. Low Temperature Materials

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Arctic Liner**NT**® 30mil (U)	-50°C, -58°F (D1790)	-30°C, -22°F

Reinforced Polyethylene (RPE)	-55°C, -67°F (D2136)	-40°C, -40°F
Enviro Liner 20, 30mil (U)	-40°C, -40°F (D746)	-30°C, -20°F
GeoFlex (U)	-40°C, -40°F (D1790)	-30°C, -22°F
HAZGARD 535	-40°C, -40°F (D746)	-30°C, -22°F

Rogers, Kate

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Wednesday, October 10, 2018 3:09 PM
To: Chris Copley; Jean-Francois Maille; Calvin Goldschmidt; Dean Serelo
Cc: mayranto@vitgoldcorp.com; Jason Wheeler; Chad Messervey; Dimitroff, Scott; Rogers, Kate; Daniel Granda; Roy Morlan
Subject: Guidance for cold weather liner covering
Attachments: 2mm LLDPE DST (RT) Solmax data sheet.pdf; Cold Temp Handling Guide - Layfield.pdf

Chris:
Further to our discussion this morning.
The literature says that LLDPE geomembrane remains flexible (retains full ductility) at temperatures well below freezing to about -25°C with a low temperature brittleness of -70°C according to ASTM D-746. This is consistent with Layfield's cold temp handling guide (attached) sets the handling limit for HDPE at -25°C, which also states "*As a general rule of thumb, a liner should not be left exposed where the temperature can be expected to go below its practical handling temperature*." I would like to hear Layfield's opinion on the risks of leaving the LLDPE liner exposed and the testing recommended to "re-approve" the liner next year if we leave it exposed.

Our current guidance in RFI016: *A sheet temperature of minus 10 degrees C (14 degrees F) is the lower limit that ODF shall be placed on the geomembrane unless it is shown otherwise to the satisfaction of the Owner's Representative.* I suggest that we develop a field method for evaluating the lower temp limit to place ODF without damage to the liner. I believe that the movement of liner wrinkles ahead of the ODF placement will be the main concern. Perhaps we can use a simple test of bending a scrap piece of liner that has the same sheet temp as the liner in the ODF placement area? I'm open to suggestions.

Troy

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Metric	1007064
SPECIFICATIONS				
Nominal Thickness	-	-	mm	2.00
Thickness (min. avg.)	ASTM D-5994	Every roll	mm	1.90
Lowest ind. for 8 out of 10 values			mm	1.80
Lowest ind. for 10 out of 10 values			mm	1.70
Asperity Height (min. avg.) (3)	ASTM D-7466	Every roll	mm	0.50
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≤ 0.939
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 / Cat. 2
OIT - standard (avg.)	ASTM D-3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Break			kN/m	31
Elongation at Break			%	400
2% Modulus (max.)	ASTM D-5323	Per formulation	kN/m	840
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	N	220
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	N	500
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
STD OIT (min. avg.)	ASTM D-3895		%	35
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Res. - % retained after 1600 hr	ASTM D-7238	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	35
Low Temperature Brittleness	ASTM D-746	Certified	°C	- 77
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		m	6.80
Roll Dimension - Length	-		m	121.9
Area (Surface/Roll)	-		m²	828.9

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
3. ASTM D7466 is identical to GRI-GM12.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
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Title: Cold Temp Handling Guide

Summary: **Although it is preferable to avoid installing lining materials in cold temperatures, occasionally it can not be avoided. Cold weather usually requires a modification of installation techniques, or may involve substitution of materials to ones which have superior cold weather handling capabilities.**

Details:



Plastic lining materials are designed for installation in moderate temperatures. Most lining materials become rigid and brittle in the cold climates and seaming, handling, and testing require additional care. In most cases it is better to wait for a break in the weather rather than to attempt an installation in cold/poor weather. If site conditions or construction schedules require installation in cold temperatures please take into account the information in this Tech Note, and call Layfield prior to proceeding.

There are a number of complications that may result from installing geomembrane in cold weather. First of all, most lining materials become progressively stiffer and become much more difficult to handle. It becomes more difficult to place the liners over complex subgrades and attaching stiff liners to pipes and appurtenances can be very difficult if not impossible.

Lining materials that are designed to be backfilled often have low temperature handling restrictions. A regular flexible PVC lining material may crack if folded and impacted at less than -10°C (0°F). This PVC lining material was designed to be backfilled, and relies on the backfill to prevent movement at very low temperatures. Once backfilled, the lining is prevented from flexing and much lower temperatures can be handled. HDPE is a very difficult to handle in cold weather and normally has a has a practical welding restriction of -25°C (-13°F). Other materials with a low temperature handling restriction are Polyurethane (ester based types) and the unsupported grade of Arctic Liner (U). A practical guide to the handling of lining materials is contained in Table 1.

Table1. Cold Temperature Handling Guide

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Regular PVC 20 mil	-26°C, -15°F (D1790)	-5°C, +23°F

Regular PVC 30 mil and up	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 100 30mil (U)	-30°C, -22°F (D1790)	-5°C, +23°F
HAZGARD 250 38mil (S)	-40°C, -40°F (D2136)	-15°C, +5°F
HAZGARD 1000 (S)	-40°C, -40°F (D2136)	-20°C, -4°F
HAZGARD 5000 HT (S)	-30°C, -22°F (D2136))	-10°C, +14°F
HDPE 60mil	-70°C, -94°F (D746)	-25°C, -13°F (Welding Limited)
EPDM 45mil	-45°C, -49°F (D746)	+5°C, +41°F (Issues with sealant tape)

Some lining materials may have been designed to be left exposed but may not be appropriate to your location. Exposed linings employing some materials may not be practical in northern Canada, Alaska, the Prairies, the Canadian Shield, and many parts of the northern Midwest States. **As a general rule of thumb, a liner should not be left exposed where the temperature can be expected to go below its practical handling temperature.**

All lining materials are tested for cold temperature performance. The tests used vary by material, each type of material may have a different test. Only when we gain experience by handling lining materials in the field can we gauge how the test values relate to field results. There are many problems associated with field installations that will affect the comparison between the tested value and field performance. One of the most dramatic changes is caused by solar heating. Even on a -30°C (-20°F) day dark lining materials can reach a surface temperature of over +30°C (+80°F) through solar heating. By waiting until later in the day, a liner can often be placed in otherwise prohibitive temperatures. Cloud cover, wind, snow, and ice can all reduce the ability to handle the liner in cold temperatures.

Seaming of lining materials in adverse weather conditions can be a real challenge. Solvent bonding techniques used for PVC and Arctic Liner welding cease to work at temperatures below +10°C (+45°F). At temperatures below this the solvent does not evaporate fast enough to create a good bond. Application of heat to a solvent bonded seam until the liner is warm to the touch will normally create a good seam (Caution; Solvents are inflammable and extreme care should be taken whenever heat is applied in the vicinity of solvents). Glues and tapes used for repairs are also subject to cold temperature limitations and may not work at less than +10°C (45°F).

Heat welded seaming of lining materials can take place at much lower temperatures. In cold weather installations the presence of moisture in the form of snow, frost, or ice is a bigger problem than actual ambient temperature. Most heat welding techniques do not make good welds when moisture in present. The material most sensitive to this is HDPE which must be completely dry before welding begins. In practical application this usually means waiting until the sun has driven the frost off the liner later in the day before welding. Extreme cold weather can also lead to problems with HDPE in that the seams can be cooled too quickly which can lead to internal stresses in the seams. HDPE installations are typically limited to temperatures above -25°C (-13°F) and can usually only proceed on sunny days at these temperatures.

Heat welding of Polyurethane, Arctic Liner (U) and (S), XR-5, Hypalon, and and Polypropylenes can take place at lower temperatures than gluing or solvent bonding. Usually a hand-held hot air welder is used, and frost and moisture are driven off with the hot air as the weld is made. Cold temperature welding is normally limited to repairs and short joints because it is a slow and labor intensive process.

Probably the most important practical limit to cold temperature installations is the requirement that backfill be finely divided and free flowing. Use of backfill that is frozen, or that contains lumps of frozen fill or ice is not recommended as it can cause damage to the liner. Often it is the freezing of the backfill which brings the winter lining project to a halt. The use of tarpaulins and heaters to keep backfill dry and unfrozen may help extend the temperature range of the project.

In placing backfill it is important to remember that the lining material becomes more sensitive as the temperature drops. Extreme care needs to be taken in placing backfill at low temperatures so that the fill is not dropped, or otherwise permitted to “shock” the liner. Dumping the backfill on an area off the liner and then rolling into place is the preferred method. Please see the Layfield's Tech Note on Backfill for further details.

If installation must go ahead in extreme cold then there are a number of techniques that may help. First of all, keep the liner panel warm until the moment before installation. Keep the panel in a heated building or under a tarpaulin with a heater. Use a heater directed at the panel to keep the liner material a few degrees above the air temp. Do not attempt to place the liner on an overcast day or on a day with extremely high wind chills. Heat your backfill so that it is warm and free flowing. The final technique to install liners in extreme cold weather is to use a low temp material. Table 2 contains a list of materials that are suitable for extended cold temp installation.

Table 2. Low Temperature Materials

Material	Tested Value (ASTM Method)	Practical Low Temp. Handling Limit
Arctic Liner**NT**® 30mil (U)	-50°C, -58°F (D1790)	-30°C, -22°F

Reinforced Polyethylene (RPE)	-55°C, -67°F (D2136)	-40°C, -40°F
Enviro Liner 20, 30mil (U)	-40°C, -40°F (D746)	-30°C, -20°F
GeoFlex (U)	-40°C, -40°F (D1790)	-30°C, -22°F
HAZGARD 535	-40°C, -40°F (D746)	-30°C, -22°F

Rogers, Kate

From: Troy Meyer <TMeyer@bgcengineering.ca>
Sent: Thursday, September 27, 2018 3:46 PM
To: Jean-Francois Maille; Calvin Goldschmidt
Cc: Roy Morlan; Roman Bilobrowka; Daniel Granda; Dimitroff, Scott; Rogers, Kate; Chad Messervey; Jason Wheeler; Elliot Matthews
Subject: RE: BGC-RFI-016 - Geomembrane and ODF Placement in Freezing Conditions
Attachments: BGC-RFI-016.pdf

Please see attached.
Thanks.

BGC ENGINEERING INC.
per:

Troy Meyer, P.Eng., P.E.
Principal Geotechnical Engineer

BGC ENGINEERING INC.
447 E. Main St.
Montrose, Colorado
Cell Phone: (970) 901-2263
www.bgcengineering.ca

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APPENDIX C

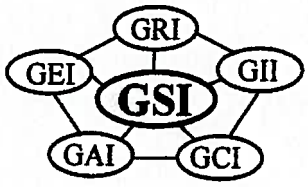
GEOMEMBRANE REFERENCE MATERIAL

GRI Test Method GM19

"Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes"

EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

Geosynthetic Institute
475 Kedron Avenue
Folsom, PA 19033-1208 USA
TEL (610) 522-8440
FAX (610) 522-8441



Revision 6: Oct. 3, 2011
Revision schedule is on pg. 12

GRI Test Method GM19*

Standard Specification for

Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes

This specification was developed by the Geosynthetic Research Institute (GRI), with the cooperation of the member organizations for general use by the public. It is completely optional in this regard and can be superseded by other existing or new specifications on the subject matter in whole or in part. Neither GRI, the Geosynthetic Institute, nor any of its related institutes, warrant or indemnifies any materials produced according to this specification either at this time or in the future.

1. Scope

1.1 This specification addresses the required seam strength and related properties of thermally bonded polyolefin geomembranes; in particular, high density polyethylene (HDPE), linear low density polyethylene both nonreinforced (LLDPE) and scrim reinforced (LLDPE-R) and flexible polypropylene both nonreinforced (fPP) and scrim reinforced (fPP-R).

1.2 Numeric values of seam strength and related properties are specified in both shear and peel modes.

Note 1: This specification does not address the test method details or specific testing procedures. It refers to the relevant ASTM test methods where applicable.

1.3 The thermal bonding methods focused upon are hot wedge (single and dual track) and extrusion fillet.

*This GRI standard is developed by the Geosynthetic Research Institute through consultation and review by the member organizations. This specification will be reviewed at least every 2-years, or on an as-required basis. In this regard it is subject to change at any time. The most recent revision date is the effective version.

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Note 2: Other acceptable, but less frequently used, methods of seaming are hot air and ultrasonic methods. They are inferred as being a subcategory of hot wedge seaming.

1.4 This specification also suggests the distance between destructive seam samples to be taken in the field, i.e., the sampling interval. However, project-specific conditions will always prevail in this regard.

1.5 This specification is only applicable to laboratory testing.

1.6 This specification does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards

D751 Standard Test Methods for Coated Fabrics
D6392 Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods

2.2 EPA Standards

EPA 600/2.88/052 (NTIS PB-89-129670)
Lining of Waste Containment and Other Containment Facilities

2.3 GRI Standards

GM13 Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes
GM14 Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using the Method of Attributes
GM17 Test Properties and Testing Frequency for Linear Low Density Polyethylene (LLDPE) Smooth and Textured Geomembranes
GM18 Test Properties and Testing Frequency for Flexible Polypropylene (fPP and fPP-R) Geomembranes
GM20 Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using Control Charts
GM25 Test Property and Testing Frequency for Scrim Reinforced Linear Low Density Polyethylene Geomembranes

3. Definition

3.1 Geomembrane, n – An essentially impermeable geosynthetic composed of one or more synthetic sheets used for the purpose of liquid, gas or solid containment.

3.2 Hot Wedge Seaming – A thermal technique which melts the two opposing geomembrane surfaces to be seamed by running a hot metal wedge or knife between them. Pressure is applied to the top or bottom geomembrane, or both, to form a continuous bond. Seams of this type can be made with dual bond tracks separated by a nonbonded gap. These seams are referred to as dual hot wedge seams or double-track seams.

3.3 Hot Air Seaming – This seaming technique introduces high-temperature air or gas between two geomembrane surfaces to facilitate localized surface melting. Pressure is applied to the top or bottom geomembrane, forcing together the two surfaces to form a continuous bond.

3.4 Ultrasonic Seaming - A thermal technique which melts the two opposing geomembrane surfaces to be seamed by running a ultrasonically vibrated metal wedge or knife between them. Pressure is applied to the top or bottom geomembrane, or both, to form a continuous bond. Some seams of this type are made with dual bond tracks separated by a nonbonded gap. These seams are referred to as dual-track seams or double-track seams.

3.5 Extrusion Fillet Seaming – This seaming technique involves extruding molten resin at the edge of an overlapped geomembrane on another to form a continuous bond. A depreciated method called "extrusion flat" seaming extrudes the molten resin between the two overlapped sheets. In all types of extrusion seaming the surfaces upon which the molten resin is applied must be suitably prepared, usually by a slight grinding or buffing.

4. Significance and Use

4.1 The various methods of field fabrication of seams in polyolefin geomembranes are covered in existing ASTM standards mentioned in the referenced document section. What is not covered in those documents is the numeric values of strength and related properties that the completed seam must meet, or exceed. This specification provides this information insofar as minimum, or maximum, property values are concerned when the field fabricated seams are sampled and laboratory tested in shear and peel. The specification also provides guidance as to what spacing intervals the samples should be taken at typical field installation projects.

5. Sample and Specimen Preparation

5.1 The spacing for taking field seam samples for destructive testing is to be 1 per 500 feet (1 per 150 m) of seam length, or as by directed by the construction quality

assurance inspector. As the project continues and data is accumulated, however, this sampling interval should be varied according to the procedures set forth in either GRI-GM14 or GRI-GM20. Following this procedure three different situations can result.

5.1.1 Good seaming with fewer rejected test results than the preset historic average can result in a sequential increase in the spacing interval, i.e., one per greater than 500 ft. (one per greater than 150 m).

5.1.2 Poor seaming with more rejected test results than the preset historic average can result in a sequential decrease in the spacing interval, i.e., one per less than 500 ft. (one per less than 150 m).

5.1.3 Average seaming with approximately the same test results as the preset historic average will result in the spacing interval remaining the same, i.e., one per 500 ft. (one per 150 m).

Note 3: The method of attributes in GRI-GM14 or the method of control charts in GRI-GM20 are two of various statistical strategies that might be used to vary sampling frequency.

5.2 The size of field seam samples is to be according to the referenced test method, e.g., ASTM D6392 or site-specific CQA plan.

5.3 The individual test specimens taken from the field seam samples are to be tested according to the referenced test method, i.e., ASTM D6392 for HDPE, LLDPE and fPP, and ASTM D751 (modified to a 150 mm + seam width gage length) for fPP-R. The specimens are to be conditioned prior to testing according to these same test methods and evaluated accordingly.

6. Assessment of Seam Test Results

6.1 HDPE seams – For HDPE seams (both smooth and textured), the strength of four out of five 1.0 inch (25 mm) wide strip specimens in shear should meet or exceed the values given in Tables 1(a) and 1(b). The fifth must meet or exceed 80% of the given values. In addition, the shear percent elongation, calculated as follows, should exceed the values given in Tables 1(a) and 1(b):

$$E = \frac{L}{L_o}(100) \qquad (1)$$

where

E = elongation (%)
L = extension at end of test (in. or mm)
L_o = original average length (usually 1.0 in. or 25 mm)

Note 4: The assumed gage length is considered to be the unseamed sheet material on either side of the welded area. It generally

will be 1.0 in. (25 mm) from the edge of the seam to the grip face.

For HDPE seams (both smooth and textured), the strength of four out of five 1.0 in. (25 mm) wide strip specimens tested in peel should meet or exceed the values given in Tables 1(a) and 1(b). The fifth must meet or exceed 80% of the given values.

In addition, the peel separation (or incursion) should not exceed the values given in Tables 1(a) and 1(b). The value shall be based on the proportion of area of separated bond to the area of the original bonding as follows:

$$S = \frac{A}{A_o}(100) \qquad (2)$$

where

S = separation (%)
A = average area of separation, or incursion (in^2 or mm^2)
A_0 = original bonding area (in^2 or mm^2)

Note 5: The area of peel separation can occur in a number of nonuniform patterns across the seam width. The estimated dimensions of this separated area is visual and must be done with care and concern. The area must not include squeeze-out which is part of the welding process.

Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in ASTM D6392 (in this regard, SIP is an acceptable break code);

Hot Wedge: AD and AD-Brk > 25%
Extrusion Fillet: AD1, AD2
Exception: AD-WLD (unless strength is achieved)

Note 6: Separation-in-plane (SIP) is a locus-of-break where the failure surface propagates within one of the seamed sheets during destructive testing (usually in the peel mode). It is not merely a surface skin effect producing a few ductile fibrils (sometimes called ductile drawdown). SIP is acceptable if the required strength, shear elongation and peel separation criteria are met.

6.2 LLDPE seams – For LLDPE seams (smooth, textured and scrim reinforced), the strength of four out of five 1.0 in. (25 mm) wide strip specimens in shear should meet or exceed the values given in Tables 2(a) through 2(d). The fifth must meet or exceed 80% of the given values. Note that the unreinforced specimens are 1.0 in. (25 mm) wide strips and the scrim reinforced specimens are 4.0 in. (100 mm) wide

grab tests. In addition, the shear percent elongation, calculated as follows, should exceed the values given in Tables 2(a) through 2(d).

$$E = \frac{L}{L_o}(100) \qquad (1)$$

where
E = elongation (%)
L = extension at end of test (in. or mm)
L_o = original average length (usually 1.0 in. or 25 mm)

Note 4: The assumed gage length is considered to be the unseamed sheet material on either side of the welded area. It generally will be 1.0 in. (25 mm) from the edge of the seam to the grip face.

Shear elongation is not relevant to scrim reinforced geomembranes and as such is listed as "not applicable" in Tables 2 (c) and (d).

For LLDPE seams (smooth, textured and scrim reinforced), the strength of four out of five 1.0 in. (25 mm) wide strip specimens tested in peel should meet or exceed the values given in Tables 2(a) through 2(d). The fifth must meet or exceed 80% of the given values.

In addition, the peel separation (or incursion) should not exceed the values given in Tables 2(a) through 2(d). The value shall be based on the proportion of area of separated bond to the area of the original bonding as follows:

$$S = \frac{A}{A_o}(100) \qquad (2)$$

where

S = separation (%)
A = average depth of separation, or incursion ($in.^2$ or mm^2)
A_0 = original bonding distance ($in.^2$ or mm^2)

Note 5: The area of peel separation can occur in a number of nonuniform patterns across the seam width. The estimated dimensions of this separated area is visual and must be done with care and concern. The area must not include squeeze-out which is part of the welding process.

Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in ASTM D6392 (in this regard, SIP is an acceptable break code);

Hot Wedge: AD and AD-Brk > 25%
Extrusion Fillet: AD1, AD2
Exception: AD-WLD (unless strength is achieved)

Note 6: Separation-in-plane (SIP) is a locus-of-break where the failure surface propagates within one of the seamed sheets during destructive testing (usually in the peel mode). It is not merely a surface skin effect producing a few ductile fibrils (sometimes called ductile drawdown). SIP is acceptable if the required strength, shear elongation and peel separation criteria are met.

6.3 fPP Seams – For fPP seams (both nonreinforced and scrim reinforced), the strength of four out of five specimens in shear should meet or exceed the values given in Tables 3(a) and 3(b). The fifth must meet or exceed 80% of the given values. Note that the unreinforced specimens are 1.0 in. (25 mm) wide strips and the scrim reinforced specimens are 4.0 in. (100 mm) wide grab tests. In addition, the shear percent elongation on the unreinforced specimens, calculated as follows, should exceed the values given in Tables 3(a) and 3(b).

$$E = \frac{L}{L_o}(100) \qquad (1)$$

where
E = elongation (%)
L = extension at end of test (in. or mm)
L_o = original gauge length (usually 1.0 in. or 25 mm)

Note 4: The assumed gage length is considered to be the unseamed sheet material on either side of the welded area. It generally will be 1.0 in. (25 mm) from the edge of the seam to the grip face.

Shear elongation is not relevant to scrim reinforced geomembranes and as such is listed as "not applicable" in Tables 3(a) and 3(b).

For fPP seams (both nonreinforced and scrim reinforced), the strength of four out of five specimens in peel should meet or exceed the values given in Tables 3(a) and 3(b). The fifth must meet or exceed 80% of the given values. Note that the unreinforced specimens are 1.0 in. (25 mm) wide strips and the scrim reinforced specimens are grab tests. In addition, the peel percent separation (or incursion) should not exceed the values given in Tables 3(a) and 3(b). The values should be based on the proportion of area of separated bond to the area of the original bonding as follows.

$$S = \frac{A}{A_o}(100) \qquad (2)$$

where

S = separation in (%)
A = average depth of separation, or incursion (in.^{2} or mm^2)
A_o = original bonding distance (in.^{2} or mm^2)

Note 5: The area of peel separation can occur in a number of nonuniform patterns across the seam width. The estimated dimensions of this separated area is visual and must be done with care and concern. The area must not include squeeze-out which is part of the welding process.

Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in ASTM D6392 (in this regard, SIP is an acceptable break code);

Hot Wedge: AD and AD-Brk > 25%
Extrusion Fillet: AD1, AD2
Exception: AD-WLD (unless strength is achieved)

Note 6: Separation-in-plane (SIP) is a locus-of-break where the failure surface propagates within one of the seamed sheets during destructive testing (usually in the peel mode). It is not merely a surface skin effect producing a few ductile fibrils (sometimes called ductile drawdown). SIP is acceptable if the required strength, shear elongation and peel separation criteria are met.

7. Retest and Rejection

7.1 If the results of the testing of a sample do not conform to the requirements of this specification, retesting to determine conformance or rejection should be done in accordance with the construction quality control or construction quality assurance plan for the particular site under construction.

8. Certification

8.1 Upon request of the construction quality assurance officer or certification engineer, an installer's certification that the geomembrane was installed and tested in accordance with this specification, together with a report of the test results, shall be furnished at the completion of the installation.

Table 1(a) – Seam Strength and Related Properties of Thermally Bonded **Smooth and Textured** High Density Polyethylene (HDPE) Geomembranes **(English Units)**

Geomembrane Nominal Thickness	30 mils	40 mils	50 mils	60 mils	80 mils	100 mils	120 mils
Hot Wedge Seams[1]							
shear strength[2], lb/in.	57	80	100	120	160	200	240
shear elongation at break[3], %	50	50	50	50	50	50	50
peel strength[2], lb/in.	45	60	76	91	121	151	181
peel separation, %	25	25	25	25	25	25	25
Extrusion Fillet Seams							
shear strength[2], lb/in.	57	80	100	120	160	200	240
shear elongation at break[3], %	50	50	50	50	50	50	50
peel strength[2], lb/in.	39	52	65	78	104	130	156
peel separation, %	25	25	25	25	25	25	25

Notes for Tables 1(a) and 1(b):

1. Also for hot air and ultrasonic seaming methods
2. Value listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing

Table 1(b) – Seam Strength and Related Properties of Thermally Bonded **Smooth and Textured** High Density Polyethylene (HDPE) Geomembranes **(S.I. Units)**

Geomembrane Nominal Thickness	0.75 mm	1.0 mm	1.25 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm
Hot Wedge Seams[1]							
shear strength[2], N/25 mm.	250	350	438	525	701	876	1050
shear elongation at break[3], %	50	50	50	50	50	50	50
peel strength[2], N/25 mm	197	263	333	398	530	661	793
peel separation, %	25	25	25	25	25	25	25
Extrusion Fillet Seams							
shear strength[2], N/25 mm	250	350	438	525	701	876	1050
shear elongation at break[3], %	50	50	50	50	50	50	50
peel strength[2], N/25 mm	170	225	285	340	455	570	680
peel separation, %	25	25	25	25	25	25	25

Table 2(a) – Seam Strength and Related Properties of Thermally Bonded **Smooth and Textured** Linear Low Density Polyethylene (LLDPE) Geomembranes (English Units)

Geomembrane Nominal Thickness	20 mils	30 mils	40 mils	50 mils	60 mils	80 mils	100 mils	120 mils
Hot Wedge Seams[1]								
shear strength[2], lb/in.	30	45	60	75	90	120	150	180
shear elongation[3], %	50	50	50	50	50	50	50	50
peel strength[2], lb/in.	25	38	50	63	75	100	125	150
peel separation, %	25	25	25	25	25	25	25	25
Extrusion Fillet Seams								
shear strength[2], lb/in.	30	45	60	75	90	120	150	180
shear elongation[3], %	50	50	50	50	50	50	50	50
peel strength[2], lb/in.	22	34	44	57	66	88	114	136
peel separation, %	25	25	25	25	25	25	25	25

Notes for Tables 2(a) and 2(b):

1. Also for hot air and ultrasonic seaming methods
2. Values listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing

Table 2(b) – Seam Strength and Related Properties of Thermally Bonded **Smooth and Textured** Linear Low Density Polyethylene (LLDPE) Geomembranes (S.I. Units)

Geomembrane Nominal Thickness	0.50 mm	0.75 mm	1.0 mm	1.25 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm
Hot Wedge Seams[1]								
shear strength[2], N/25 mm	131	197	263	328	394	525	657	788
shear elongation[3], %	50	50	50	50	50	50	50	50
peel strength[2], N/25 mm	109	166	219	276	328	438	547	657
peel separation, %	25	25	25	25	25	25	25	25
Extrusion Fillet Seams								
shear strength[2], N/25 mm	131	197	263	328	394	525	657	788
shear elongation[3], %	50	50	50	50	50	50	50	50
peel strength[2], N/25 mm	95	150	190	250	290	385	500	595
peel separation, %	25	25	25	25	25	25	25	25

Table 2(c) – Seam Strength and Related Properties of Thermally Bonded **Scrim Reinforced** Linear Low Density Polyethylene (LLDPE-R) Geomembranes (English Units)

Geomembrane Nominal Thickness	36 mil[4]	45 mil[4]
Hot Wedge Seams[1]		
shear strength[2], lb	200	200
shear elongation[3], %	n/a	n/a
peel strength[2], lb	20	20
peel separation, %	n/a	n/a
Extrusion Fillet Seams		
shear strength[2], lb	200	200
shear elongation[3], %	n/a	n/a
peel strength[2], lb	20	20
peel separation, %	n/a	n/a

1. Also for hot air and ultrasonic seaming methods
2. Values listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing
4. Values are based on grab tensile strength and elongation per D751 for laboratory tested specimens

Table 2(d) – Seam Strength and Related Properties of Thermally Bonded **Scrim Reinforced** Linear Low Density Polyethylene (LLDPE-R) Geomembranes (S.I. Units)

Geomembrane Nominal Thickness	36 mil[4]	45 mil[4]
Hot Wedge Seams[1]		
shear strength[2], N	890	890
shear elongation[3], %	n/a	n/a
peel strength[2], N	90	90
peel separation, %	n/a	n/a
Extrusion Fillet Seams		
shear strength[2], N	890	890
shear elongation[3], %	n/a	n/a
peel strength[2], N	90	90
peel separation, %	n/a	n/a

1. Also for hot air and ultrasonic seaming methods
2. Values listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing
4. Values are based on grab tensile strength and elongation per D751 for laboratory tested specimens

Table 3(a) – Seam Strength and Related Properties of Thermally Bonded **Nonreinforced and Scrim Reinforced** Flexible Polypropylene (fPP) Geomembranes (English Units)

Geomembrane Nominal Thickness	30 mil-NR	40 mil-NR	36 mil-R[4]	45 mil-R[4]
Hot Wedge Seams[1]				
shear strength[2], lb/in. (NR); lb (R)	25	30	200	200
shear elongation[3], %	50	50	n/a	n/a
peel strength[2], lb/in. (NR); lb (R)	20	25	20	20
peel separation, %	25	25	n/a	n/a
Extrusion Fillet Seams				
shear strength[2], lb/in. (NR); lb (R)	25	30	200	200
shear elongation[3], %	50	50	n/a	n/a
peel strength[2], lb/in. (NR); lb (R)	20	25	20	20
peel separation, %	25	25	n/a	n/a

1. Also for hot air and ultrasonic seaming methods
2. Values listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing
4. Values are based on grab tensile strength and elongation per D751 for laboratory tested specimens

Table 3(b) – Seam Strength and Related Properties of Thermally Bonded **Nonreinforced and Scrim Reinforced** Flexible Polypropylene (fPP) Geomembranes (S.I. Units)

Geomembrane Nominal Thickness	0.75 mm-NR	1.0 mm-NR	0.91 mm-R[4]	1.14 mm-R[4]
Hot Wedge Seams[1]				
shear strength[2], N/25 mm (NR); N (R)	110	130	890	890
shear elongation[3], %	50	50	n/a	n/a
peel strength[2], N/25 mm (NR); N (R)	85	110	90	90
peel separation, %	25	25	n/a	n/a
Extrusion Fillet Seams				
shear strength[2], N/25 mm (NR); N (R)	110	130	890	890
shear elongation[3], %	50	50	n/a	n/a
peel strength[2], N/25 mm (NR); N (R)	85	110	90	90
peel separation, %	25	25	n/a	n/a

1. Also for hot air and ultrasonic seaming methods
2. Values listed for shear and peel strengths are for 4 out of 5 test specimens; the 5th specimen can be as low as 80% of the listed values
3. Elongation measurements should be omitted for field testing
4. Values are based on grab tensile strength and elongation per D751 for laboratory tested specimens

Adoption and Revision Schedule

for

Seam Specification per GRI-GM19

"Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes"

Adopted: February 18, 2002

Revision 1: May 15, 2003; Increased selected shear and peel test requirements, per the following:

Material	Test	Seam Type	Current GM19	Proposed GM19	Difference
HDPE	Shear	Hot Wedge	95% yield	95% yield	no change
		Extrusion	95% yield	95% yield	no change
	Peel	Hot Wedge	62% yield	72% yield	16% increase
		Extrusion	62% yield	62% yield	no change
LLDPE	Shear	Hot Wedge	1300 psi break	1500 psi break	15% increase
		Extrusion	1300 psi break	1500 psi break	15% increase
	Peel	Hot Wedge	1100 psi break	1250 psi break	14% increase
		Extrusion	1100 psi break	1100 psi break	no change

Revision 2: January 28, 2005; added Note 6 (in three locations) stating that incursion is measured on an area basis and not depth as in ASTM D6392.

Revision 3: June 4, 2010; Removed Note 6 on peel incursion since ASTM D6392 (2008) now uses area of incursion whereas previously they used linear length of incursion. Thus ASTM is now in agreement with GM19 in this regard.

Revision 4: November 15, 2010; Added Note 6 (in three locations) stating what separation-in-plane (SIP) is, and is not, and that it is acceptable if the required strength, shear elongation and peel separation criteria are met.

Revision 5: July 12, 2011; AD1 and AD2 breaks are now unacceptable even if strength is achieved.

Revision 6: October 3, 2011; Added LLDPE-R to the various geomembrane types, in particular, Tables 2(c) and 2(d) and made editorial changes.

ASTM Designation: D 6392 -08

"Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods"

EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

Designation: D 6392 – 08

Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods[1]

This standard is issued under the fixed designation D 6392; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method describes destructive quality control and quality assurance tests used to determine the integrity of geomembrane seams produced by thermo-fusion methods. This test method presents the procedures used for determining the quality of nonbituminous bonded seams subjected to both peel and shear tests. These test procedures are intended for nonreinforced geomembranes only.

1.2 The types of thermal field seaming techniques used to construct geomembrane seams include the following.

1.2.1 *Hot Air*—This technique introduces high-temperature air or gas between two geomembrane surfaces to facilitate melting. Pressure is applied to the top or bottom geomembrane, forcing together the two surfaces to form a continuous bond.

1.2.2 *Hot Wedge (or Knife)*—This technique melts the two geomembrane surfaces to be seamed by running a hot metal wedge between them. Pressure is applied to the top or bottom geomembrane, or both, to form a continuous bond. Some seams of this kind are made with dual bond tracks separated by a nonbonded gap. These seams are sometimes referred to as dual hot wedge seams or double-track seams.

1.2.3 *Extrusion*—This technique encompasses extruding molten resin between two geomembranes or at the edge of two overlapped geomembranes to effect a continuous bond.

1.3 The types of materials covered by this test method include the following.

1.3.1 *Very Low Density Polyethylene (VLDPE).*
1.3.2 *Linear Low Density Polyethylene (LLDPE).*
1.3.3 *Very Flexible Polyethylene (VFPE).*
1.3.4 *Linear Medium Density Polyethylene (LMDPE).*
1.3.5 *High Density Polyethylene (HDPE).*
1.3.6 *Polyvinyl Chloride (PVC).*
1.3.7 *Flexible Polypropylene (fPP).*

NOTE 1—The polyethylene identifiers presented in 1.3.1-1.3.5 describe the types of materials typically tested using this test method. These are industry accepted trade descriptions and are not technical material classifications based upon material density.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]
D 638 Test Method for Tensile Properties of Plastics
D 4439 Terminology for Geosynthetics
D 5199 Test Method for Measuring the Nominal Thickness of Geosynthetics
D 5994 Test Method for Measuring Core Thickness of Textured Geomembrane

2.2 *EPA Standards:*
EPA/600/2-88/052 Lining of Waste Containment and Other Containment Facilities; Appendix N, Locus of break codes for various types of FML seams[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *geomembrane, n*—essentially impermeable geosynthetic composed of one or more synthetic sheets.

3.1.2 *quality assurance, n*—all planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service.

3.1.3 *quality control, n*—the operational techniques and the activities, which sustain a quality of material, product, system, or service that will satisfy given needs; also the use of such techniques and activities.

4. Significance and Use

4.1 The use of geomembranes as barrier materials to restrict liquid migration from one location to another in soil and rock has created a need for a standard test method to evaluate the quality of geomembrane seams produced by thermo-fusion methods. In the case of geomembranes, it has become evident

[1] This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.10 on Geomembranes.

Current edition approved July 1, 2008. Published July 2008. Originally approved in 1999. Last previous edition approved in 2006 as D 6392–99(2006).

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402.

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that geomembrane seams can exhibit separation in the field under certain conditions. Although this is an index type test method used for quality assurance and quality control purposes, it is also intended to provide the quality assurance engineer with sufficient seam peel and shear data to evaluate seam quality. Recording and reporting data, such as separation that occurs during the peel test and elongation during the shear test, will allow the quality assurance engineer to take measures necessary to ensure the repair of inferior seams during facility construction, and therefore, minimize the potential for seam separation in service.

5. Apparatus

5.1 Tensile instrumentation shall meet the requirements outlined in Test Method D 638.

5.2 *Grip Faces*—Grip faces shall be 25 mm (1 in.) wide and a minimum of 25 mm (1 in.) in length. Smooth rubber, fine serrated or coarse serrated grip faces have all been found to be suitable for testing geomembrane seams.

6. Sample and Specimen Preparation

6.1 *Seam Samples*—Cut a portion of the fabricated seam sample from the installed liner in accordance with the project specifications. It is recommended that the cutout sample be 0.3 m (1 ft) wide and 0.45 m (1.5 ft) in length with the seam centered in the middle.

6.2 *Specimen Preparation*—Ten specimens shall be cut from the sample submittal. The specimens shall be die cut using a 25 mm (nominal 1 in.) wide by a minimum of 150 mm (nominal 6 in.) long die. Specimens that will be subjected to peel and shear tests shall be selected alternately from the sample and labeled as shown in Fig. 1. Specimens shall be cut such that the seam is perpendicular to the longer dimension of the strip specimen.

6.3 *Conditioning*—Samples should be conditioned for 40 h in a standard laboratory environment that conforms to the requirements for testing geosynthetics as stated in Terminology D 4439. Long sample conditioning times typically are not possible for most applications that require seam testing. Prior to testing, samples should be conditioned for a minimum of 1 h at 23 ± 2°C and a relative humidity between 50 and 70 %.

7. Destructive Test Methods

7.1 *Peel Testing*—Subject five specimens to the 90° "T-Peel" test (see Fig. 2). If the tested sample is a dual hot wedge seam, five specimens must be examined for each external track of the seam. Maintaining the specimen in a horizontal position throughout the test is not required. Fully grip the test specimen across the width of the specimen. Grip the peel specimen by securing grips 25 mm (1 in.) on each side of the start of the seam bond, a constant machine cross head speed of 50 mm (2 in.)/min for HDPE, LMDPE, and PVC, 500 mm (20 in.)/min for LLDPE, VLDPE, VFPE, and fPP. The test is complete when the specimen ruptures.

7.2 *Shear Testing*—Subject five specimens to the shear test (see Fig. 2). Fully support the test specimen within the grips across the width of the specimen. Secure the grips 25 mm (1 in.) on each side of the start of the seam bond, a constant machine cross head speed of 50 mm (2 in.)/min for LMDPE and HDPE, 500 mm (20 in.)/min for fPP, LLDPE, VFPE, VLDPE, and PVC. The test is complete for HDPE and LMDPE once the specimen has elongated 50 %. PVC, fPP, LLDPE, VFPE and VLDPE geomembranes should be tested to rupture.

NOTE 2—Both peel and shear tests for fPP, LLDPE, VLDPE, and PVC geomembranes have been tested routinely at both 2 and 20 in./min. When conducting seam peel or shear testing for quality control, or quality assurance purposes, or both, it may be necessary to select the manufacturer's recommended testing speed. In the absence of explicit testing speed requirements, follow those recommended in 7.1 and 7.2.

8. Calculations and Observations

8.1 *Estimate of Seam Peel Separation*—Visually estimate the seam separation demonstrated prior to rupture for peel specimens. The estimate shall be based upon the proportion of the area of the separated bond, to the area of original bonding to the nearest 5%. However, if at any point across the width of

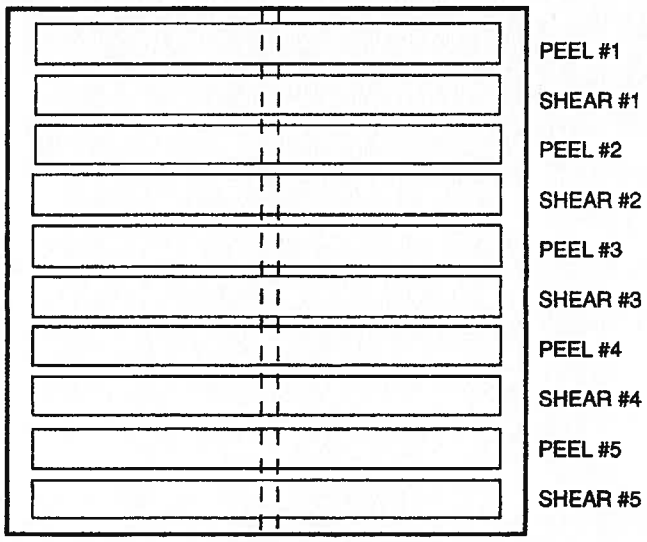


FIG. 1 Seam Sample

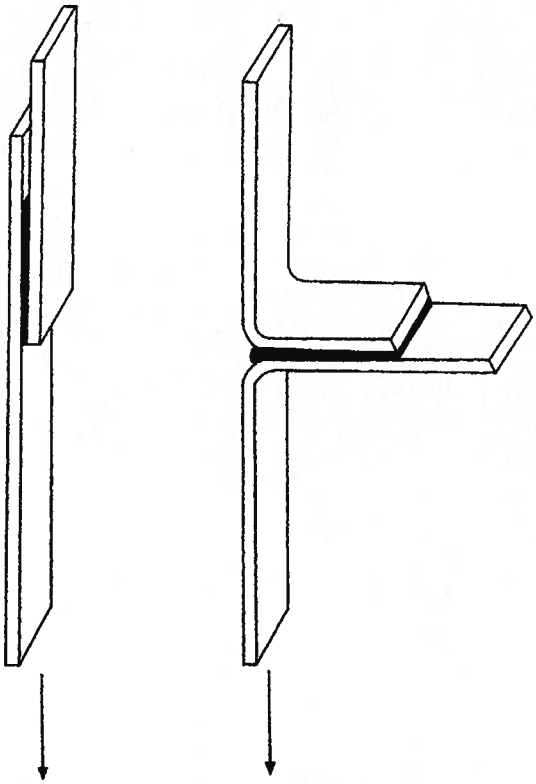


FIG. 2 Shear and T-Peel Specimens

the peel specimen, seam separation continues to the other side of the bonded area, the estimate of seam peel separation shall be 100 % regardless of the proportion of the area of the separated bond to the area of the original bonding.

NOTE 3—During the thermo-fusion welding process, some of the melted polymer may be shifted to the outside of the weld during the pressing of the geomembrane panels together. This melted polymer is sometimes called "squeeze-out" or "bleed out" and is not considered part of the bond. Care must be exercised during estimation of the seam peel separation to segregate the squeeze or bleed out area from the peeled bond area. The reported peel separation shall include the peeled bond area only.

8.2 *Rupture Mode Selection*—Determine the locus of break for both the peel and shear specimens as shown in Figs. 3 and 4. The locus of break for shear specimens that do not rupture prior to test end (50 % elongation) shall be interpreted as occurring in the membrane that exhibits yielding.

8.3 *Shear Percent Elongation*—Calculate the percent elongation on shear specimens according to Eq 1. Divide the extension at test end by the original gage length of 25 mm and multiply by 100.

$$\text{Elongation} = \text{E}\frac{L}{L_0} \times 100 \quad (1)$$

where:
L = extension at test end, and
L_0 = original gauge length.

NOTE 4—The intent of measuring elongation using this test method is to identify relatively large reductions in typical break elongation values of seam samples. Length is defined as the distance from one grip to the seam edge. Using this definition implies that all strain experienced by the specimen during the shear test occurs on one side of the seam. Of course this assumption is inaccurate, since some strain will occur on each side of the seam, and in the seam area itself; however, it is difficult to make an accurate measurement of the strain distribution which occurs in the specimen during testing. Further, it is not critical to know the exact location of all the strain which occurs during testing but rather to simply identify when significant reductions in elongation (when compared with the typical elongation of a new material) have occurred.

9. Report

9.1 The report shall include the following information.

9.1.1 Report the individual peel and shear specimen maximum unit tension values in N/mm of width (lb/in.).

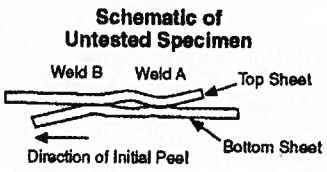
NOTE 5—If requested, report the maximum peel or shear stress. This calculation will require an accurate measurement of thickness for each specimen. These measurements should be made in accordance with Test Method D 5199 for smooth geomembranes and Test Method D 5994 for textured geomembranes.

9.1.2 Report the cross head speed used during peel and shear testing.

9.1.3 Report the average of the individual peel and shear sample values recorded.

9.1.4 If the peel or shear specimen does not rupture, report the elongation at the maximum cross-head travel limitation. If the gage length is reduced to less than 25 mm (1 in.), this must be noted in the report.

9.1.5 Report the mode of specimen rupture for peel and shear specimens according to Fig. 3 or Fig. 4.



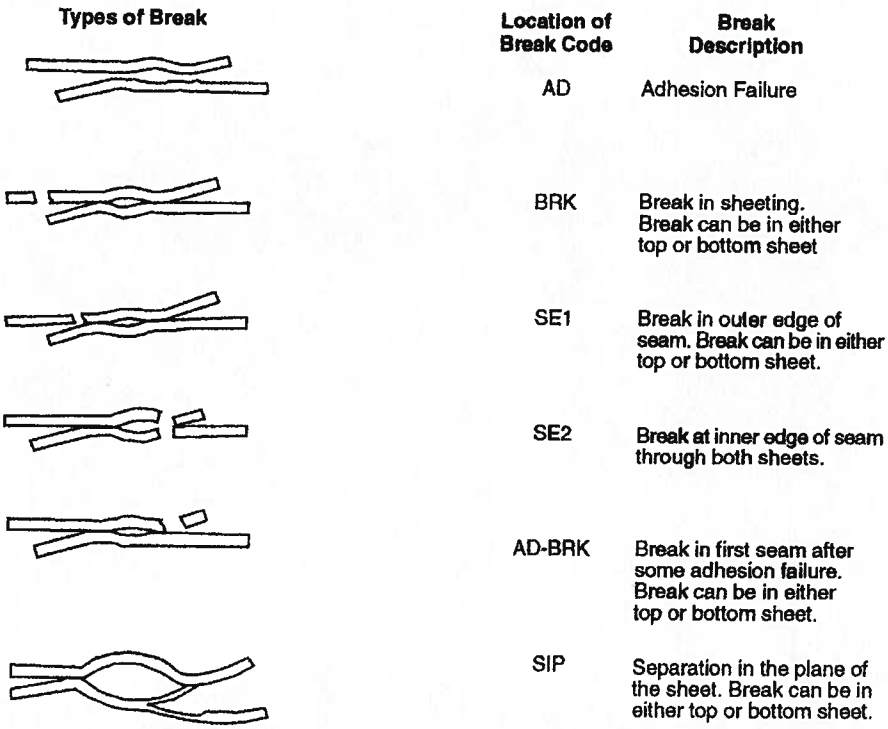
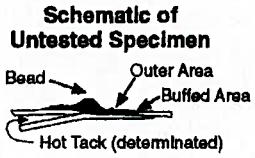


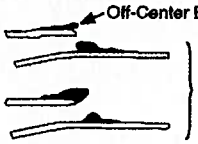
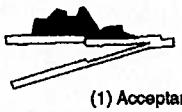
FIG. 3 Locus-of-Break Codes for Dual Hot Wedge Seams in Unreinforced Geomembranes Tested for Seam Strength in Shear and Peel Modes

NOTE 6—"Locus-of-Failure" (Figs. 3 and 4) include only some of the typically found seam configurations found in the industry. When this test method is applied to seams bonded in configurations other than those identified in Fig. 3 or Fig. 4, the users of this test method must agree on applicable descriptions for modes of specimen rupture.

10. Precision and Bias

10.1 No statement can be made at this time concerning precision or bias.



Types of Break	Location of Break Code	Break Description
	AD1	Failure in adhesion. Specimens may also delaminate under the bead and break through the thin extruded material in the outer area.
	AD2	Failure in adhesion.
	AD-WLD[1]	Break through the fillet.
	SE1	Break at seam edge in the bottom sheet (applicable to shear only).
	SE2	Break at seam edge in the top sheet (applicable to shear only).
	SE3	Break at seam edge in the bottom sheet (applicable to peel only).
	BRK1	Break in the bottom sheeting. A "B" in parebtheses following the code means the specimen broke in the buffed area.
	BRK2	Break in the top sheeting. A "B" in parebtheses following the code means the specimen broke in the buffed area.
	AD-BRK	Break in the bottom sheeting after some adhesion failure between the fillet and the bottom sheet.
	HT	Break at the edge of the hot tack for specimens which could not be delaminated in the hot tack.
	SIP	Separation in the plane of the sheet.

(1) Acceptance of AD-WLD breaks may depend on whether test values meet a minimum specification value.

FIG. 4 Locus-of-Break Codes for Fillet Extrusion Weld Seams in Unreinforced Geomembranes Tested for Seam Strength in Shear and Peel Modes

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Pro-Wedge

"Speed Settings vs. Actual Travel Rate Chart"

EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
p. 780.451.2121 f. 780.454.5688

Pro-Wedge

Speed Setting vs. Actual Travel Rate Chart

Speed setting vs. actual travel speed (FEET PER MINUTE)

Setting	Low Gear	High Gear
999	18	32
950	16	29
900	15	27.5
850	14	26
800	13	24.5
750	12.5	22.5
700	12	21
650	11	19.5
600	10	18
550	9.5	16.5
500	8.5	15
450	8	13.5
400	7	12
350	6	10.5
300	5.5	9
250	4.5	7.5
200	3	6
150	2	4
100	1	3

Setting	Low Gear	High Gear
999	18	32
950	16	29
900	15	27.5
850	14	26
800	13	24.5
750	12.5	22.5
700	12	21
650	11	19.5
600	10	18
550	9.5	16.5
500	8.5	15
450	8	13.5
400	7	12
350	6	10.5
300	5.5	9
250	4.5	7.5
200	3	6
150	2	4
100	1	3

Setting	Low Gear	High Gear
999	18	32
950	16	29
900	15	27.5
850	14	26
800	13	24.5
750	12.5	22.5
700	12	21
650	11	19.5
600	10	18
550	9.5	16.5
500	8.5	15
450	8	13.5
400	7	12
350	6	10.5
300	5.5	9
250	4.5	7.5
200	3	6
150	2	4
100	1	3

Speed setting vs. actual travel speed (METERS PER MINUTE)

Setting	Low Gear	High Gear
999	5.4	9.6
950	4.8	8.8
900	4.5	8.3
850	4.2	7.9
800	3.9	7.4
750	3.8	6.8
700	3.6	6.4
650	3.3	5.9
600	3	4.5
550	2.9	5
500	2.6	4.5
450	2.4	4
400	2.1	3.6
350	1.8	3.1
300	1.7	2.7
250	1.4	2.3
200	0.9	1.8
150	0.6	1.2
100	0.3	0.9

Setting	Low Gear	High Gear
999	5.4	9.6
950	4.8	8.8
900	4.5	8.3
850	4.2	7.9
800	3.9	7.4
750	3.8	6.8
700	3.6	6.4
650	3.3	5.9
600	3	4.5
550	2.9	5
500	2.6	4.5
450	2.4	4
400	2.1	3.6
350	1.8	3.1
300	1.7	2.7
250	1.4	2.3
200	0.9	1.8
150	0.6	1.2
100	0.3	0.9

Setting	Low Gear	High Gear
999	5.4	9.6
950	4.8	8.8
900	4.5	8.3
850	4.2	7.9
800	3.9	7.4
750	3.8	6.8
700	3.6	6.4
650	3.3	5.9
600	3	4.5
550	2.9	5
500	2.6	4.5
450	2.4	4
400	2.1	3.6
350	1.8	3.1
300	1.7	2.7
250	1.4	2.3
200	0.9	1.8
150	0.6	1.2
100	0.3	0.9

APPENDIX D

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this document, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function. Where temporary or permanent drainage systems are installed within or around a structure, these systems must protect the structure from loss of ground due to mechanisms such as internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design details regarding the geotechnical aspects of such systems (e.g. bedding material, surrounding soil, soil cover, geotextile type) should be reviewed by the geotechnical engineer to confirm the performance of the system is consistent with the conditions used in the geotechnical design.

1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

1.17 SAMPLES

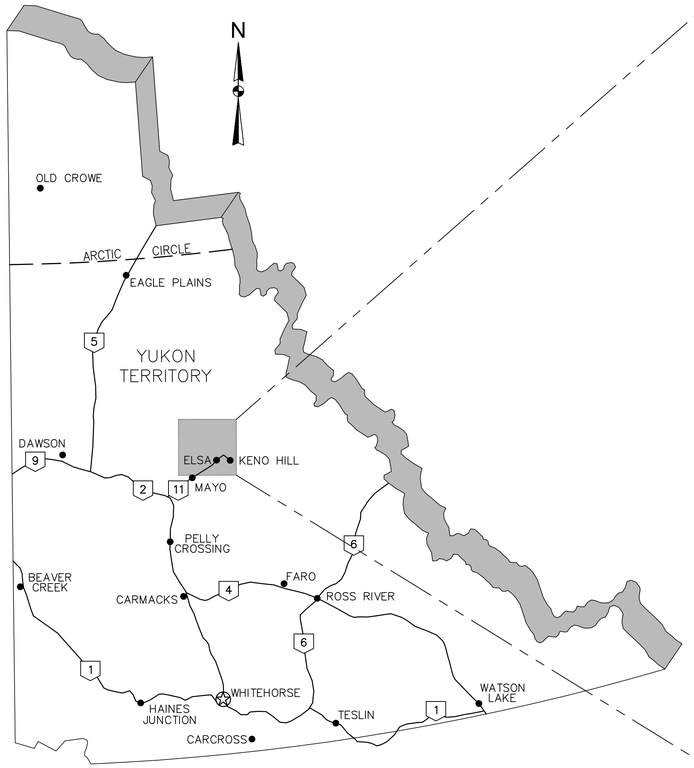
TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

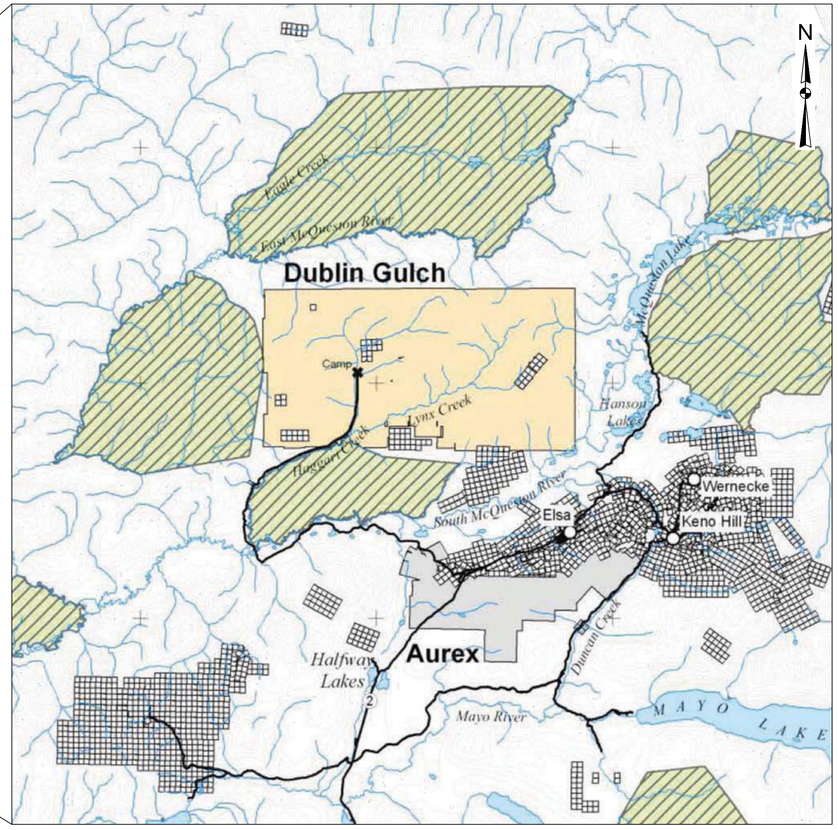
This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.

APPENDIX 8
Revised IFCs

EAGLE GOLD PROJECT
HEAP LEACH FACILITY
PHASE 1 FINAL DESIGN



REGIONAL LOCATION MAP



PROJECT LOCATION MAP

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

DWG No.	TITLE
EGHLF-XD-00-01	TITLE SHEET AND DRAWING INDEX
EGHLF-XD-00-02	GENERAL NOTES AND LEGEND
EGHLF-XD-01-01	GENERAL ARRANGEMENT PLAN
EGHLF-XD-01-02	SURVEY CONTROL PLAN
EGHLF-XD-01-03	SURFACE GEOLOGY MAP
EGHLF-XD-01-04	SITE INVESTIGATION PLAN
EGHLF-XD-01-05	OVERALL LAYOUT PLAN
EGHLF-XD-02-01	PHASE 1 PAD GRADING PLAN
EGHLF-XD-02-02	PHASE 1 HEAP CONVEYOR PLAN
EGHLF-XD-02-03	PHASE 1 PAD GRADING CROSS-SECTIONS - SHEET 1 OF 2
EGHLF-XD-02-04	PHASE 1 PAD GRADING CROSS-SECTIONS - SHEET 2 OF 2
EGHLF-XD-02-05	CORRIDOR TYPICAL SECTIONS
EGHLF-XD-02-06	LINER DETAILS
EGHLF-XD-03-01	PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE - SHEET 1 OF 2
EGHLF-XD-03-02	PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE - SHEET 2 OF 2
EGHLF-XD-03-03	PHASE 1 UNDERDRAIN PIPING PLAN
EGHLF-XD-03-04	PHASE 1 UNDERDRAIN PIPING DETAILS
EGHLF-XD-03-05	CLOSURE PIPING PLAN AND PROFILE
EGHLF-XD-04-01	EMBANKMENT PLAN VIEW
EGHLF-XD-04-02	EMBANKMENT CROSS-SECTIONS
EGHLF-XD-04-03	EMBANKMENT DETAILS
EGHLF-XD-05-01	IN-HEAP SUMP DETAILS - SHEET 1 OF 2
EGHLF-XD-05-02	IN-HEAP SUMP DETAILS - SHEET 2 OF 2
EGHLF-XD-05-03	PLS SUMP DETAILS - SHEET 1 OF 2
EGHLF-XD-05-04	PLS SUMP DETAILS - SHEET 2 OF 2
EGHLF-XD-05-05	LDRS AND CLOSURE SUMP DETAILS
EGHLF-XD-05-06	MONITORING VAULT DETAILS
EGHLF-XD-06-01	PHASE 1 PLS RECOVERY PIPING PLAN VIEW
EGHLF-XD-06-02	PHASE 1 PLS RECOVERY PIPING DETAILS - SHEET 1 OF 2
EGHLF-XD-06-03	PHASE 1 PLS RECOVERY PIPING DETAILS - SHEET 2 OF 2
EGHLF-XD-07-01	EVENT POND PLAN VIEW
EGHLF-XD-07-02	EVENT POND CROSS-SECTIONS
EGHLF-XD-07-03	EVENT POND DETAILS - SHEET 1 OF 2
EGHLF-XD-07-04	EVENT POND DETAILS - SHEET 2 OF 2
EGHLF-XD-07-05	EVENT POND SPILLWAY PLAN AND PROFILE
EGHLF-XD-07-06	EVENT POND SPILLWAY TYPICAL SECTIONS AND DETAILS
EGHLF-XD-08-01	IN-HEAP POND SPILLWAY PLAN AND PROFILE
EGHLF-XD-08-02	IN-HEAP POND SPILLWAY BOX CULVERT PLAN AND PROFILE
EGHLF-XD-08-03	IN-HEAP POND SPILLWAY DETAILS
EGHLF-XD-09-01	INSTRUMENTATION PLAN
EGHLF-XD-09-02	INSTRUMENTATION DETAILS

ISSUED FOR CONSTRUCTION

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: TITLE SHEET AND DRAWING INDEX
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-00-01 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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GENERAL NOTES:

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE FOLLOWING GENERAL NOTES SHALL APPLY:

1. ALL COORDINATES AND ELEVATIONS ARE SHOWN IN METRES, UNLESS NOTED OTHERWISE. COORDINATES AND TOPOGRAPHY ARE IN NAD83 (CSRS) UTM ZONE 8N COORDINATE SYSTEM. SURVEY PROVIDED BY UNDERHILL GEOMATICS LTD.
2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ACCOMPANYING DRAWINGS, SPECIFICATIONS, AND THE REPORT TITLED: "EAGLE GOLD PROJECT - HEAP LEACH FACILITY DETAILED DESIGN - DRAFT" ISSUED AUGUST 11, 2017. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD UNCERTAINTIES ARISE WITH THE DRAWINGS, SCOPE, AND/OR TECHNICAL SPECIFICATIONS.
3. UNLESS BGC AGREES OTHERWISE IN WRITING, THIS DRAWING SHALL NOT BE MODIFIED OR USED FOR ANY PURPOSE OTHER THAN THE PURPOSE FOR WHICH BGC GENERATED IT. BGC SHALL HAVE NO LIABILITY FOR ANY DAMAGES OR LOSS ARISING IN ANY WAY FROM ANY USE OR MODIFICATION OF THIS DOCUMENT NOT AUTHORIZED BY BGC. ANY USE OF OR RELIANCE UPON THIS DOCUMENT OR ITS CONTENT BY THIRD PARTIES SHALL BE AT SUCH THIRD PARTIES' SOLE RISK
4. SURFICIAL GEOLOGY PROVIDED BY BGC.
5. ALL DIMENSIONS, STATIONING, AND SCALES ARE SI METRIC SYSTEM.
6. SITE INVESTIGATION BOREHOLES, TEST PITS, AND SEISMIC LINE LOCATIONS SHOWN ON THESE DRAWINGS ARE THE BASIS FOR INTERPRETATION OF SUBSURFACE CONDITIONS FOR DESIGN. SEE APPENDIX A - SUPPORTING INFORMATION OF THE REPORT TITLED: "EAGLE GOLD PROJECT - HEAP LEACH FACILITY DETAILED DESIGN - DRAFT" ISSUED AUGUST 11, 2017. SUBSURFACE CONDITIONS MAY VARY BETWEEN THE SITE INVESTIGATION LOCATIONS DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ACTUAL SUBSURFACE CONDITIONS FOR CONSTRUCTION, AS WELL AS ANY CHANGES IN DESIGN GROUND LINES VERSUS EXISTING GROUND LINES BASED ON 2 METRE CONTOUR INTERVAL TOPOGRAPHY.
7. TOPOGRAPHY AND MINE FACILITY LAYOUTS PROVIDED BY HATCH.
8. ROAD SURFACES TO BE SLOPED AND GRADED TO DRAIN. CULVERTS TO BE INSTALLED AS REQUIRED TO PREVENT PONDING.
9. FINAL DESIGN OF SITE-WIDE ACCESS ROADS BY OTHERS, OTHER THAN THAT SHOWN HEREIN.
10. FINAL DESIGN OF THE PROCESS PLANT, CONVEYORS AND RELATED FACILITIES BY OTHERS. ELECTRICAL UTILITIES DESIGNED BY OTHERS.
11. FINAL DESIGN OF THE BARREN AND PREGNANT DELIVERY PIPELINES AND ASSOCIATED PUMPING AND DISTRIBUTION SYSTEMS, FRESH WATER SUPPLY PUMPS AND PIPELINES BY OTHERS.
12. ALL FOUNDATIONS AND OTHER EXCAVATIONS SHALL BE INSPECTED BY THE OWNER'S ENGINEER PRIOR TO FILL PLACEMENT.
13. ALL DRILL HOLES SHALL BE PLUGGED WITH CEMENT OR BENTONITE (WITHIN LIMITS OF AFFECTED AREA).

GENERAL LEGEND:

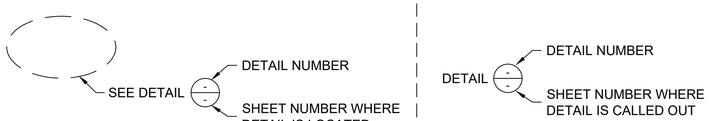
1020 — EXISTING CONTOURS (m)

1020 — PROPOSED GRADING CONTOURS (m)

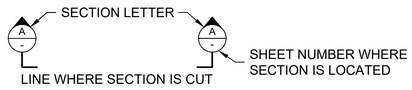
EXISTING FACILITIES

PROPOSED FACILITIES

DETAIL CALL-OUT



CROSS-SECTION LOCATION



ABREVIATIONS:

ADS	- ADVANCED DRAINAGE SYSTEMS, INC.
ASTM	- AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	- AMERICAN WATER WORKS ASSOCIATION
BGC	- BGC ENGINEERING INC.
℄	- CENTRELINE
CQA	- CONSTRUCTION QUALITY ASSURANCE
CS	- CARBON STEEL
CSRS	- CANADIAN SPATIAL REFERENCE SYSTEM
DIA.	- DIAMETER
E	- EASTING (COORDINATE)
EL.	- ELEVATION
FG	- FINISHED GRADE
GCL	- GEOSYNTHETIC CLAY LINER
GWL	- GROUND WATER LEVEL
HDPE	- HIGH-DENSITY POLYETHYLENE
HLF	- HEAP LEACH FACILITY
I.D.	- INSIDE DIAMETER
INV	- INVERT
LDRS	- LEAK DETECTION AND RECOVERY SYSTEM
LLDPE	- LINEAR LOW-DENSITY POLYETHYLENE
MAX.	- MAXIMUM
MIN.	- MINIMUM
N	- NORTHING (COORDINATE)
NIC	- NOT IN CONTRACT
NOM	- NOMINAL
N.T.S.	- NOT TO SCALE
O.C.	- ON CENTRE
O.D.	- OUTSIDE DIAMETER
ODF	- OVERLINER DRAIN FILL
OZ.	- OUNCE
PLS	- PREGNANT LEACH SOLUTION
PE	- POLYETHYLENE
PVC	- POLYVINYL CHLORIDE
SCH.	- SCHEDULE
SL	- SEISMIC LINE
STA	- STATION
S.S.	- STAINLESS STEEL
TBD	- TO BE DETERMINED
TYP	- TYPICAL
UV	- ULTRAVIOLET
VWP	- VIBRATING WIRE PIEZOMETER
WSE	- WATER SURFACE ELEVATION
50 m	- DIMENSION IN METRES
2.5:1	- 2.5 HORIZONTAL TO 1 VERTICAL SLOPE
~	- APPROXIMATELY

FILL TYPES FOR CONSTRUCTION

MATERIAL No.	FILL MATERIAL NAME	FILL DESCRIPTION	MOISTURE CONDITIONING	LOOSE LIFT THICKNESS	COMPACTION EFFORT
①	SITE GRADING FILL	SITE GRADING SOILS FROM REQUIRED EXCAVATIONS AND CUT/FILL ACTIVITIES	2% +/- OF OPTIMUM	300 mm MAX.	95% OF ASTM D698 COMPACTION
②	SELECT FILL	FINE GRAINED MATERIALS FOR LINER BEDDING	-2% + 1% OF OPTIMUM	150 mm MAX.	95% OF ASTM D698 COMPACTION
③	STRUCTURAL FILL	WELL GRADED SOILS AND WEATHERED BEDROCK FROM REQUIRED EXCAVATIONS FOR EMBANKMENT FILL	2% +/- OF OPTIMUM	300 mm MAX.	95% OF ASTM D698 COMPACTION
④	OVERLINER DRAIN FILL (ODF)	CLEAN GRAVEL MATERIALS FOR HLF LINER COVER, PLS AND LDRS SUMPS	NONE	FILL NOTE 1	NONE REQUIRED
⑤	SELECT DRAIN FILL	CLEAN GRAVEL MATERIAL FOR UNDERDRAIN PIPES	NONE	AS REQUIRED	NONE REQUIRED
⑥	PIPE TRENCH BACKFILL	COARSE AGGREGATE STONE	NONE	AS REQUIRED	NONE REQUIRED
⑦	COMPACTED ROCKFILL	HIGH STRENGTH ROCK MATERIALS	AS REQUIRED	FILL NOTE 2	LARGE SCALE TEST FILL REQUIRED (FILL NOTE 2)
⑧	ANCHOR TRENCH BACKFILL	SITE GRADING FILL MATERIAL FOR USE IN LINER ANCHOR TRENCHES	AS REQUIRED	150 mm	85% OF ASTM D698 COMPACTION
⑨	ROAD WEARING COARSE	WELL GRADED SANDY GRAVEL	AS REQUIRED	150 mm	95% OF ASTM D698 COMPACTION
⑩	RIPRAP	COMPETENT ROCK FROM EXCAVATIONS	NONE	NONE REQUIRED	NONE REQUIRED
⑪	ORE	CRUSHED ORE MATERIAL FOR HEAP LEACHING	N/A	N/A	N/A

FILL NOTES:
1) OVERLINER DRAIN FILL TO BE PLACED IN A SINGLE LOOSE LIFT OF 0.6 m (MINIMUM) ON THE UPPER PAD AREAS AND 1.0 m (MINIMUM) IN THE IN-HEAP POND AREAS.
2) COMPACTED ROCKFILL THICKNESS AND COMPACTION DEPENDING ON AVAILABLE MATERIALS AND RESULTS OF LARGE SCALE TEST FILLS CONDUCTED BY THE ENGINEER DURING CONSTRUCTION, AS REQUIRED BY THE SPECIFICATIONS.

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

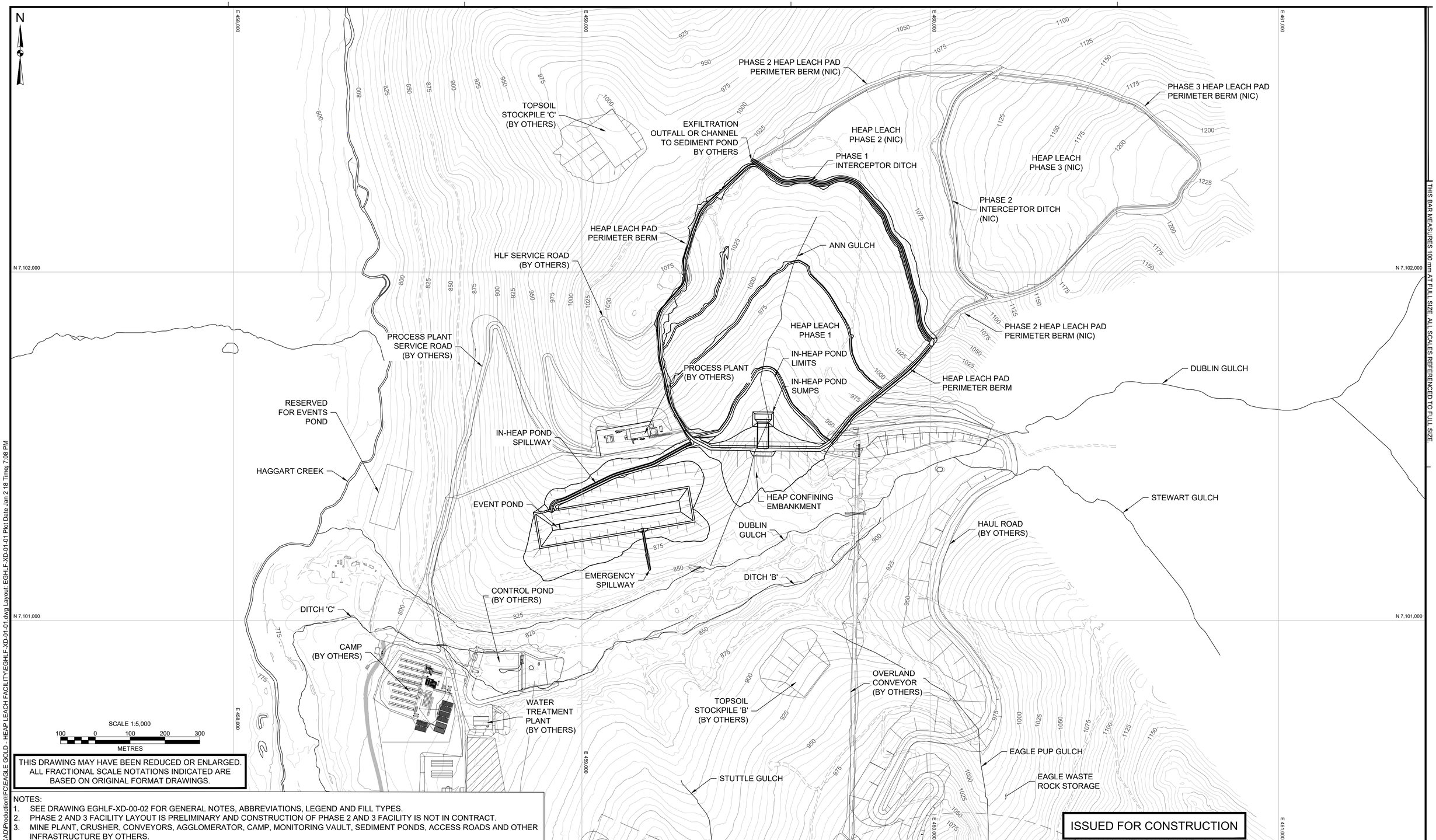
BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: GENERAL NOTES AND LEGEND

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-00-02	0



SCALE 1:5,000

100 0 100 200 300

METRES

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PHASE 2 AND 3 FACILITY LAYOUT IS PRELIMINARY AND CONSTRUCTION OF PHASE 2 AND 3 FACILITY IS NOT IN CONTRACT.
3. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: GENERAL ARRANGEMENT PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-01 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

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EXISTING SURVEY CONTROL POINTS				
CP #	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
133	463,444.3	7,100,604.3	1430.2	FD. IRON BAR WITH TAG 133
145	460,073.3	7,101,521.0	934.0	FD. BCLS IP WITH UGL TAG 145
491	462,993.4	7,101,002.2	1379.6	FD. CLS 77 MARKED "1981" TAG 491
792	461,400.7	7,099,906.4	1368.4	FOUND CLS 77 WITH UGL TAG 792
910	458,358.2	7,101,055.5	795.0	IRON BAR IN GRAVEL BERN NEAR CAMP
911	462,842.3	7,101,238.5	1353.5	BOLT IN BOULDER (DRILLED AND CEMENTED)
913	459,378.9	7,101,174.7	856.3	
1604	461,310.3	7,101,033.3	1217.5	FD. BCLS IP WITH UGL TAG 1604
1606	460,089.4	7,099,526.7	1259.0	IRON BAR WITH UNDERHILL TAG 1606
1607	460,061.6	7,100,367.9	1088.7	IRON BAR WITH UNDERHILL TAG 1607
1612	459,356.0	7,099,997.9	1010.4	IRON BAR WITH UNDERHILL TAG 1612
1614	459,897.5	7,098,801.2	1173.8	IRON BAR WITH UNDERHILL TAG 1614
1616	458,209.1	7,097,486.3	744.2	FD. BCLS IP WITH UGL TAG 1616
1618	462,652.7	7,102,146.0	1299.6	IRON BAR WITH UNDERHILL TAG 1618
1732	459,516.6	7,098,096.5	1051.9	FD. CLS 77 MARKED "1732,1995" TAG 1732
B2	458,455.6	7,100,812.7	816.1	IRON BAR TAG "B2" 1.5 m TRIPOD

PHASE 2 HEAP LEACH PAD PERIMETER BERM (NIC)
PHASE 3 HEAP LEACH PAD PERIMETER BERM (NIC)
TOPSOIL STOCKPILE 'C' (BY OTHERS)
HEAP LEACH PHASE 2 (NIC)
PHASE 1 INTERCEPTOR DITCH
HEAP LEACH PHASE 3 (NIC)
PHASE 2 INTERCEPTOR DITCH (NIC)
HEAP LEACH PAD PERIMETER BERM
ANN GULCH
HLF SERVICE ROAD (BY OTHERS)
HEAP LEACH PHASE 1
PHASE 2 HEAP LEACH PAD PERIMETER BERM (NIC)
PROCESS PLANT SERVICE ROAD (BY OTHERS)
IN-HEAP POND LIMITS
IN-HEAP POND SUMPS
HEAP LEACH PAD PERIMETER BERM
DUBLIN GULCH
PROCESS PLANT (BY OTHERS)
RESERVED FOR EVENTS POND
IN-HEAP POND SPILLWAY
145
HAGGART CREEK
HEAP CONFINING EMBANKMENT
STEWART GULCH
EVENT POND
DUBLIN GULCH
HAUL ROAD (BY OTHERS)
913
EMERGENCY SPILLWAY
DITCH 'B'
CONTROL POND (BY OTHERS)
910
1604
DITCH 'C'
CAMP (BY OTHERS)
B2
OVERLAND CONVEYOR (BY OTHERS)
WATER TREATMENT PLANT (BY OTHERS)
TOPSOIL STOCKPILE 'B' (BY OTHERS)
EAGLE PUP GULCH
STUTTLE GULCH
EAGLE WASTE ROCK STORAGE
1607

N
E 459,000
E 460,000
E 461,000
N 7,102,000
N 7,101,000
E 458,000
E 459,000
E 460,000
E 461,000

SCALE 1:5,000
100 0 100 200 300
METRES

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PHASE 2 AND 3 FACILITY LAYOUT IS PRELIMINARY AND CONSTRUCTION OF PHASE 2 AND 3 FACILITY IS NOT IN CONTRACT.
3. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

ISSUED FOR CONSTRUCTION

LEGEND
● EXISTING SURVEY CONTROL POINT

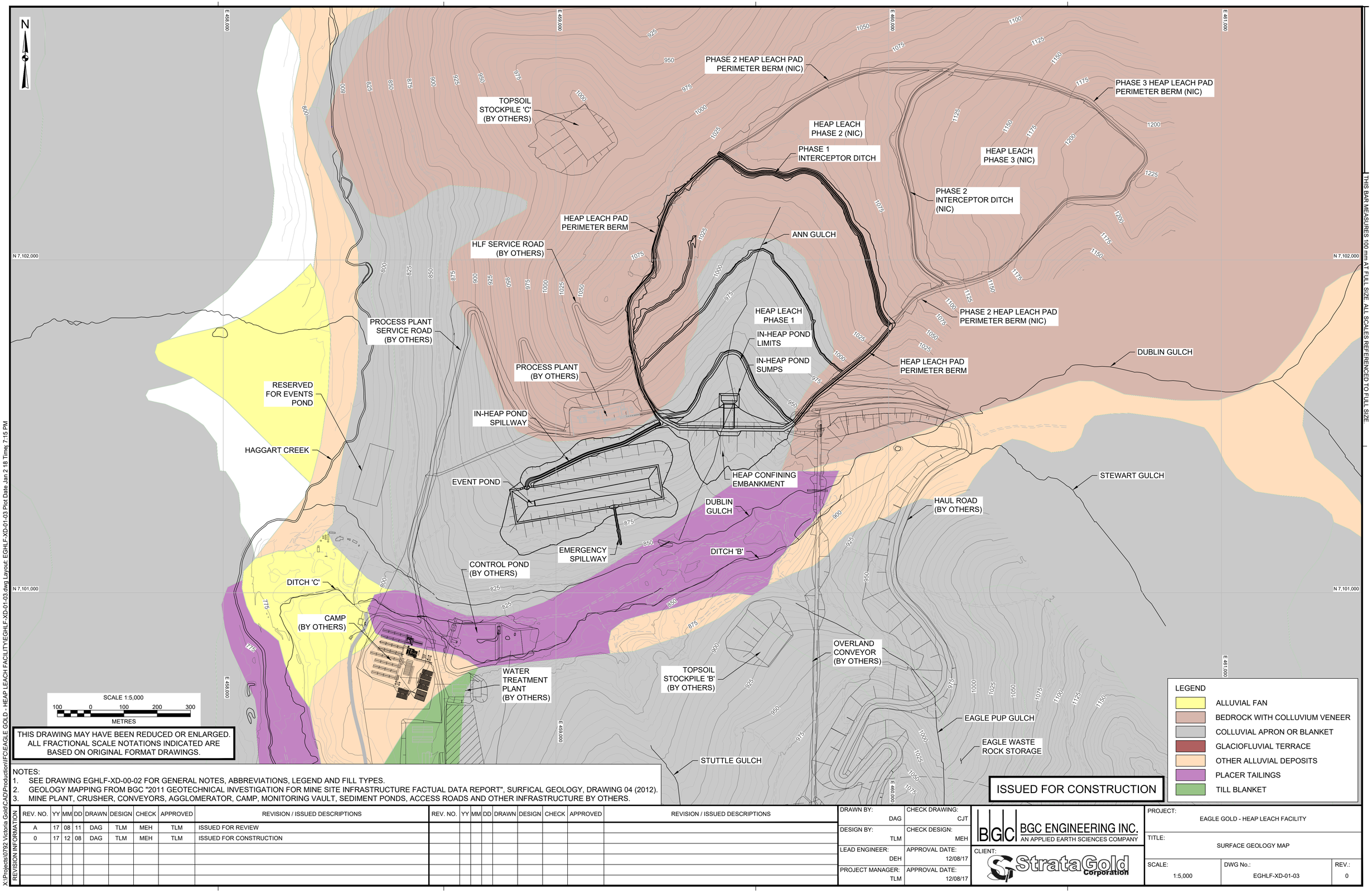
REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: SURVEY CONTROL PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-02 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. GEOLOGY MAPPING FROM BGC "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FACTUAL DATA REPORT", SURFICAL GEOLOGY, DRAWING 04 (2012).
3. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

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A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

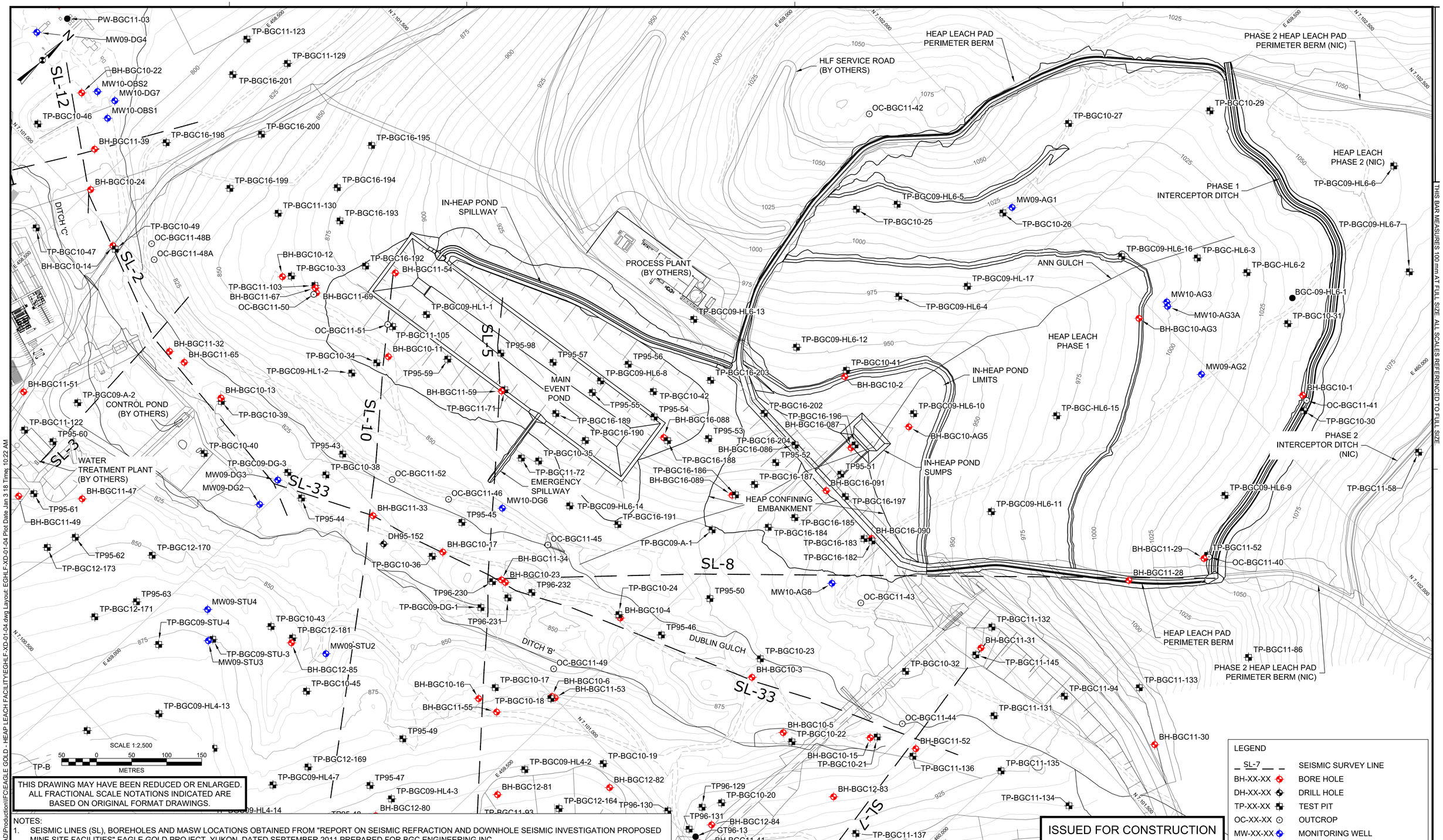
DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: SURFACE GEOLOGY MAP		
SCALE: 1:5,000	DWG No.: EGHLF-XD-01-03	REV.: 0

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NOTES:
1. SEISMIC LINES (SL), BOREHOLES AND MASW LOCATIONS OBTAINED FROM "REPORT ON SEISMIC REFRACTION AND DOWNHOLE SEISMIC INVESTIGATION PROPOSED MINE SITE FACILITIES" EAGLE GOLD PROJECT, YUKON, DATED SEPTEMBER 2011 PREPARED FOR BGC ENGINEERING INC..

ISSUED FOR CONSTRUCTION

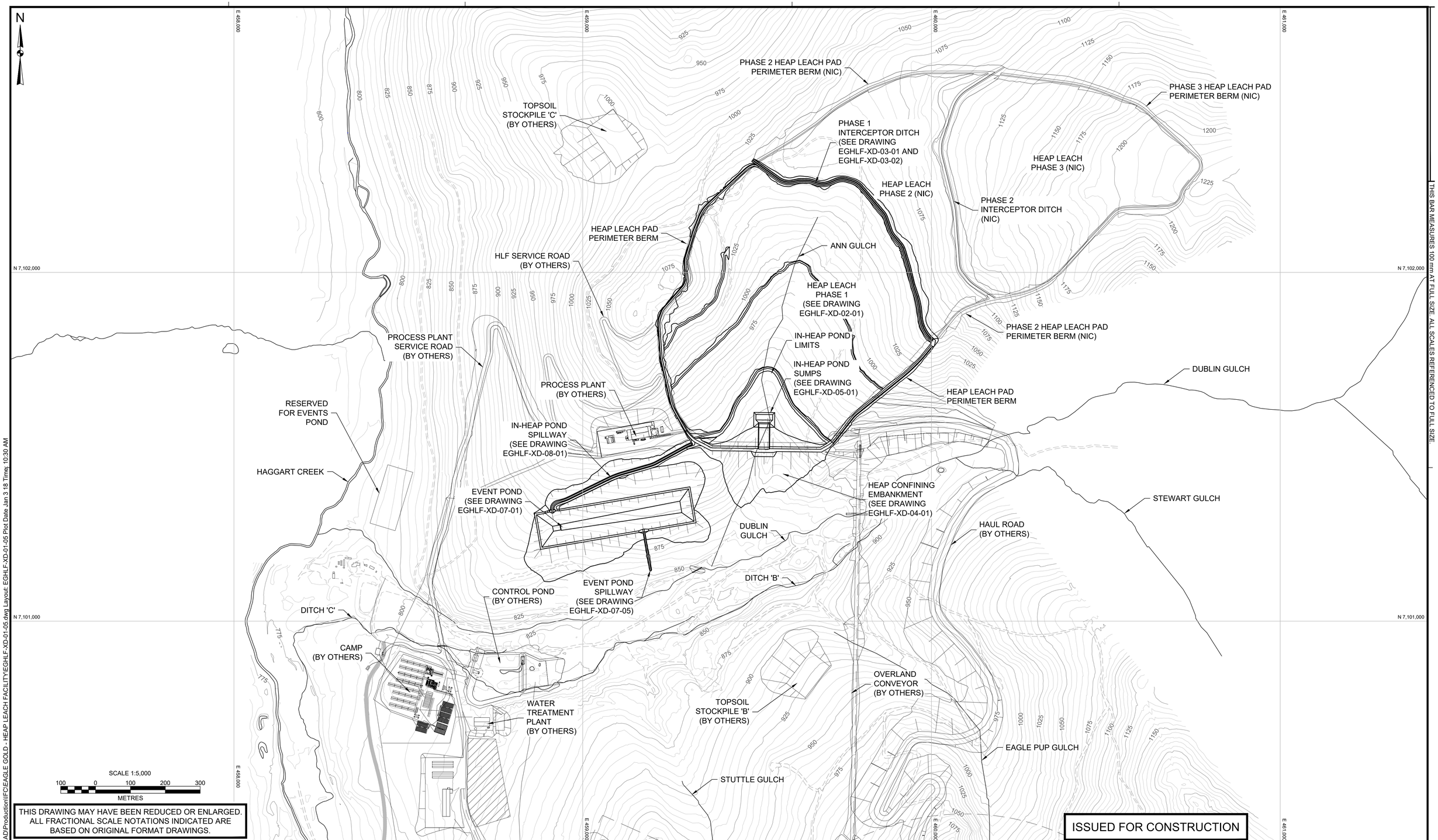
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: SITE INVESTIGATION PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:2,500 / DWG No.: EGHLF-XD-01-04 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

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SCALE 1:5,000

100 0 100 200 300

METRES

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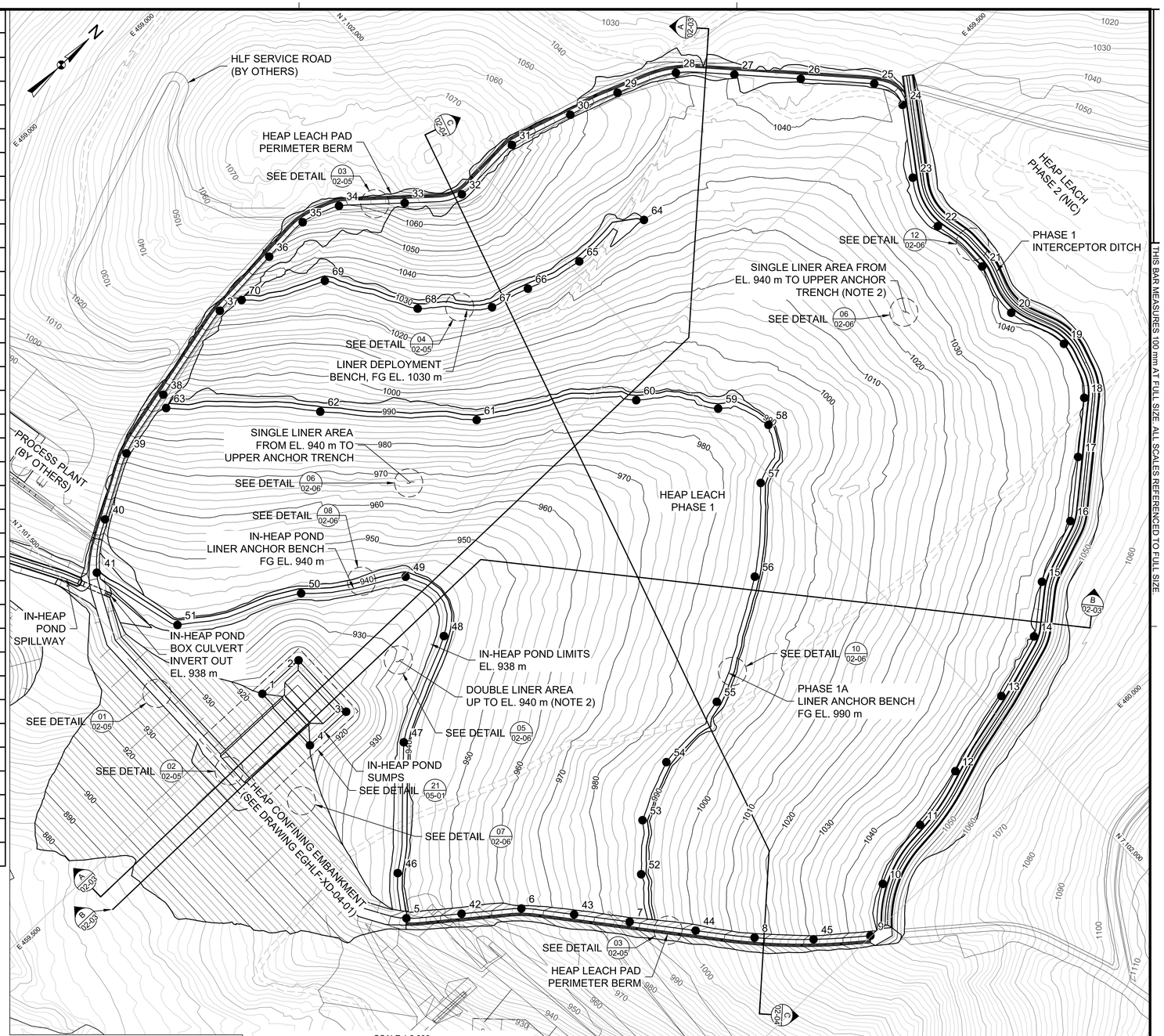
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: OVERALL LAYOUT PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-05 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

PHASE 1 PAD GRADING CONTROL POINTS					PHASE 1 PAD GRADING CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION	CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,490.3	7,101,556.5	915.0	SUMP CREST	37	459,227.5	7,101,756.0	1026.7	CREST
2	459,490.8	7,101,598.7	915.0	SUMP CREST	38	459,246.2	7,101,671.4	996.5	CREST
3	459,550.8	7,101,597.9	915.0	SUMP CREST	39	459,260.8	7,101,614.0	974.0	CREST
4	459,550.3	7,101,555.7	915.0	SUMP CREST	40	459,289.2	7,101,561.7	954.5	CREST
5	459,714.5	7,101,513.5	943.2	CREST	41	459,317.4	7,101,525.1	940.7	CREST
6	459,776.3	7,101,590.7	965.7	CREST	42	459,744.3	7,101,550.4	954.1	CREST
7	459,848.5	7,101,650.0	987.6	CREST	43	459,811.1	7,101,619.9	975.9	CREST
8	459,931.9	7,101,718.2	1017.3	CREST	44	459,892.8	7,101,685.8	1003.1	CREST
9	459,999.1	7,101,791.2	1047.0	CREST	45	459,967.8	7,101,753.9	1032.4	CREST
10	459,974.2	7,101,829.6	1046.7	CREST	46	459,681.4	7,101,534.8	940.0	BENCH CREST
11	459,959.6	7,101,887.5	1046.2	CREST	47	459,603.8	7,101,615.7	940.0	BENCH CREST
12	459,947.1	7,101,941.1	1045.6	CREST	48	459,561.5	7,101,703.3	940.0	BENCH CREST
13	459,927.6	7,102,014.0	1044.9	CREST	49	459,502.1	7,101,714.5	940.0	BENCH CREST
14	459,909.9	7,102,069.4	1044.3	CREST	50	459,450.8	7,101,639.8	940.0	BENCH CREST
15	459,880.7	7,102,106.5	1043.8	CREST	51	459,397.4	7,101,544.4	940.0	BENCH CREST
16	459,859.7	7,102,160.0	1043.2	CREST	52	459,825.7	7,101,685.2	990.0	BENCH CREST
17	459,824.6	7,102,202.6	1042.6	CREST	53	459,793.0	7,101,717.9	990.0	BENCH CREST
18	459,791.5	7,102,241.3	1042.1	CREST	54	459,771.0	7,101,767.0	990.0	BENCH CREST
19	459,746.0	7,102,260.5	1041.6	CREST	55	459,763.3	7,101,833.9	990.0	BENCH CREST
20	459,695.6	7,102,246.2	1041.0	CREST	56	459,708.1	7,101,931.3	990.0	BENCH CREST
21	459,649.8	7,102,255.4	1040.6	CREST	57	459,653.4	7,101,990.2	990.0	BENCH CREST
22	459,598.6	7,102,251.7	1040.0	CREST	58	459,621.9	7,102,029.3	990.0	BENCH CREST
23	459,553.7	7,102,264.7	1039.6	CREST	59	459,582.2	7,102,007.7	990.0	BENCH CREST
24	459,502.4	7,102,301.3	1039.0	CREST	60	459,528.6	7,101,961.8	990.0	BENCH CREST
25	459,472.6	7,102,296.2	1042.0	CREST	61	459,446.8	7,101,851.0	990.0	BENCH CREST
26	459,426.3	7,102,253.5	1043.5	CREST	62	459,349.3	7,101,758.9	990.0	BENCH CREST
27	459,384.4	7,102,214.8	1042.1	CREST	63	459,256.1	7,101,665.3	990.0	BENCH CREST
28	459,348.9	7,102,179.4	1041.6	CREST	64	459,421.3	7,102,072.9	1030.0	BENCH CREST
29	459,326.8	7,102,131.5	1046.9	CREST	65	459,408.9	7,102,008.3	1030.0	BENCH CREST
30	459,312.6	7,102,089.2	1053.4	CREST	66	459,395.5	7,101,960.3	1030.0	BENCH CREST
31	459,296.9	7,102,035.2	1065.1	CREST	67	459,385.8	7,101,927.1	1030.0	BENCH CREST
32	459,297.9	7,101,974.9	1069.9	CREST	68	459,342.8	7,101,880.1	1030.0	BENCH CREST
33	459,269.6	7,101,934.4	1066.5	CREST	69	459,270.8	7,101,838.9	1030.0	BENCH CREST
34	459,232.6	7,101,891.9	1059.5	CREST	70	459,233.6	7,101,775.9	1030.0	BENCH CREST
35	459,221.3	7,101,859.7	1055.7	CREST					
36	459,223.0	7,101,818.6	1046.3	CREST					



THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE REGRADED CONTOURS REPRESENT THE TOP OF THE LEACH PAD LINER WITHIN THE PAD, TOP OF ROAD SURFACES, AND BOTTOM OF EROSION PROTECTION WITHIN ALL CHANNELS. BELOW ELEVATION 940m, CLEAR & GRUB THEN REMOVE 1.8m NATIVE MATERIAL TO PREPARED SUBGRADE. ABOVE ELEVATION 940, CLEAR & GRUB THEN REMOVE 0.3m NATIVE MATERIAL TO PREPARED SUBGRADE.
3. ALL UNSUITABLE MATERIALS ENCOUNTERED DURING CONSTRUCTION MUST BE REMOVED AND EITHER REPLACED WITH COMPACTED RANDOM FILL, SITE GRADING FILL, OR HAVE THE EXCAVATED SURFACE PREPARED AS THE ROUGH GRADE SURFACE.
4. SLOPES OF THE REGRADED PAD GROUND SURFACE CONTOURS SHALL NOT EXCEED 2.5H:1V UNLESS NOTED OTHERWISE.
5. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

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ISSUED FOR CONSTRUCTION

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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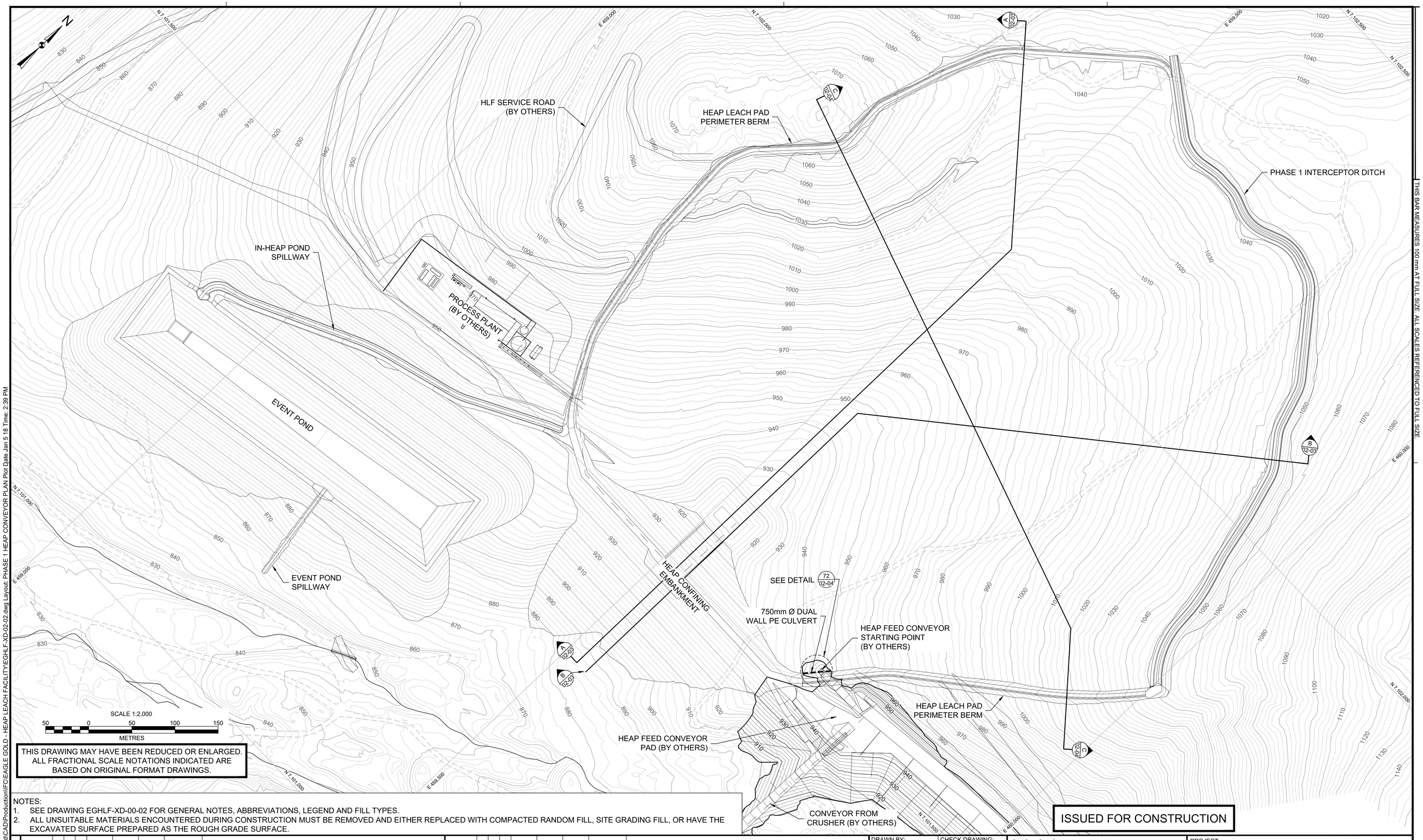
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PAD GRADING PLAN

SCALE:	DWG No.:	REV.:
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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL UNSUITABLE MATERIALS ENCOUNTERED DURING CONSTRUCTION MUST BE REMOVED AND EITHER REPLACED WITH COMPACTED RANDOM FILL, SITE GRADING FILL, OR HAVE THE EXCAVATED SURFACE PREPARED AS THE ROUGH GRADE SURFACE.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

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DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER:	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

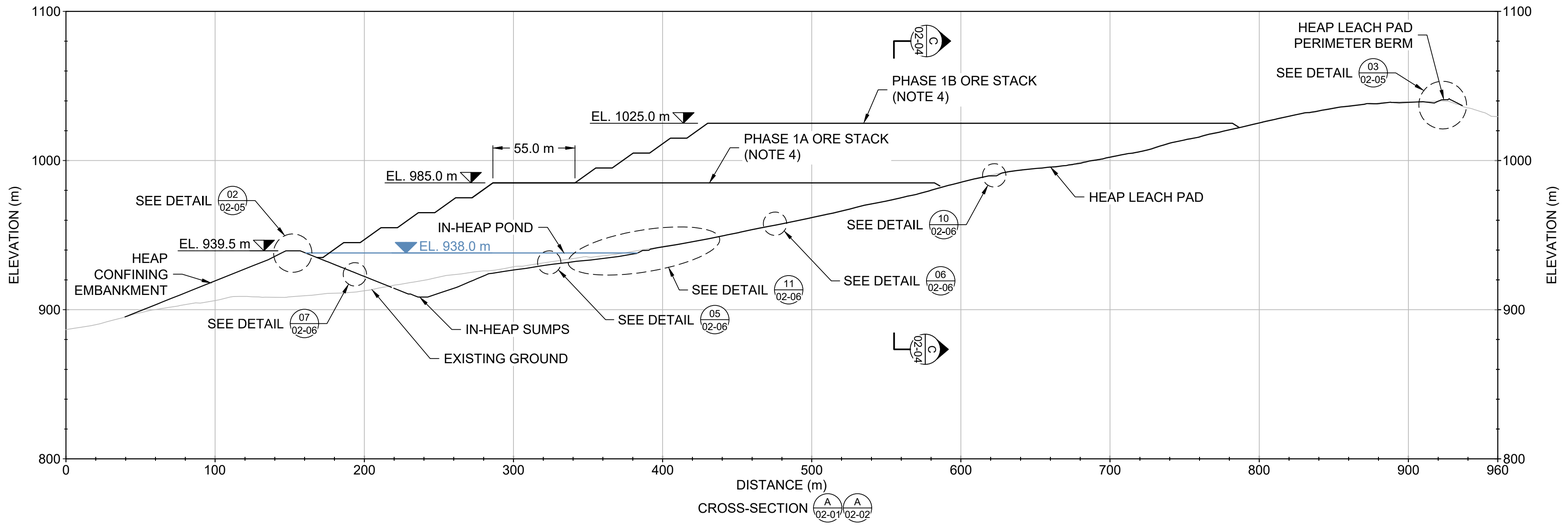
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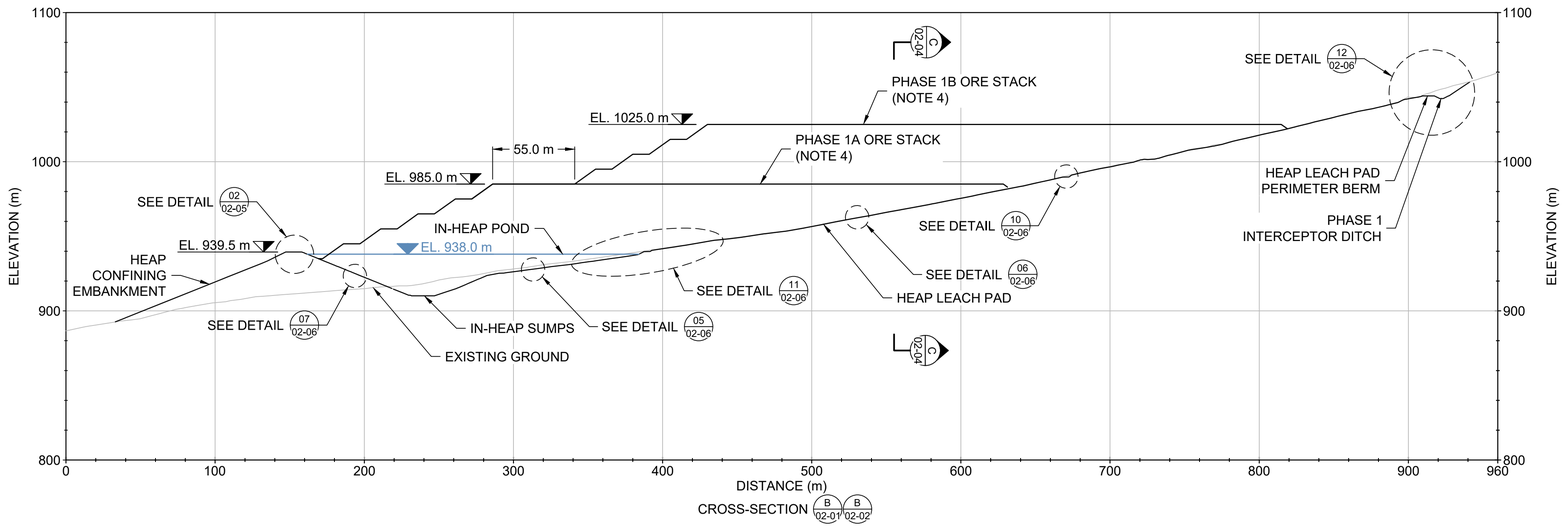
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 HEAP CONVEYOR PLAN

SCALE:	DWG No.:	REV.:
1:2,000	EGHLF-XD-02-02	0

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SCALE 1:2,000

50 0 50 100 150

METRES

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PHASE 2 AND 3 PAD AND ORE STACK ARE NOT DESIGNED IN THIS CONSTRUCTION PACKAGE AND ARE NOT SHOWN.
3. BELOW ELEVATION 940m, CLEAR & GRUB THEN REMOVE 1.8m NATIVE MATERIAL TO PREPARED SUBGRADE. ABOVE ELEVATION 940m, CLEAR & GRUB THEN REMOVE 0.3m NATIVE MATERIAL TO PREPARED SUBGRADE.
4. ORE STACKING PLAN (BY OTHERS) MAY RESULT IN ORE HEAP STACK LIMITS DIFFERENT FROM SHOWN HERE. PHASES 1A/1B ORE STACKS ARE REPRESENTATIVE OF FIRST EIGHT QUARTERS DEVELOPED BY FORTE DYNAMICS, INC. A 55m SETBACK BENCH IS REQUIRED AT ELEVATION 985m FOR GEOTECHNICAL STABILITY.
5. REQUIRED CONVEYOR RAMPS ON ORE HEAP STACK NOT SHOWN.
6. MAXIMUM OVERALL HEAP ORE STACK OUTSLOPE OF 2.5H:1V SHOWN. ORE WILL BE STACKED AT ANGLE OF REPOSE WITH BENCHES NECESSARY TO ACHIEVE THE OVERALL MAXIMUM OUTSLOPE ANGLE.

ISSUED FOR CONSTRUCTION

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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

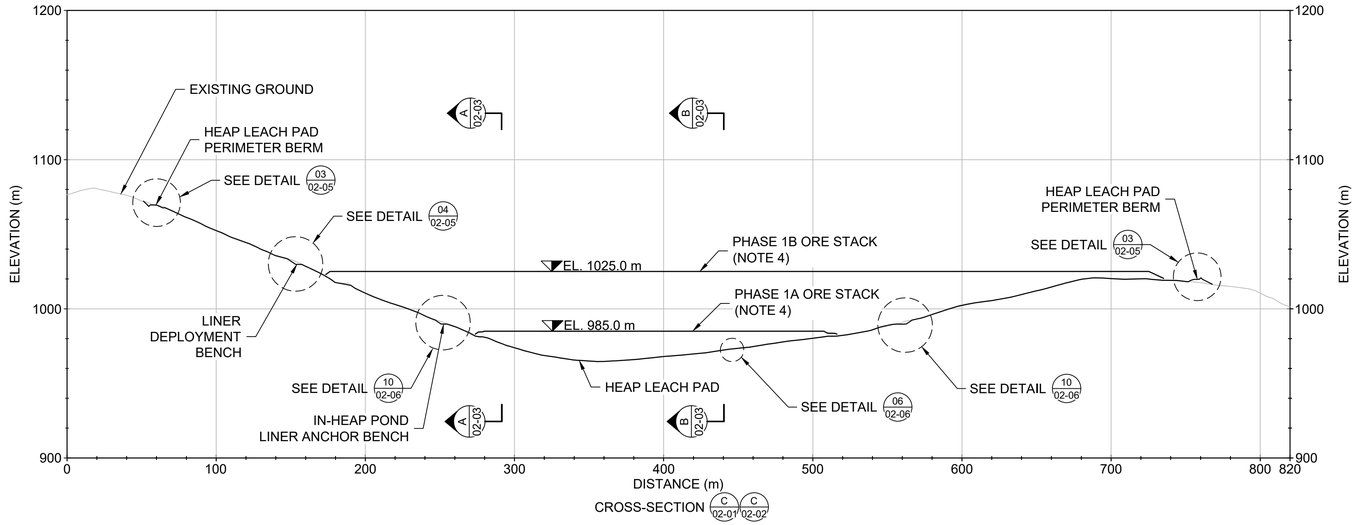
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

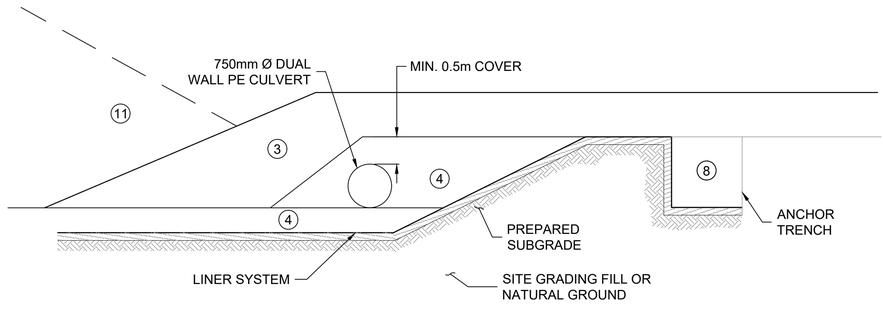
TITLE: PHASE 1 PAD GRADING CROSS-SECTIONS SHEET 1 OF 2

SCALE:	DWG No.:	REV.:
1:2,000	EGHLF-XD-02-03	0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\07792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-02-03.dwg Layout: EGHLF-XD-02-03 Plot Date: Jan 4 18 Time: 11:32 AM





750mm Ø DUAL WALL PE CULVERT CROSS SECTION 72 02-02

SCALE = N.T.S.

SCALE 1:2,000

50 0 50 100 150

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PHASE 2 AND 3 PAD AND ORE PILE ARE NOT DESIGNED IN THIS CONSTRUCTION PACKAGE AND ARE NOT SHOWN.
3. BELOW ELEVATION 940m, CLEAR & GRUB THEN REMOVE 1.8m NATIVE MATERIAL TO PREPARED SUBGRADE. ABOVE ELEVATION 940m, CLEAR & GRUB THEN REMOVE 0.3m NATIVE MATERIAL TO PREPARED SUBGRADE.
4. ORE STACKING PLAN (BY OTHERS) MAY RESULT IN ORE HEAP PILE LIMITS DIFFERENT FROM SHOWN HERE. PHASES 1A/1B ORE STACKS ARE REPRESENTATIVE OF FIRST EIGHT QUARTERS DEVELOPED BY FORTE DYNAMICS, INC.
5. REQUIRED CONVEYOR RAMPS ON ORE HEAP PILE NOT SHOWN.
6. MAXIMUM OVERALL HEAP ORE PILE OUTSLOPE OF 2.5H:1V SHOWN. ORE WILL BE STACKED AT ANGLE OF REPOSE WITH BENCHES NECESSARY TO ACHIEVE THE OVERALL MAXIMUM OUTSLOPE ANGLE.

ISSUED FOR CONSTRUCTION

LEGEND
- 3 STRUCTURAL FILL
- 4 OVERLINER DRAIN FILL
- 11 ORE STOCKPILE

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

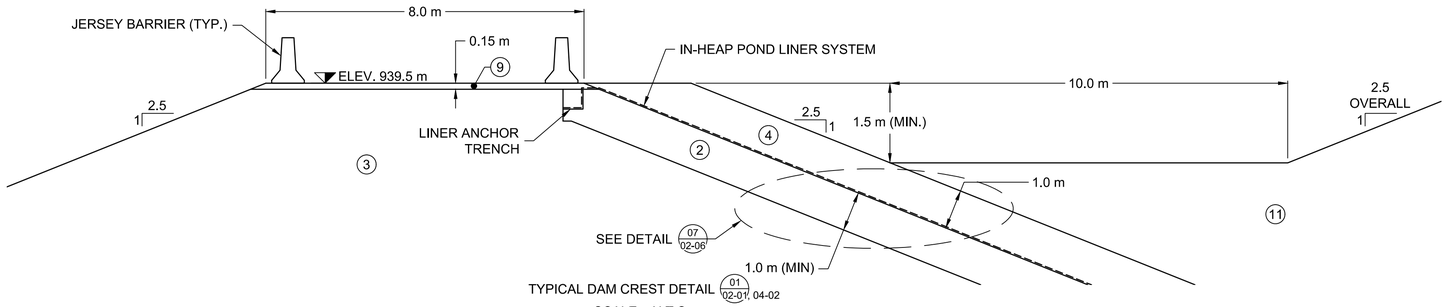
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

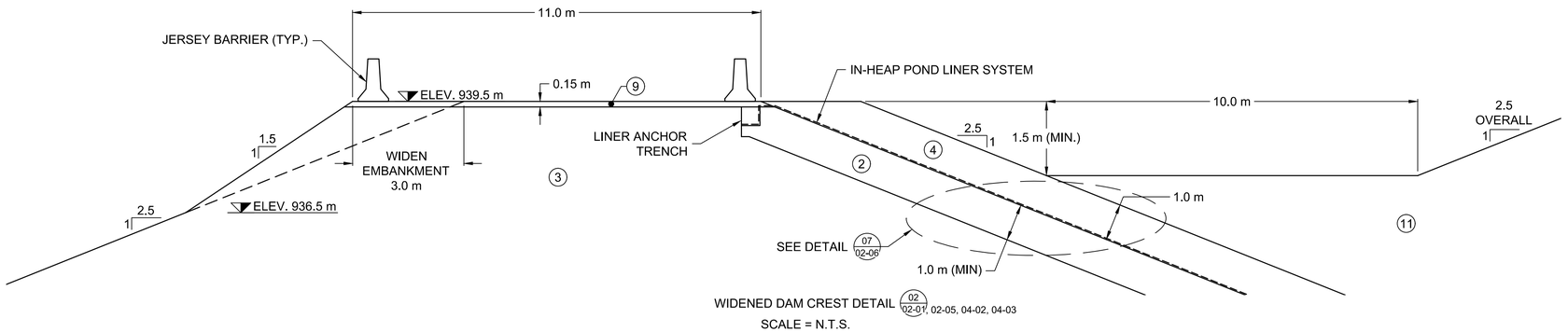
TITLE: PHASE 1 PAD GRADING CROSS-SECTIONS SHEET 2 OF 2

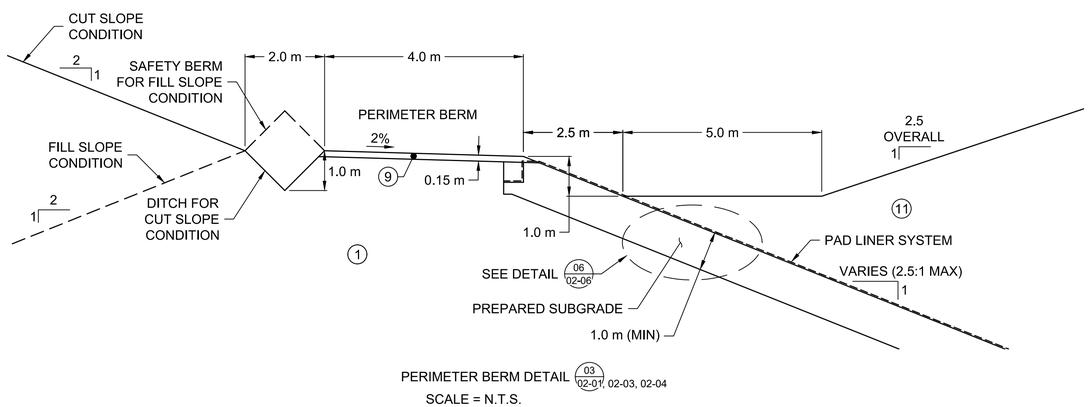
SCALE:	DWG No.:	REV.:
1:2,000	EGHLF-XD-02-04	0

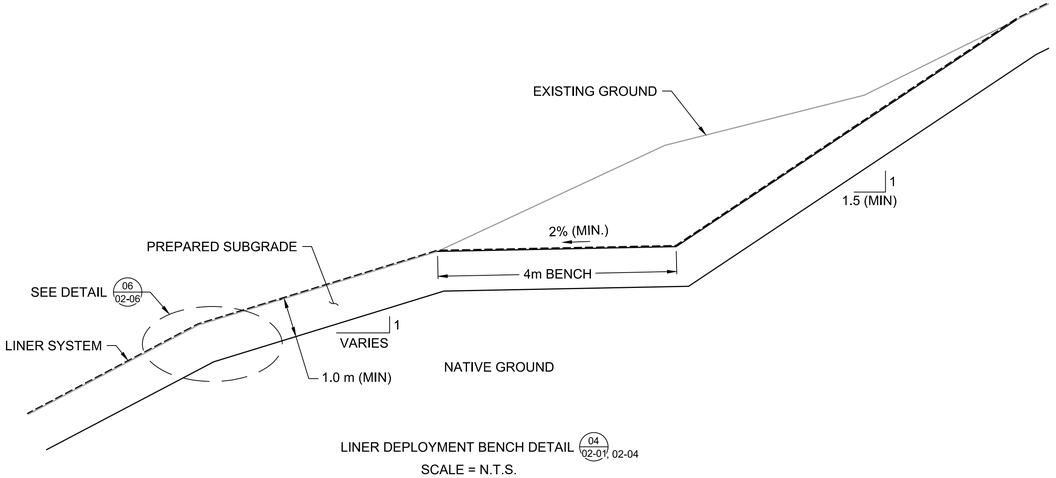
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-02-04.dwg Layout: EGHLF-XD-02-04 Plot Date: Jan 4 18 Time: 11:48 AM









LEGEND

1	SITE GRADING FILL
2	SELECT FILL
3	STRUCTURAL FILL
4	OVERLINER DRAIN FILL
9	ROAD WEARING COURSE
11	ORE STOCKPILE

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

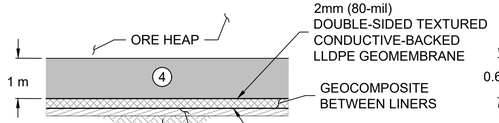
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CORRIDOR TYPICAL SECTIONS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-02-05	0

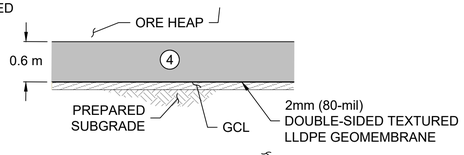
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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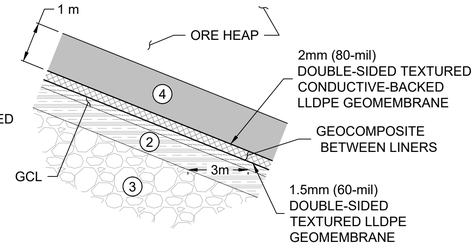
PAD DOUBLE LINER DETAIL (05, 02-01, 02-03)

SCALE = N.T.S.



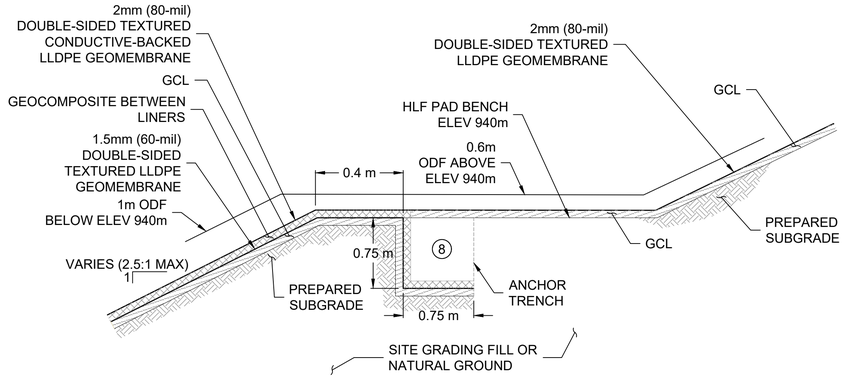
PAD SINGLE LINER DETAIL (06, 02-01, 02-03)

SCALE = N.T.S.



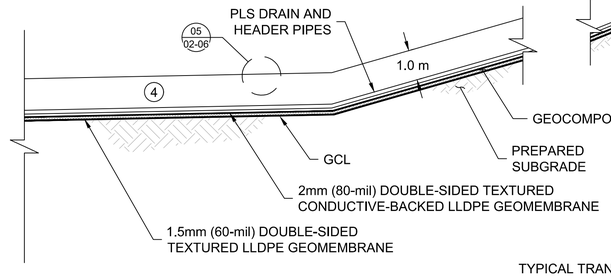
EMBANKMENT LINER DETAIL (07, 02-01, 02-03, 04-03)

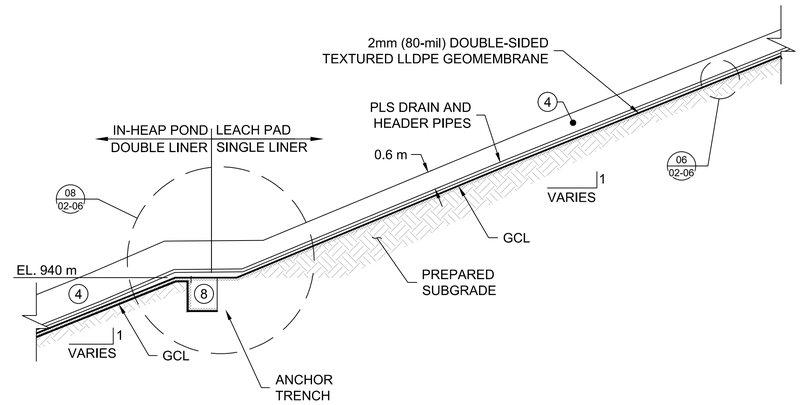
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DOUBLE LINER GEOMEMBRANE ANCHOR DETAIL (08, 02-01)

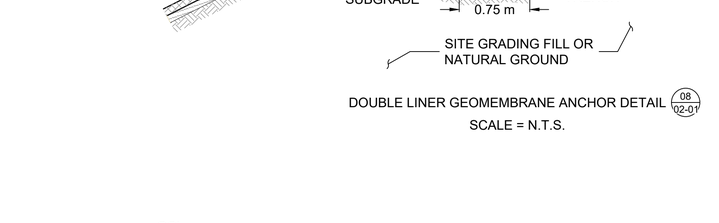
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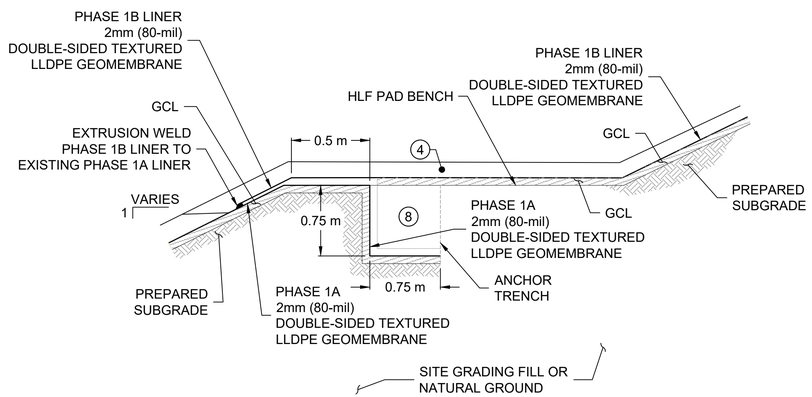
TYPICAL TRANSITION FROM IN–HEAP POND (11, 02-03, 04-02)

SCALE = N.T.S.



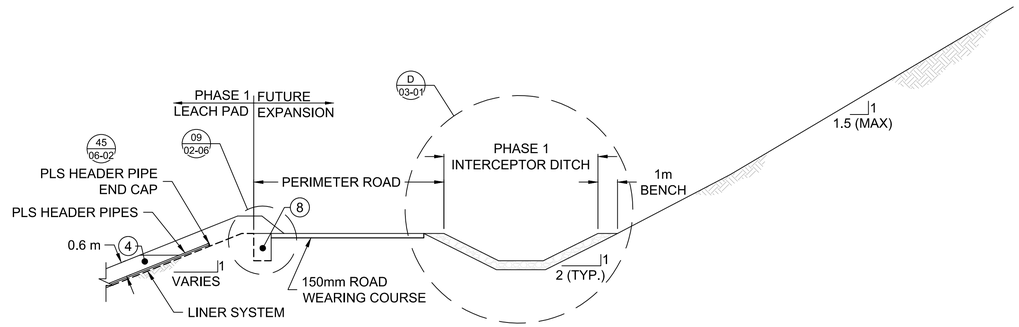
SINGLE LINER GEOMEMBRANE ANCHOR DETAIL (09, 02-06)

SCALE = N.T.S.



PHASE 1B GEOMEMBRANE DETAIL (10, 02-01, 02-03, 02-04)

SCALE = N.T.S.



TYPICAL PHASE 1 PERIMETER ROAD W/ INTERCEPTOR DITCH (12, 02-07)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (8) ANCHOR TRENCH FILL

REVISION INFORMATION

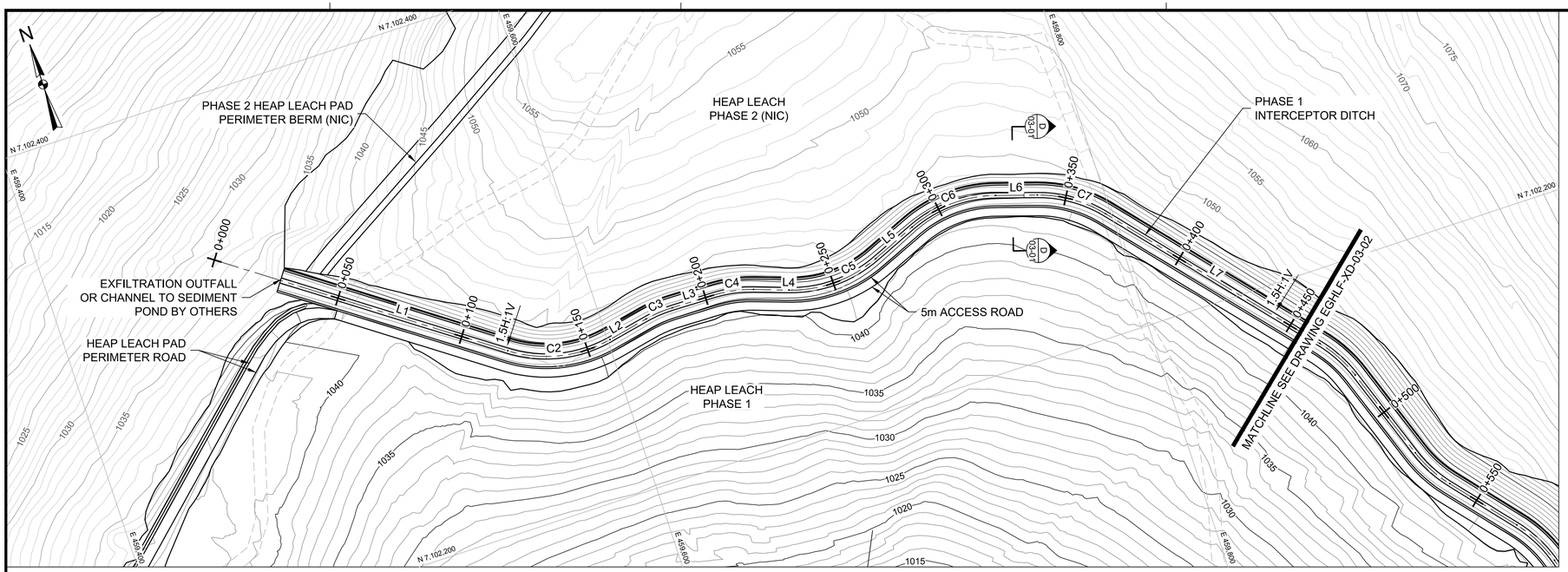
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: LINER DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		SCALE: N.T.S. / DWG No.: EGHLF-XD-02-06 / REV.: 0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

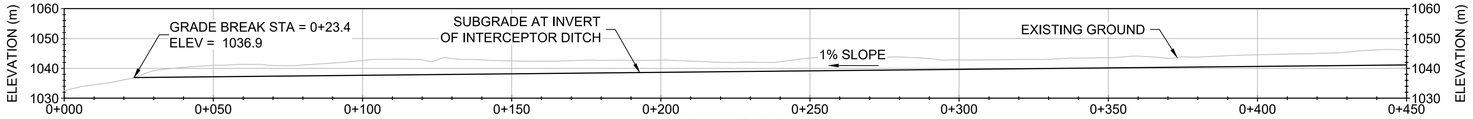
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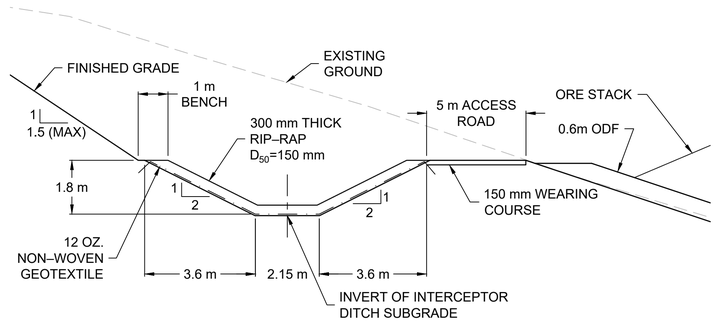
CURVE TABLE				
C#	RADIUS (m)	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
C2	50.0	40.9	(459,562.1,7,102,268.5)	(459,600.9,7,102,260.2)
C3	50.0	11.0	(459,616.6,7,102,263.3)	(459,627.6,7,102,264.3)
C4	50.0	15.7	(459,644.3,7,102,263.9)	(459,659.6,7,102,261.1)
C5	50.0	36.5	(459,672.5,7,102,256.6)	(459,708.2,7,102,257.6)
C6	50.0	35.2	(459,725.4,7,102,264.7)	(459,759.8,7,102,266.2)
C7	50.0	27.7	(459,775.2,7,102,261.3)	(459,798.0,7,102,246.1)

LINE TABLE			
L#	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
L1	118.6	(459,465.5,7,102,337.4)	(459,562.1,7,102,268.5)
L2	16.0	(459,600.9,7,102,260.2)	(459,616.6,7,102,263.3)
L3	16.7	(459,627.6,7,102,264.3)	(459,644.3,7,102,263.9)
L4	13.7	(459,659.6,7,102,261.1)	(459,672.5,7,102,256.6)
L5	18.6	(459,708.2,7,102,257.6)	(459,725.4,7,102,264.7)
L6	16.1	(459,759.8,7,102,266.2)	(459,775.2,7,102,261.3)
L7	96.8	(459,798.0,7,102,246.1)	(459,860.8,7,102,172.5)

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.



PHASE 1 INTERCEPTOR DITCH PROFILE



TYPICAL PHASE 1 INTERCEPTOR DITCH SECTION (D 03-01) (D 03-02)

SCALE = N.T.S.

SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TEMPORARY SLOPE ABOVE PHASE 1 INTERCEPTOR DITCH SHALL BE MAXIMUM 1.5H:1V OR AS OTHERWISE DIRECTED BY THE OWNER'S ENGINEER BASED ON VISUAL OBSERVATION OF FIELD CONDITIONS DURING CONSTRUCTION.

ISSUED FOR CONSTRUCTION

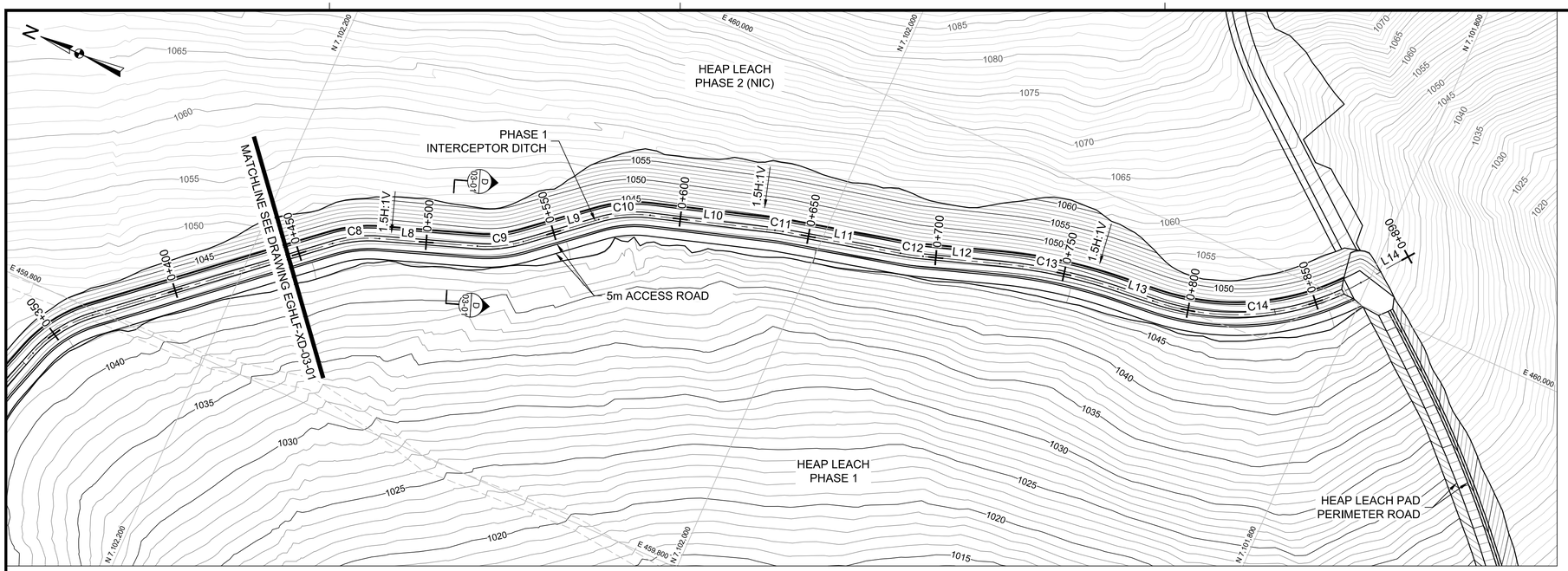
REVISION INFORMATION

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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE SHEET 1 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-03-01 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

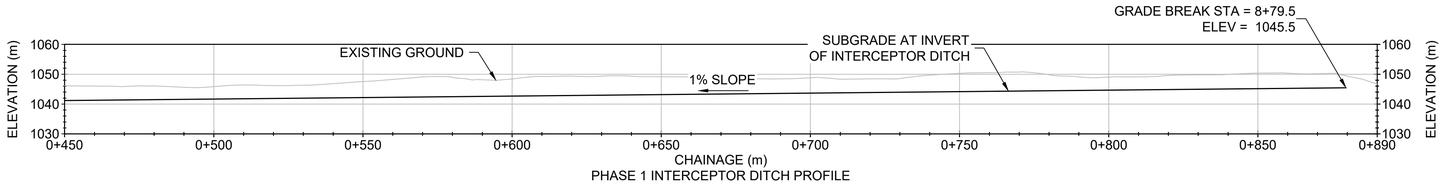
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CURVE TABLE				
C#	RADIUS (m)	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
C8	50.0	18.4	(459,860.8,7,102,172.5)	(459,869.9,7,102,156.7)
C9	50.0	18.0	(459,882.6,7,102,120.9)	(459,891.5,7,102,105.3)
C10	50.0	20.1	(459,911.0,7,102,082.1)	(459,920.5,7,102,064.6)
C11	50.0	3.2	(459,934.8,7,102,018.1)	(459,935.6,7,102,015.0)
C12	100.0	8.8	(459,946.3,7,101,970.1)	(459,948.7,7,101,961.6)
C13	200.0	46.8	(459,958.2,7,101,933.3)	(459,967.7,7,101,887.6)
C14	100.0	83.2	(459,968.9,7,101,873.4)	(460,007.9,7,101,802.7)

LINE TABLE			
L#	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
L8	38.0	(459,869.9,7,102,156.7)	(459,882.6,7,102,120.9)
L9	30.4	(459,891.5,7,102,105.3)	(459,911.0,7,102,082.1)
L10	48.6	(459,920.5,7,102,064.6)	(459,934.8,7,102,018.1)
L11	46.2	(459,935.6,7,102,015.0)	(459,946.3,7,101,970.1)
L12	29.8	(459,948.7,7,101,961.6)	(459,958.2,7,101,933.3)
L13	14.2	(459,967.7,7,101,887.6)	(459,968.9,7,101,873.4)
L14	20.9	(460,007.9,7,101,802.7)	(460,024.6,7,101,790.0)

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE



PHASE 1 INTERCEPTOR DITCH PROFILE

SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TEMPORARY SLOPE ABOVE PHASE 1 INTERCEPTOR DITCH SHALL BE MAXIMUM 1.5H:1V OR AS OTHERWISE DIRECTED BY THE OWNER'S ENGINEER BASED ON VISUAL OBSERVATION OF FIELD CONDITIONS DURING CONSTRUCTION.
3. BASE TOPOGRAPHIC DATA BASED ON CONTOURS FROM LIDAR SURVEY PROVIDED BY M3 ENGINEERING, DATED 2011. CONTOUR INTERVAL IS 1 m.

ISSUED FOR CONSTRUCTION

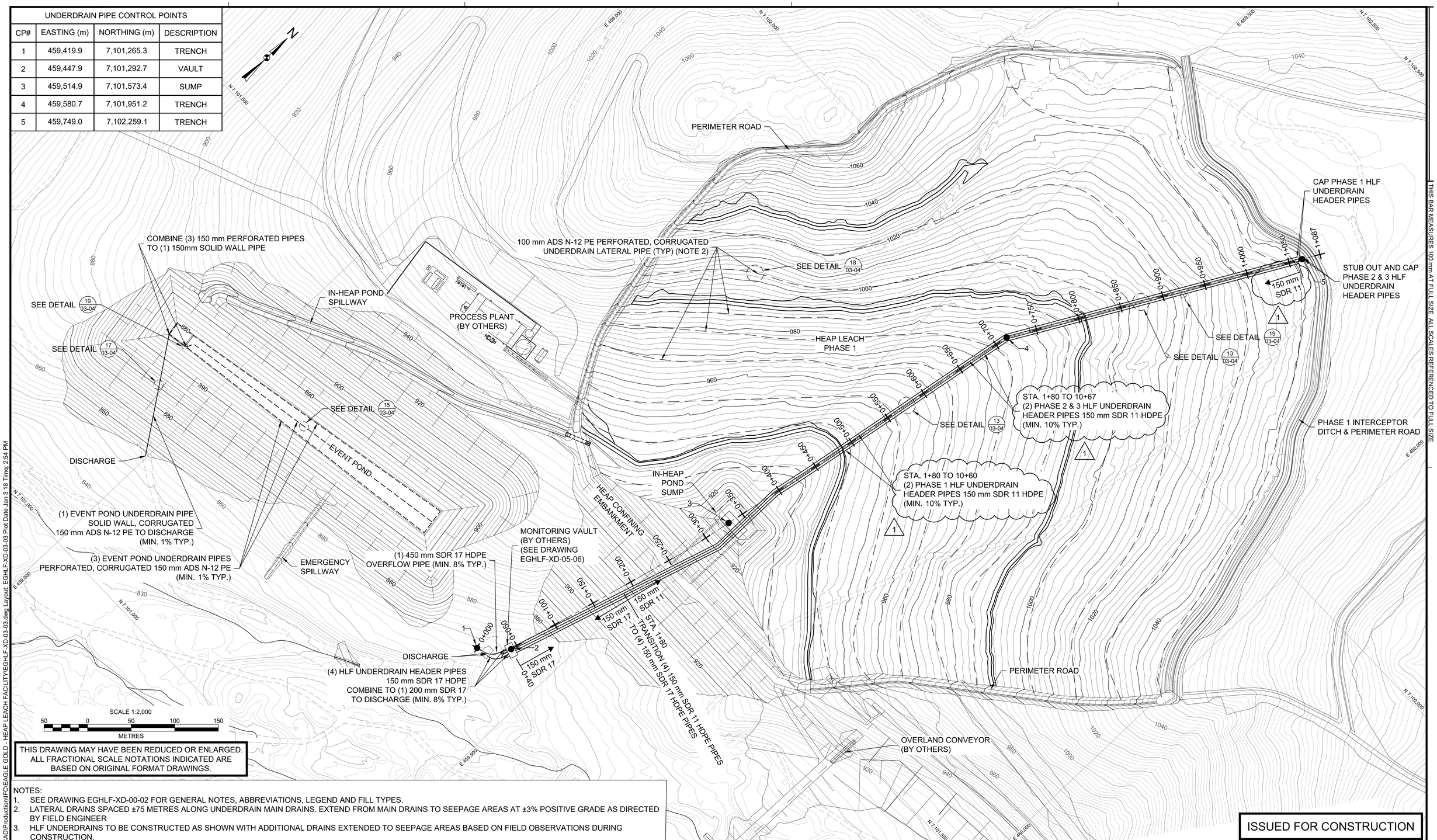
REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-03-02 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

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UNDERDRAIN PIPE CONTROL POINTS			
CP#	EASTING (m)	NORTHING (m)	DESCRIPTION
1	459,419.9	7,101,265.3	TRENCH
2	459,447.9	7,101,292.7	VAULT
3	459,514.9	7,101,573.4	SUMP
4	459,580.7	7,101,951.2	TRENCH
5	459,749.0	7,102,259.1	TRENCH



SCALE 1:2,000

50 0 50 100 150

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. LATERAL DRAINS SPACED ±75 METRES ALONG UNDERDRAIN MAIN DRAINS. EXTEND FROM MAIN DRAINS TO SEEPAGE AREAS AT ±3% POSITIVE GRADE AS DIRECTED BY FIELD ENGINEER
3. HLF UNDERDRAINS TO BE CONSTRUCTED AS SHOWN WITH ADDITIONAL DRAINS EXTENDED TO SEEPAGE AREAS BASED ON FIELD OBSERVATIONS DURING CONSTRUCTION.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	10	12	DAG	TLM	MEH	TLM	UNDERDRAIN PIPES REVISED

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

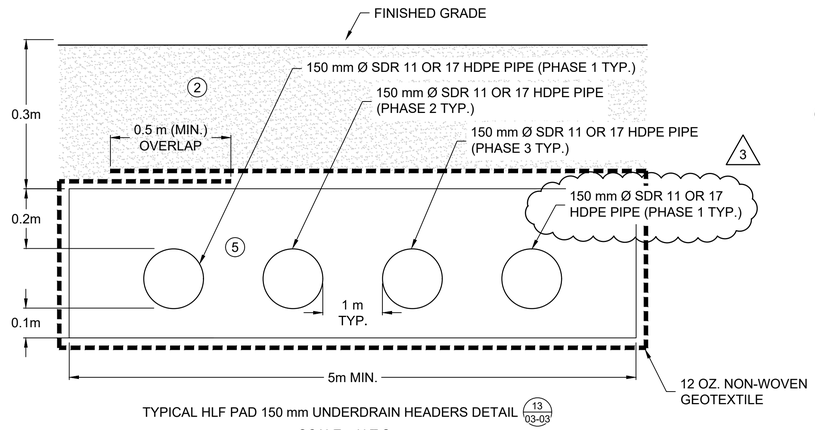
DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

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AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

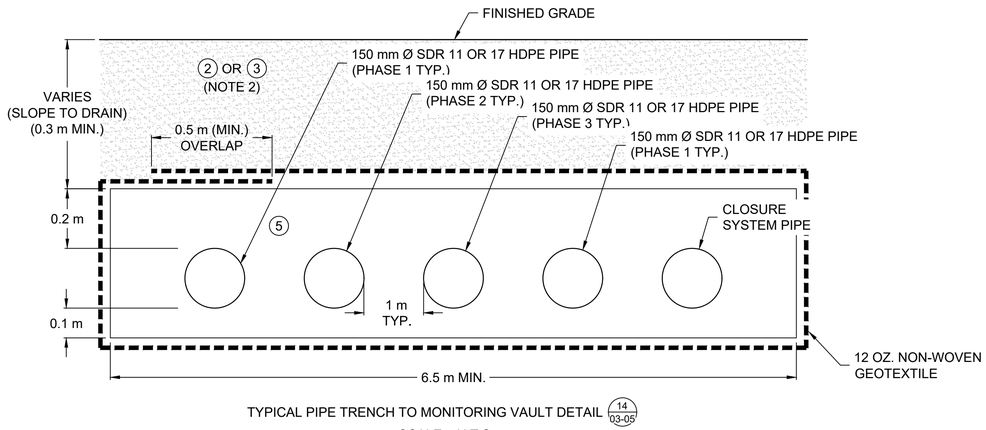
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: PHASE 1 UNDERDRAIN PIPING PLAN		
SCALE: 1:2,000	DWG No.: EGHLF-XD-03-03	REV.: 1

X:\Projects\0792 Victoria Gold\CAD\Production\FC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-03-03.dwg Layout: EGHLF-XD-03-03 Plot Date: Jan 3 18 Time: 2:54 PM



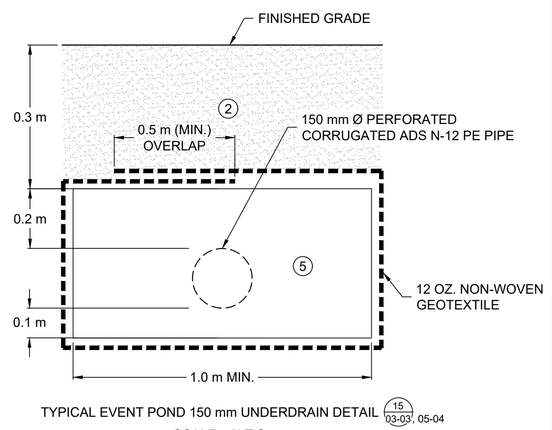
TYPICAL HLF PAD 150 mm UNDERDRAIN HEADERS DETAIL 13/03-03

SCALE = N.T.S.



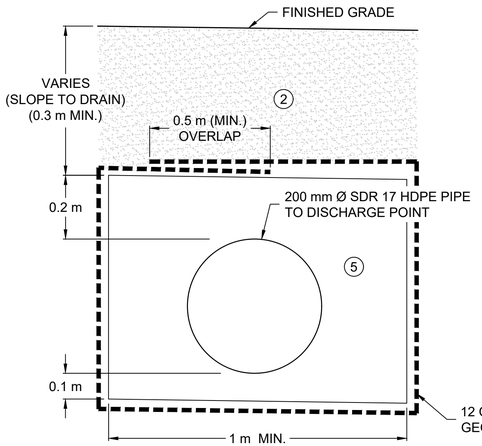
TYPICAL PIPE TRENCH TO MONITORING VAULT DETAIL 14/03-05

SCALE = N.T.S.



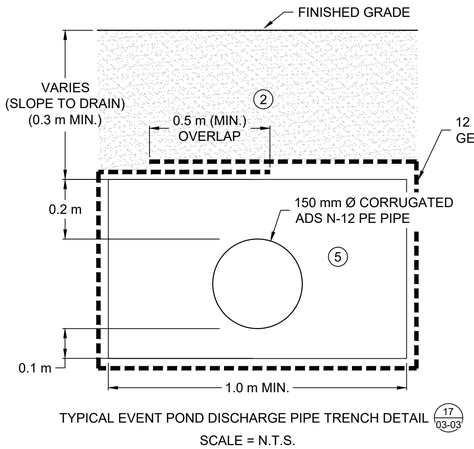
TYPICAL EVENT POND 150 mm UNDERDRAIN DETAIL 15/03-03; 05-04

SCALE = N.T.S.



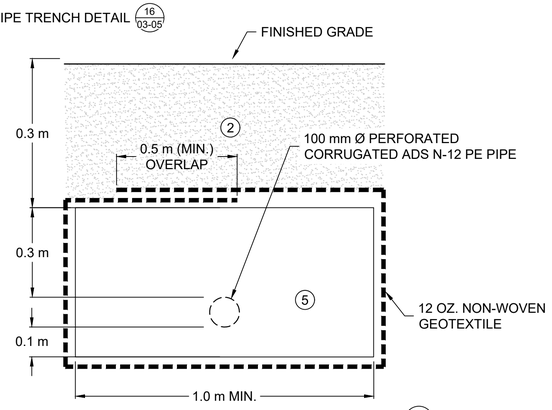
TYPICAL MONITORING VAULT DISCHARGE PIPE TRENCH DETAIL 16/03-05

SCALE = N.T.S.

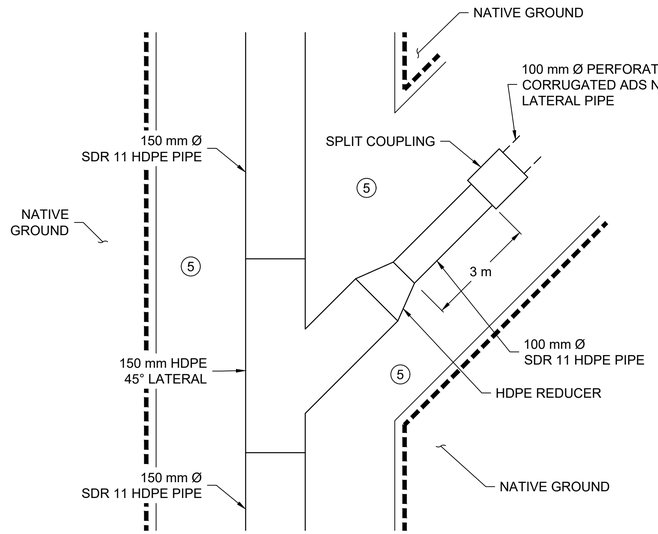


TYPICAL EVENT POND DISCHARGE PIPE TRENCH DETAIL 17/03-03

SCALE = N.T.S.



TYPICAL HLF PAD 100 mm UNDERDRAIN LATERAL DETAIL 18/03-03



LATERAL CONNECTION

TYPICAL UNDERDRAIN PIPE CONNECTION DETAIL 19/03-05

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SELECT FILL SHALL BE USED IN ALL TRENCH LOCATIONS OVERLAIN BY LINER. STRUCTURAL FILL MAY BE USED IN LOCATIONS UNDER THE EMBANKMENT PROVIDED NO ANGULAR PARTICLES OR PARTICLES LARGER THAN 75 mm ARE PLACED IN CONTACT WITH GEOTEXTILE.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (5) SELECT DRAIN FILL

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	REVISE DETAILS
2	17	10	12	DAG	TLM	MEH	TLM	REVISE PIPE SDR
3	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAIL 13 PIPE SDR

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

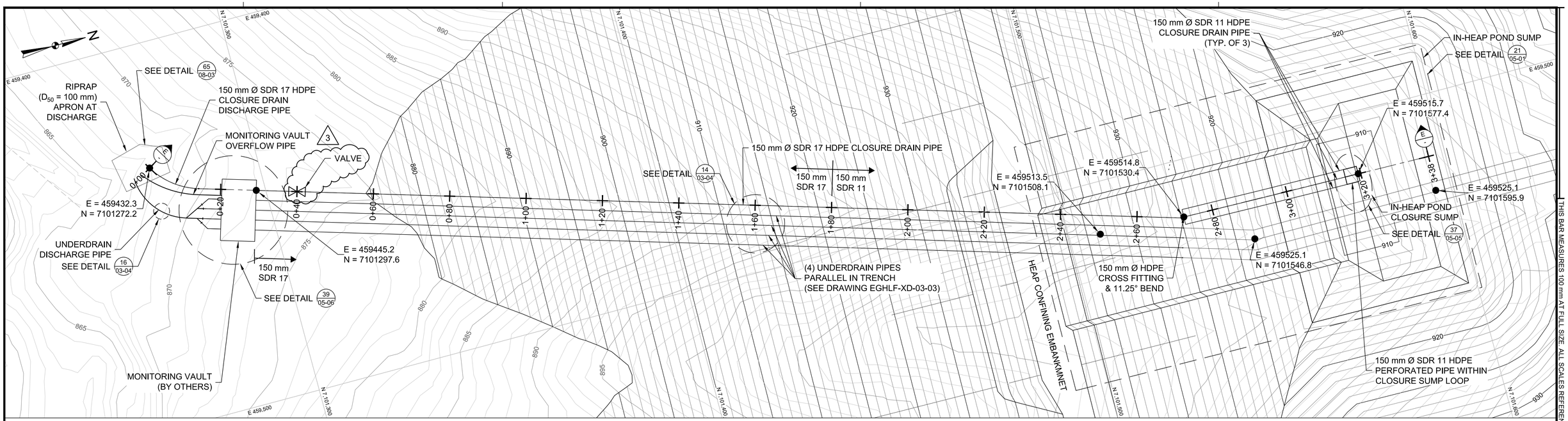
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 UNDERDRAIN PIPING DETAILS

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-03-04	3

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

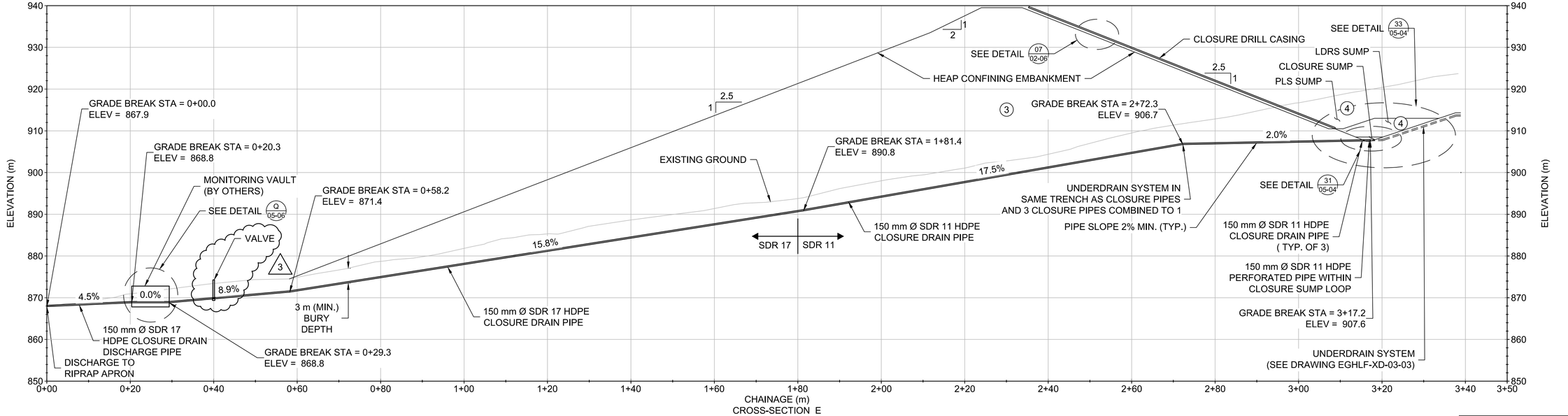
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SCALE 1:500

10 0 10 20 30

METRES



THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	CLOSURE AND UNDERDRAIN ALIGNMENT AND PROFILE REVISED
2	17	10	12	DAG	TLM	MEH	TLM	REVISED PIPE SDR
3	18	06	27	DAG	TLM	MEH	TLM	ADD VALVE AT STATION 0+40

DRAWN BY:	CHECK DRAWING:
DAG	CJT
DESIGN BY:	CHECK DESIGN:
TLM	MEH
LEAD ENGINEER:	APPROVAL DATE:
DEH	09/08/17
PROJECT MANAGER:	APPROVAL DATE:
TLM	09/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

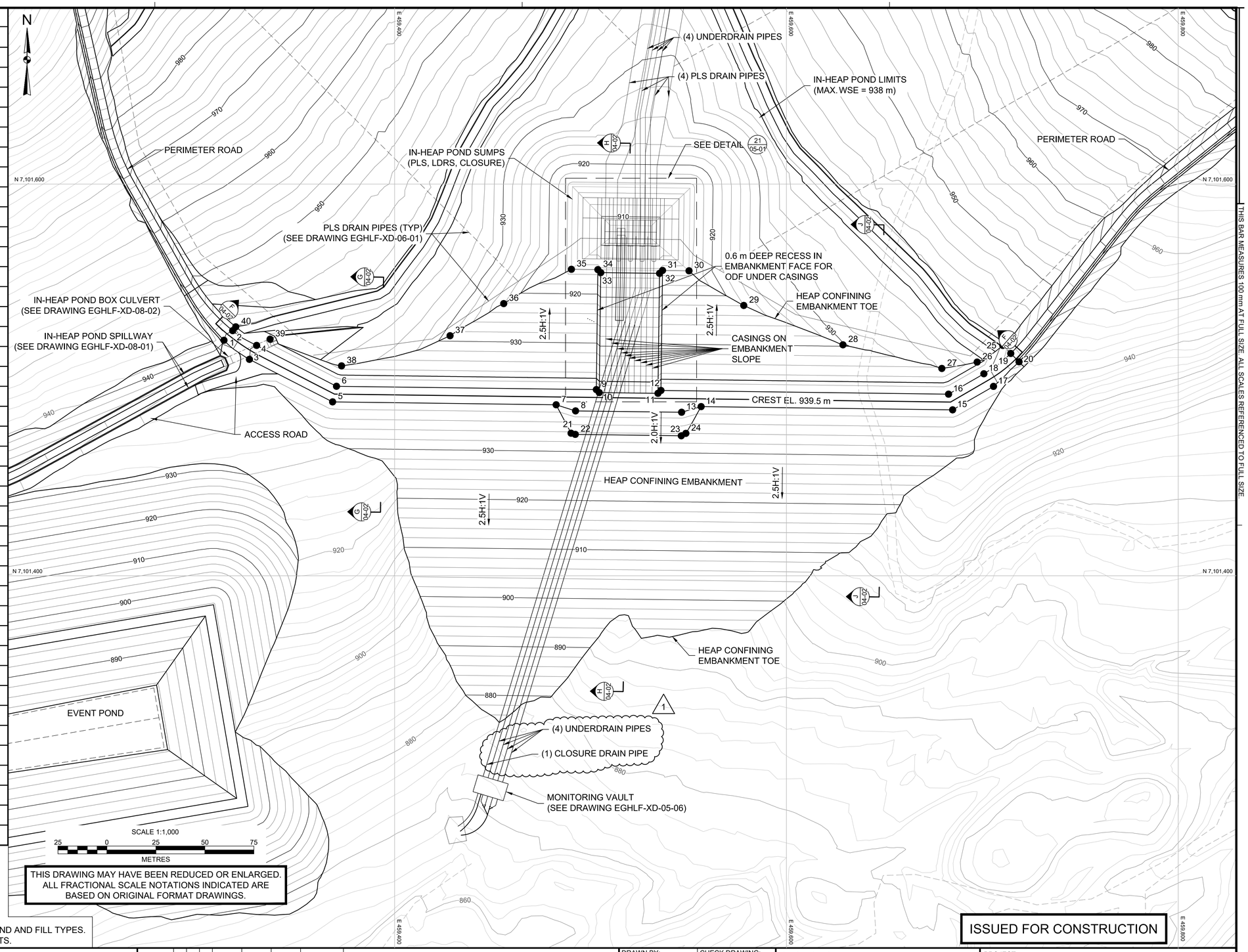
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CLOSURE PIPING PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
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HEAP CONFINING EMBANKMENT FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,312.9	7,101,520.2	940.7	CREST
2	459,317.4	7,101,525.1	940.7	CREST
3	459,325.9	7,101,510.5	939.5	CREST
4	459,329.6	7,101,517.6	939.5	CREST
5	459,368.4	7,101,488.8	939.5	CREST
6	459,370.3	7,101,496.8	939.5	CREST
7	459,482.5	7,101,487.3	939.5	CREST
8	459,492.4	7,101,484.2	939.5	CREST
9	459,503.0	7,101,495.0	939.5	CREST
10	459,504.4	7,101,493.5	939.5	CREST
11	459,534.4	7,101,493.1	939.5	CREST
12	459,536.0	7,101,494.6	939.5	CREST
13	459,546.5	7,101,483.5	939.5	CREST
14	459,556.5	7,101,486.4	939.5	CREST
15	459,684.8	7,101,484.7	939.5	CREST
16	459,682.7	7,101,492.7	939.5	CREST
17	459,705.7	7,101,496.7	939.5	CREST
18	459,700.7	7,101,503.2	939.5	CREST
19	459,714.5	7,101,513.5	943.2	CREST
20	459,718.7	7,101,509.2	943.3	CREST
21	459,490.1	7,101,472.8	933.7	TOE
22	459,492.2	7,101,472.2	933.5	TOE
23	459,546.3	7,101,471.5	933.5	TOE
24	459,548.6	7,101,472.7	934.0	TOE
25	459,710.4	7,101,517.6	940.6	TOE
26	459,697.3	7,101,509.1	936.7	TOE
27	459,679.3	7,101,505.9	934.3	TOE
28	459,628.8	7,101,517.9	929.7	TOE
29	459,578.2	7,101,538.0	921.9	TOE
30	459,550.3	7,101,555.7	915.0	TOE
31	459,536.8	7,101,555.9	915.0	TOE
32	459,535.2	7,101,554.4	915.0	TOE
33	459,505.2	7,101,554.8	915.0	TOE
34	459,503.8	7,101,556.3	915.0	TOE
35	459,490.3	7,101,556.5	915.0	TOE
36	459,455.7	7,101,539.0	922.2	TOE
37	459,428.3	7,101,522.5	928.9	TOE
38	459,372.9	7,101,507.2	935.3	TOE
39	459,336.5	7,101,520.8	938.3	TOE
40	459,318.9	7,101,527.1	939.7	TOE



NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SEE PROJECT TECHNICAL SPECIFICATIONS FOR PAD GRADING REQUIREMENTS.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	18	06	27	DAG	TLM	MEH	TLM	REVISE PIPE ANNOTAION

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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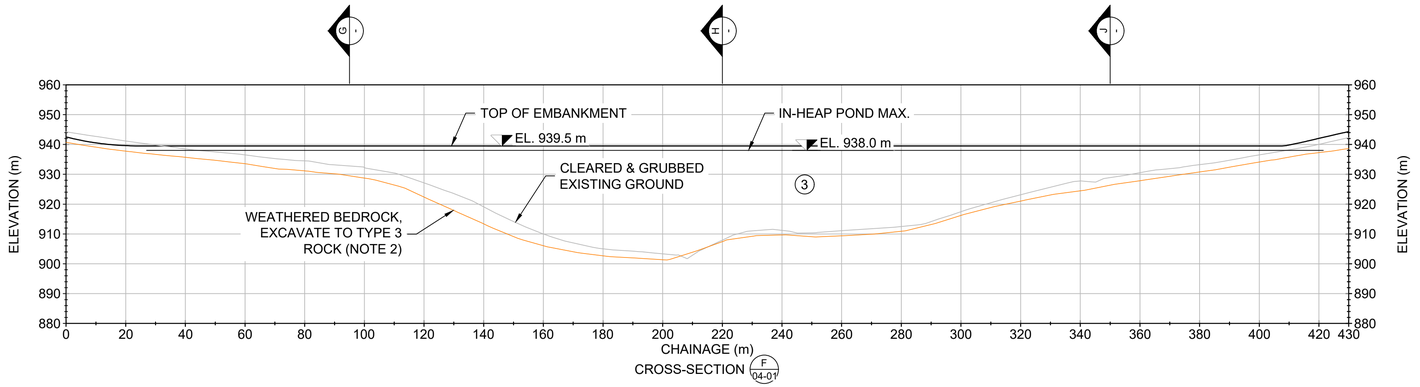
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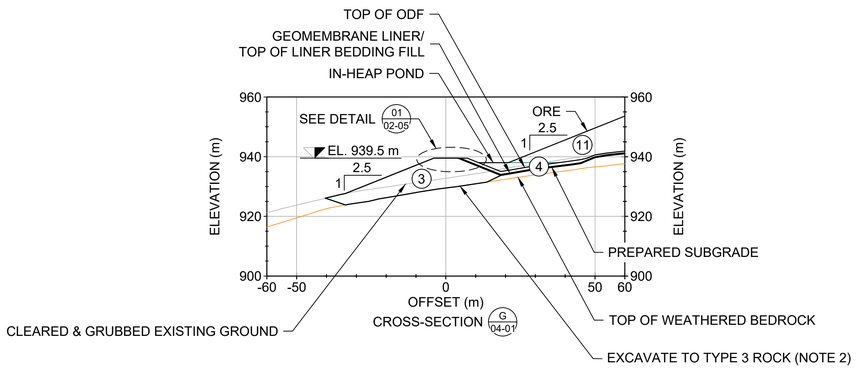
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

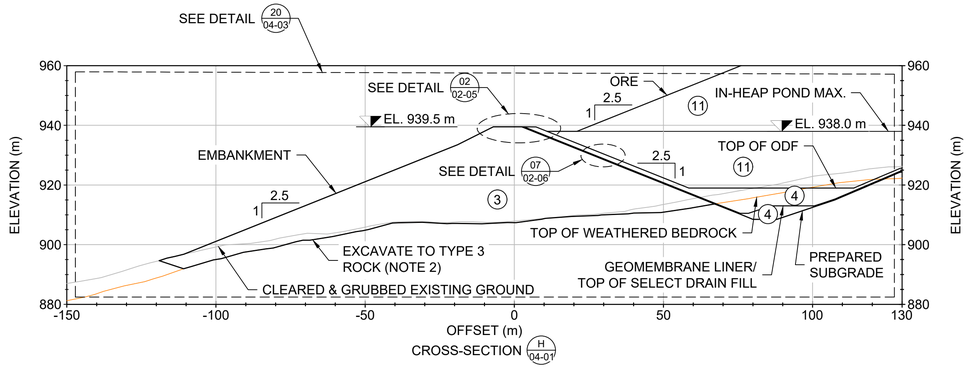
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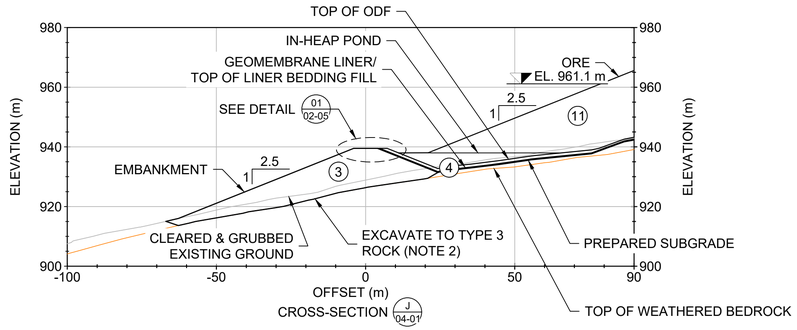
SCALE:	DWG No.:	REV.:
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SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. EMBANKMENT FOUNDATION AND ABUTMENT AREAS TO BE PREPARED BY EXCAVATION TO TYPE 3 (OR BETTER) BEDROCK PER PROJECT TECHNICAL SPECIFICATIONS. DEPTH TO TYPE 3 BEDROCK MAY VARY FROM THESE PLANS AND SHALL BE VERIFIED IN THE FIELD BY THE OWNER'S ENGINEER.
3. ORE STACK SLOPE IS 2.5H:1V OVERALL BUT SHALL BE COMPRISED OF 10 m LIFTS STACKED AT ANGLE OF REPOSE AS DETERMINED BY OTHERS..
4. SEE DRAWING EGHLF-XD-02-06 FOR IN-HEAP POND LINER DETAILS.
5. SEE DRAWING EGHLF-XD-04-03 FOR TYPICAL CONFINING EMBANKMENT SECTION..

LEGEND
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (11) ORE

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

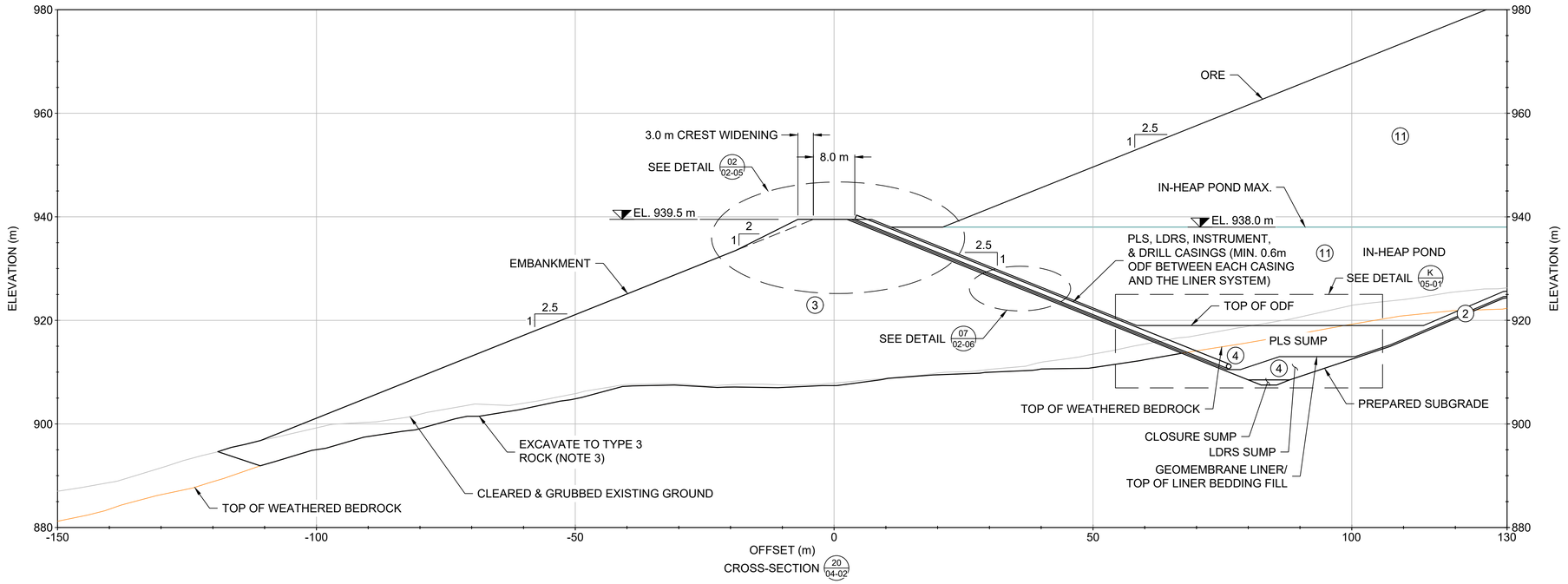
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EMBANKMENT CROSS-SECTIONS

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-04-02	0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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CROSS-SECTION 20 04-02

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PLACE AND COMPACT SITE GRADING FILL OR PLACE PLACER TAILINGS AND TREAT WITH DEEP DYNAMIC COMPACTION PER PROJECT TECHNICAL SPECIFICATIONS.
3. EMBANKMENT FOUNDATION AND ABUTMENT AREAS TO BE PREPARED BY EXCAVATION TO TYPE 3 (OR BETTER) BEDROCK PER PROJECT TECHNICAL SPECIFICATIONS. DEPTH TO TYPE 3 BEDROCK MAY VARY FROM THESE PLANS AND SHALL BE VERIFIED IN THE FIELD BY THE OWNER'S ENGINEER.
4. ORE PILE SLOPE IS 2.5H:1V OVERALL BUT SHALL BE COMPRISED OF 10 m LIFTS STACKED AT ANGLE OF REPOSE AS DETERMINED BY OTHERS.
5. SEE DRAWING EGHLF-XD-02-06 FOR IN-HEAP POND LINER DETAILS.

LEGEND

2	SELECT FILL
3	STRUCTURAL FILL
4	OVERLINER DRAIN FILL
11	ORE

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

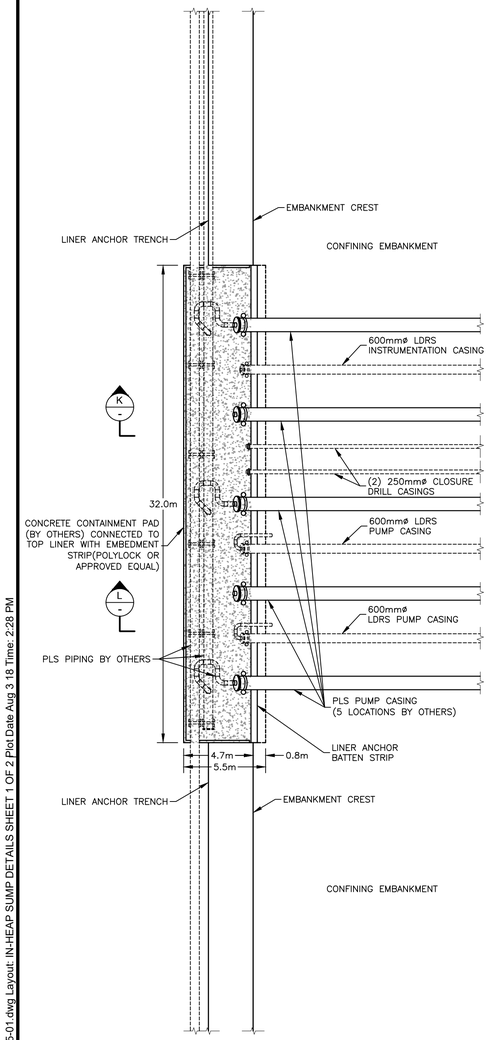
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

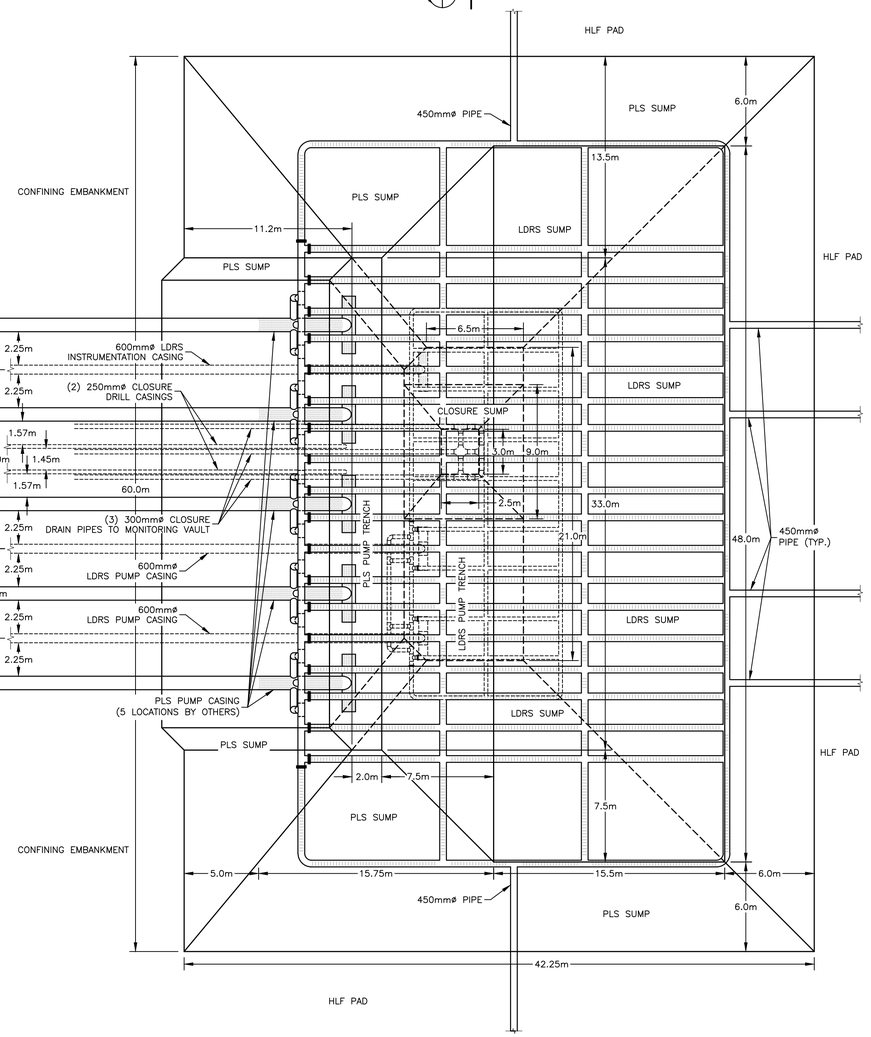
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EMBANKMENT DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:500 / DWG No.: EGHLF-XD-04-03 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

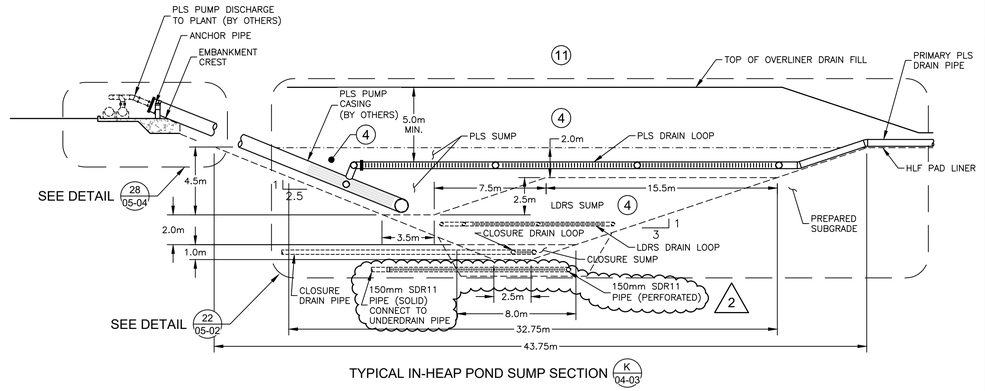
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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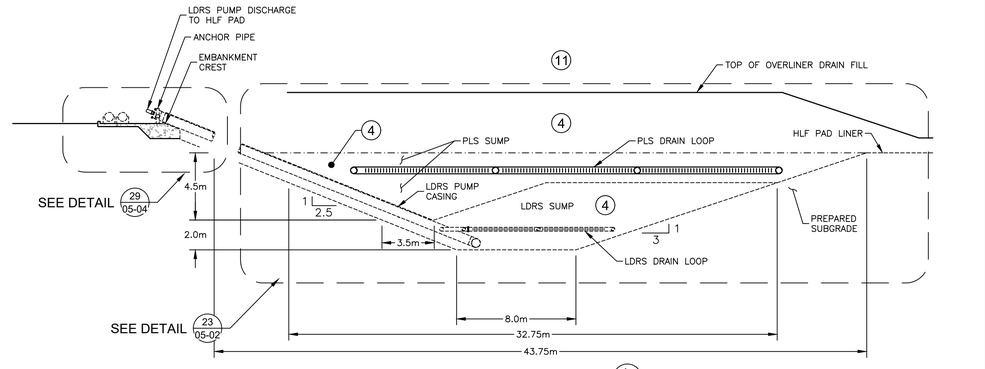




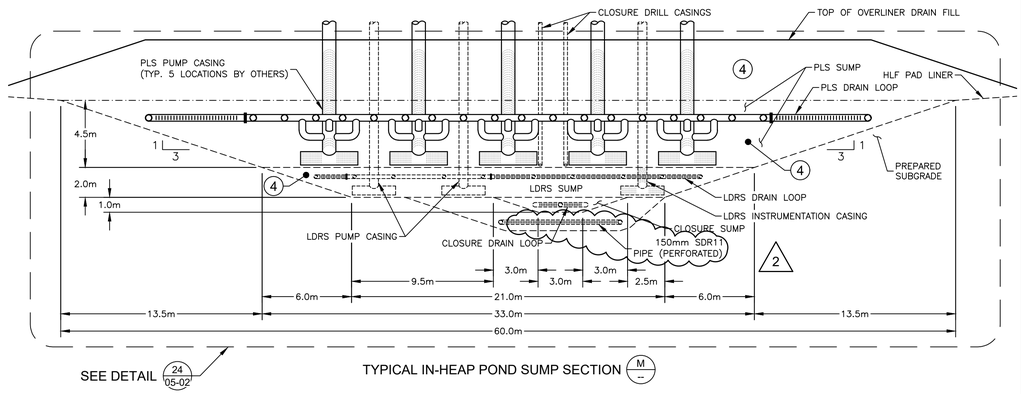
IN-HEAP POND SUMP PLAN (21, 04-01, 02-01, 03-05)



TYPICAL IN-HEAP POND SUMP SECTION (K, 04-03)



TYPICAL IN-HEAP POND SUMP SECTION (L, --)



TYPICAL IN-HEAP POND SUMP SECTION (M, --)

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
4. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
5. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR 16 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
6. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
7. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH GEOCOMPOSITE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

ISSUED FOR CONSTRUCTION

LEGEND
- (4) OVERLINER DRAIN FILL
- (11) SELECT DRAIN FILL

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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1	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

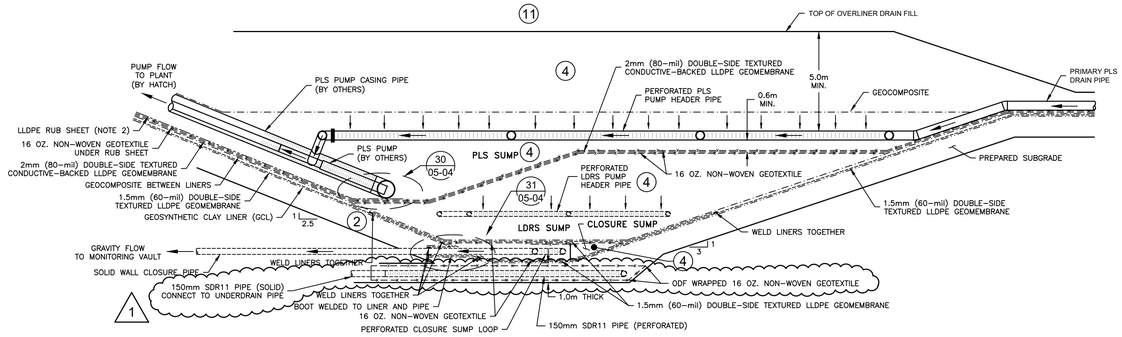
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP SUMP DETAILS SHEET 1 OF 2

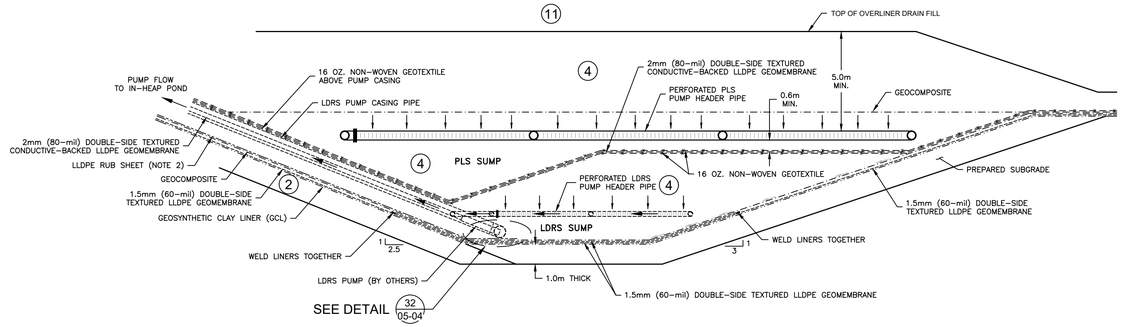
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N.T.S.	EGHLF-XD-05-01	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

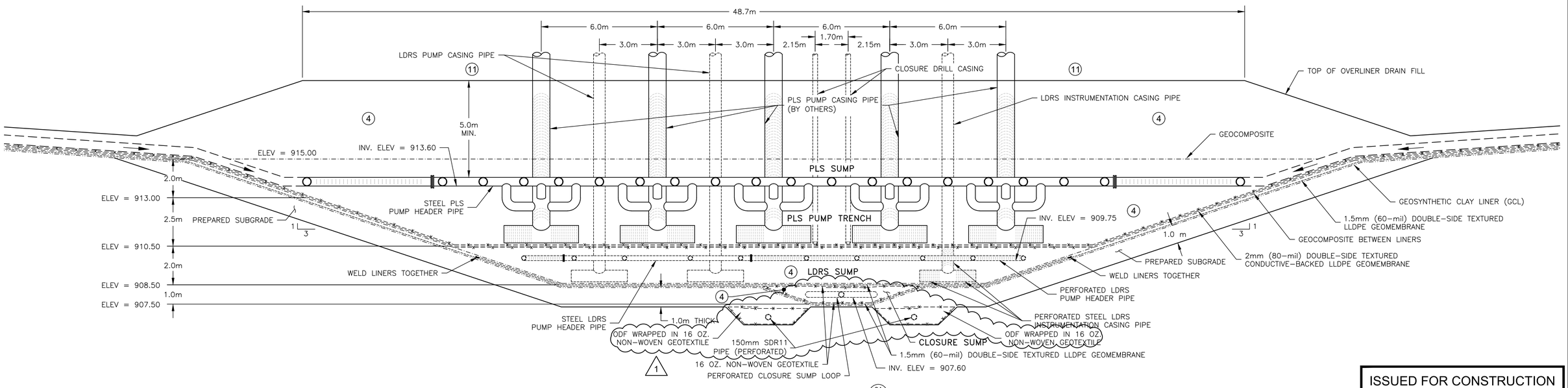
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PLS, LDRS & CLOSURE SUMP DETAIL (22 / 05-01)



PLS, LDRS & CLOSURE SUMP DETAIL (23 / 05-01)



PLS, LDRS & CLOSURE SUMP DETAIL (24 / 05-01)

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
4. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
5. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
6. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

ISSUED FOR CONSTRUCTION

LEGEND
- (2) SELECT FILL
- (4) OVERLINER DRAIN FILL
- (11) ORE STOCKPILE
- 16 oz NON-WOVEN GEOTEXTILE
- 2mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- 1.5mm (60-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- GEOCOMPOSITE
- GEOSYNTHETIC CLAY LINER (GCL)
- LLDPE RUB SHEET

REVISION INFORMATION

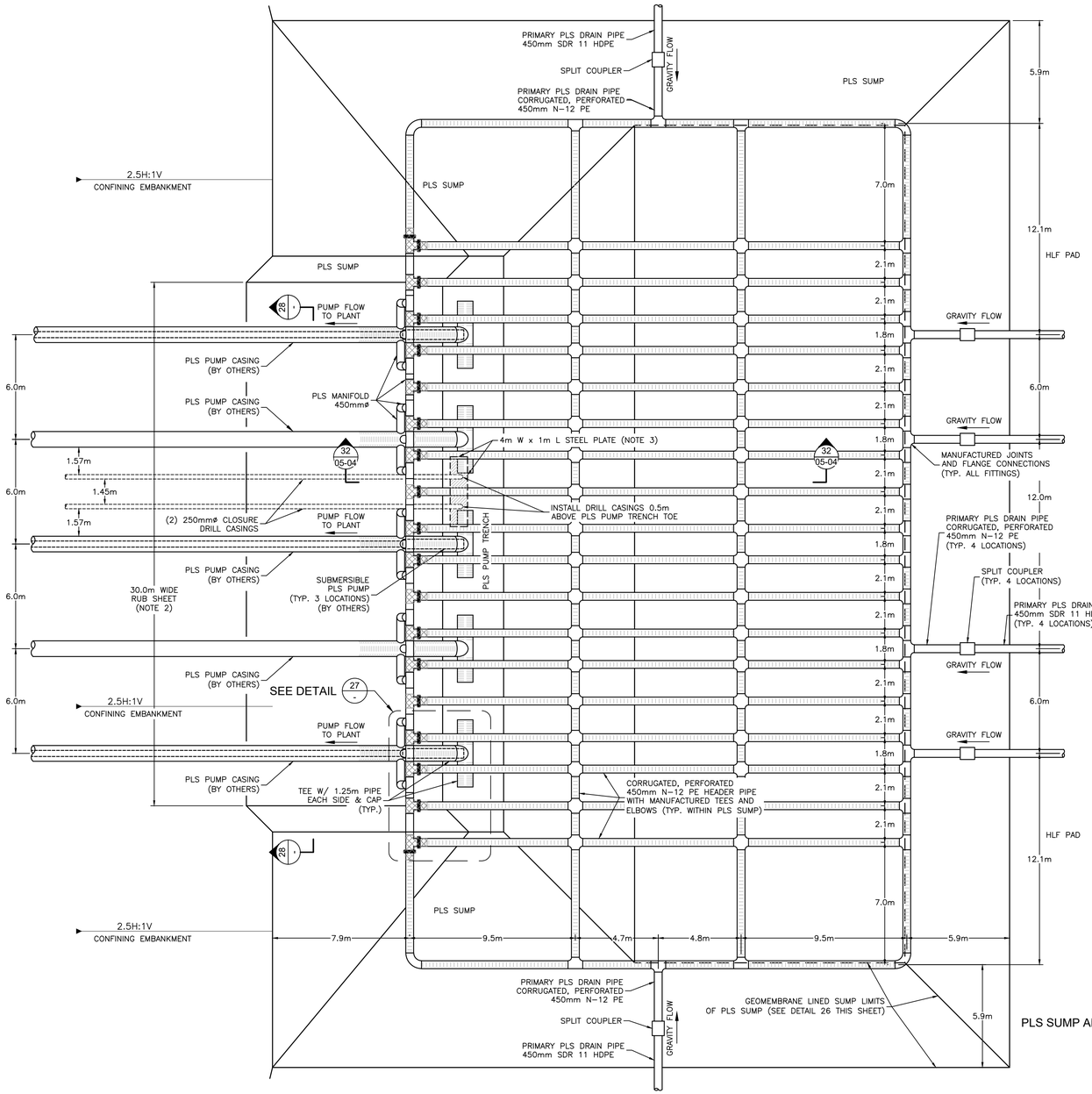
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1	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP

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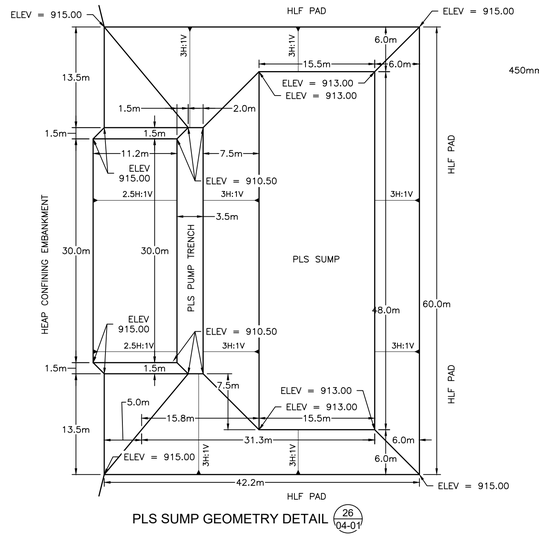
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: IN-HEAP SUMP DETAILS SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-02 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

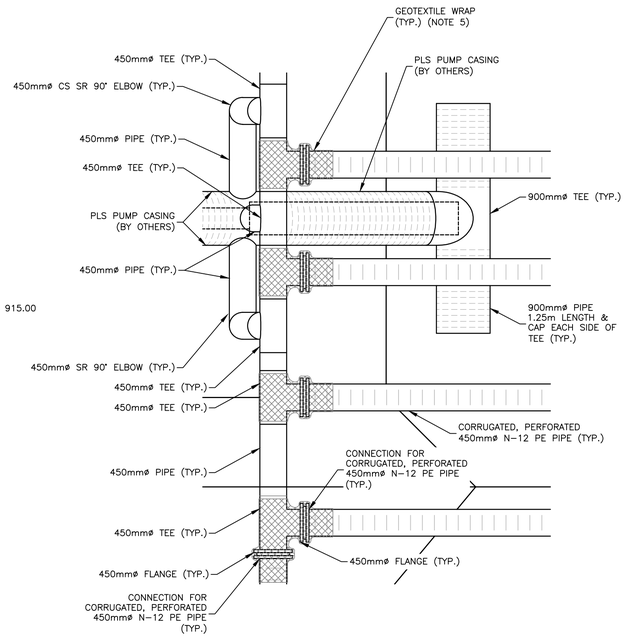
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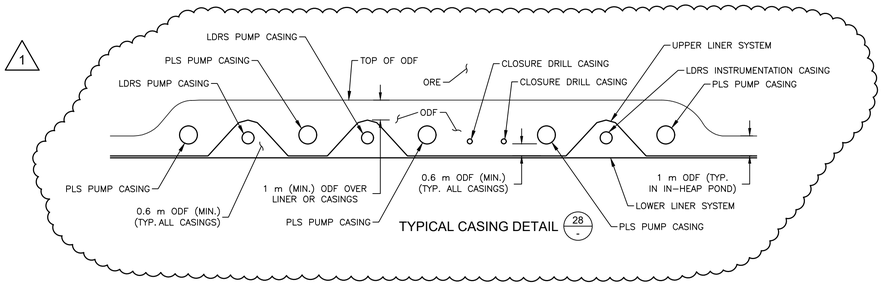
PLS SUMP AND PIPING PLAN 25 / 04-01, 06-01



PLS SUMP GEOMETRY DETAIL 26 / 04-01



PLS CASING AND MANIFOLD DETAIL 27 / -



TYPICAL CASING DETAIL 28 / -

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR TWO LAYERS OF 12 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
4. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
5. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

ISSUED FOR CONSTRUCTION

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REVISION INFORMATION

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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

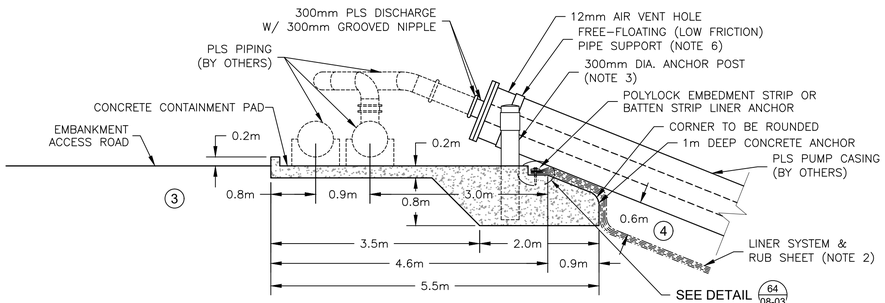
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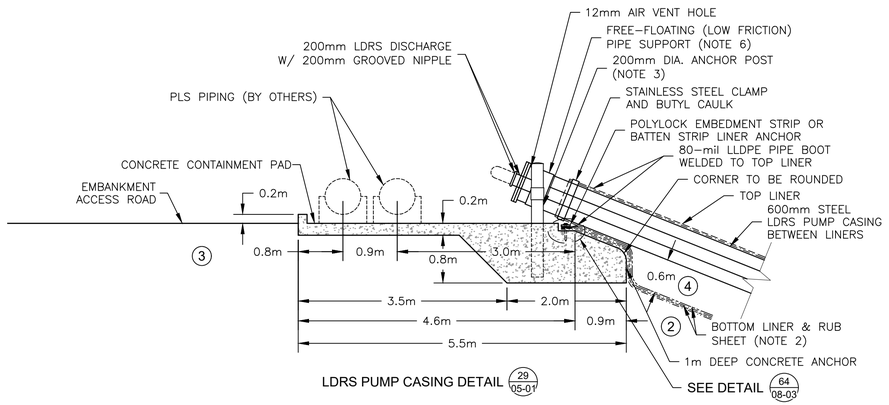
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

SHEET 1 OF 2 Plot Date Sep 19 18 Time: 10:45 AM

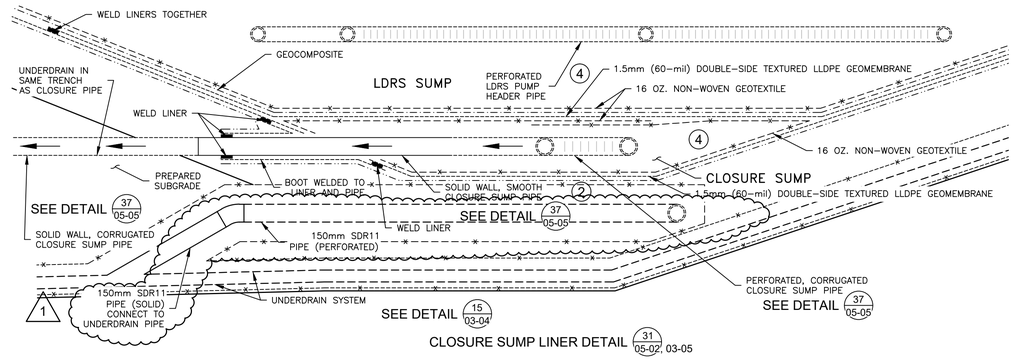
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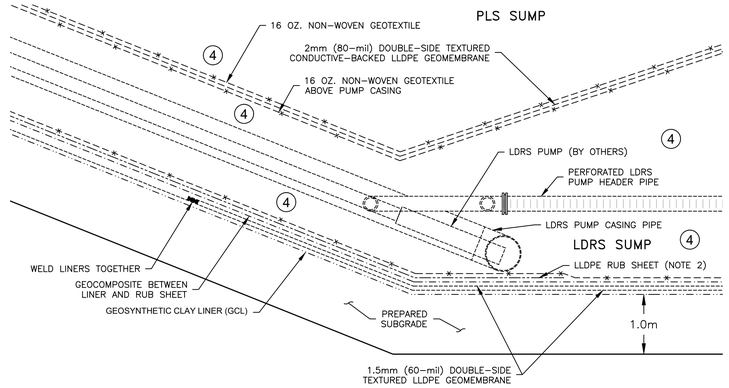
PLS PUMP CASING DETAIL 28 05-01



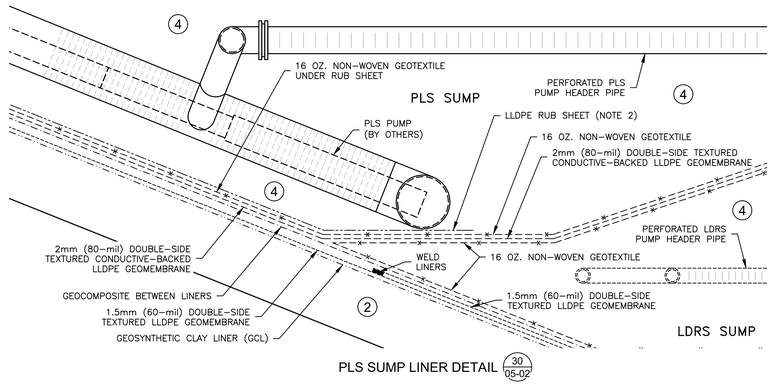
LDRS PUMP CASING DETAIL 29 05-01



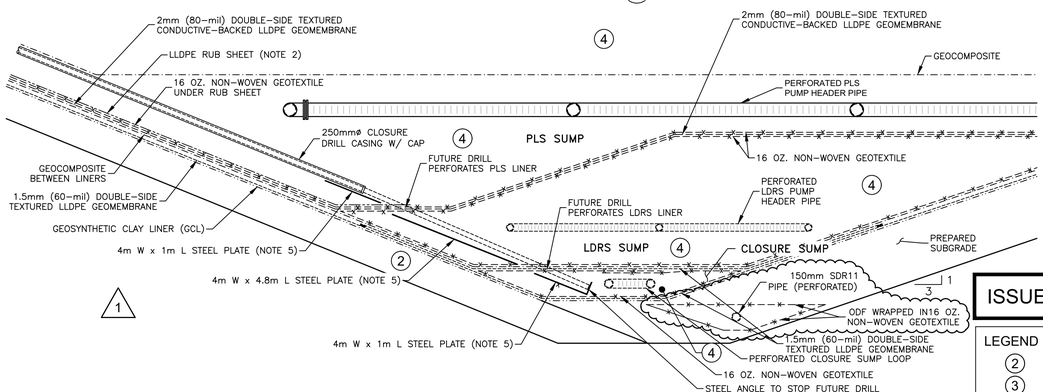
CLOSURE SUMP LINER DETAIL 31 05-02, 03-05



LDRS SUMP LINER DETAIL 32 05-02



PLS SUMP LINER DETAIL 30 05-02



CLOSURE DRILL CASING DETAIL 33 05-03

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
4. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
5. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR 16 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
6. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
7. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH GEOCOMPOSITE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

ISSUED FOR CONSTRUCTION

LEGEND

- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL
- (11) ORE STOCKPILE
- 16 oz NON-WOVEN GEOTEXTILE
- 2mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- 1.5mm (60-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- GEOCOMPOSITE
- GEOSYNTHETIC CLAY LINER (GCL)
- LLDPE RUB SHEET

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

REVISION INFORMATION

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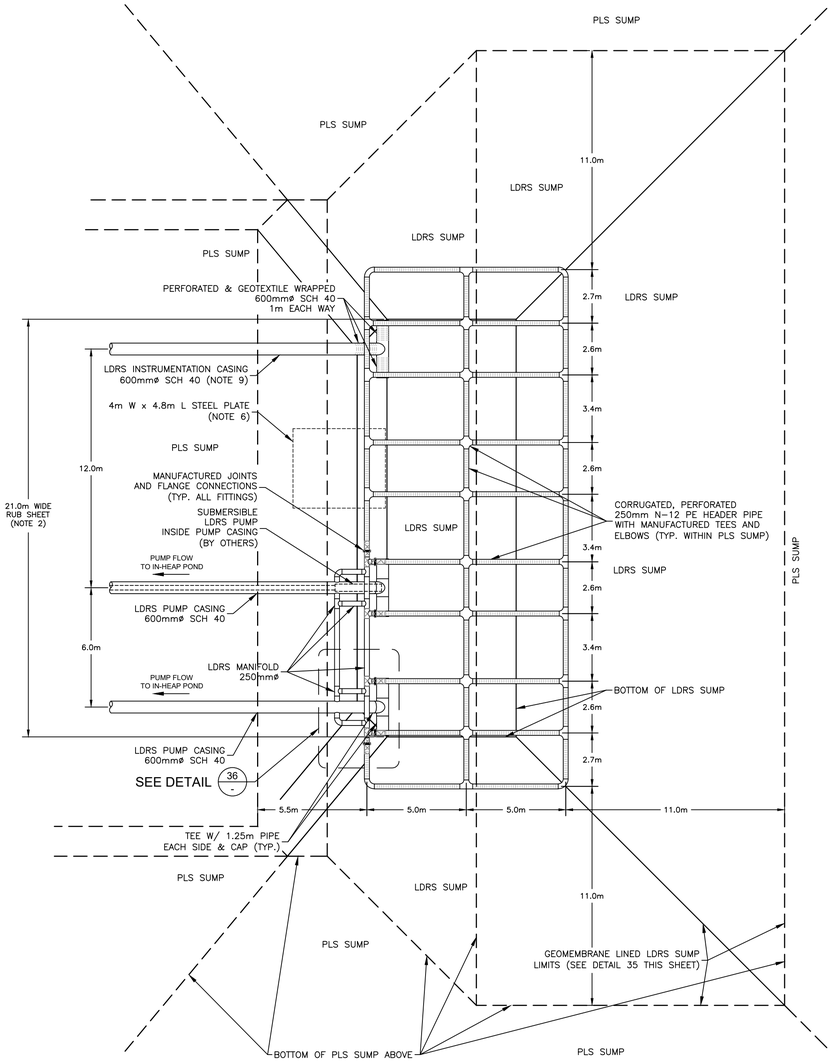
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DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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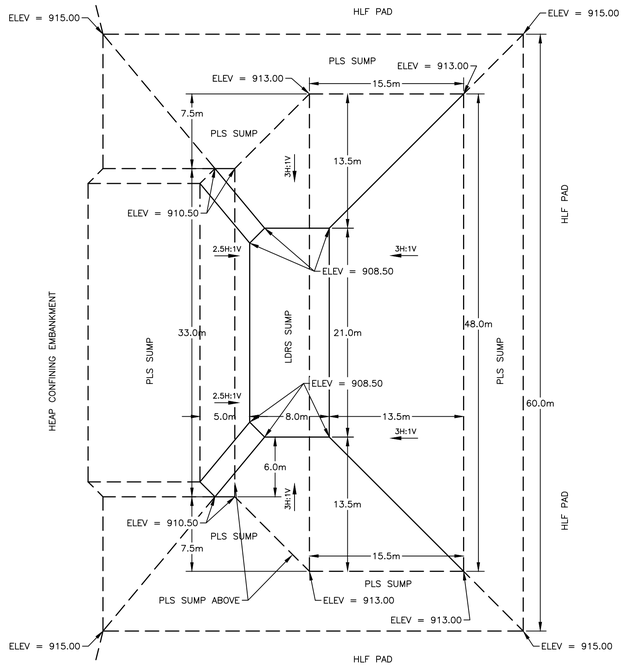
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: PLS SUMP DETAILS SHEET 2 OF 2		
SCALE: N.T.S.	DWG No.: EGHLF-XD-05-04	REV.: 1

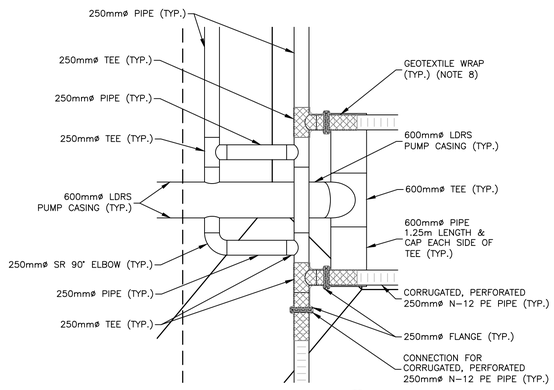
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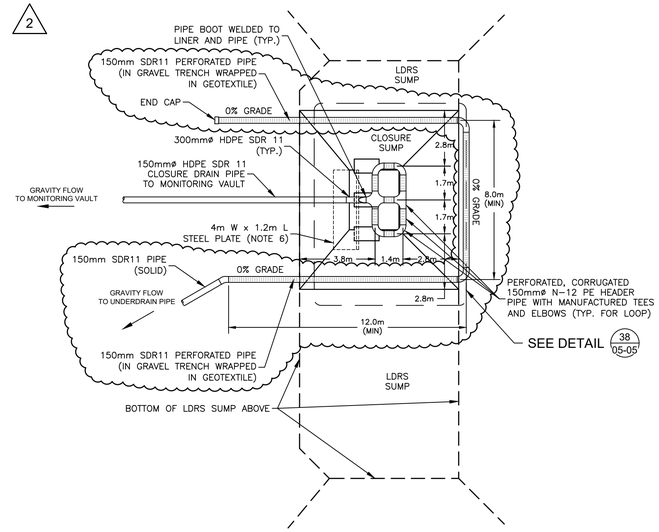
LDRS SUMP AND PIPING PLAN (34 / 05-01)



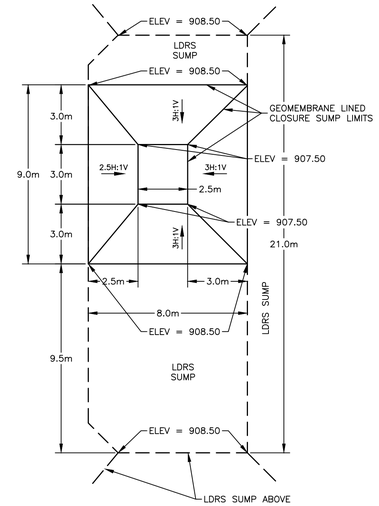
LDRS SUMP GEOMETRY DETAIL (35 / -)



LDRS PIPING DETAIL (36 / -)



CLOSURE SUMP AND PIPING PLAN (37 / 05-01, 03-05, 05-04)



CLOSURE SUMP GEOMETRY DETAIL (38 / -)

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. LDRS RISER PIPE ASSEMBLIES SHALL BE 600mm O.D. FABRICATED USING ASTM 139 HIGH STRENGTH LOW ALLOY STEEL (A606 TYPE 4.) MINIMUM PIPE WALL THICKNESS SHALL BE 17.5mm (SCH 40).
4. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
5. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
6. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR TWO LAYERS OF 12 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
7. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
8. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.
9. THE BOTTOM 2m OF LDRS INSTRUMENTATION CASING SHALL BE SLOTTED. SLOTTING IN THE STEEL PIPE SHALL BE 2mm WIDE BY 75mm LONG (MEASURED PERPENDICULAR TO PIPE FLOW) SPACED 150mm ON CENTER AROUND THE PIPE IN ROWS SPACED 150mm ON CENTER.

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAIL 37 PIPES
2	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

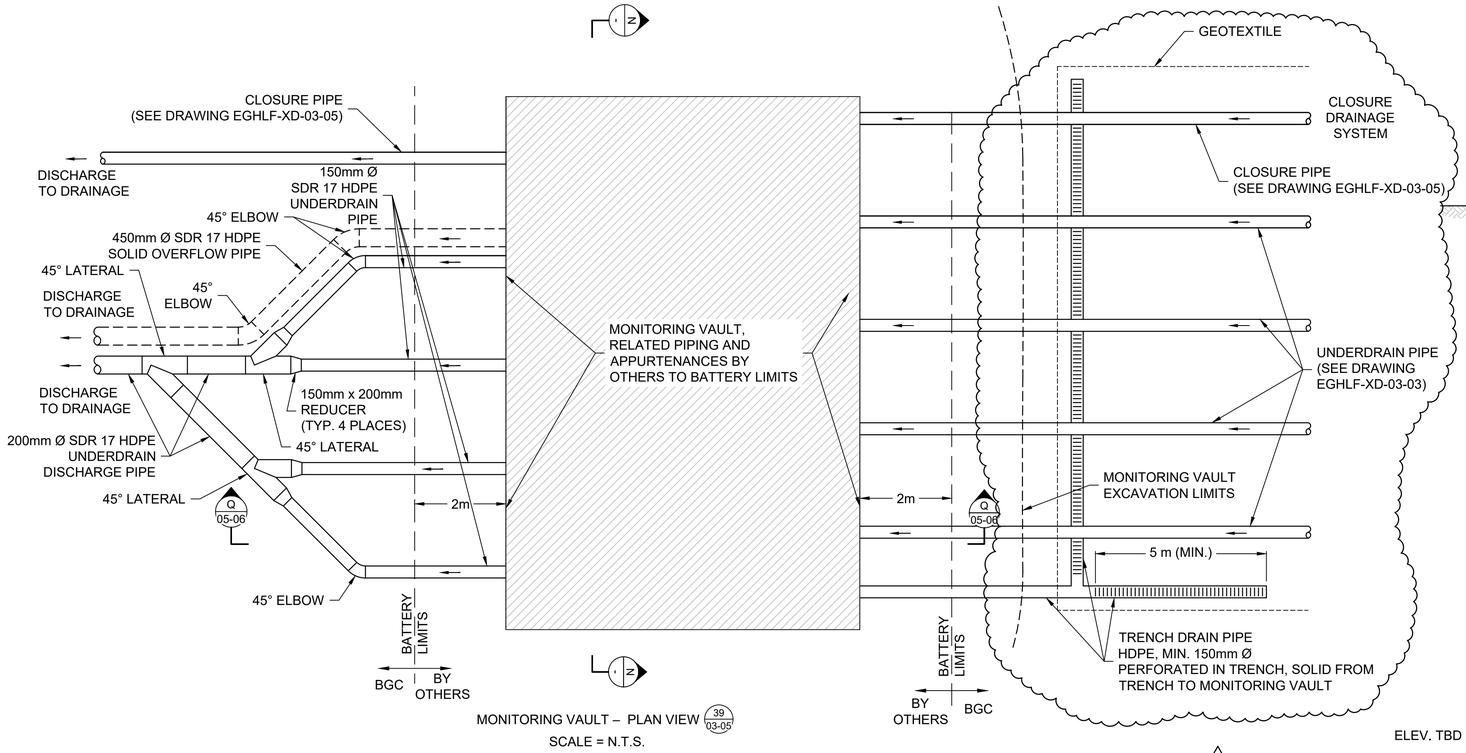
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: LDRS AND CLOSURE SUMP DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-05-05	2

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-05-05.dwg Layout: EGHLF-XD-05-05 Plot Date: Aug 3 18 Time: 3:42 PM



LEGEND

(1) SITE GRADING FILL

(5) SELECT DRAIN FILL

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. MONITORING VAULT TO BE DESIGNED BY OTHERS AND SHOWN HERE FOR REFERENCE ONLY. BATTERY LIMITS FOR BGC DESIGN ARE 2 m FROM OUTSIDE OF MONITORING VAULT. DESIGN OUTSIDE TETRA TECH BATTERY LIMITS ARE FOR REFERENCE ONLY..

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	MONITORING VAULT DETAILS REVISED
2	18	04	23	DAG	TLM	MEH	TLM	TRENCH DRAIN PIPE ADDED

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

BGC ENGINEERING INC.
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CLIENT:

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PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: MONITORING VAULT DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-05-06	2

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

D:_P-DRIVE-APEX\Apex Shared\Civil Projects_X-DRIVE-BGC\0792 Victoria Gold\CAD\Production\FC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-05-06.dwg Layout: EGHLF-XD-05-06 Plot Date: Apr 25 18 Time: 10:43 AM

PLS PIPE CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,580.1	7,101,926.9	972.7	PLS
2	459,886.8	7,102,098.5	1043.9	PLS
3	459,749.9	7,102,260.8	1041.6	PLS

N

PROCESS PLANT (BY OTHERS)

IN-HEAP POND SPILLWAY

EVENT POND

DUBLIN GULCH

HEAP CONFINING EMBANKMENT

PLS COLLECTOR DRAIN PIPE
250 mm Ø CORRUGATED &
PERFORATED ADS N-12 PE (TYP.)

100 mm Ø CORRUGATED &
PERFORATED ADS N-12 PE
PRIMARY DRAIN PIPE AT 17 m
SPACING MAX. (NOTE 4)

100 mm Ø CORRUGATED &
PERFORATED ADS N-12 PE
PRIMARY DRAIN PIPE AT 12 m
SPACING MAX. (NOTE 4)

PHASE 1
INTERCEPTOR DITCH

FIRST 3m OF COLLECTORS TO BE
100 mm Ø SDR 11 HDPE (TYP.)

HEADER PLS DRAIN PIPE
450 mm Ø SDR 11 HDPE

(4) HEADER PLS DRAIN PIPE
450 mm Ø SDR 11 HDPE

PLS SUMP

SEE DETAIL 49 06-02
SEE DETAIL 42 06-02
SEE DETAIL 40 06-02
SEE DETAIL 43 06-02
SEE DETAIL 45 06-02
SEE DETAIL 41 06-02
SEE DETAIL 47 06-02
SEE DETAIL 25 05-03

SCALE 1:2,000
50 0 50 100 150
METRES

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ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
3. WHERE CPT SOLUTION PIPES TERMINATE, THEY SHALL BE FITTED WITH MANUFACTURE SUPPLIED END CAPS. ALL PIPEWORK, INCLUDING TERMINATION POINTS, SHALL BE SURVEYED FOR FUTURE IDENTIFICATION.
4. THE PRIMARY SOLUTION DRAIN PIPES (100mm DIAMETER) SHALL BE SPACED AS SHOWN. GENERALLY PAD SLOPES GREATER THAN 2.5H:1V REQUIRE A PRIMARY DRAIN PIPE SPACING OF 17 m (MAXIMUM) AND SLOPES LESS THAN 2.5H:1V REQUIRE A SPACING OF 12 m (MAXIMUM).

LEGEND
- 17m O.C. SPACING FOR PRIMARY DRAIN PIPES
- 12m O.C. SPACING FOR PRIMARY DRAIN PIPES

ISSUED FOR CONSTRUCTION

REVISION INFORMATION																
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW									
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION									
1	17	12	08	DAG	TLM	MEH	TLM	REVISE PIPES									

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

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AN APPLIED EARTH SCIENCES COMPANY

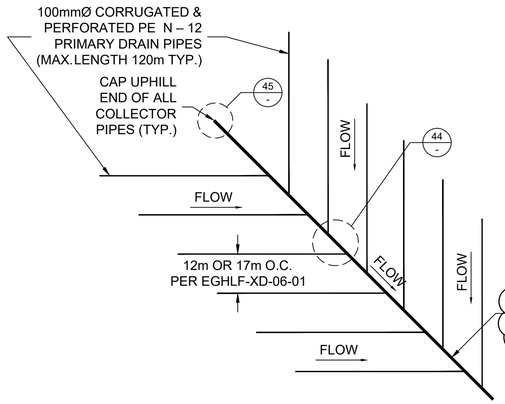
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PLS RECOVERY PIPING PLAN VIEW

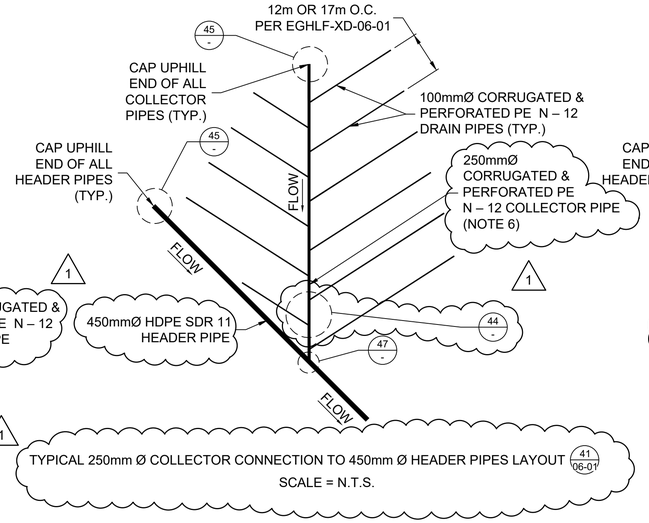
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X:\Projects\07792 Victoria Gold\CAD\Production\IFC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-06-01.dwg Layout: EGHLF-XD-06-01 Plot Date: Jan 29 18 Time: 9:56 AM



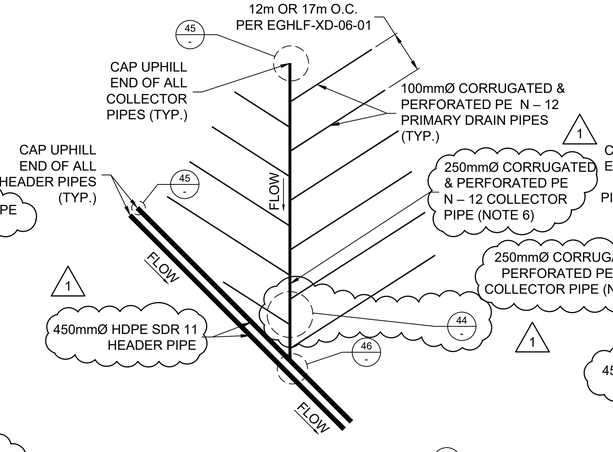
TYPICAL PRIMARY 100mm Ø PRIMARY DRAIN PIPE LAYOUT (40 / 06-01)

SCALE = N.T.S.



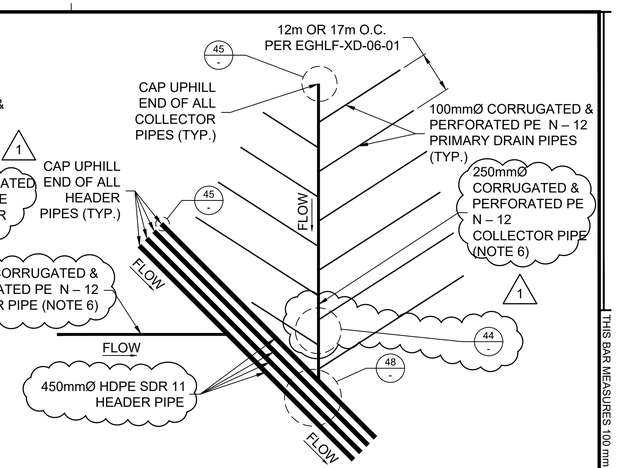
TYPICAL 250mm Ø COLLECTOR CONNECTION TO 450mm Ø HEADER PIPES LAYOUT (41 / 06-01)

SCALE = N.T.S.



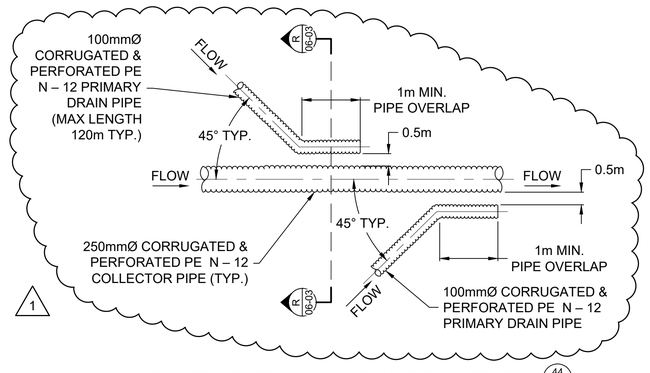
TYPICAL DOUBLE HEADER PIPE LAYOUT (42 / 06-01)

SCALE = N.T.S.



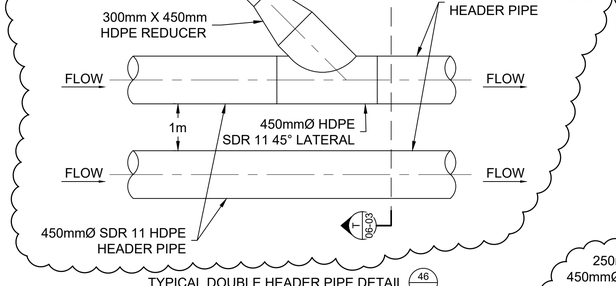
TYPICAL MULTIPLE HEADER PIPE LAYOUT (43 / 06-01)

SCALE = N.T.S.



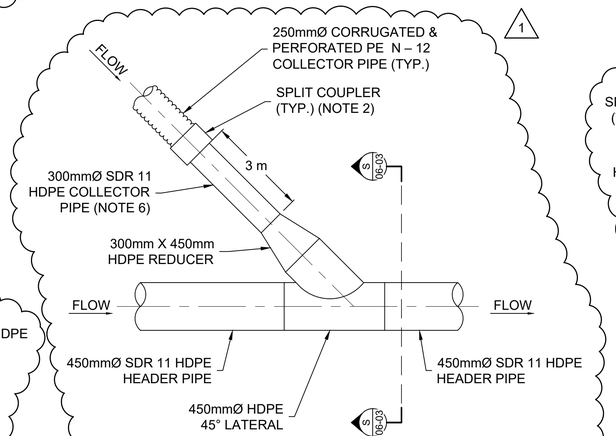
TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE DETAIL (44 / -)

SCALE = N.T.S.



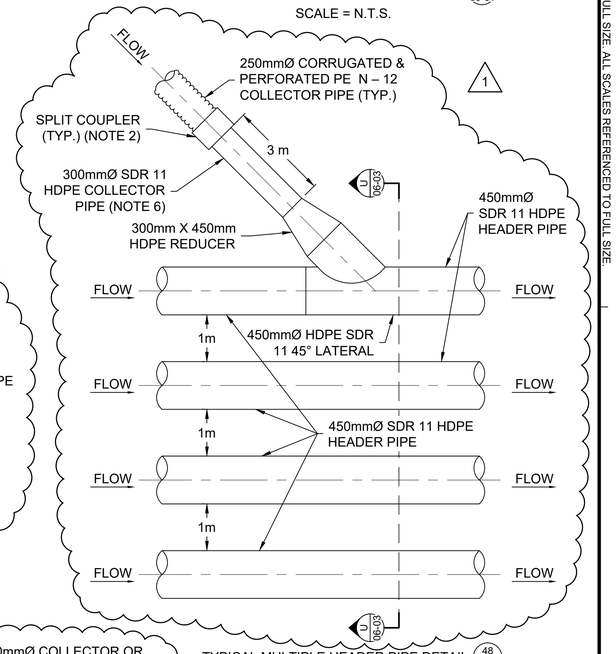
TYPICAL DOUBLE HEADER PIPE DETAIL (46 / -)

SCALE = N.T.S.



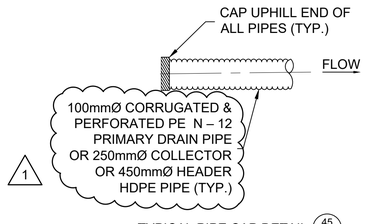
TYPICAL SINGLE HEADER PIPE DETAIL (47 / -)

SCALE = N.T.S.



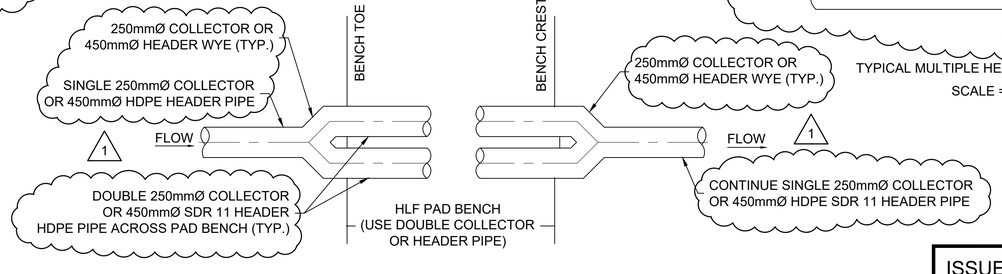
TYPICAL MULTIPLE HEADER PIPE DETAIL (48 / -)

SCALE = N.T.S.



TYPICAL PIPE CAP DETAIL (45 / -)

SCALE = N.T.S.



TYPICAL COLLECTOR OR HEADER PIPE AT BENCH DETAIL (49 / 06-01)

SCALE = N.T.S.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
3. WHERE CPT SOLUTION PIPES TERMINATE, THEY SHALL BE FITTED WITH MANUFACTURER SUPPLIED END CAPS. ALL PIPEWORK, INCLUDING TERMINATION POINTS, SHALL BE SURVEYED FOR FUTURE IDENTIFICATION.
4. OVERLINER DRAIN FILL THICKNESS SHALL BE 0.6 m (MINIMUM) IN UPPER PAD AREAS AND 1 m (MINIMUM) IN THE IN-HEAP POND WITH A MINIMUM 0F 0.5 m COVER DEPTH OR TWICE THE PIPE DIAMETER, WHICHEVER IS LARGER, OVER TOP OF ALL PIPES.
5. CAP UPHILL END OF ALL PIPES.
6. THE FIRST 3 m OF ALL COLLECTORS WILL BE 300mmØ HDPE SDR 11, THEN WILL TRANSITION TO 250mmØ CORRUGATED & PERFORATED PE N-12. 1

ISSUED FOR CONSTRUCTION

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REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	12	08	DAG	TLM	MEH	TLM	REVISE PIPE DETAILS AND MATERIALS, REVISE NOTE 6

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

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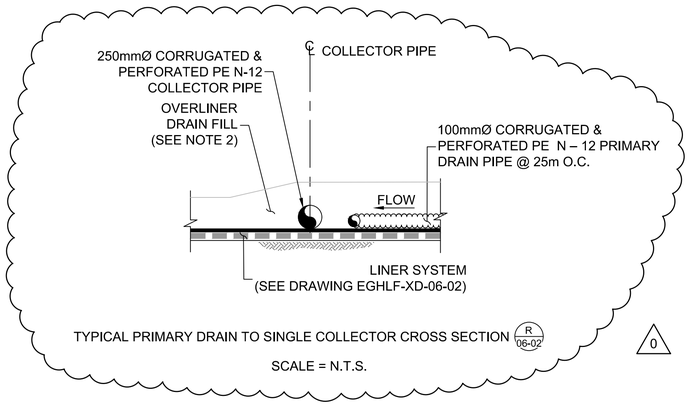
CLIENT: N:\autocad\LOGO\StrataGold LogoBW.jpg

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 1 OF 2

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-06-02	1

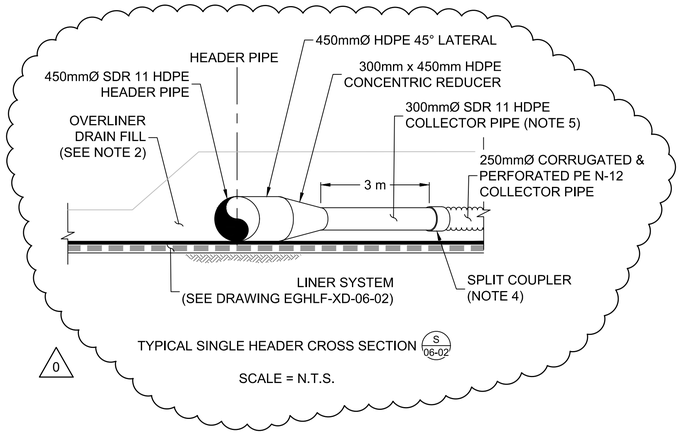
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TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR CROSS SECTION (R 06-02)

SCALE = N.T.S.

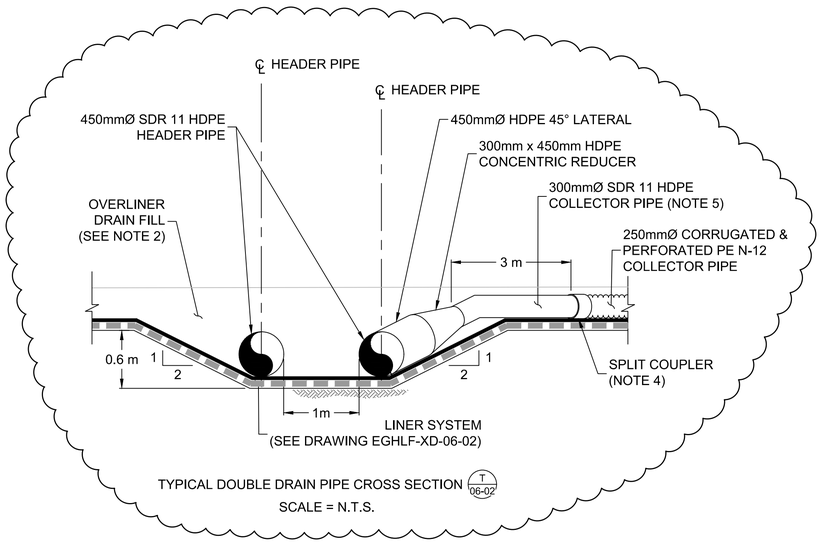
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TYPICAL SINGLE HEADER CROSS SECTION (S 06-02)

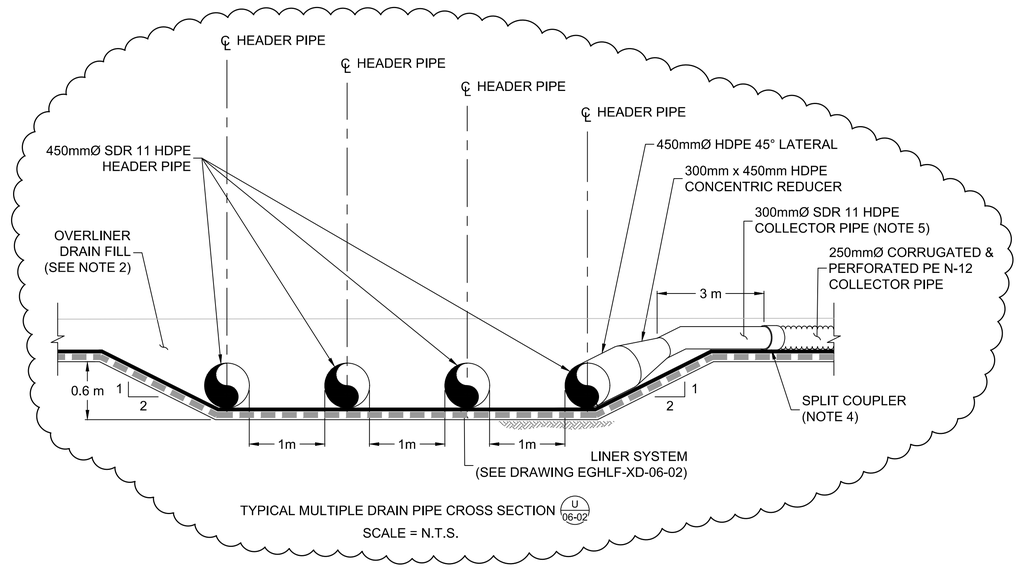
SCALE = N.T.S.



TYPICAL DOUBLE DRAIN PIPE CROSS SECTION (T 06-02)

SCALE = N.T.S.

△0



TYPICAL MULTIPLE DRAIN PIPE CROSS SECTION (U 06-02)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. OVERLINER DRAIN FILL THICKNESS SHALL BE 0.6 m (MINIMUM) IN UPPER PAD AREAS AND 1 m (MINIMUM) IN THE IN-HEAP POND WITH A MINIMUM 0F 0.5 m COVER DEPTH OR TWICE THE PIPE DIAMETER, WHICH EVER IS LARGER, OVER TOP OF ALL PIPES.
3. CAP UPHILL END OF ALL PIPES.
4. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
5. THE FIRST 3 m OF ALL COLLECTORS WILL BE 300mmØ HDPE SDR 11, THEN WILL TRANSITION TO 250mmØ CORRUGATED & PERFORATED PE N-12. MOST, IF NOT ALL, PRIMARY TO COLLECTOR CONNECTIONS WILL BE N-12 TO N-12.

△0

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 2 OF 2

SCALE:	DWG No.:	REV.:
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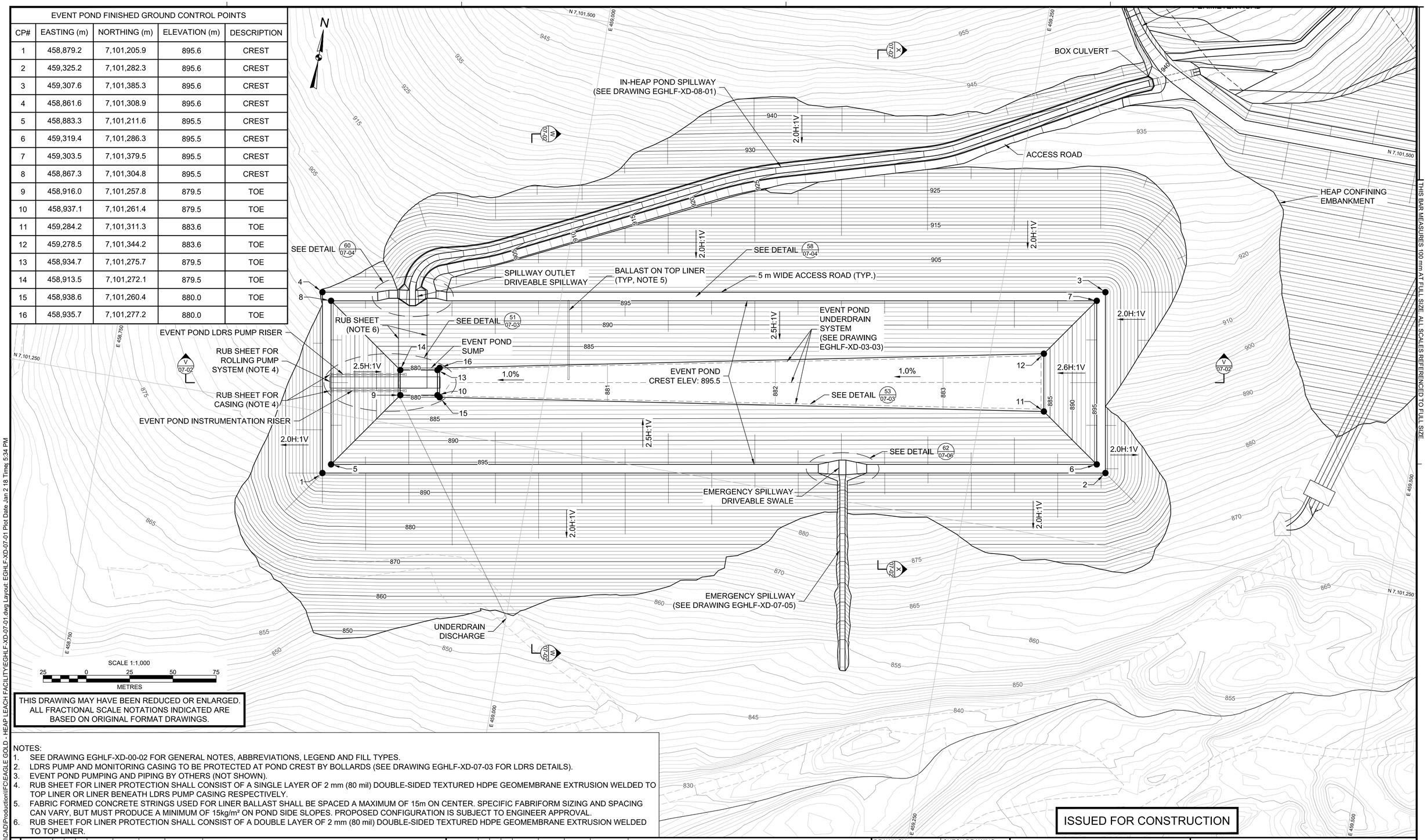
ISSUED FOR CONSTRUCTION

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\FC\EAGLE GOLD - HEAP LEACH FACILITY\EGHLF-XD-06-03.dwg Layout: EGHLF-XD-06-03 Plot Date: Jan 29 18 Time: 9:47 AM

EVENT POND FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	458,879.2	7,101,205.9	895.6	CREST
2	459,325.2	7,101,282.3	895.6	CREST
3	459,307.6	7,101,385.3	895.6	CREST
4	458,861.6	7,101,308.9	895.6	CREST
5	458,883.3	7,101,211.6	895.5	CREST
6	459,319.4	7,101,286.3	895.5	CREST
7	459,303.5	7,101,379.5	895.5	CREST
8	458,867.3	7,101,304.8	895.5	CREST
9	458,916.0	7,101,257.8	879.5	TOE
10	458,937.1	7,101,261.4	879.5	TOE
11	459,284.2	7,101,311.3	883.6	TOE
12	459,278.5	7,101,344.2	883.6	TOE
13	458,934.7	7,101,275.7	879.5	TOE
14	458,913.5	7,101,272.1	879.5	TOE
15	458,938.6	7,101,260.4	880.0	TOE
16	458,935.7	7,101,277.2	880.0	TOE



THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. LDRS PUMP AND MONITORING CASING TO BE PROTECTED AT POND CREST BY BOLLARDS (SEE DRAWING EGHLF-XD-07-03 FOR LDRS DETAILS).
3. EVENT POND PUMPING AND PIPING BY OTHERS (NOT SHOWN).
4. RUB SHEET FOR LINER PROTECTION SHALL CONSIST OF A SINGLE LAYER OF 2 mm (80 mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO TOP LINER OR LINER BENEATH LDRS PUMP CASING RESPECTIVELY.
5. FABRIC FORMED CONCRETE STRINGS USED FOR LINER BALLAST SHALL BE SPACED A MAXIMUM OF 15m ON CENTER. SPECIFIC FABRIFORM SIZING AND SPACING CAN VARY, BUT MUST PRODUCE A MINIMUM OF 15kg/m² ON POND SIDE SLOPES. PROPOSED CONFIGURATION IS SUBJECT TO ENGINEER APPROVAL.
6. RUB SHEET FOR LINER PROTECTION SHALL CONSIST OF A DOUBLE LAYER OF 2 mm (80 mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO TOP LINER.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

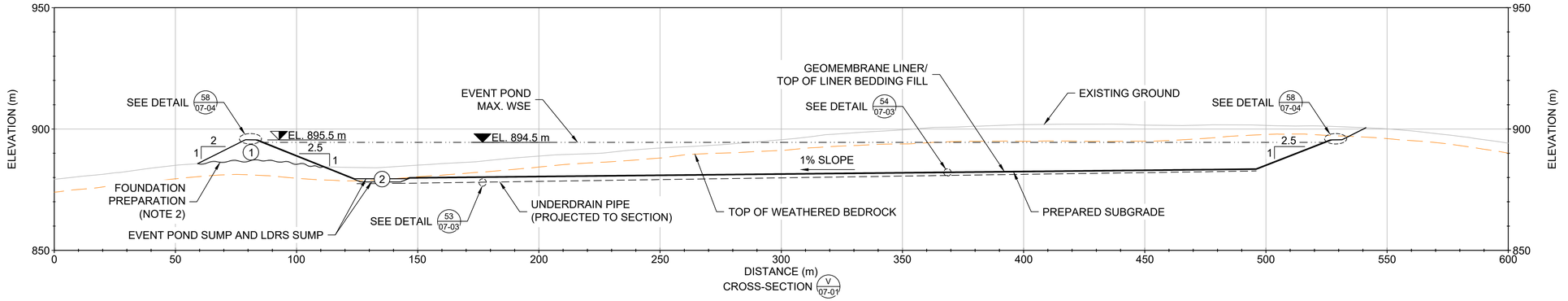
CLIENT: StrataGold Corporation

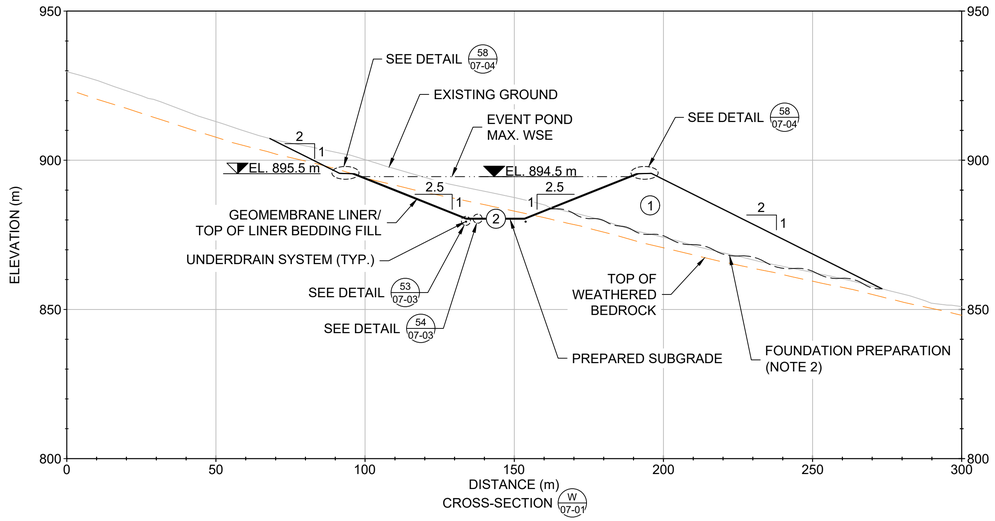
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

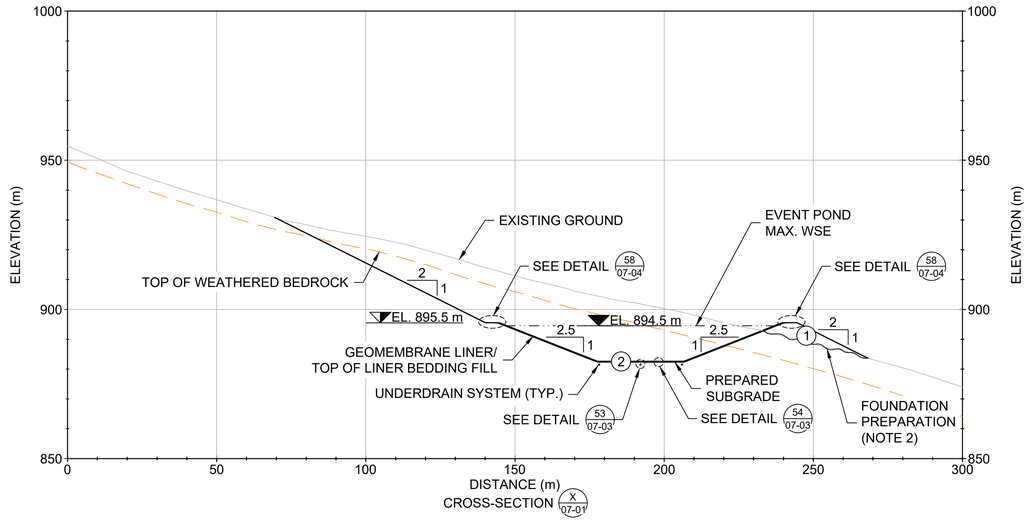
TITLE: EVENT POND PLAN VIEW

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-07-01	0

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SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. FOUNDATION PREPARATION BELOW FILLS SHALL FOLLOW THE PROJECT TECHNICAL SPECIFICATIONS AND SHALL INCLUDE REMOVAL OF LOOSE, FROZEN, OR UNSUITABLE MATERIAL AND BENCHING ON SLOPES TO PROVIDE WORK PLATFORM FOR PLACEMENT OF THE HORIZONTAL FILL LIFTS. .

ISSUED FOR CONSTRUCTION

LEGEND
1 SITE GRADING FILL
2 SELECT FILL

REVISION INFORMATION

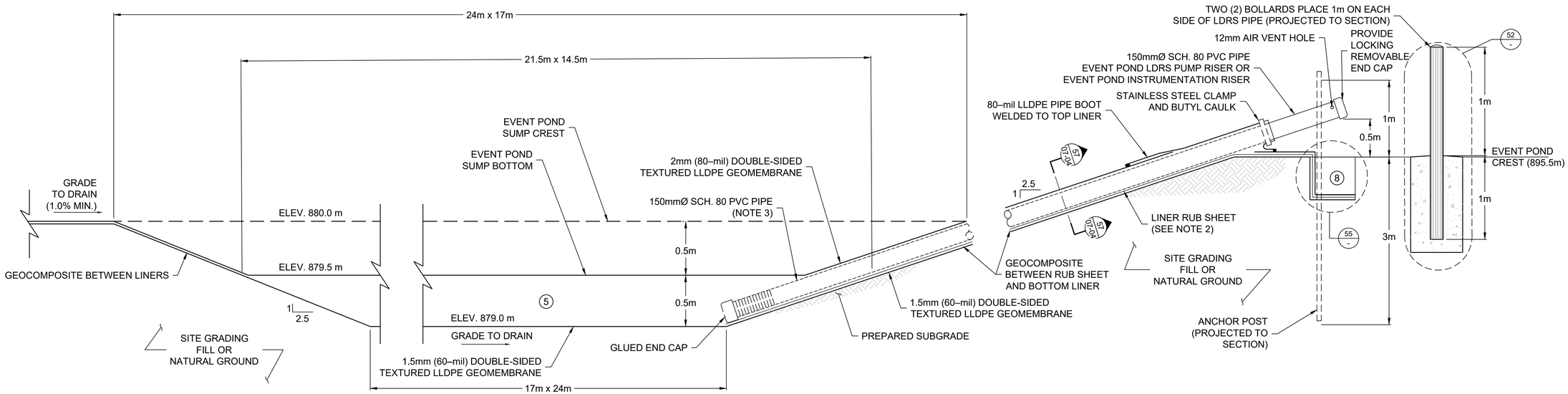
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND CROSS-SECTIONS
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-07-02 / REV.: 0
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

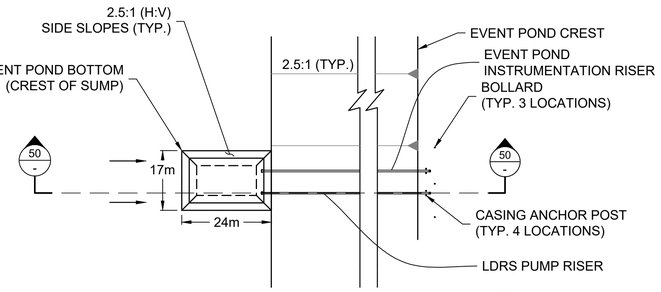
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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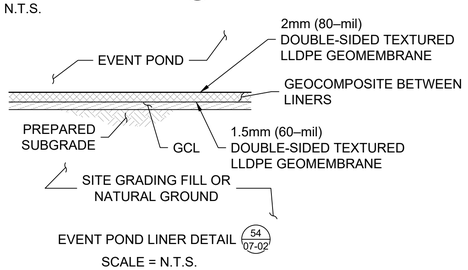
LEAK DETECTION AND RECOVERY SUMP DETAIL (50 07-03)

SCALE = N.T.S.



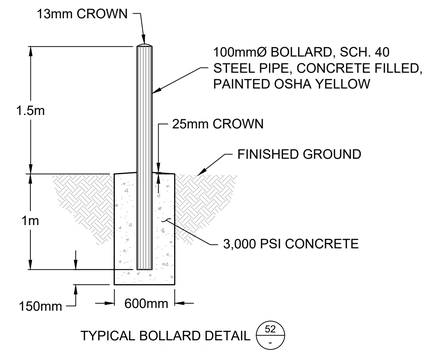
EVENT POND LEAK DETECTION SUMP PLAN – TYPICAL DETAIL (51 07-01)

SCALE = N.T.S.



EVENT POND LINER DETAIL (54 07-02)

SCALE = N.T.S.

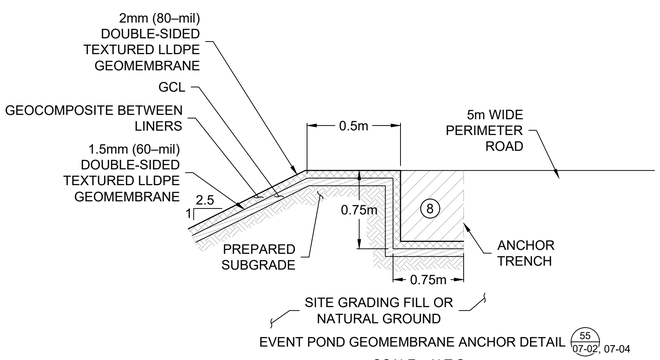


TYPICAL BOLLARD DETAIL (52 -)

SCALE = N.T.S.

TYPICAL EVENT POND UNDERDRAIN DETAIL (53 07-01, 07-02)

SCALE = N.T.S.



EVENT POND GEOMEMBRANE ANCHOR DETAIL (55 07-02, 07-04)

SCALE = N.T.S.

LEGEND

2	SELECT FILL
5	SELECT DRAIN FILL
8	ANCHOR TRENCH FILL

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL CONSIST OF A SINGLE LAYER OF 2 mm (80-mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO LINER BENEATH LDRS PUMP CASING.
3. THE BOTTOM 1m OF EVENT POND LDRS PUMP RISER AND EVENT POND INSTRUMENT RISER SHALL BE SLOTTED. SLOTTING IN THE PVC PIPE SHALL BE 2mm WIDE BY 50mm LONG (MEASURED PERPENDICULAR TO PIPE FLOW) SPACED 100mm ON CENTER AROUND THE PIPE. MINIMUM PIPE WALL THICKNESS SHALL BE SCH 80.
4. FABRIC FORMED CONCRETE STRINGS USED FOR LINER BALLAST SHALL BE SPACED A MAXIMUM OF 15m ON CENTER. SPECIFIC FABRIFORM SIZING AND SPACING CAN VARY, BUT MUST PRODUCE A MINIMUM OF 15kg/m² ON POND SIDE SLOPES. PROPOSED CONFIGURATION IS SUBJECT TO ENGINEER APPROVAL.

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

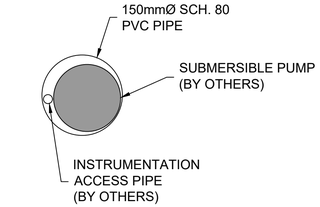
DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

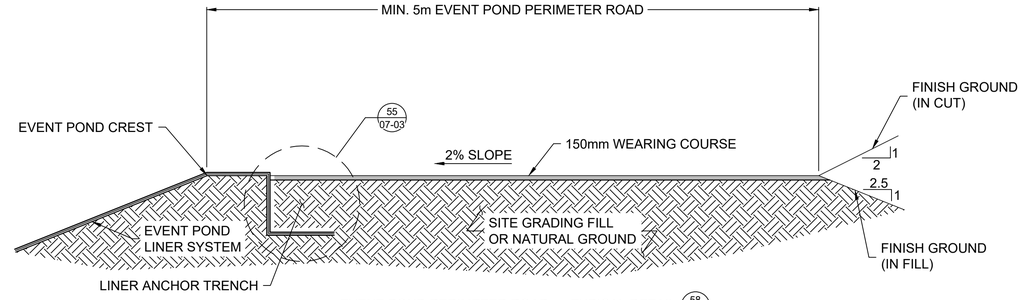
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: EVENT POND DETAILS SHEET 1 OF 2		
SCALE: N.T.S.	DWG No.: EGHLF-XD-07-03	REV.: 0

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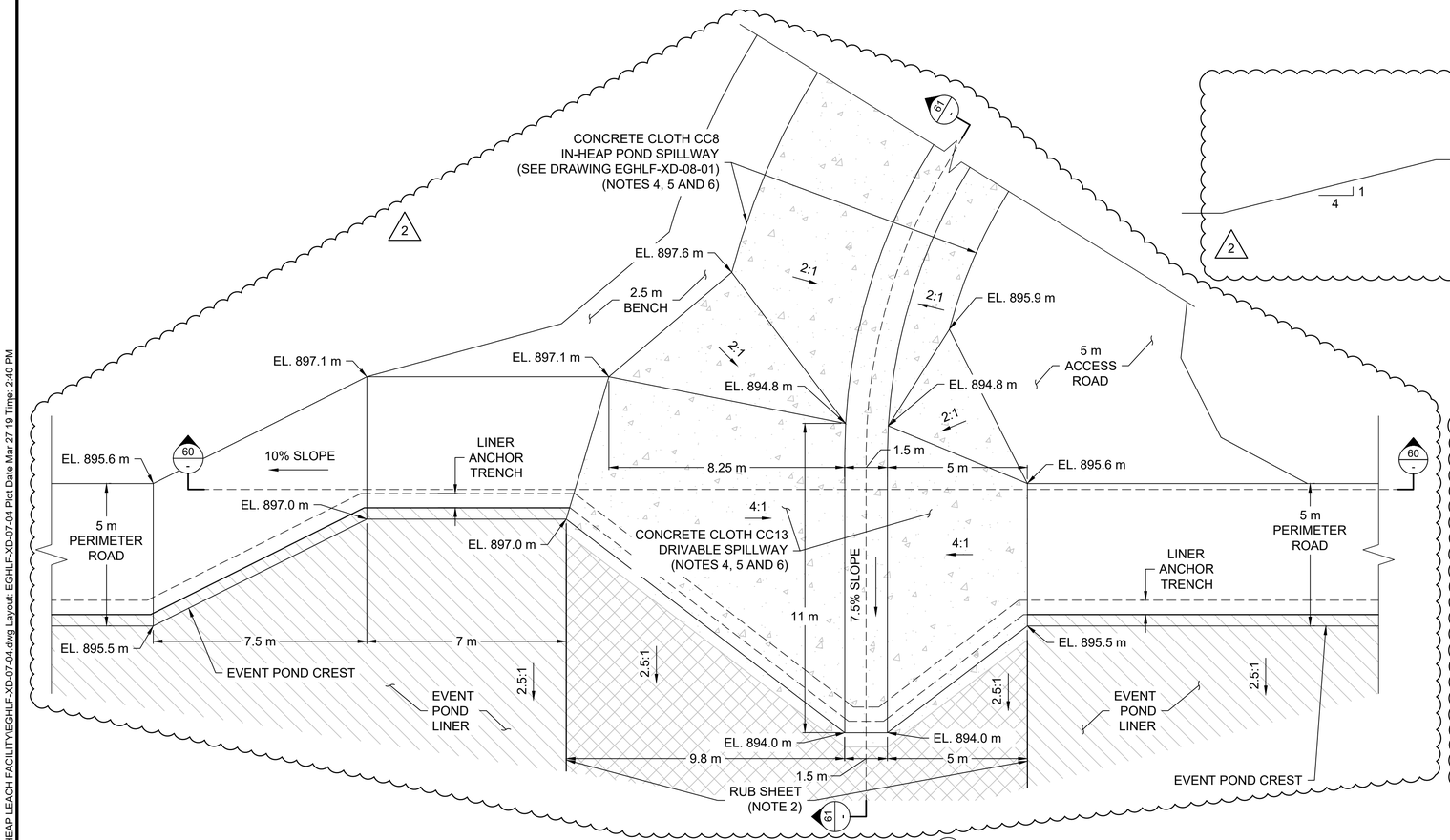
EVENT POND LDRS PUMP CASING (57 / 07-03)

SCALE = N.T.S.



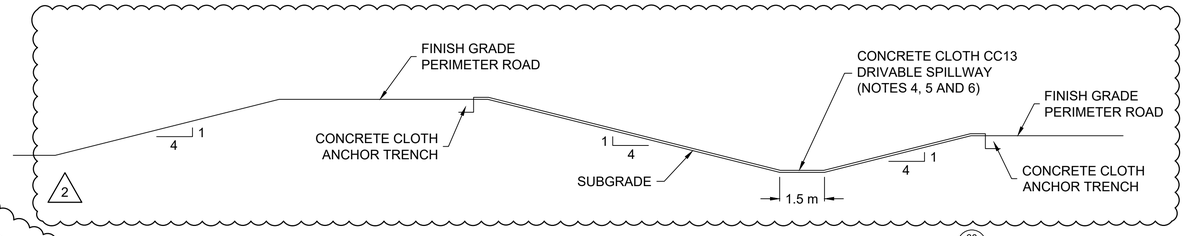
EVENT POND PERIMETER ROAD – TYPICAL DETAIL (58 / 07-02)

SCALE = N.T.S.



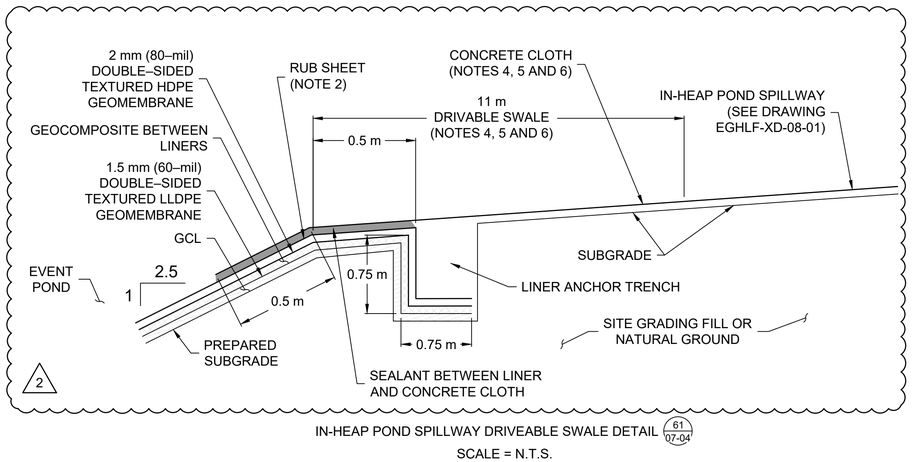
IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (59 / 07-01)

SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (60 / 07-02)

SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (61 / 07-04)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL CONSIST OF A DOUBLE LAYER OF 2 mm (80-mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO LINER BELOW SPILLWAY.
3. ALL ELEVATIONS SHOWN ON THIS DRAWING REPRESENT FINISHED GRADE.
4. APPLY SPILLWAY GEOMETRY FROM DETAIL AC ON 08-01 ABOVE DRIVEABLE SPILLWAY.
5. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND CC8 WHERE VEHICLES WON'T TRAVEL.
6. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

2

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	27	DAG	TLM	MEH	TLM	REVISE DETAILS 60, 61. ADD GEOMEMBRANE.
2	19	03	27	DAG	TLM	RM	TLM	REVISE DRIVEABLE SPILLWAY MATERIAL AND DESIGN

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EVENT POND DETAILS
SHEET 2 OF 2

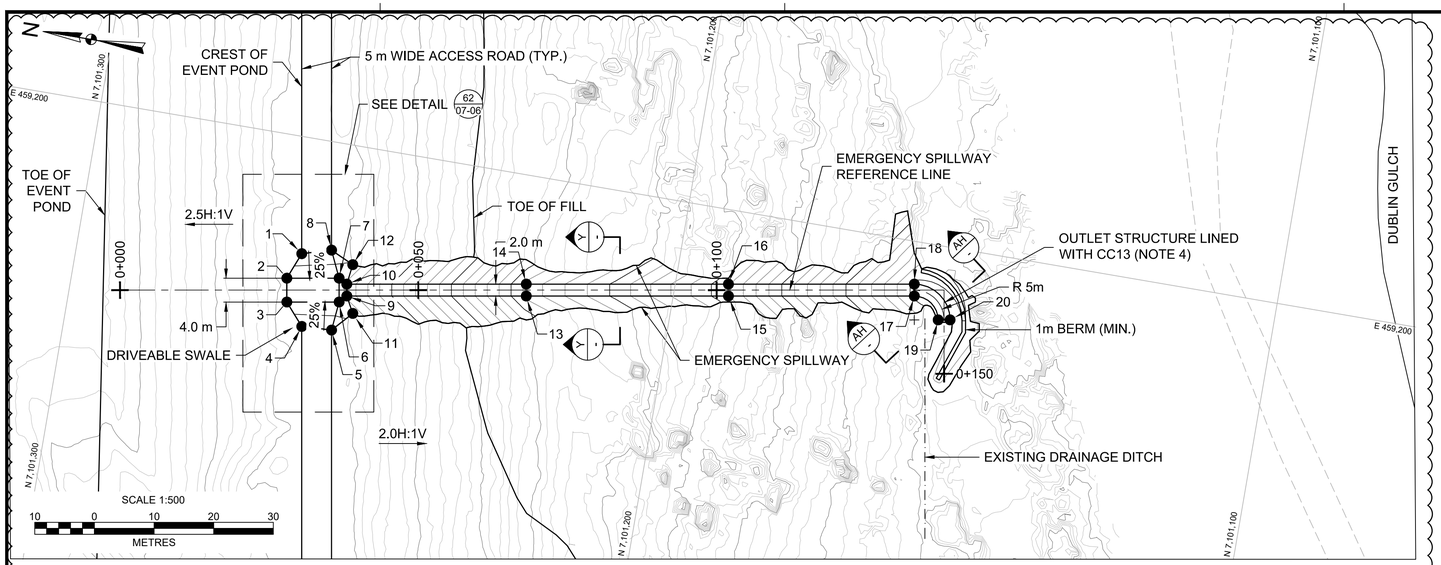
SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-07-04	2

ISSUED FOR CONSTRUCTION

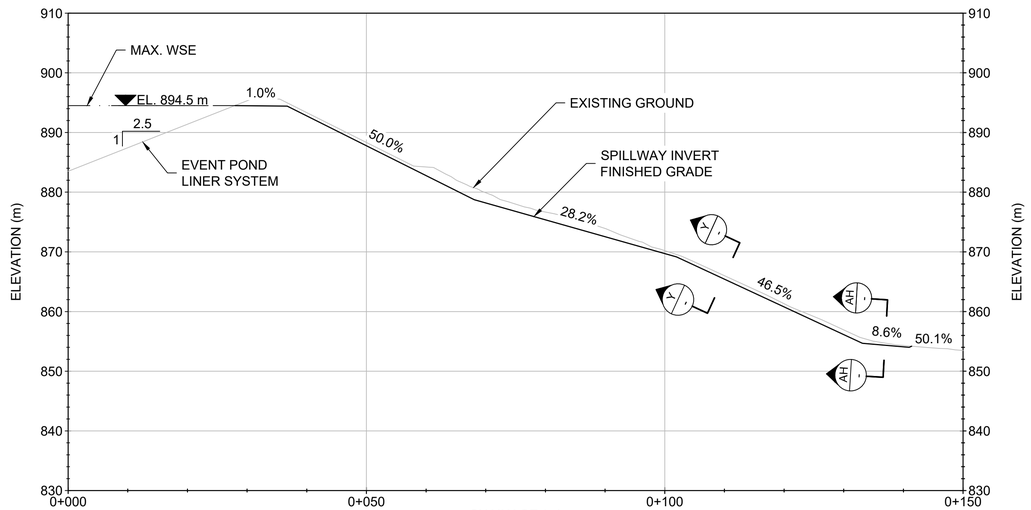
THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

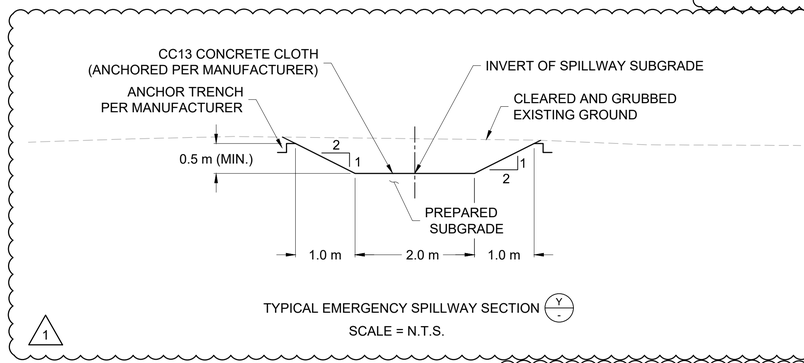
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EVENT POND EMERGENCY SPILLWAY FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
1	459,180.6	7,101,262.6	895.5	CREST
2	459,176.1	7,101,264.3	894.5	CREST
3	459,172.2	7,101,263.7	894.5	CREST
4	459,168.6	7,101,260.5	895.5	CREST
5	459,168.8	7,101,255.5	895.6	CREST
6	459,173.7	7,101,255.0	894.4	TOE
7	459,177.6	7,101,255.7	894.4	TOE
8	459,182.0	7,101,257.7	895.6	CREST
9	459,174.9	7,101,253.9	893.8	TOE
10	459,176.8	7,101,254.3	893.8	TOE
11	459,172.2	7,101,252.4	894.7	CREST
12	459,180.2	7,101,253.8	894.9	CREST
13	459,179.9	7,101,224.3	878.7	TOE
14	459,181.9	7,101,224.6	878.7	TOE
15	459,185.7	7,101,190.9	869.2	TOE
16	459,187.6	7,101,191.2	869.2	TOE
17	459,190.9	7,101,160.2	854.7	TOE
18	459,192.9	7,101,160.5	854.7	TOE
19	459,187.7	7,101,155.5	854.0	TOE
20	459,188.0	7,101,153.6	854.0	TOE

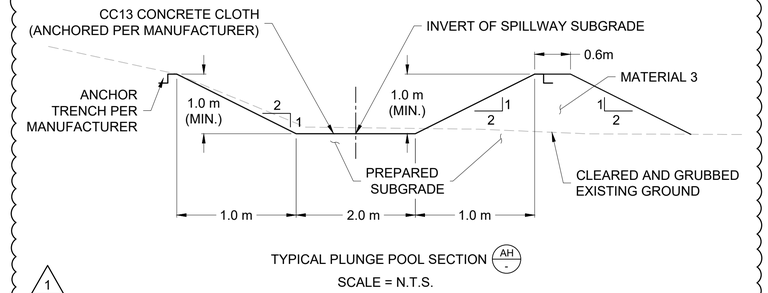


EMERGENCY SPILLWAY REFERENCE LINE PROFILE



TYPICAL EMERGENCY SPILLWAY SECTION (Y)

SCALE = N.T.S.



TYPICAL PLUNGE POOL SECTION (AH)

SCALE = N.T.S.

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL Y TO AH AT STA. 1+31.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG ENTIRE SPILLWAY PROFILE.
4. CONCRETE CLOTH SHALL BE FIXED WITH TWO ANCHORS PER JOINT IN THE CHANNEL AND SIX ANCHORS PER JOINT IN THE OUTLET STRUCTURE. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

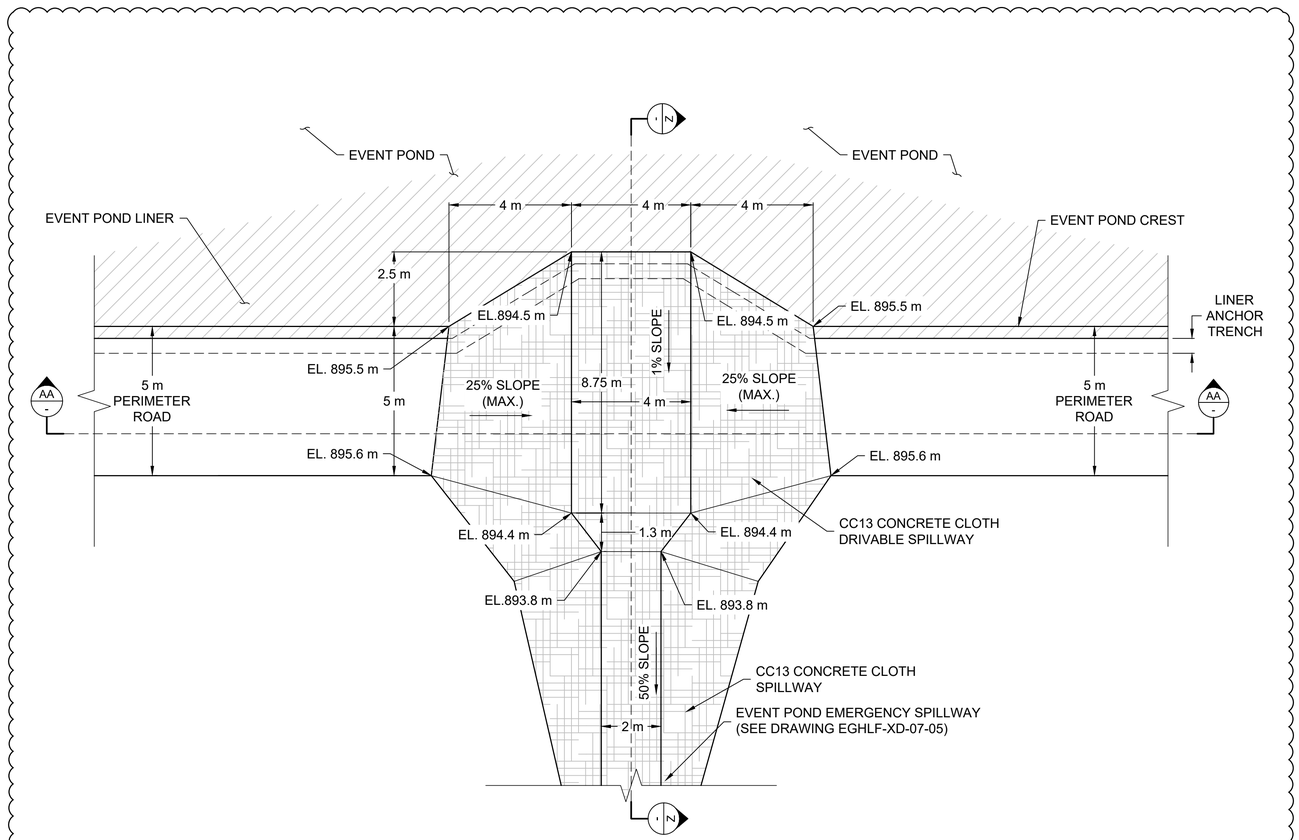
ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	19	03	21	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, DRIVEABLE SWALE

DRAWN BY: DAG	CHECK DRAWING: CJT	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND SPILLWAY PLAN AND PROFILE
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17	CLIENT: StrataGold Corporation	SCALE: 1:500 / DWG No.: EGHLF-XD-07-05 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17		

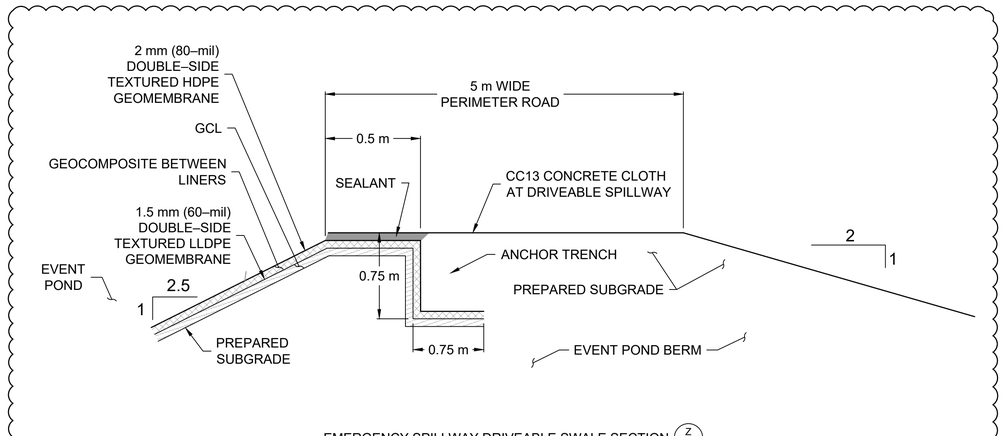
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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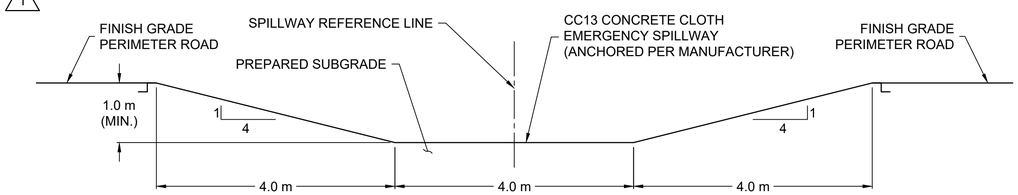
EMERGENCY SPILLWAY DRIVEABLE SWALE DETAIL (62 / 07-06), 07-03, 07-05

1



EMERGENCY SPILLWAY DRIVEABLE SWALE SECTION (Z / -)
SCALE = N.T.S.

1



DRIVABLE EMERGENCY SPILLWAY SECTION VIEW (AA / -)
SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

1

ISSUED FOR CONSTRUCTION

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REVISION INFORMATION

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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	21	DAG	TLM	RM	TLM	REVISE DRIVABLE EMERGENCY SPILLWAY DIMENSIONS AND MATERIAL

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

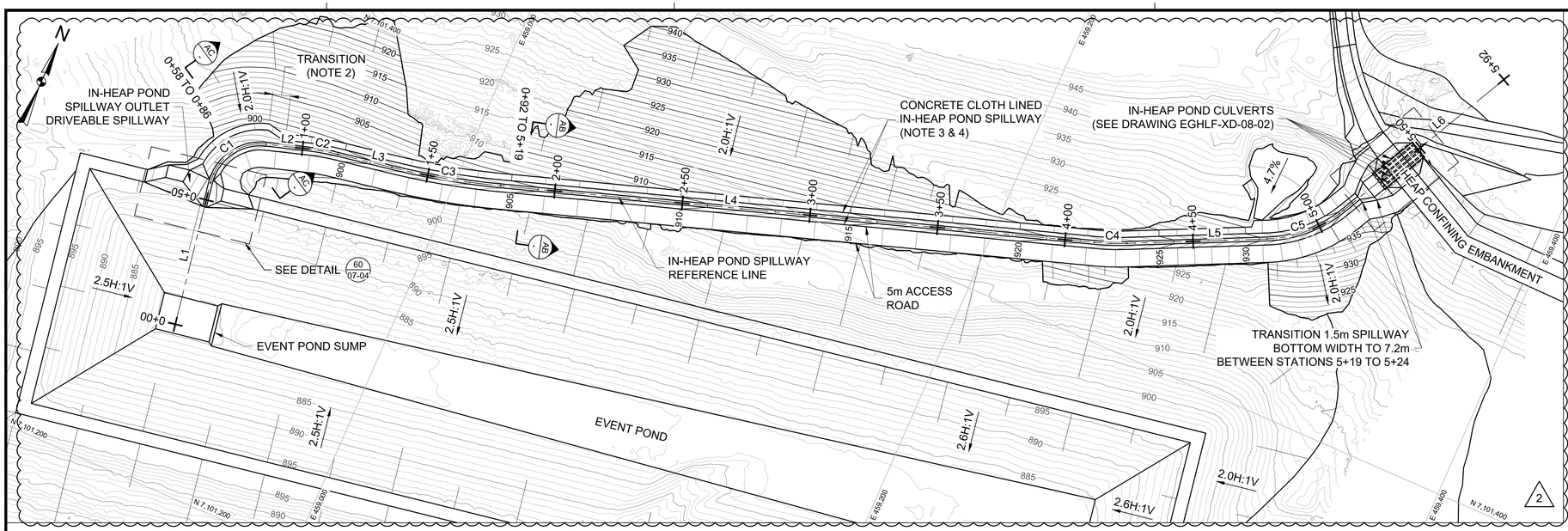
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EVENT POND SPILLWAY TYPICAL SECTIONS AND DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-07-06	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

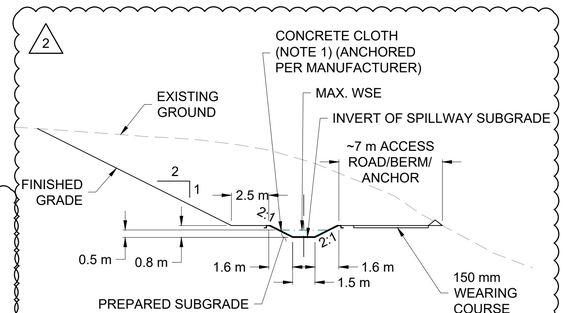
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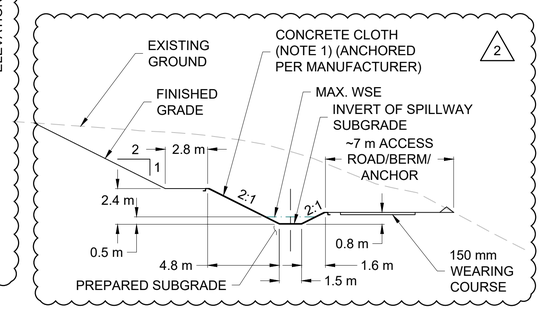
CURVE TABLE				
C#	RADIUS (m)	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
C1	20.0	28.8	(458,912.7,7,101,318.6)	(458,926.5,7,101,341.1)
C2	100.0	12.6	(458,941.5,7,101,345.7)	(458,953.8,7,101,348.7)
C3	300.0	43.1	(458,975.1,7,101,352.5)	(459,016.8,7,101,363.0)
C4	100.0	12.7	(459,237.8,7,101,435.9)	(459,249.5,7,101,440.6)
C5	50.0	32.6	(459,298.9,7,101,464.2)	(459,321.9,7,101,486.6)

LINE TABLE			
L#	LENGTH (m)	START POINT (E,N)	END POINT (E,N)
L1	56.9	(458,922.3,7,101,262.5)	(458,912.7,7,101,318.6)
L2	15.8	(458,926.5,7,101,341.1)	(458,941.5,7,101,345.7)
L3	21.6	(458,953.8,7,101,348.7)	(458,975.1,7,101,352.5)
L4	232.7	(459,016.8,7,101,363.0)	(459,237.8,7,101,435.9)
L5	54.7	(459,249.5,7,101,440.6)	(459,298.9,7,101,464.2)
L6	80.6	(459,321.9,7,101,486.6)	(459,358.6,7,101,558.3)

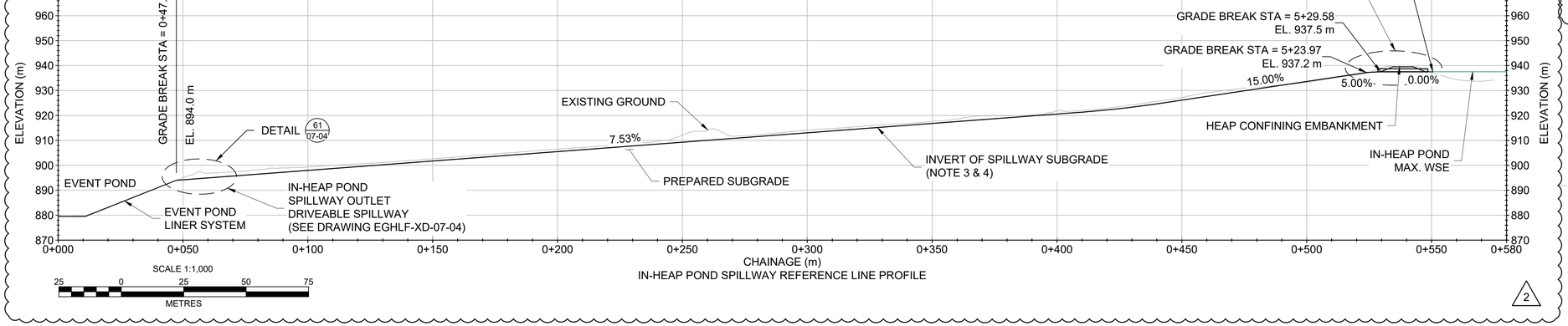
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AB -)
STA. 1+00 TO END
SCALE = N.T.S.



TYPICAL IN–HEAP POND SPILLWAY SECTION (AC -)
STA. 0+60 TO 0+90
SCALE = N.T.S.



IN-HEAP POND SPILLWAY REFERENCE LINE PROFILE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL AC TO AB BETWEEN STATION 0+86 TO 0+92 AND DETAIL AB TO 7.2m BOTTOM WIDTH BETWEEN 5+19 TO 5+24.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
4. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAILS FOR FEBRIFORM HEIGHT AND ADD GEOMEMBRANE
	2	19	03	18	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, CULVERTS, DRIVEABLE SWALE

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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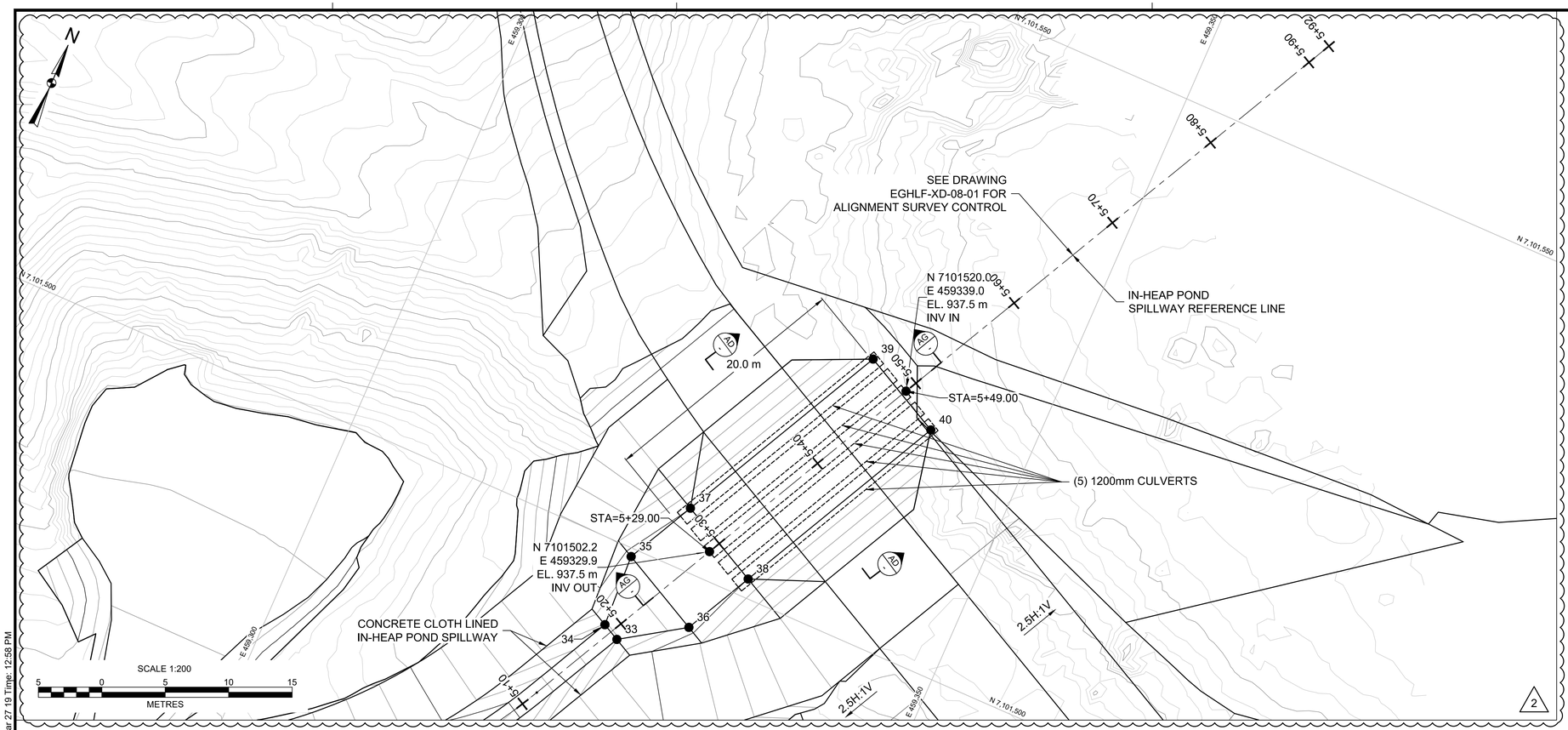
CLIENT: StrataGold Corporation

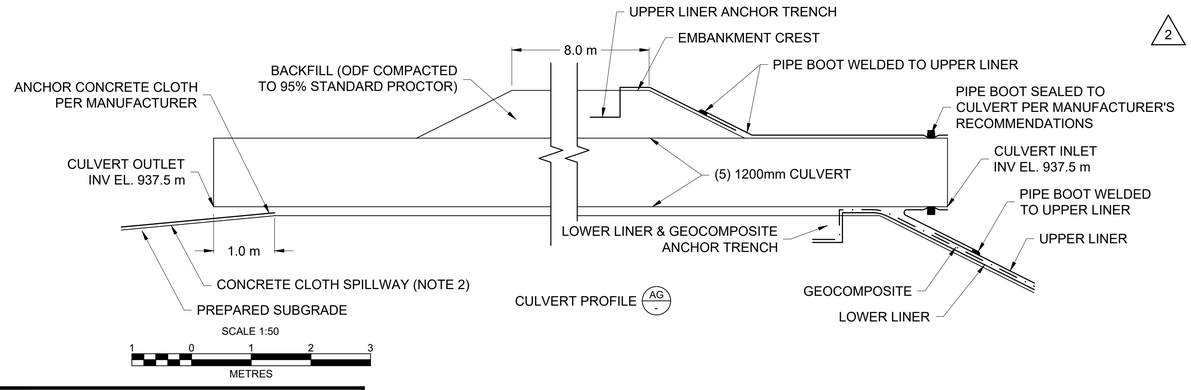
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY		
TITLE: IN-HEAP POND SPILLWAY PLAN AND PROFILE		
SCALE: 1:1,000	DWG No.: EGHLF-XD-08-01	REV.: 2

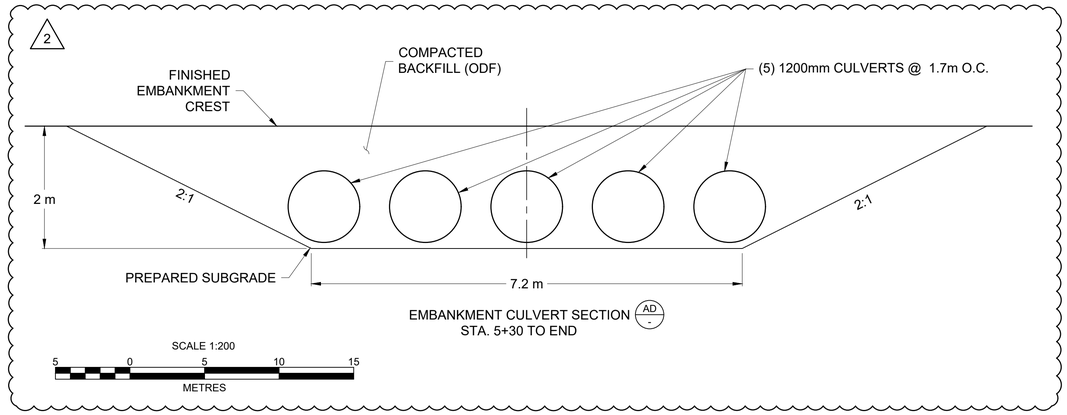
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BOX CULVERT FINISHED GROUND CONTROL POINTS				
CP#	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
33	459,326.0	7,101,492.9	936.5	BOTTOM
34	459,324.7	7,101,493.6	936.5	BOTTOM
35	459,324.4	7,101,499.4	937.2	BOTTOM
36	459,330.8	7,101,496.1	937.2	BOTTOM
37	459,327.1	7,101,504.7	937.5	BOTTOM
38	459,333.5	7,101,501.5	937.5	BOTTOM
39	459,335.6	7,101,521.3	937.5	BOTTOM
40	459,342.0	7,101,518.0	937.5	BOTTOM

2







THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
3. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.
4. PIPE BOOT SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. BGC SHALL REVIEW PIPE BOOT INSTALLATION METHOD.
5. SEE DRAWING EGHLF-XD-02-06 FOR LOWER LINER ANCHORING DETAILS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	06	29	DAG	TLM	MEH	TLM	GEOMEMBRANE ADDED TO SPILLWAY
2	19	03	18	DAG	TLM	RM	TLM	REVISE CULVERT / SPILLWAY MATERIAL AND DESIGN

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND SPILLWAY BOX CULVERT PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

1

BOX CULVERT DETAILS ARE NO LONGER APPLICABLE

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	21	DAG	TLM	RM	TLM	REMOVE DETAILS THAT NO LONGER APPLY

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

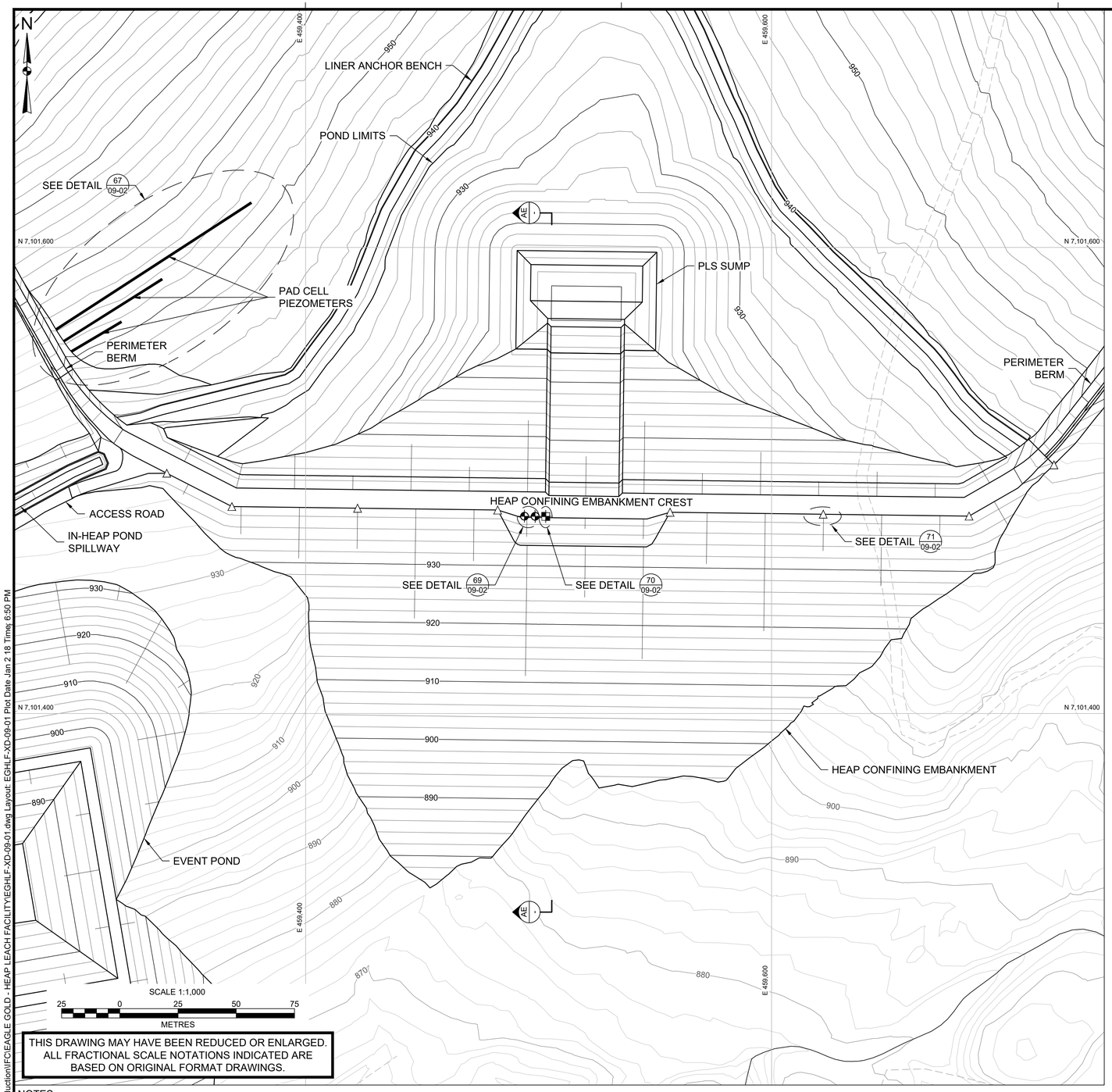
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AN APPLIED EARTH SCIENCES COMPANY

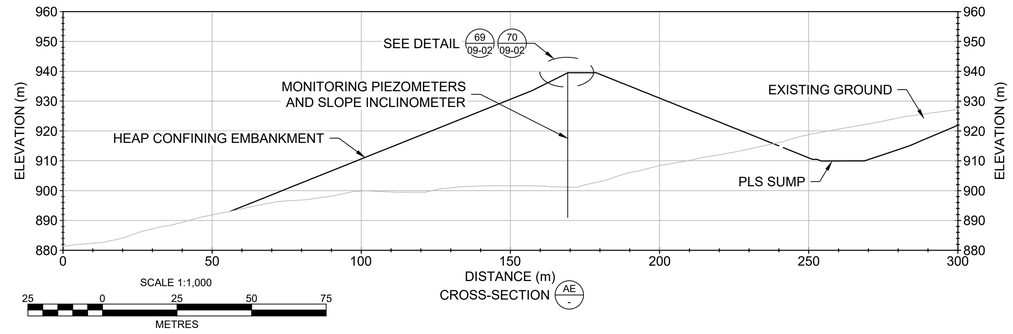
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND SPILLWAY DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-08-03	1





THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE OWNER'S ENGINEER SHALL OVERSEE INSTALLATION OF ALL INSTRUMENTATION AND SETUP OF ALL RELAY AND DATALOGGER EQUIPMENT.

LEGEND
- △ PLANNED SURVEY MONUMENT
- PLANNED EMBANKMENT PIEZOMETER
- SLOPE INCLINOMETER

ISSUED FOR CONSTRUCTION

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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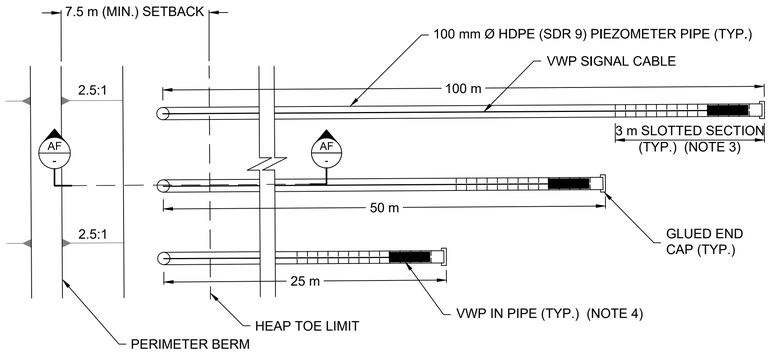
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: INSTRUMENTATION PLAN

SCALE:	DWG No.:	REV.:
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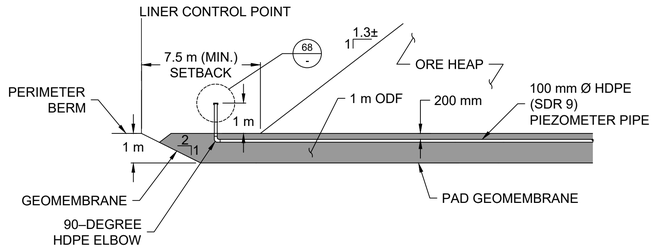
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PAD CELL PIEZOMETERS TYPICAL LAYOUT (67 / 09-01)

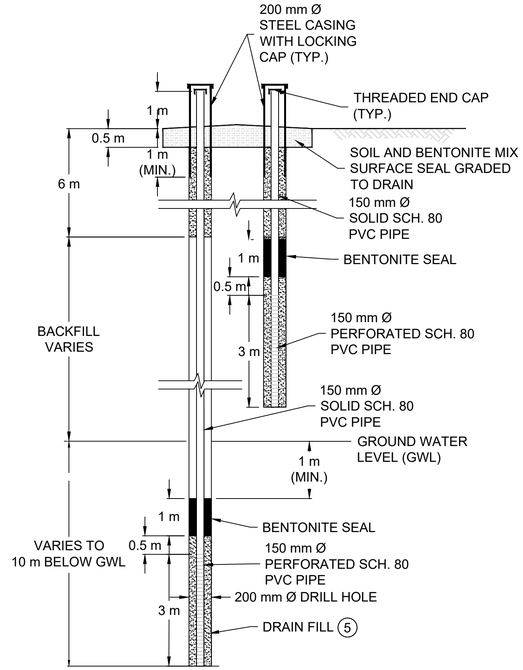
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(NOTE 1)



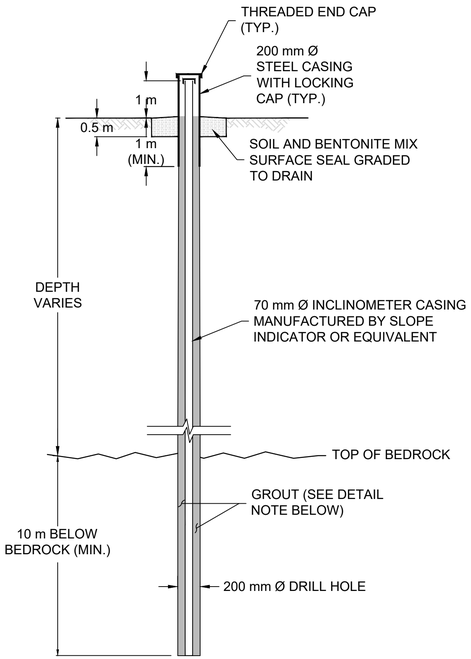
PAD CELL PIEZOMETERS PIPE SECTION (AF / -)

SCALE = N.T.S.



MONITORING PIEZOMETERS DETAIL (69 / 09-01)

SCALE = N.T.S.



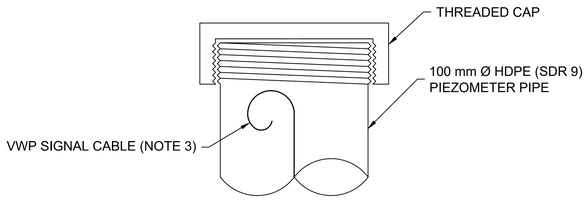
NOTE: THE ANNULUS BETWEEN THE BOREHOLE AND INCLINOMETER CASING SHOULD BE FILLED WITH GROUT AS SPECIFIED BELOW:

GROUT MIX TABLE		
MATERIALS	WEIGHT	RATIO BY WEIGHT
PORTLAND CEMENT	94 LB (1 BAG)	1
WATER	30 GALLONS	2.5
BENTONITE	+/- 25 LBS. *	0.3

* MIX CEMENT WITH WATER FIRST. THEN MIX IN THE BENTONITE. ADJUST THE AMOUNT OF BENTONITE TO PRODUCE A GROUT WITH THE CONSISTENCY OF HEAVY CREAM. IF THE GROUT IS TOO THIN, THE SOLIDS AND THE WATER WILL SEPARATE.

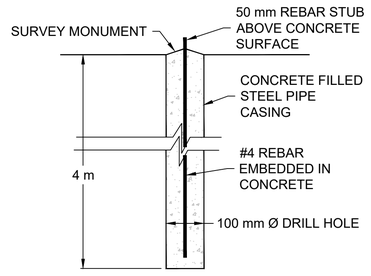
INCLINOMETER DETAIL (70 / 09-01)

SCALE = N.T.S.



PIEZOMETER PIPE CAP DETAIL (68 / -)

SCALE = N.T.S.



SURVEY MONITORING DETAIL (71 / 09-01)

SCALE = N.T.S.

LEGEND

(5) SELECT DRAIN FILL

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. LOCATE PIEZOMETER PIPES WITH THE PIPE OUTLETS NEAR THE ACCESS ROAD. PIPES SHALL BE INSTALLED HALF WAY BETWEEN PLS DRAIN PIPES AND EXTEND INTO THE PAD ALONG ITS FLATTEST GRADE.
3. SLOTS SHALL BE AT CROWN OF PIPE AND SHALL BE EQUALLY SPACED AT 75 mm CENTRES. SLOTS DIMENSIONS SHALL BE 3 mm WIDE BY 38 mm LONG.
4. VIBRATING WIRE PIEZOMETERS (VWPs) SHALL BE GEOKON MODEL 4500AL/ALV-170kPa OR APPROVED EQUIVALENT. VWP INSTRUMENTS SHALL BE INSTALLED IN A GLYCOL BATH FOR FROST PROTECTON.

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 12/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 12/08/17

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CLIENT: StrataGold Corporation

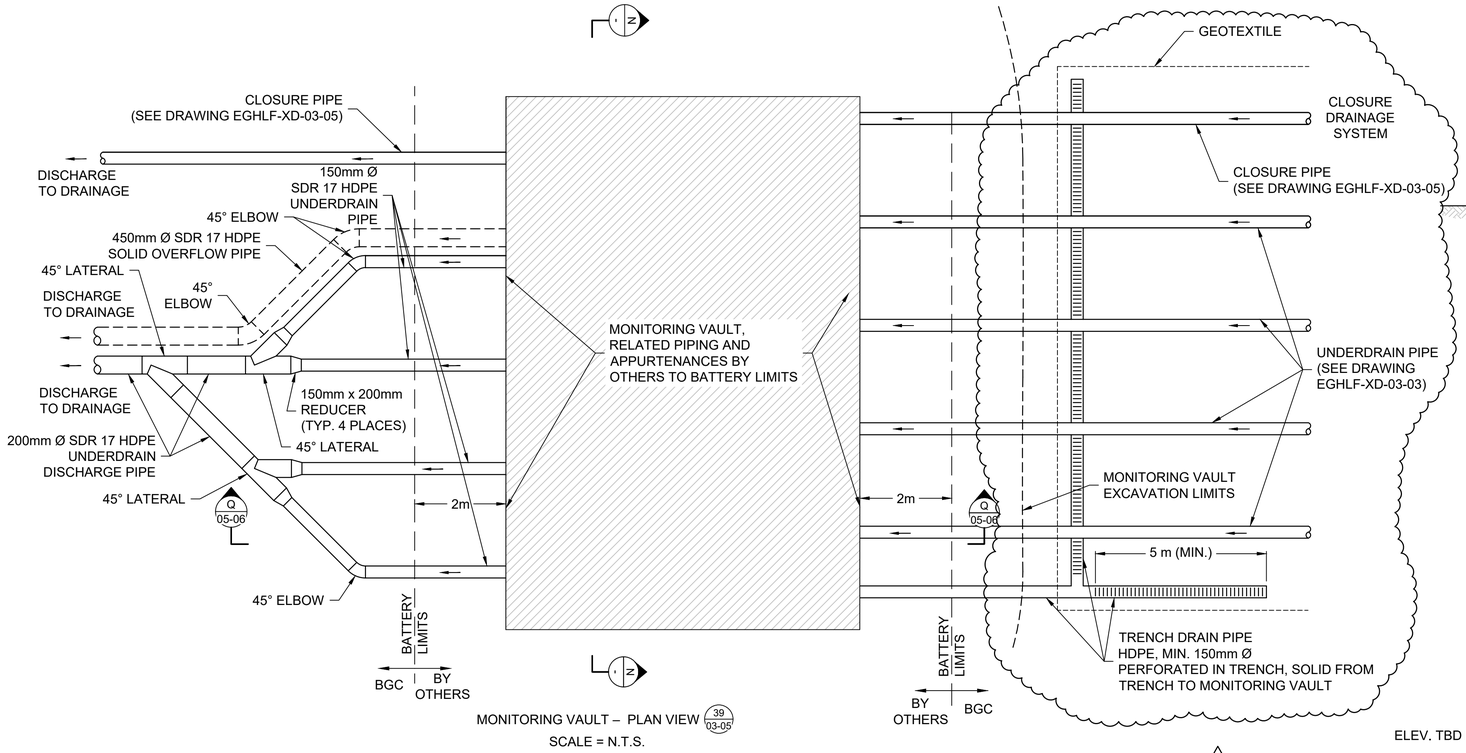
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: INSTRUMENTATION DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-09-02	0

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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LEGEND

(1) SITE GRADING FILL

(5) SELECT DRAIN FILL

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. MONITORING VAULT TO BE DESIGNED BY OTHERS AND SHOWN HERE FOR REFERENCE ONLY. BATTERY LIMITS FOR BGC DESIGN ARE 2 m FROM OUTSIDE OF MONITORING VAULT. DESIGN OUTSIDE TETRA TECH BATTERY LIMITS ARE FOR REFERENCE ONLY..

ISSUED FOR CONSTRUCTION

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	MONITORING VAULT DETAILS REVISED
2	18	04	23	DAG	TLM	MEH	TLM	TRENCH DRAIN PIPE ADDED

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING: CJT
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 09/08/17
PROJECT MANAGER: TLM	APPROVAL DATE: 09/08/17

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT:

N:\autocad\LOGO\StrataGold LogoBW.jpg

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: MONITORING VAULT DETAILS

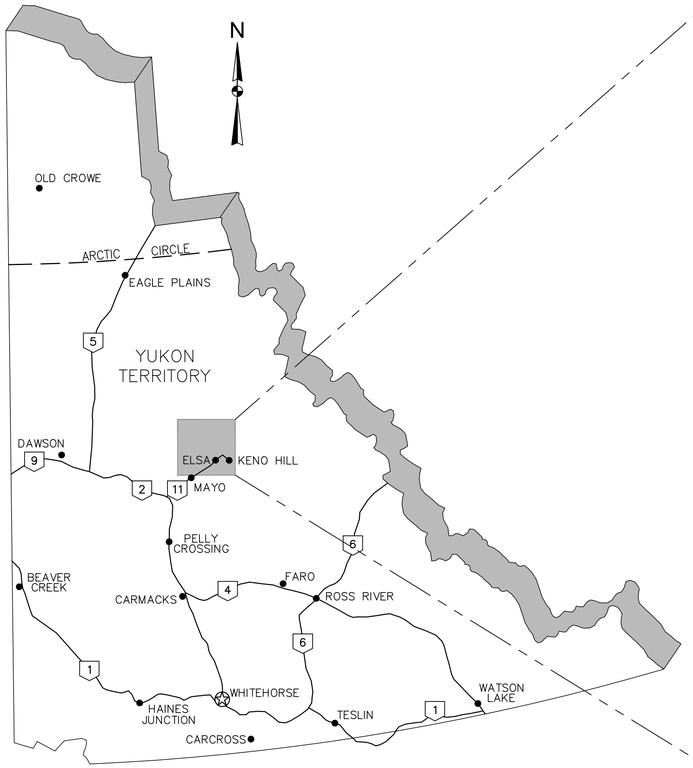
SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-05-06	2

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

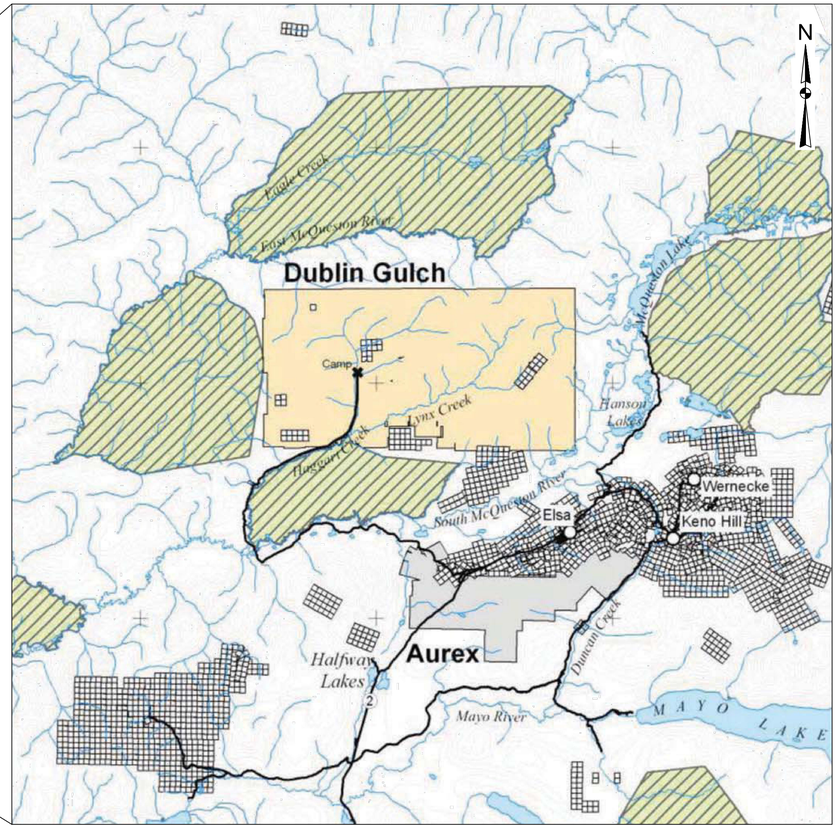
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APPENDIX 9
As-Built Drawings

EAGLE GOLD PROJECT
HEAP LEACH FACILITY
PHASE 1A (2019) AS-BUILT



REGIONAL LOCATION MAP



PROJECT LOCATION MAP

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

DWG No.	TITLE
EGHLF-XD-00-01	TITLE SHEET AND DRAWING INDEX
EGHLF-XD-00-02	GENERAL NOTES AND LEGEND
EGHLF-XD-01-01	GENERAL ARRANGEMENT PLAN
EGHLF-XD-01-02	SURVEY CONTROL PLAN
EGHLF-XD-01-03	SURFACE GEOLOGY MAP
EGHLF-XD-01-04	SITE INVESTIGATION PLAN
EGHLF-XD-01-05	OVERALL LAYOUT PLAN
EGHLF-XD-02-01	PHASE 1 PAD GRADING PLAN
EGHLF-XD-02-03	PHASE 1 PAD GRADING CROSS-SECTIONS - SHEET 1 OF 2
EGHLF-XD-02-04	PHASE 1 PAD GRADING CROSS-SECTIONS - SHEET 2 OF 2
EGHLF-XD-02-05	CORRIDOR TYPICAL SECTIONS
EGHLF-XD-02-06	LINER DETAILS
EGHLF-XD-03-01	PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE - SHEET 1 OF 2
EGHLF-XD-03-02	PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE - SHEET 2 OF 2
EGHLF-XD-03-03	PHASE 1 UNDERDRAIN PIPING PLAN
EGHLF-XD-03-04	PHASE 1 UNDERDRAIN PIPING DETAILS
EGHLF-XD-03-05	CLOSURE PIPING PLAN AND PROFILE
EGHLF-XD-04-01	EMBANKMENT PLAN VIEW
EGHLF-XD-04-02	EMBANKMENT CROSS-SECTIONS
EGHLF-XD-04-03	EMBANKMENT DETAILS
EGHLF-XD-05-01	IN-HEAP SUMP DETAILS - SHEET 1 OF 2
EGHLF-XD-05-02	IN-HEAP SUMP DETAILS - SHEET 2 OF 2
EGHLF-XD-05-03	PLS SUMP DETAILS - SHEET 1 OF 2
EGHLF-XD-05-04	PLS SUMP DETAILS - SHEET 2 OF 2
EGHLF-XD-05-05	LDRS AND CLOSURE SUMP DETAILS
EGHLF-XD-05-06	MONITORING VAULT DETAILS
EGHLF-XD-06-01	PHASE 1 PLS RECOVERY PIPING PLAN VIEW
EGHLF-XD-06-02	PHASE 1 PLS RECOVERY PIPING DETAILS - SHEET 1 OF 2
EGHLF-XD-06-03	PHASE 1 PLS RECOVERY PIPING DETAILS - SHEET 2 OF 2
EGHLF-XD-07-01	EVENT POND PLAN VIEW
EGHLF-XD-07-02	EVENT POND CROSS-SECTIONS
EGHLF-XD-07-03	EVENT POND DETAILS - SHEET 1 OF 2
EGHLF-XD-07-04	EVENT POND DETAILS - SHEET 2 OF 2
EGHLF-XD-07-05	EVENT POND SPILLWAY PLAN AND PROFILE
EGHLF-XD-07-06	EVENT POND SPILLWAY TYPICAL SECTIONS AND DETAILS
EGHLF-XD-08-01	IN-HEAP POND SPILLWAY PLAN AND PROFILE
EGHLF-XD-08-02	IN-HEAP POND SPILLWAY BOX CULVERT PLAN AND PROFILE
EGHLF-XD-08-03	IN-HEAP POND SPILLWAY DETAILS
EGHLF-XD-09-01	INSTRUMENTATION PLAN
EGHLF-XD-09-02	INSTRUMENTATION DETAILS

AS-BUILT RECORD DRAWING

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
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1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: TITLE SHEET AND DRAWING INDEX
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-00-01 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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GENERAL NOTES:

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE FOLLOWING GENERAL NOTES SHALL APPLY:

1. ALL COORDINATES AND ELEVATIONS ARE SHOWN IN METRES, UNLESS NOTED OTHERWISE. COORDINATES AND TOPOGRAPHY ARE IN NAD83 (CSRS) UTM ZONE 8N COORDINATE SYSTEM. SURVEY PROVIDED BY UNDERHILL GEOMATICS LTD.
2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ACCOMPANYING DRAWINGS, SPECIFICATIONS, AND THE REPORT TITLED: “EAGLE GOLD PROJECT - HEAP LEACH FACILITY DETAILED DESIGN” ISSUED JANUARY, 2018.
3. UNLESS BGC AGREES OTHERWISE IN WRITING, THIS DRAWING SHALL NOT BE MODIFIED OR USED FOR ANY PURPOSE OTHER THAN THE PURPOSE FOR WHICH BGC GENERATED IT. BGC SHALL HAVE NO LIABILITY FOR ANY DAMAGES OR LOSS ARISING IN ANY WAY FROM ANY USE OR MODIFICATION OF THIS DOCUMENT NOT AUTHORIZED BY BGC. ANY USE OF OR RELIANCE UPON THIS DOCUMENT OR ITS CONTENT BY THIRD PARTIES SHALL BE AT SUCH THIRD PARTIES' SOLE RISK
4. SURFICIAL GEOLOGY PROVIDED BY BGC.
5. ALL DIMENSIONS, STATIONING, AND SCALES ARE SI METRIC SYSTEM.
6. SITE INVESTIGATION BOREHOLES, TEST PITS, AND SEISMIC LINE LOCATIONS SHOWN ON THESE DRAWINGS ARE THE BASIS FOR INTERPRETATION OF SUBSURFACE CONDITIONS FOR DESIGN. SEE APPENDIX A - SUPPORTING INFORMATION OF THE REPORT TITLED: "EAGLE GOLD PROJECT - HEAP LEACH FACILITY DETAILED DESIGN - DRAFT" ISSUED AUGUST 11, 2017. SUBSURFACE CONDITIONS MAY VARY BETWEEN THE SITE INVESTIGATION LOCATIONS DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ACTUAL SUBSURFACE CONDITIONS FOR CONSTRUCTION, AS WELL AS ANY CHANGES IN DESIGN GROUND LINES VERSUS EXISTING GROUND LINES BASED ON 2 METRE CONTOUR INTERVAL TOPOGRAPHY.
7. PREVIOUSLY EXISTING TOPOGRAPHY AND MINE FACILITY LAYOUTS PROVIDED BY HATCH. AS-BUILT TOPOGRAPHY AND SURFACES PROVIDED BY PELLY AND UNDERHILL.
8. ROAD SURFACES TO BE SLOPED AND GRADED TO DRAIN. CULVERTS TO BE INSTALLED AS REQUIRED TO PREVENT PONDING.
9. FINAL DESIGN OF SITE-WIDE ACCESS ROADS BY OTHERS, OTHER THAN THAT SHOWN HEREIN.
10. FINAL DESIGN OF THE PROCESS PLANT, CONVEYORS AND RELATED FACILITIES BY OTHERS. ELECTRICAL UTILITIES DESIGNED BY OTHERS.
11. FINAL DESIGN OF THE BARREN AND PREGNANT DELIVERY PIPELINES AND ASSOCIATED PUMPING AND DISTRIBUTION SYSTEMS, FRESH WATER SUPPLY PUMPS AND PIPELINES BY OTHERS.
12. ALL FOUNDATIONS AND OTHER EXCAVATIONS SHALL BE INSPECTED BY THE OWNER'S ENGINEER PRIOR TO FILL PLACEMENT.
13. ALL DRILL HOLES SHALL BE PLUGGED WITH CEMENT OR BENTONITE (WITHIN LIMITS OF AFFECTED AREA).
14. BGC DID NOT INDEPENDENTLY VERIFY THE ACCURACY OF AS-BUILT SURVEY INFORMATION PROVIDED BY THE CONTRACTOR, WHICH FORMS A PART OF THE RECORD DRAWINGS.

GENERAL LEGEND:

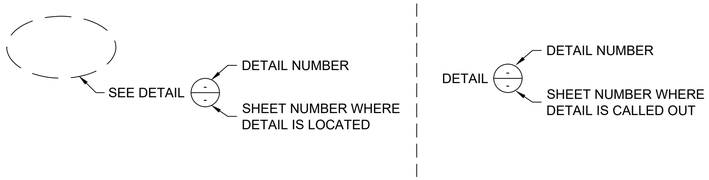
1020 EXISTING CONTOURS (m)

1020 AS-BUILT CONTOURS (m)

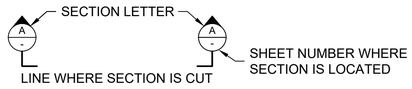
EXISTING FACILITIES

PROPOSED FACILITIES

DETAIL CALL-OUT



CROSS-SECTION LOCATION



FILL TYPES FOR CONSTRUCTION

MATERIAL No.	FILL MATERIAL NAME	FILL DESCRIPTION
1	SITE GRADING FILL	SITE GRADING SOILS FROM REQUIRED EXCAVATIONS AND CUT/FILL ACTIVITIES
2	SELECT FILL	FINE GRAINED MATERIALS FOR LINER BEDDING
3	STRUCTURAL FILL	WELL GRADED SOILS AND WEATHERED BEDROCK FROM REQUIRED EXCAVATIONS FOR EMBANKMENT FILL
4	OVERLINER DRAIN FILL (ODF)	CLEAN GRAVEL MATERIALS FOR HLF LINER COVER, PLS AND LDRS SUMPS
5	SELECT DRAIN FILL	CLEAN GRAVEL MATERIAL FOR UNDERDRAIN PIPES
6	PIPE TRENCH BACKFILL	COARSE AGGREGATE STONE
7	COMPACTED ROCKFILL	HIGH STRENGTH ROCK MATERIALS
8	ANCHOR TRENCH BACKFILL	SITE GRADING FILL MATERIAL FOR USE IN LINER ANCHOR TRENCHES
9	ROAD WEARING COARSE	WELL GRADED SANDY GRAVEL
10	RIPRAP	COMPETENT ROCK FROM EXCAVATIONS
11	ORE	CRUSHED ORE MATERIAL FOR HEAP LEACHING

FILL NOTES:
1) OVERLINER DRAIN FILL TO BE PLACED IN A SINGLE LOOSE LIFT OF 0.6 m (MINIMUM) ON THE UPPER PAD AREAS AND 1.0 m (MINIMUM) IN THE IN-HEAP POND AREAS.
2) COMPACTED ROCKFILL THICKNESS AND COMPACTION DEPENDING ON AVAILABLE MATERIALS AND RESULTS OF LARGE SCALE TEST FILLS CONDUCTED BY THE ENGINEER DURING CONSTRUCTION, AS REQUIRED BY THE SPECIFICATIONS.
3) SEE CONSTRUCTION COMPLETION REPORT FOR FINAL CRITERIA.

ABREVIATIONS:

ADS	- ADVANCED DRAINAGE SYSTEMS, INC.
ASTM	- AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	- AMERICAN WATER WORKS ASSOCIATION
BGC	- BGC ENGINEERING INC.
℄	- CENTRELINE
CQA	- CONSTRUCTION QUALITY ASSURANCE
CS	- CARBON STEEL
CSRS	- CANADIAN SPATIAL REFERENCE SYSTEM
DIA.	- DIAMETER
E	- EASTING (COORDINATE)
EL.	- ELEVATION
FG	- FINISHED GRADE
GCL	- GEOSYNTHETIC CLAY LINER
GWL	- GROUND WATER LEVEL
HDPE	- HIGH-DENSITY POLYETHYLENE
HLF	- HEAP LEACH FACILITY
I.D.	- INSIDE DIAMETER
INV	- INVERT
LDRS	- LEAK DETECTION AND RECOVERY SYSTEM
LLDPE	- LINEAR LOW-DENSITY POLYETHYLENE
MAX.	- MAXIMUM
MIN.	- MINIMUM
N	- NORTHING (COORDINATE)
NIC	- NOT IN CONTRACT
NOM	- NOMINAL
N.T.S.	- NOT TO SCALE
O.C.	- ON CENTRE
O.D.	- OUTSIDE DIAMETER
ODF	- OVERLINER DRAIN FILL
OZ.	- OUNCE
PELLY	- PELLY CONSTRUCTION Ltd.
PLS	- PREGNANT LEACH SOLUTION
PE	- POLYETHYLENE
PVC	- POLYVINYL CHLORIDE
SCH.	- SCHEDULE
SL	- SEISMIC LINE
STA	- STATION
S.S.	- STAINLESS STEEL
TBD	- TO BE DETERMINED
TYP	- TYPICAL
UNDERHILL	- UNDERHILL GEOMATICS Ltd.
UV	- ULTRAVIOLET
VWP	- VIBRATING WIRE PIEZOMETER
WSE	- WATER SURFACE ELEVATION
50 m	- DIMENSION IN METRES
2.5:1	- 2.5 HORIZONTAL TO 1 VERTICAL SLOPE
~	- APPROXIMATELY

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

AS-BUILT RECORD DRAWING

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DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: GENERAL NOTES AND LEGEND

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-00-02	1

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PHASE 1
INTERCEPTOR DITCH
FUTURE HEAP
LEACH PAD
AREA
HEAP LEACH PAD
PERIMETER BERM
FUTURE
PHASE 1B
ANN GULCH
900m BENCH
HEAP LEACH
PHASE 1A
IN-HEAP POND
LIMITS
PROCESS PLANT
(BY OTHERS)
IN-HEAP POND
SUMPS
HEAP LEACH PAD
PERIMETER BERM
PROCESS PLANT
SERVICE ROAD
(BY OTHERS)
DUBLIN GULCH
IN-HEAP POND
SPILLWAY
HAGGART CREEK
HEAP CONFINING
EMBANKMENT
EVENT POND
DUBLIN
GULCH
STEWART GULCH
HAUL ROAD
(BY OTHERS)
EMERGENCY
SPILLWAY
DITCH 'B'
CONTROL POND
(BY OTHERS)
DITCH 'C'
CAMP
(BY OTHERS)
OVERLAND
CONVEYOR
(BY OTHERS)
WATER
TREATMENT
PLANT
(BY OTHERS)
EAGLE PUP GULCH
STUTTLE GULCH
EAGLE WASTE
ROCK STORAGE

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

SCALE 1:5,000
100 0 100 200 300
METRES

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.
3. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

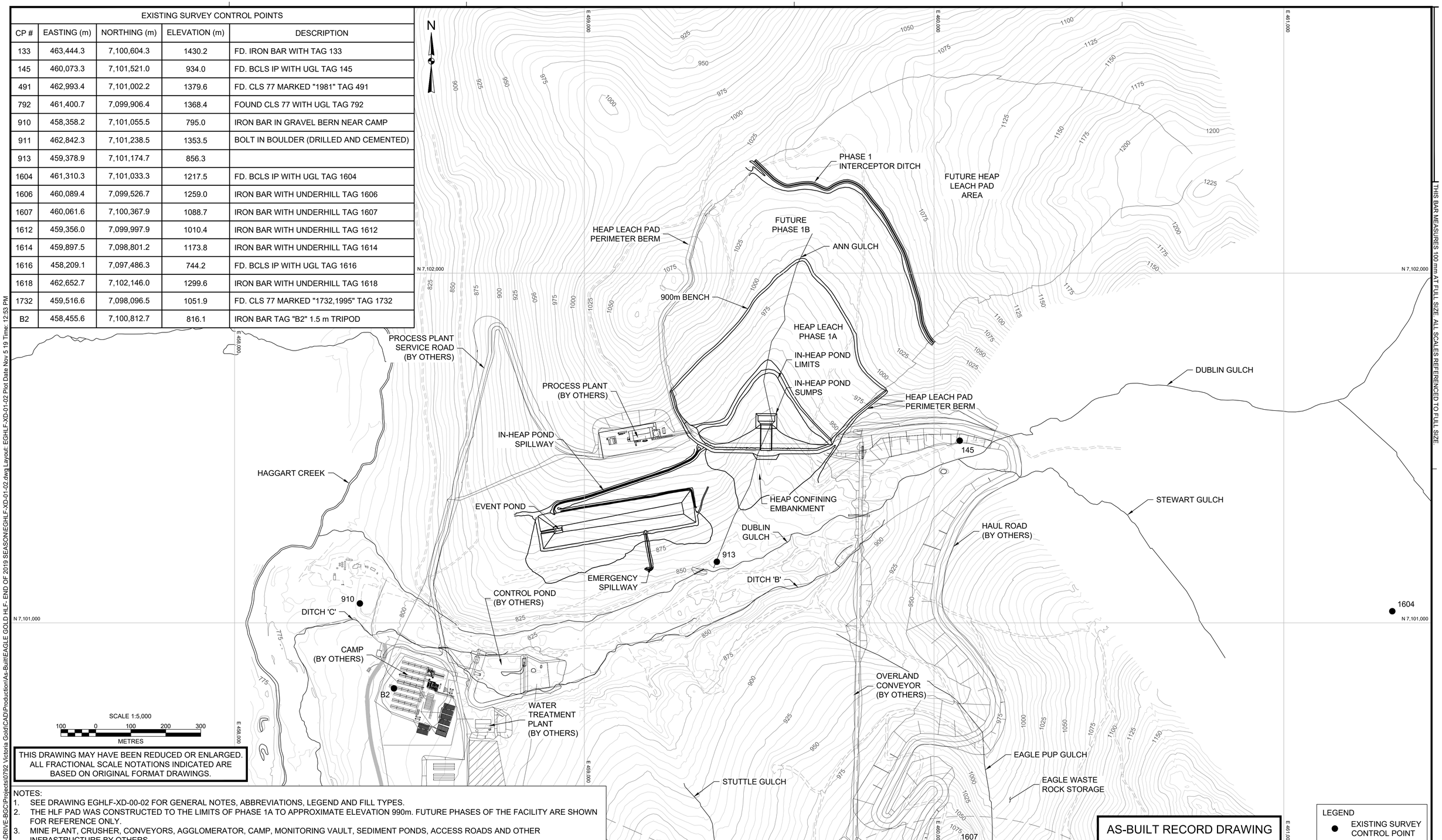
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DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: GENERAL ARRANGEMENT PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-01 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

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EXISTING SURVEY CONTROL POINTS				
CP #	EASTING (m)	NORTHING (m)	ELEVATION (m)	DESCRIPTION
133	463,444.3	7,100,604.3	1430.2	FD. IRON BAR WITH TAG 133
145	460,073.3	7,101,521.0	934.0	FD. BCLS IP WITH UGL TAG 145
491	462,993.4	7,101,002.2	1379.6	FD. CLS 77 MARKED "1981" TAG 491
792	461,400.7	7,099,906.4	1368.4	FOUND CLS 77 WITH UGL TAG 792
910	458,358.2	7,101,055.5	795.0	IRON BAR IN GRAVEL BERN NEAR CAMP
911	462,842.3	7,101,238.5	1353.5	BOLT IN BOULDER (DRILLED AND CEMENTED)
913	459,378.9	7,101,174.7	856.3	
1604	461,310.3	7,101,033.3	1217.5	FD. BCLS IP WITH UGL TAG 1604
1606	460,089.4	7,099,526.7	1259.0	IRON BAR WITH UNDERHILL TAG 1606
1607	460,061.6	7,100,367.9	1088.7	IRON BAR WITH UNDERHILL TAG 1607
1612	459,356.0	7,099,997.9	1010.4	IRON BAR WITH UNDERHILL TAG 1612
1614	459,897.5	7,098,801.2	1173.8	IRON BAR WITH UNDERHILL TAG 1614
1616	458,209.1	7,097,486.3	744.2	FD. BCLS IP WITH UGL TAG 1616
1618	462,652.7	7,102,146.0	1299.6	IRON BAR WITH UNDERHILL TAG 1618
1732	459,516.6	7,098,096.5	1051.9	FD. CLS 77 MARKED "1732,1995" TAG 1732
B2	458,455.6	7,100,812.7	816.1	IRON BAR TAG "B2" 1.5 m TRIPOD



SCALE 1:5,000

100 0 100 200 300

METRES

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.
3. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

AS-BUILT RECORD DRAWING

LEGEND
- EXISTING SURVEY CONTROL POINT

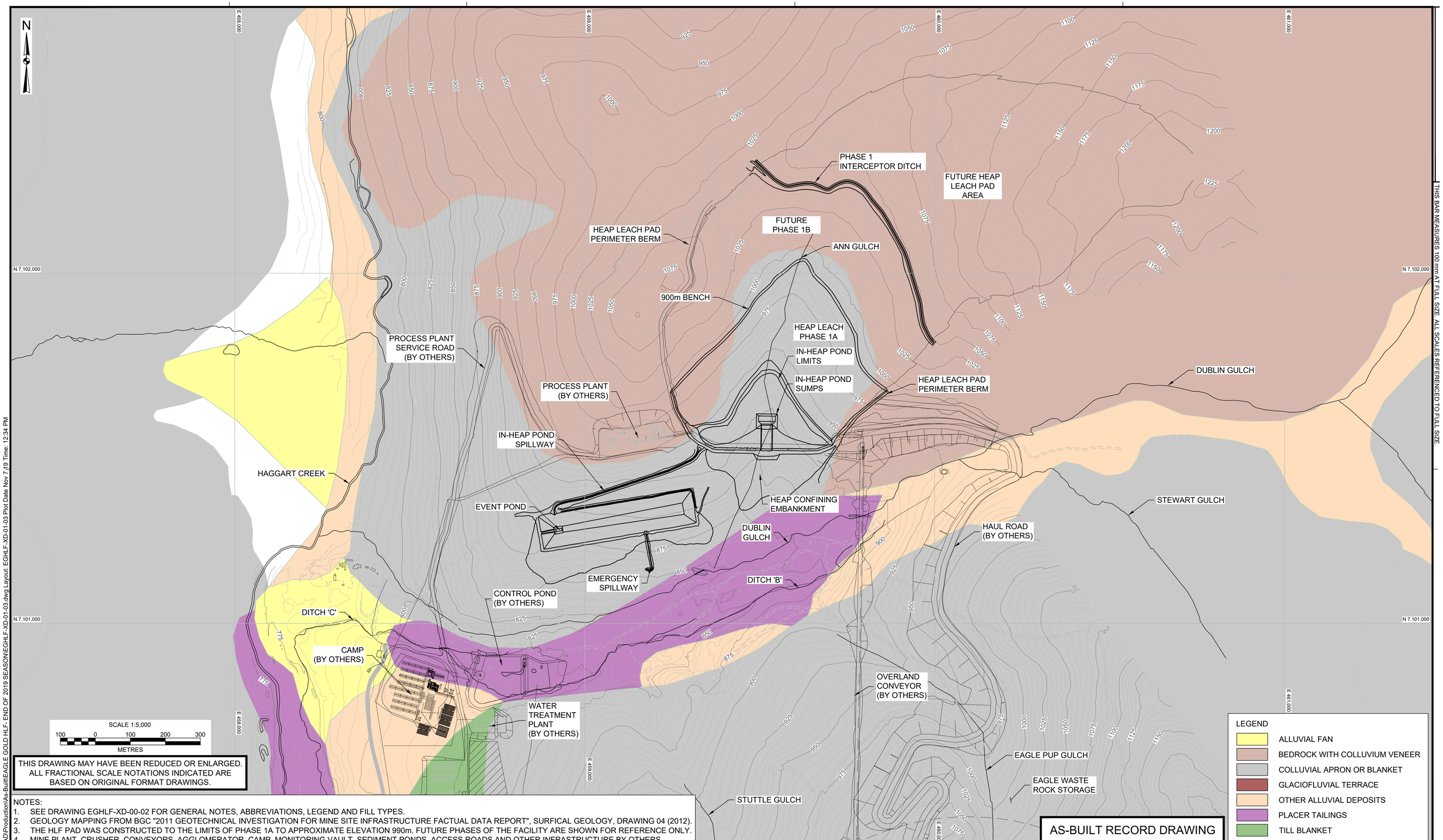
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DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: SURVEY CONTROL PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-02 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. GEOLOGY MAPPING FROM BGC "2011 GEOTECHNICAL INVESTIGATION FOR MINE SITE INFRASTRUCTURE FACTUAL DATA REPORT", SURFICAL GEOLOGY, DRAWING 04 (2012).
3. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.
4. MINE PLANT, CRUSHER, CONVEYORS, AGGLOMERATOR, CAMP, MONITORING VAULT, SEDIMENT PONDS, ACCESS ROADS AND OTHER INFRASTRUCTURE BY OTHERS.

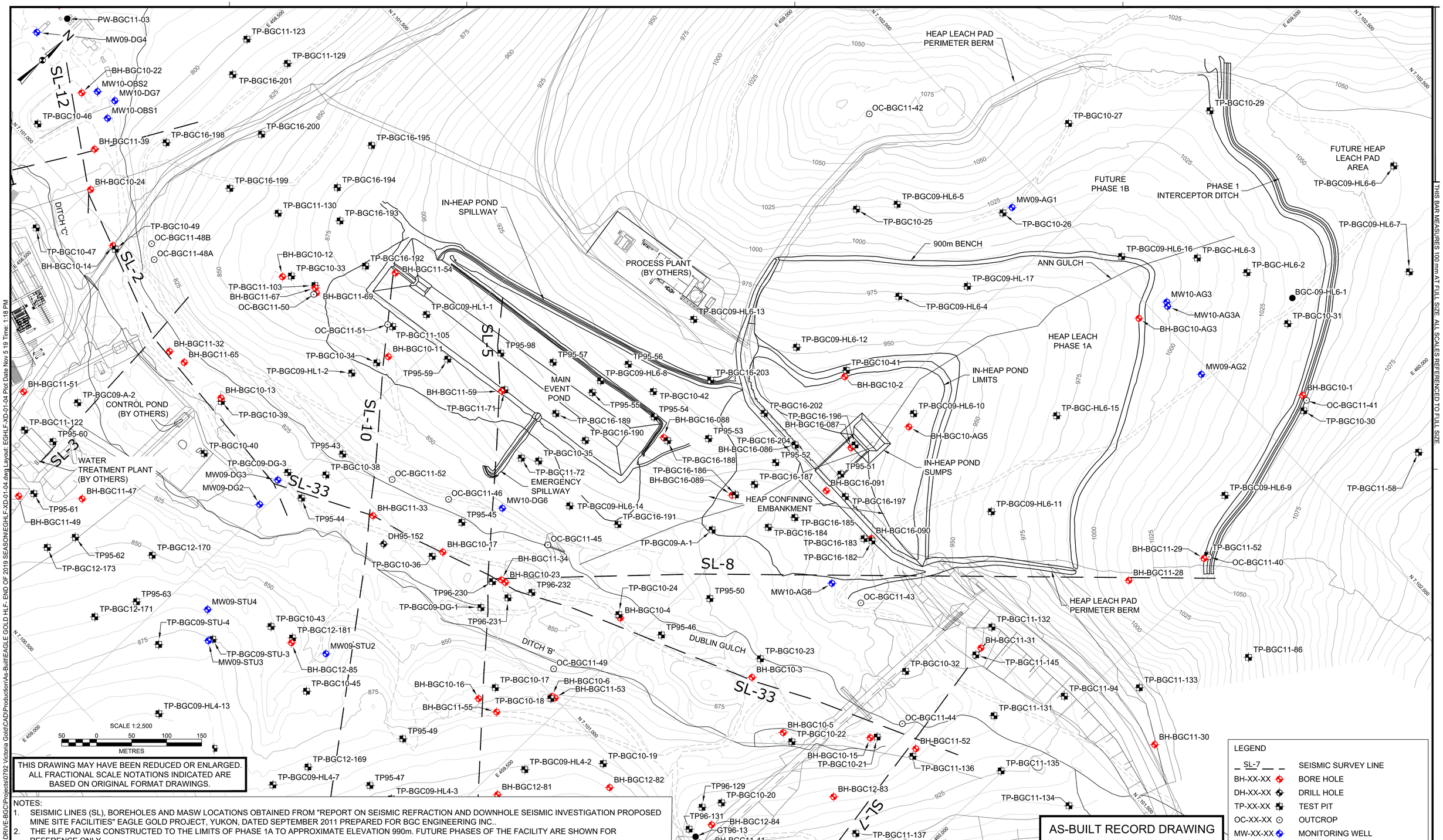
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: SURFACE GEOLOGY MAP
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-03 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

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THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEISMIC LINES (SL), BOREHOLES AND MASW LOCATIONS OBTAINED FROM "REPORT ON SEISMIC REFRACTION AND DOWNHOLE SEISMIC INVESTIGATION PROPOSED MINE SITE FACILITIES" EAGLE GOLD PROJECT, YUKON, DATED SEPTEMBER 2011 PREPARED FOR BGC ENGINEERING INC..
2. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.

LEGEND
- SL-7 — SEISMIC SURVEY LINE
- BH-XX-XX — BORE HOLE
- DH-XX-XX — DRILL HOLE
- TP-XX-XX — TEST PIT
- OC-XX-XX — OUTCROP
- MW-XX-XX — MONITORING WELL

AS-BUILT RECORD DRAWING

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LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

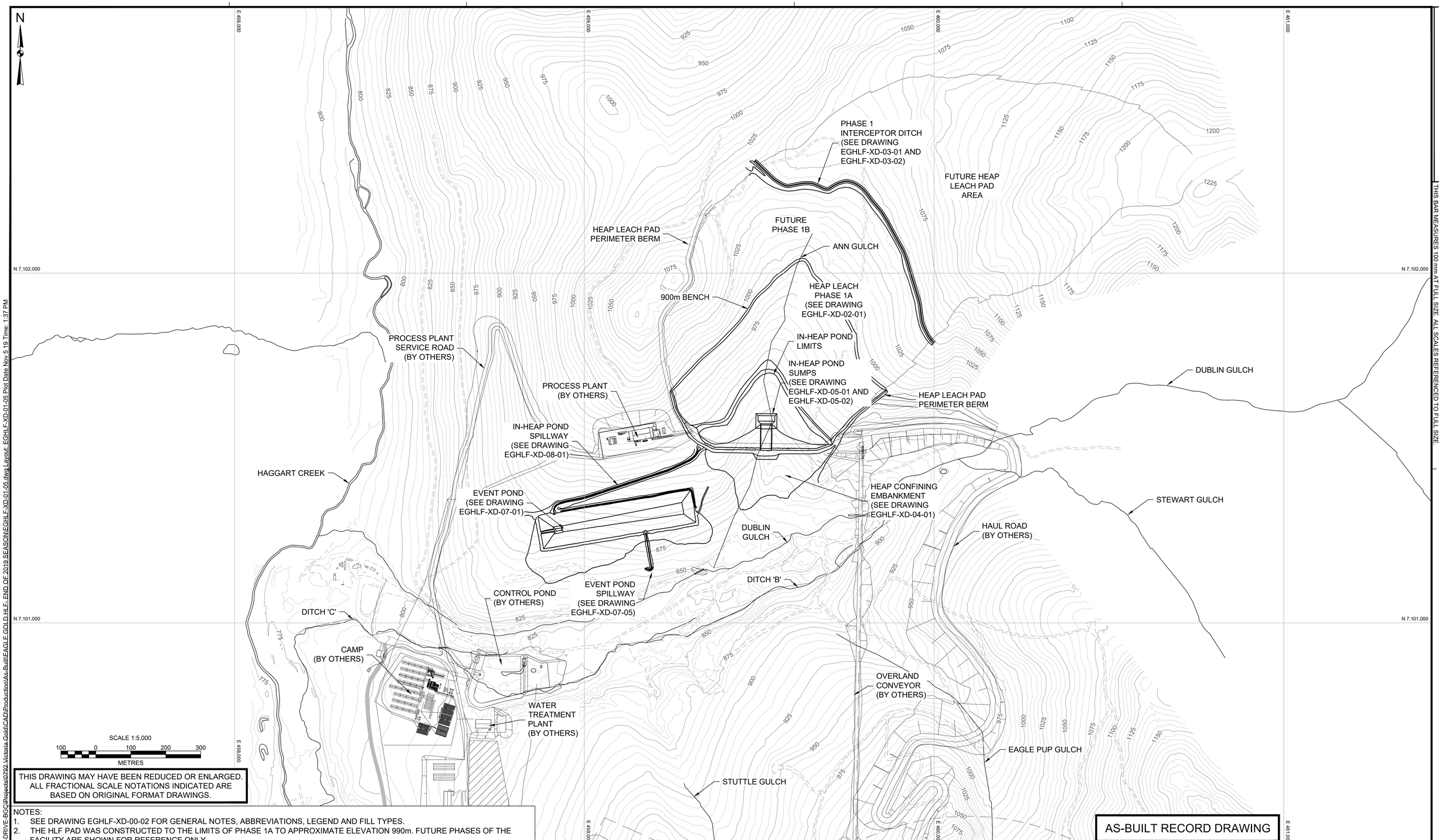
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: SITE INVESTIGATION PLAN

SCALE:	DWG No.:	REV.:
1:2,500	EGHLF-XD-01-04	A

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THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.

AS-BUILT RECORD DRAWING

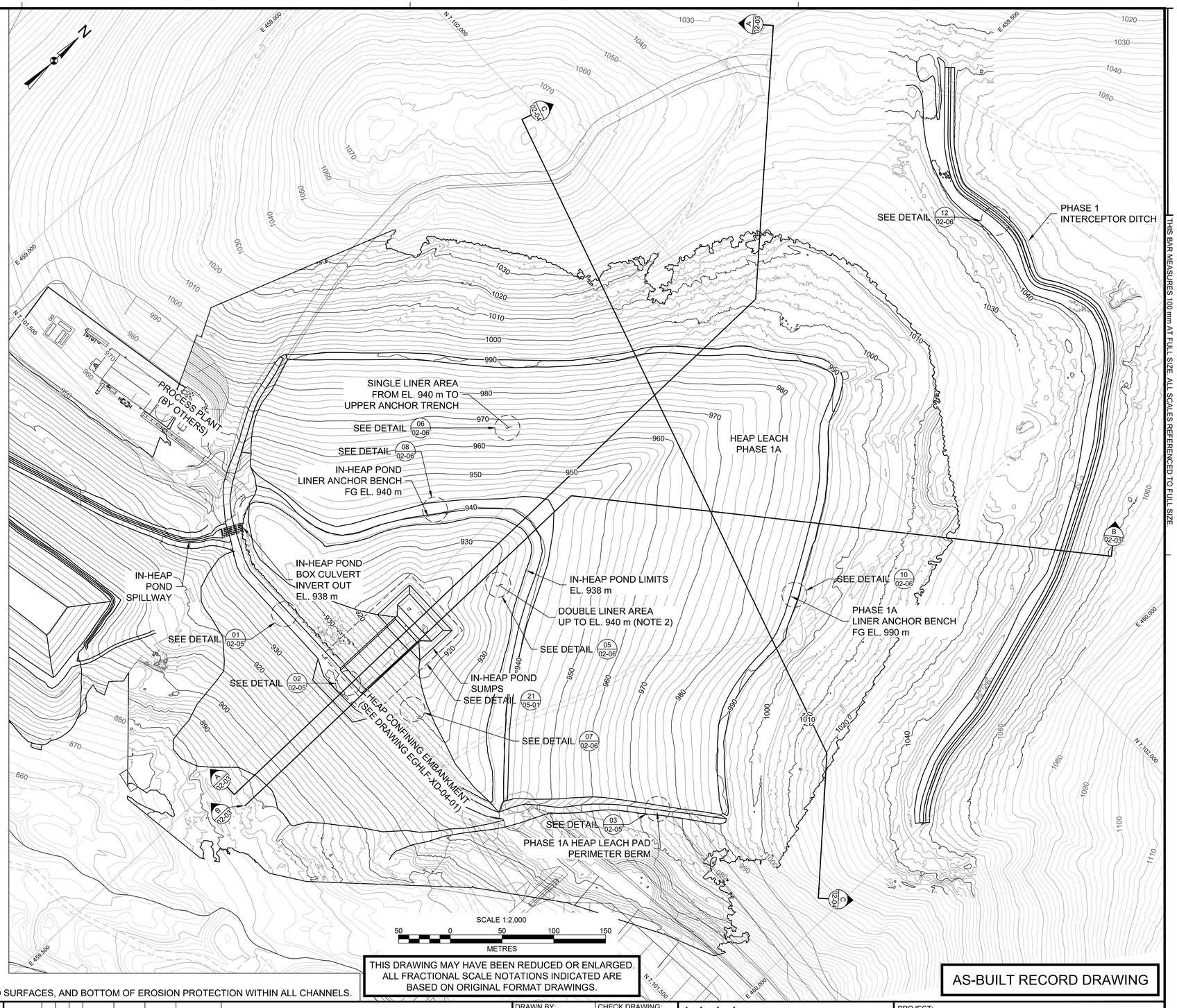
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: OVERALL LAYOUT PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:5,000 / DWG No.: EGHLF-XD-01-05 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

AS-BUILT RECORD DRAWING

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. THE REGRADED CONTOURS REPRESENT THE TOP OF THE LEACH PAD LINER WITHIN THE PAD, TOP OF ROAD SURFACES, AND BOTTOM OF EROSION PROTECTION WITHIN ALL CHANNELS.

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

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AN APPLIED EARTH SCIENCES COMPANY

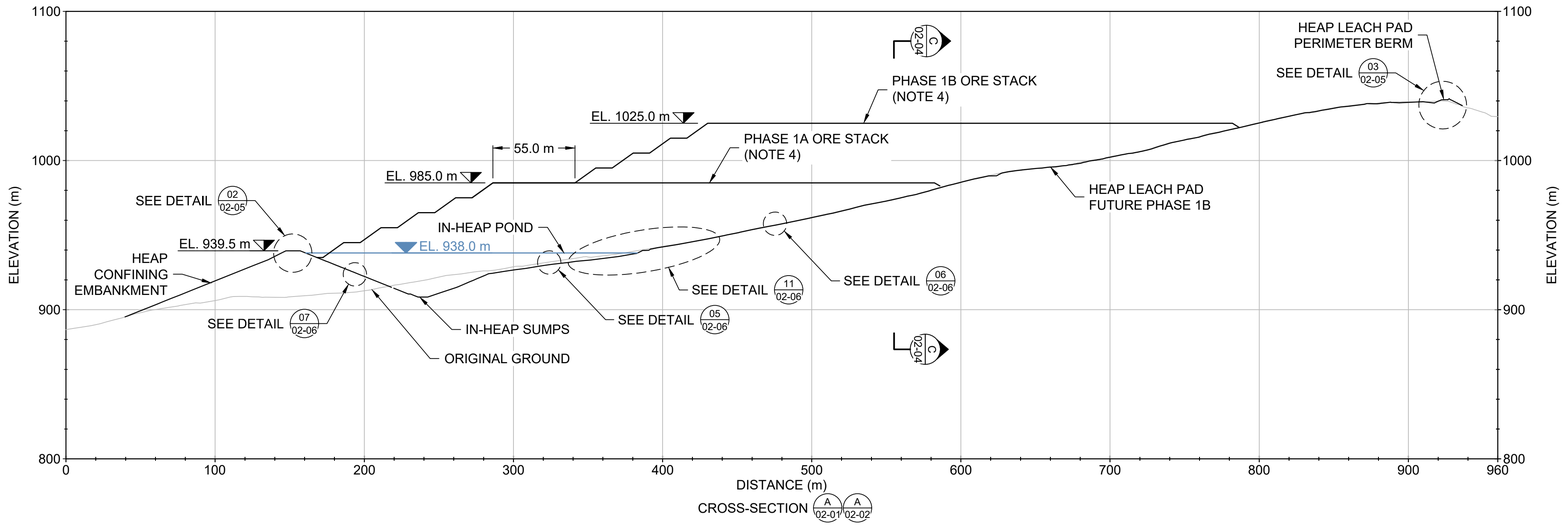
CLIENT: StrataGold Corporation

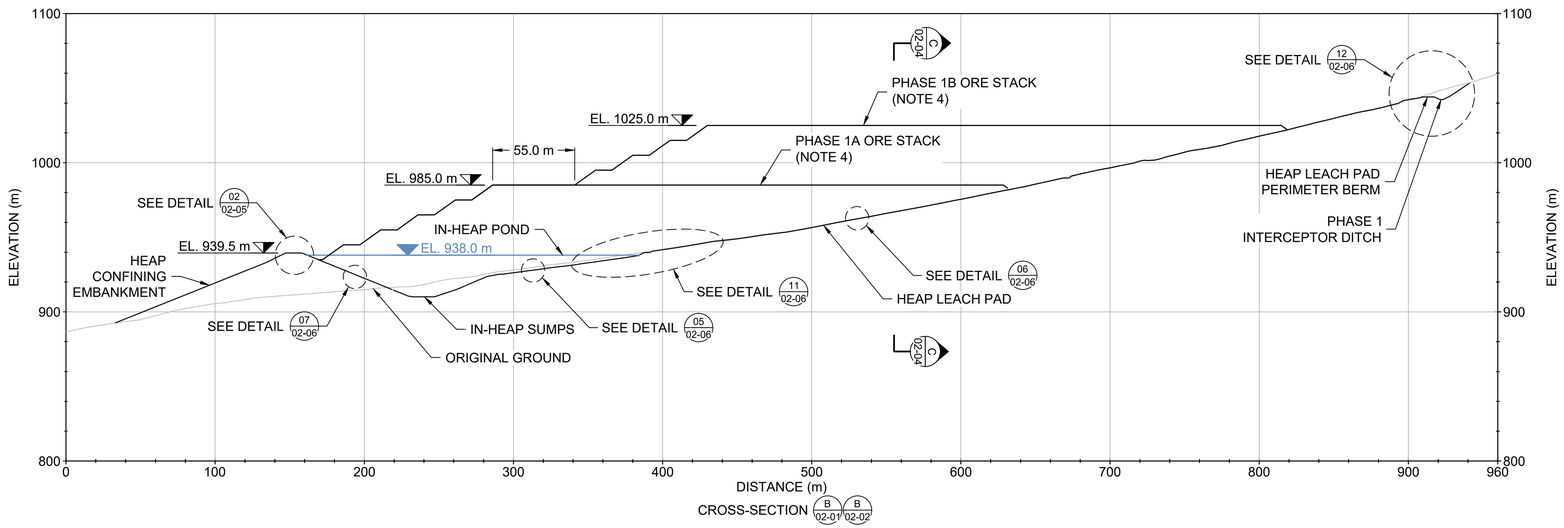
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PAD GRADING PLAN

SCALE:	DWG No.:	REV.:
1:2,000	EGHLF-XD-02-01	1

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SCALE 1:2,000

50 0 50 100 150

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. FUTURE PHASES OF THE PAD AND ORE STACK ARE NOT DESIGNED IN THIS CONSTRUCTION PACKAGE AND ARE NOT SHOWN.
3. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.
4. ORE STACKING PLAN (BY OTHERS) MAY RESULT IN ORE HEAP STACK LIMITS DIFFERENT FROM SHOWN HERE. PHASES 1A/1B ORE STACKS ARE REPRESENTATIVE OF FIRST EIGHT QUARTERS DEVELOPED BY FORTE DYNAMICS, INC.
5. REQUIRED CONVEYOR RAMPS ON ORE HEAP STACK NOT SHOWN.
6. MAXIMUM OVERALL HEAP ORE STACK OUTSLOPE OF 2.5H:1V SHOWN. ORE WILL BE STACKED AT ANGLE OF REPOSE WITH BENCHES NECESSARY TO ACHIEVE THE OVERALL MAXIMUM OUTSLOPE ANGLE.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
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1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

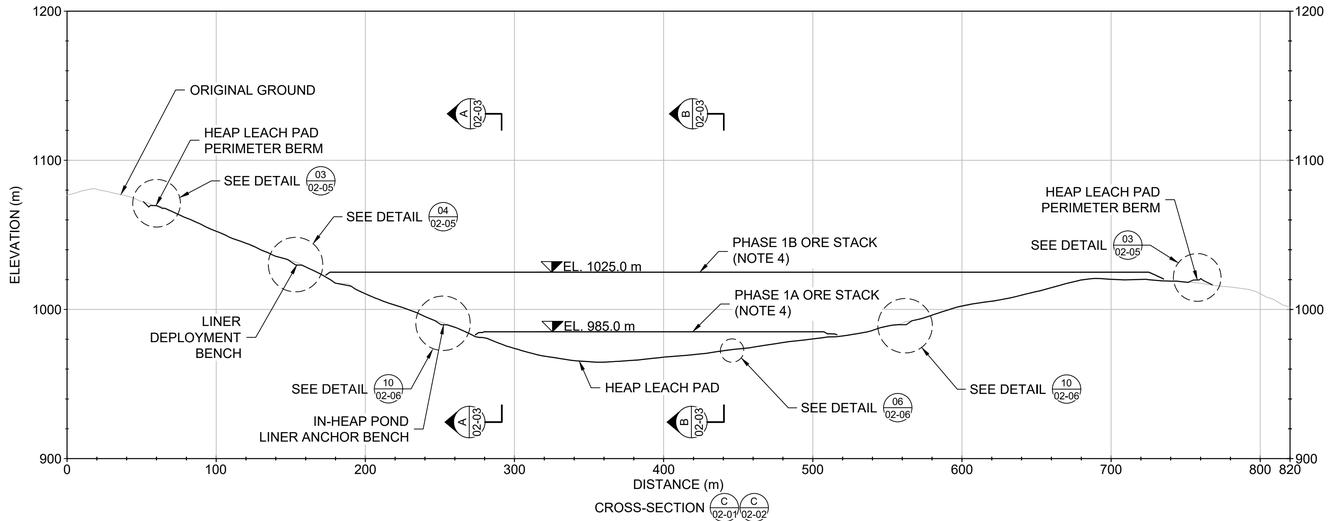
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PAD GRADING CROSS-SECTIONS SHEET 1 OF 2

SCALE:	DWG No.:	REV.:
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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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SCALE 1:2,000

50 0 50 100 150

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. FUTURE PHASES OF THE PAD AND ORE PILE ARE NOT DESIGNED IN THIS CONSTRUCTION PACKAGE AND ARE NOT SHOWN.
3. THE HLF PAD WAS CONSTRUCTED TO THE LIMITS OF PHASE 1A TO APPROXIMATE ELEVATION 990m. FUTURE PHASES OF THE FACILITY ARE SHOWN FOR REFERENCE ONLY.
4. ORE STACKING PLAN (BY OTHERS) MAY RESULT IN ORE HEAP PILE LIMITS DIFFERENT FROM SHOWN HERE. PHASES 1A/1B ORE STACKS ARE REPRESENTATIVE OF FIRST EIGHT QUARTERS DEVELOPED BY FORTE DYNAMICS, INC.
5. REQUIRED CONVEYOR RAMPS ON ORE HEAP PILE NOT SHOWN.
6. MAXIMUM OVERALL HEAP ORE PILE OUTSLOPE OF 2.5H:1V SHOWN. ORE WILL BE STACKED AT ANGLE OF REPOSE WITH BENCHES NECESSARY TO ACHIEVE THE OVERALL MAXIMUM OUTSLOPE ANGLE.

LEGEND
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (8) ANCHOR TRENCH BACKFILL
- (11) ORE STOCKPILE

AS-BUILT RECORD DRAWING

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG | CHECK DRAWING:
DESIGN BY: TLM | CHECK DESIGN: MEH
LEAD ENGINEER: DEH | APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM | APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

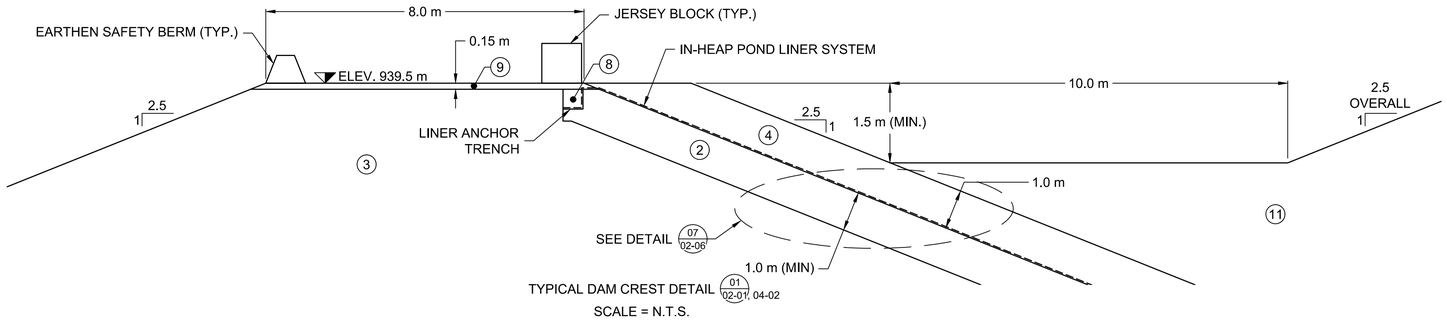
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PAD GRADING CROSS-SECTIONS SHEET 2 OF 2

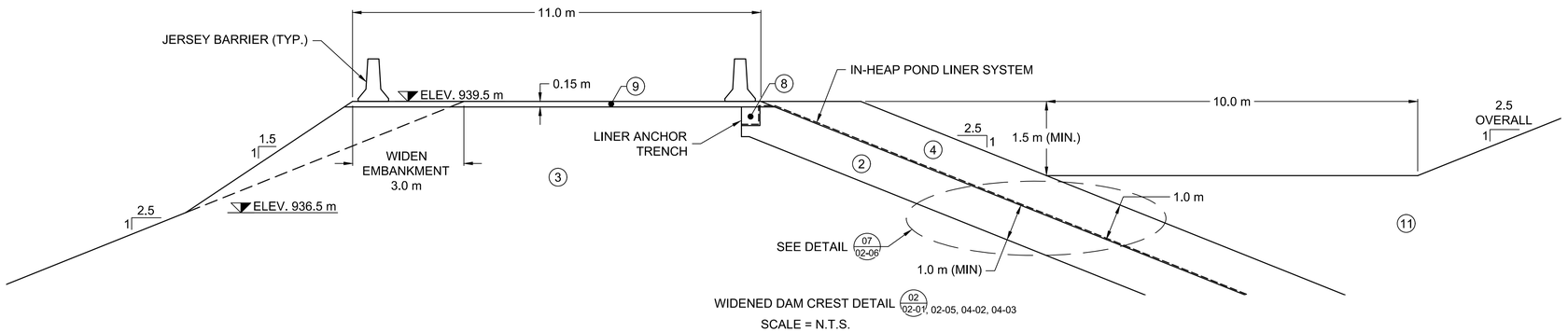
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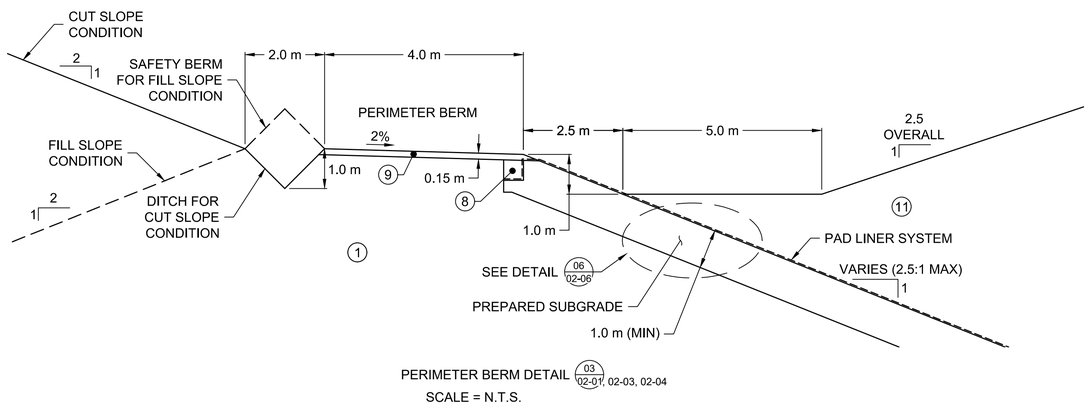
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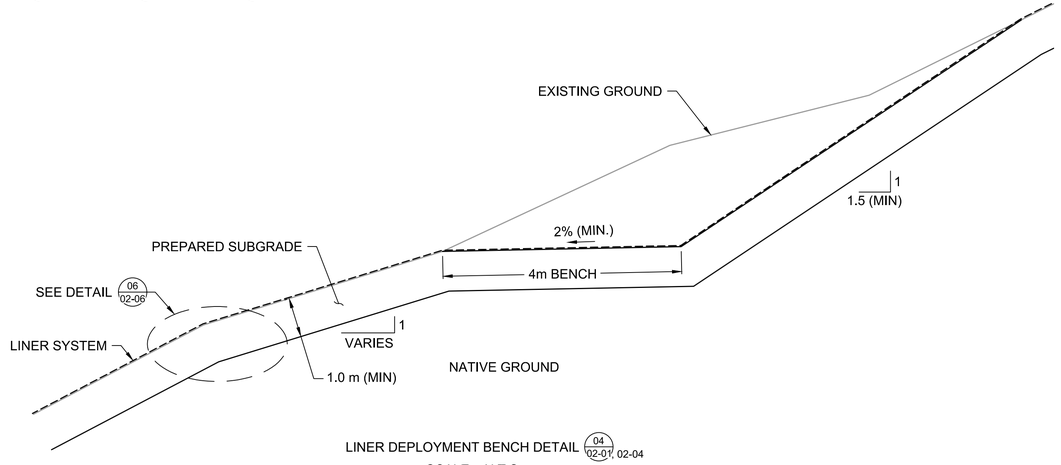
SCALE = N.T.S.



SCALE = N.T.S.



SCALE = N.T.S.



SCALE = N.T.S.

LEGEND

1	SITE GRADING FILL
2	SELECT FILL
3	STRUCTURAL FILL
4	OVERLINER DRAIN FILL
8	ANCHOR TRENCH BACKFILL
9	ROAD WEARING COURSE
11	ORE STOCKPILE

AS-BUILT RECORD DRAWING

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

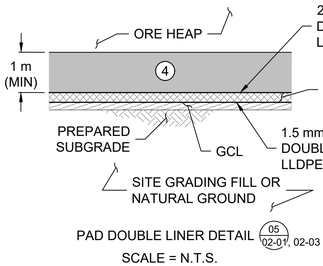
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1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: CORRIDOR TYPICAL SECTIONS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		SCALE: N.T.S. / DWG No.: EGHLF-XD-02-05 / REV.: 1

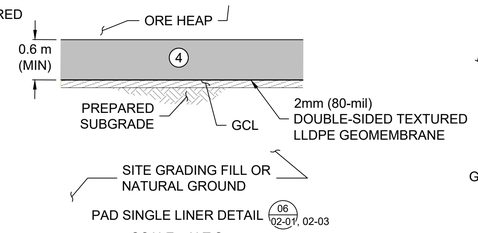
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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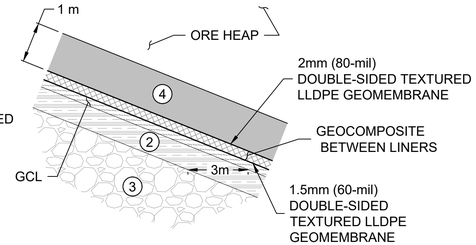
PAD DOUBLE LINER DETAIL (05 / 02-01, 02-03)

SCALE = N.T.S.



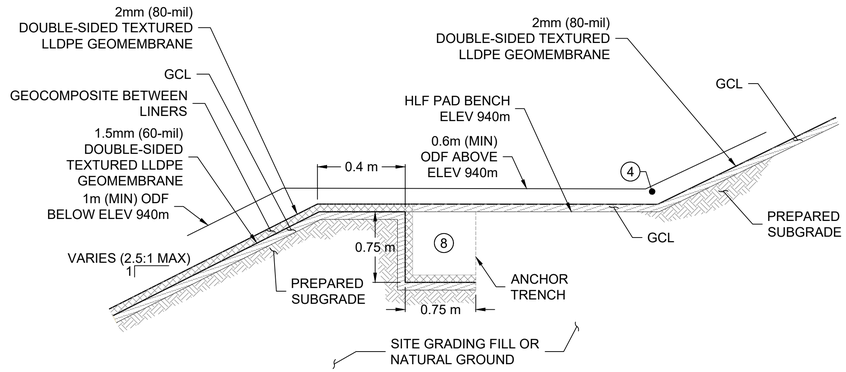
PAD SINGLE LINER DETAIL (06 / 02-01, 02-03)

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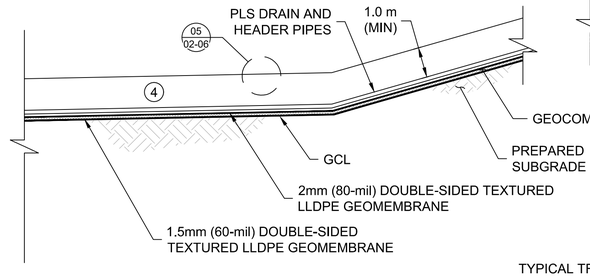
EMBANKMENT LINER DETAIL (07 / 02-01, 02-03, 04-03)

SCALE = N.T.S.



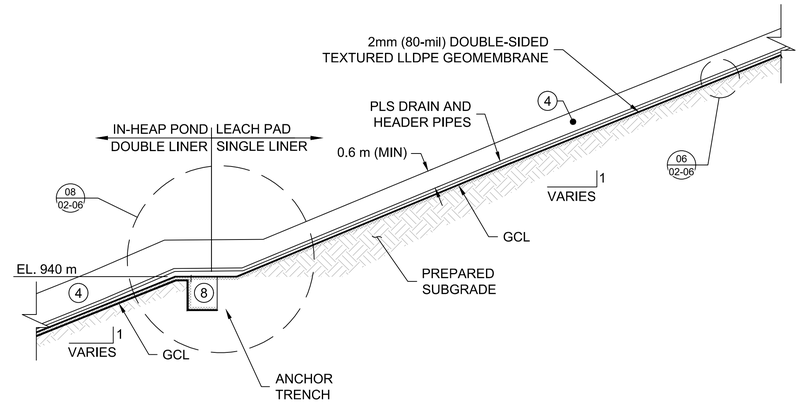
DOUBLE LINER GEOMEMBRANE ANCHOR DETAIL (08 / 02-01)

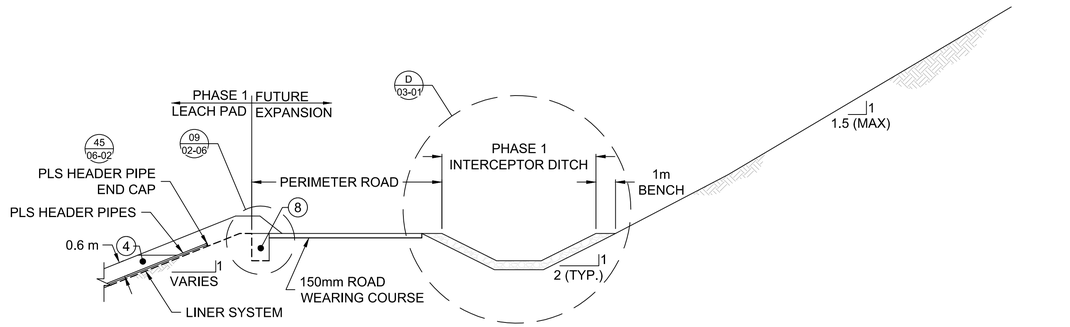
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TYPICAL TRANSITION FROM IN–HEAP POND (11 / 02-03, 04-02)

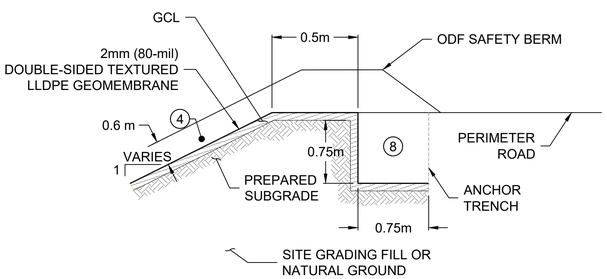
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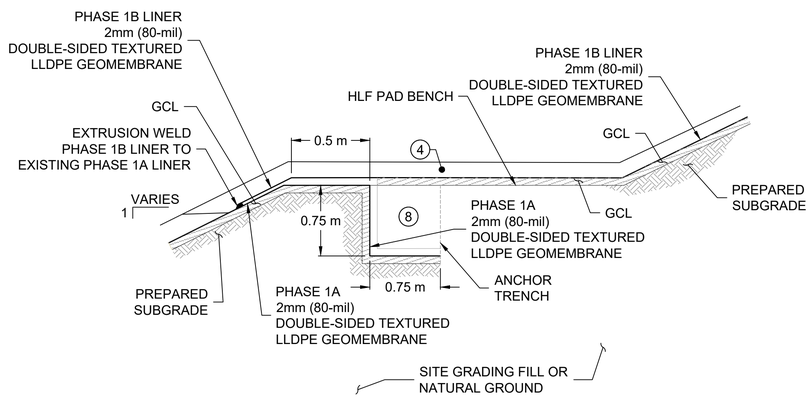
TYPICAL PHASE 1 PERIMETER ROAD W/ INTERCEPTOR DITCH (12 / 02-07)

SCALE = N.T.S.



SINGLE LINER GEOMEMBRANE ANCHOR DETAIL (09 / 02-06)

SCALE = N.T.S.



PHASE 1B GEOMEMBRANE DETAIL (10 / 02-01, 02-03, 02-04)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

AS-BUILT RECORD DRAWING

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (8) ANCHOR TRENCH FILL

REVISION INFORMATION

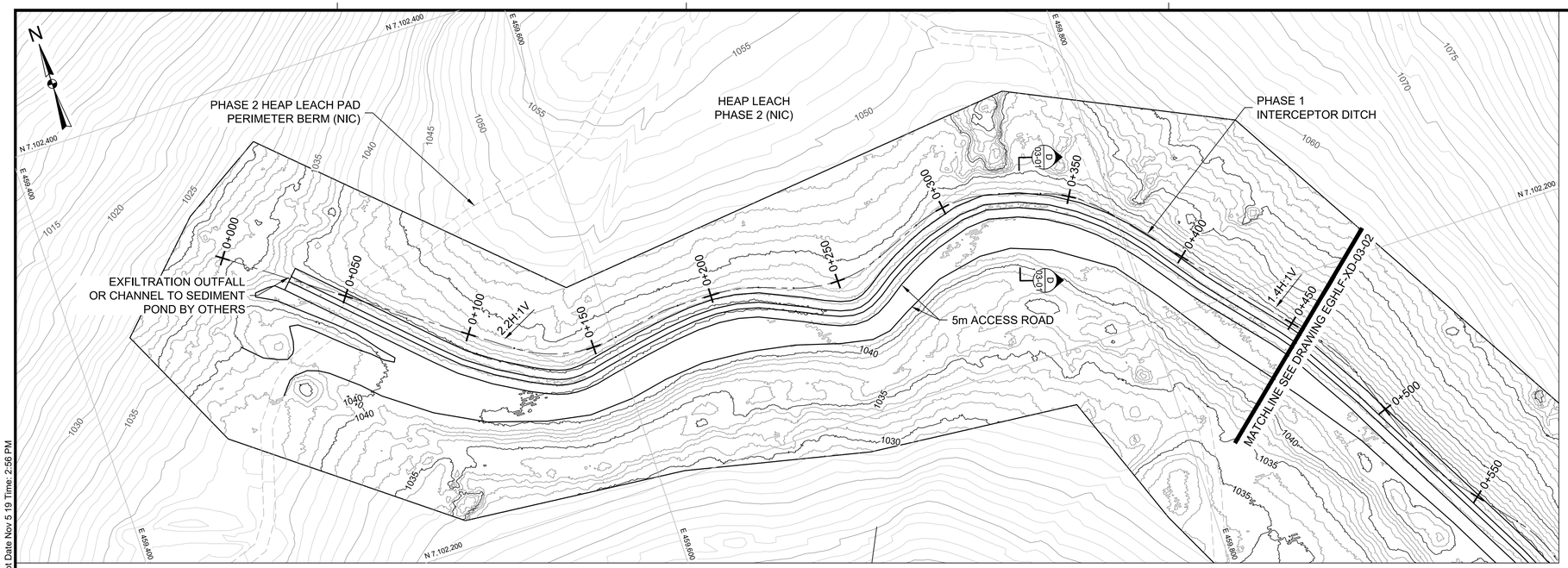
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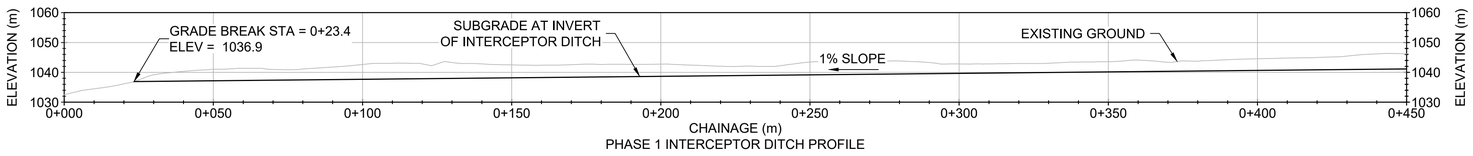
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DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: LINER DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		SCALE: N.T.S. / DWG No.: EGHLF-XD-02-06 / REV.: 1

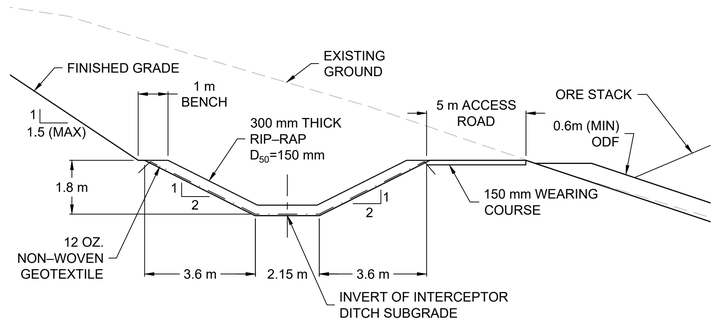
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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PHASE 1 INTERCEPTOR DITCH PROFILE



TYPICAL PHASE 1 INTERCEPTOR DITCH SECTION D 03-01 D 03-02

SCALE = N.T.S.

SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TEMPORARY SLOPE ABOVE PHASE 1 INTERCEPTOR DITCH SHALL BE MAXIMUM 1.5H:1V OR AS OTHERWISE DIRECTED BY THE OWNER'S ENGINEER BASED ON VISUAL OBSERVATION OF FIELD CONDITIONS DURING CONSTRUCTION.
3. BASE TOPOGRAPHIC DATA BASED ON CONTOURS FROM LIDAR SURVEY PROVIDED BY M3 ENGINEERING, DATED 2011. CONTOUR INTERVAL IS 1 m.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

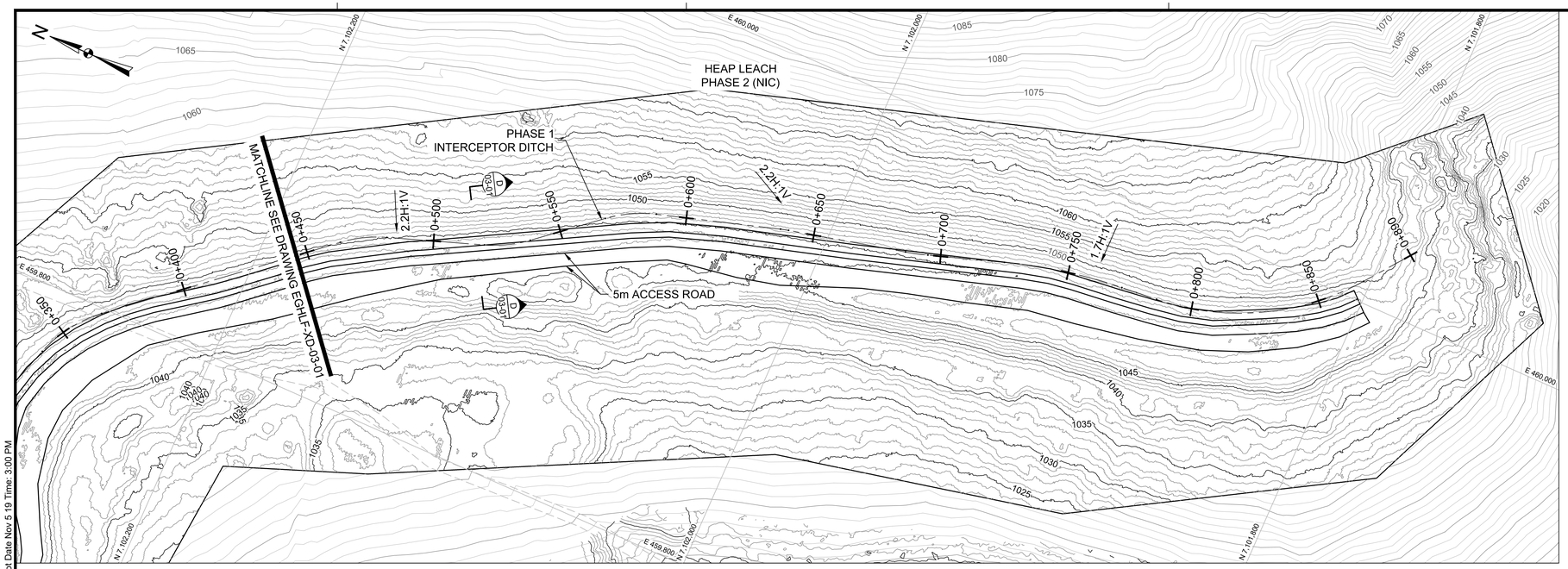
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

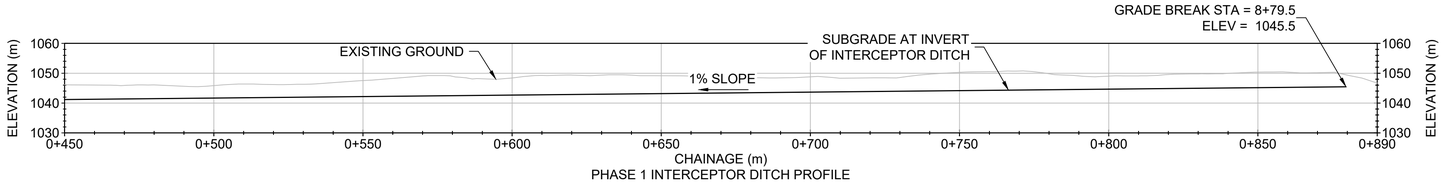
TITLE: PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE SHEET 1 OF 2

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-03-01	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

P:\Apex Shared\Civil Projects\ X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF- END OF 2019 SEASON\EGHLF-XD-03-01.dwg Layout: EGHLF-XD-03-01 Plot Date: Nov 5 19 Time: 2:56 PM





PHASE 1 INTERCEPTOR DITCH PROFILE

SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TEMPORARY SLOPE ABOVE PHASE 1 INTERCEPTOR DITCH SHALL BE MAXIMUM 1.5H:1V OR AS OTHERWISE DIRECTED BY THE OWNER'S ENGINEER BASED ON VISUAL OBSERVATION OF FIELD CONDITIONS DURING CONSTRUCTION.
3. BASE TOPOGRAPHIC DATA BASED ON CONTOURS FROM LIDAR SURVEY PROVIDED BY M3 ENGINEERING, DATED 2011. CONTOUR INTERVAL IS 1 m.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

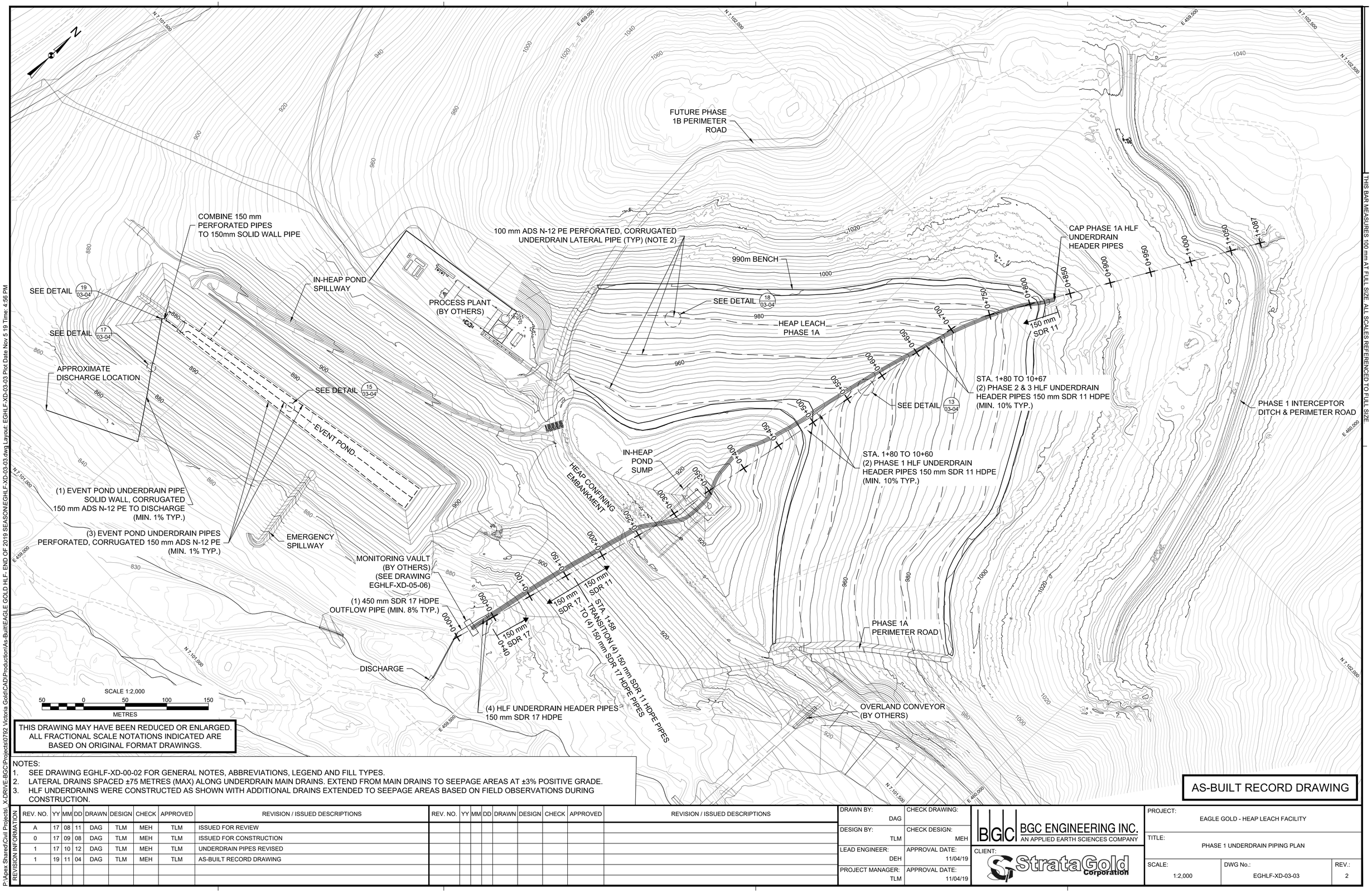
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 INTERCEPTOR DITCH PLAN AND PROFILE SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-03-02 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. LATERAL DRAINS SPACED ±75 METRES (MAX) ALONG UNDERDRAIN MAIN DRAINS. EXTEND FROM MAIN DRAINS TO SEEPAGE AREAS AT ±3% POSITIVE GRADE.
3. HLF UNDERDRAINS WERE CONSTRUCTED AS SHOWN WITH ADDITIONAL DRAINS EXTENDED TO SEEPAGE AREAS BASED ON FIELD OBSERVATIONS DURING CONSTRUCTION.

AS-BUILT RECORD DRAWING

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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	0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	17	10	12	DAG	TLM	MEH	TLM	UNDERDRAIN PIPES REVISED
	1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

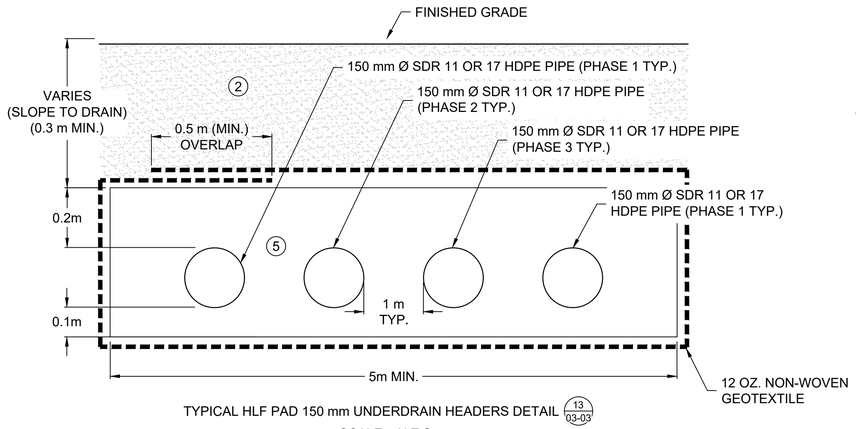
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 UNDERDRAIN PIPING PLAN

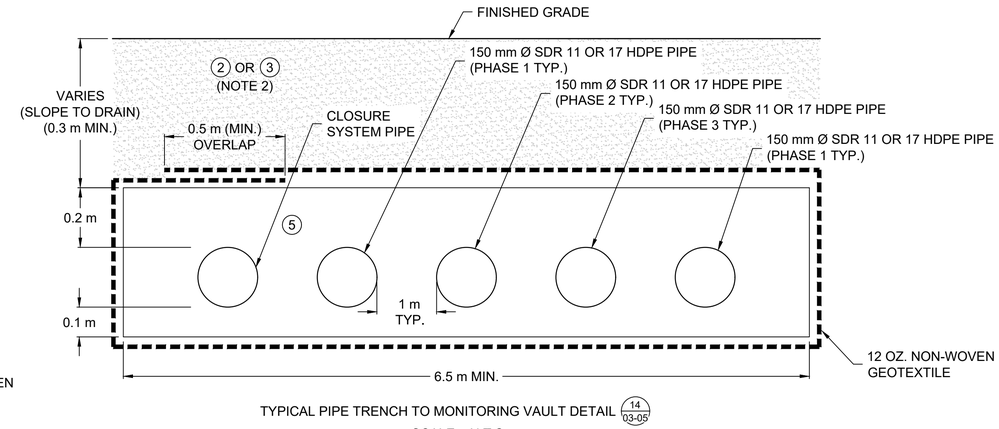
SCALE:	DWG No.:	REV.:
1:2,000	EGHLF-XD-03-03	2

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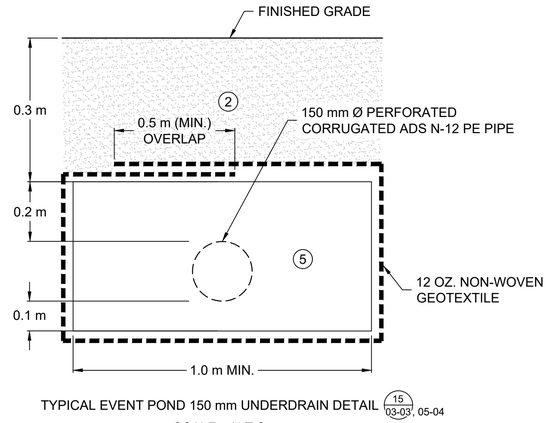
TYPICAL HLF PAD 150 mm UNDERDRAIN HEADERS DETAIL 13/03-03

SCALE = N.T.S.



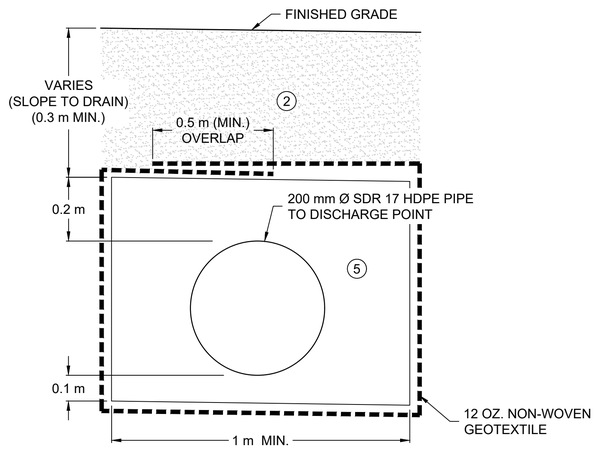
TYPICAL PIPE TRENCH TO MONITORING VAULT DETAIL 14/03-05

SCALE = N.T.S.



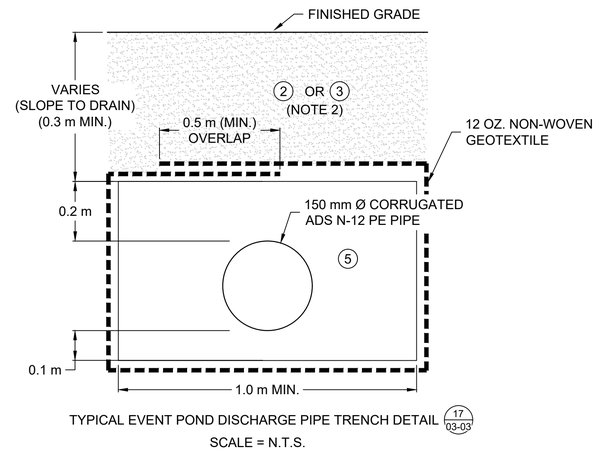
TYPICAL EVENT POND 150 mm UNDERDRAIN DETAIL 15/03-03; 05-04

SCALE = N.T.S.



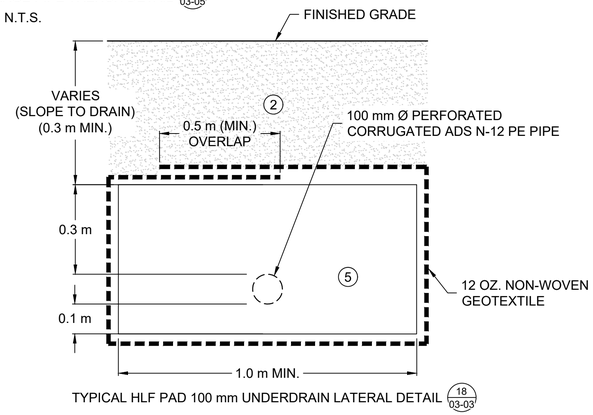
TYPICAL MONITORING VAULT DISCHARGE PIPE TRENCH DETAIL 16/03-05

SCALE = N.T.S.

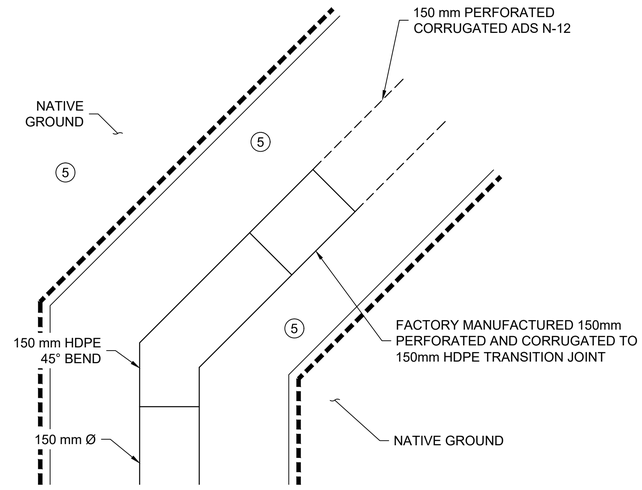


TYPICAL EVENT POND DISCHARGE PIPE TRENCH DETAIL 17/03-03

SCALE = N.T.S.



TYPICAL HLF PAD 100 mm UNDERDRAIN LATERAL DETAIL 18/03-03



LATERAL CONNECTION

TYPICAL UNDERDRAIN PIPE CONNECTION DETAIL 19/03-05

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SELECT FILL SHALL BE USED IN ALL TRENCH LOCATIONS OVERLAIN BY LINER. STRUCTURAL FILL OR SELECT FILL MAY BE USED IN LOCATIONS UNDER THE EMBANKMENT PROVIDED NO ANGULAR PARTICLES OR PARTICLES LARGER THAN 75 mm ARE PLACED IN CONTACT WITH GEOTEXTILE.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

AS-BUILT RECORD DRAWING

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (5) SELECT DRAIN FILL

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	REVISE DETAILS
2	17	10	12	DAG	TLM	MEH	TLM	REVISE PIPE SDR
3	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAIL 13 PIPE SDR
4	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

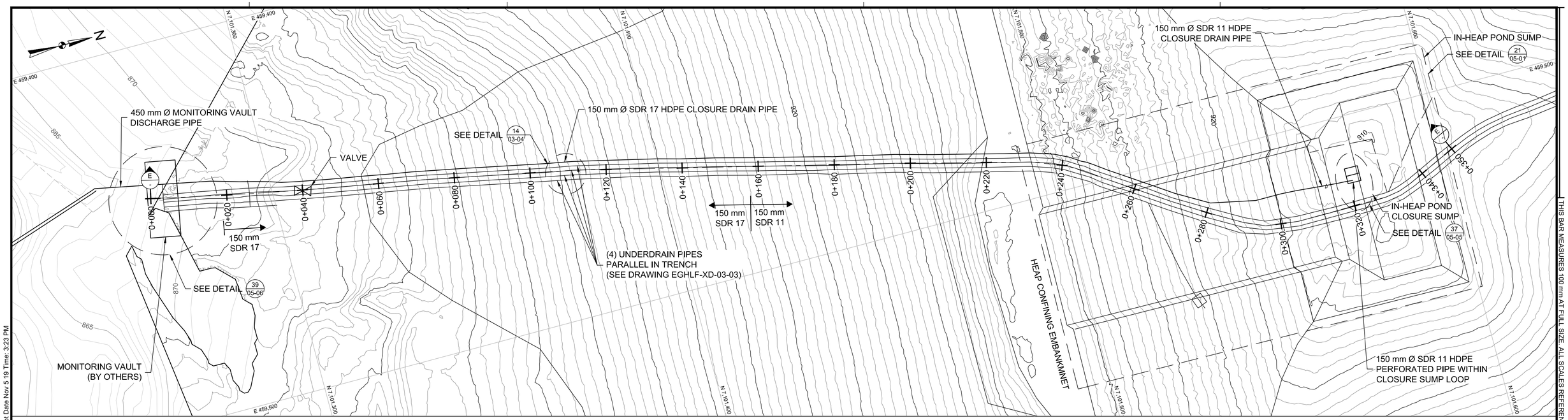
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 UNDERDRAIN PIPING DETAILS

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-03-04	4

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

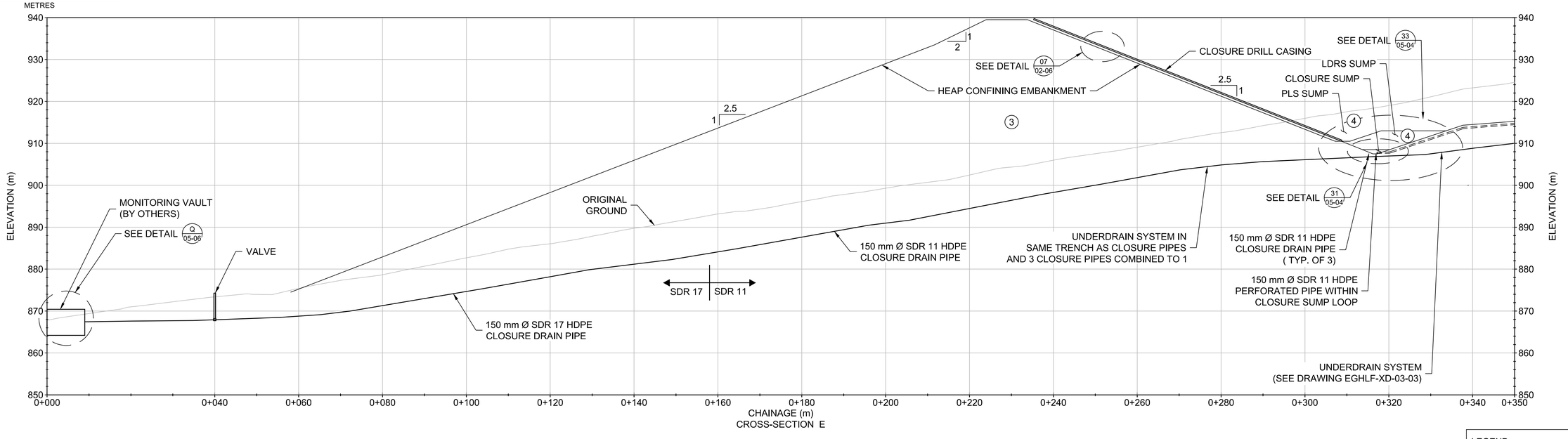
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SCALE 1:500

10 0 10 20 30

METRES



THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

AS-BUILT RECORD DRAWING

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (5) SELECT DRAIN FILL

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	CLOSURE AND UNDERDRAIN ALIGNMENT AND PROFILE REVISED
2	17	10	12	DAG	TLM	MEH	TLM	REVISED PIPE SDR
3	18	06	27	DAG	TLM	MEH	TLM	ADD VALVE AT STATION 0+40
4	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

DRAWN BY:	CHECK DRAWING:
DAG	
DESIGN BY:	CHECK DESIGN:
TLM	MEH
LEAD ENGINEER:	APPROVAL DATE:
DEH	11/04/19
PROJECT MANAGER:	APPROVAL DATE:
TLM	11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

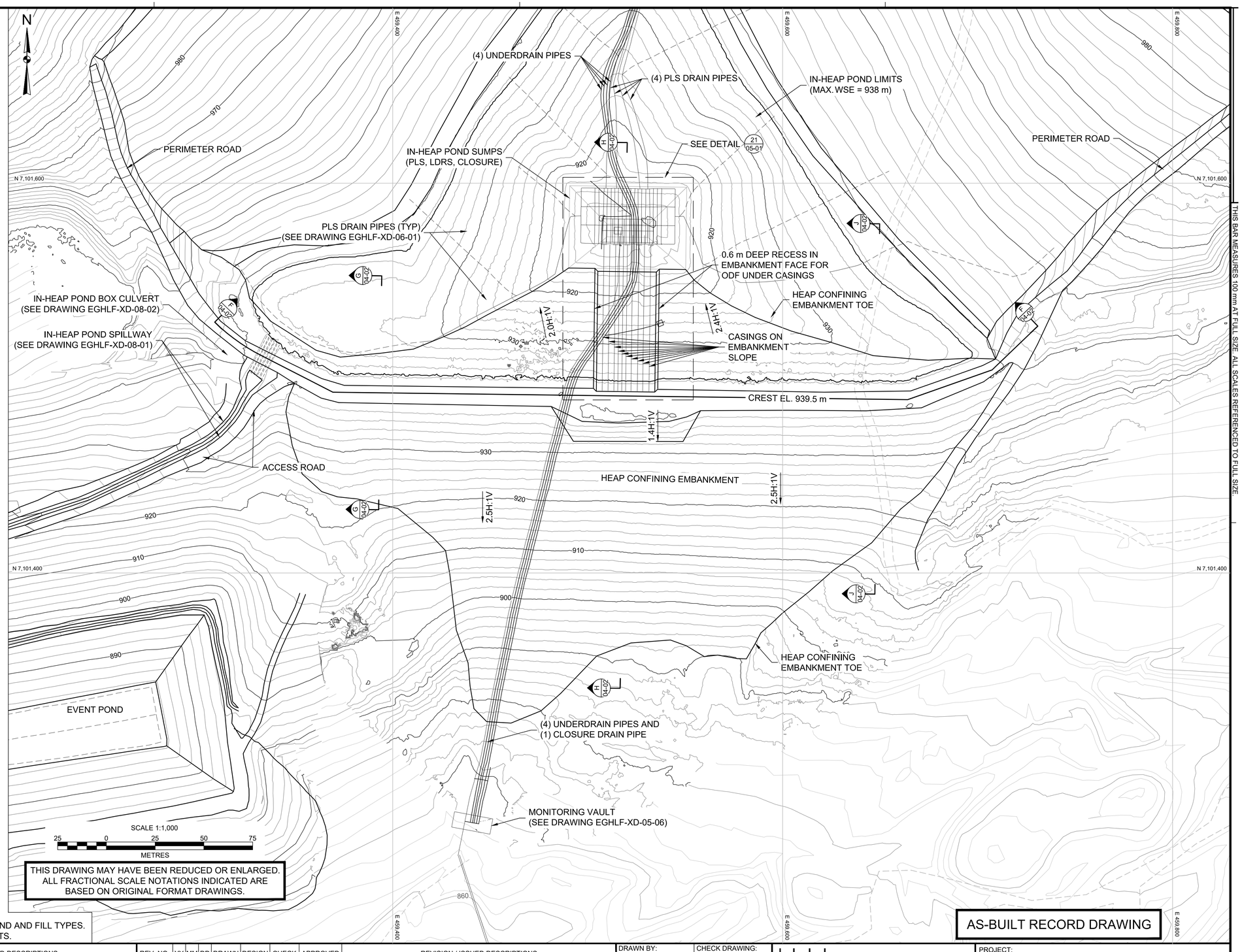
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: CLOSURE PIPING PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
1:500	EGHLF-XD-03-05	4

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NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SEE PROJECT TECHNICAL SPECIFICATIONS FOR PAD GRADING REQUIREMENTS.

AS-BUILT RECORD DRAWING

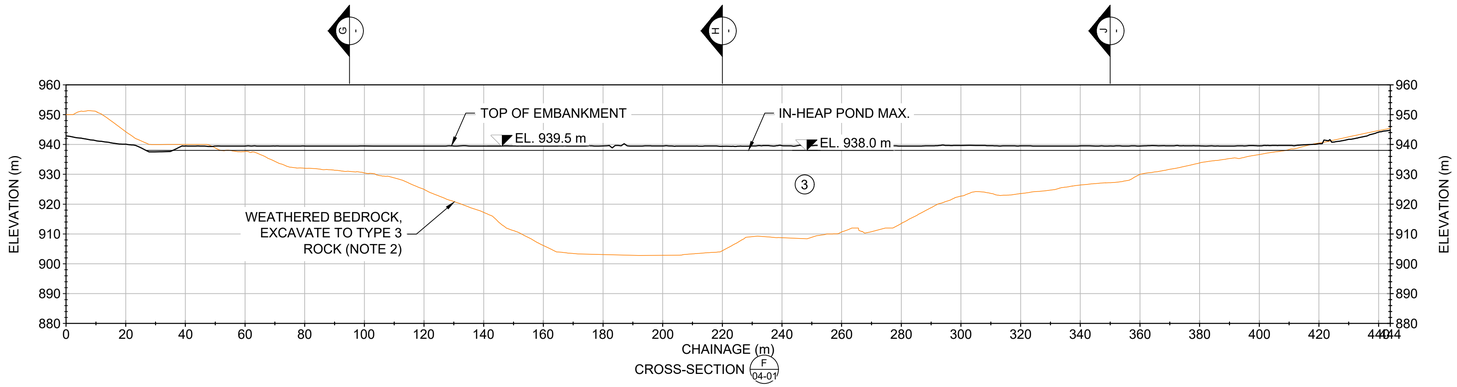
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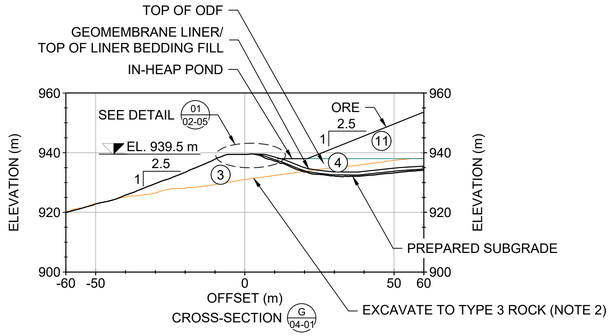
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	06	27	DAG	TLM	MEH	TLM	REVISE PIPE ANNOTAION
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWINGS

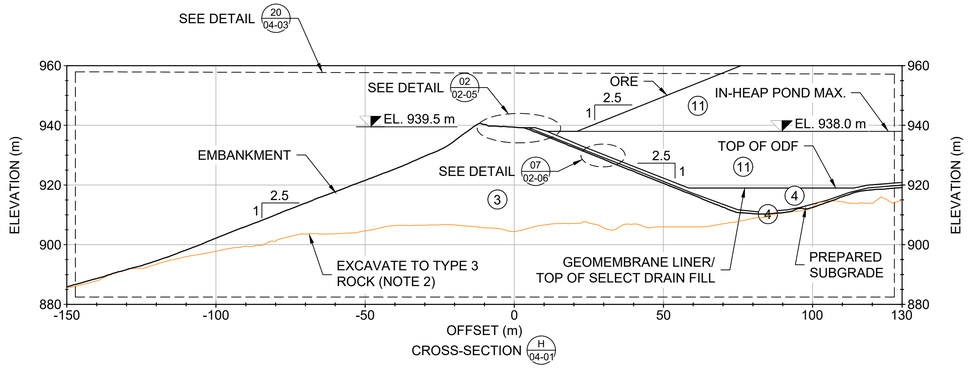
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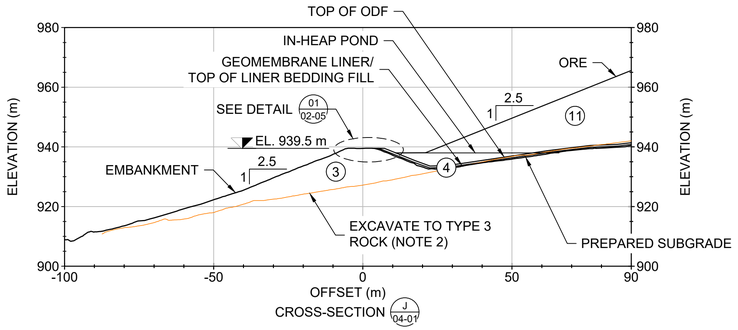
DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EMBANKMENT PLAN VIEW
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-04-01 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

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SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. EMBANKMENT FOUNDATION AND ABUTMENT AREAS TO BE PREPARED BY EXCAVATION TO TYPE 3 (OR BETTER) BEDROCK PER PROJECT TECHNICAL SPECIFICATIONS. DEPTH TO TYPE 3 BEDROCK MAY VARY FROM THESE PLANS AND SHALL BE VERIFIED IN THE FIELD BY THE OWNER'S ENGINEER.
3. ORE STACK SLOPE IS 2.5H:1V OVERALL BUT SHALL BE COMPRISED OF 10 m LIFTS STACKED AT ANGLE OF REPOSE AS DETERMINED BY OTHERS..
4. SEE DRAWING EGHLF-XD-02-06 FOR IN-HEAP POND LINER DETAILS.
5. SEE DRAWING EGHLF-XD-04-03 FOR TYPICAL CONFINING EMBANKMENT SECTION..

LEGEND
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (11) ORE

AS-BUILT RECORD DRAWING

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
	A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
	0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
	1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

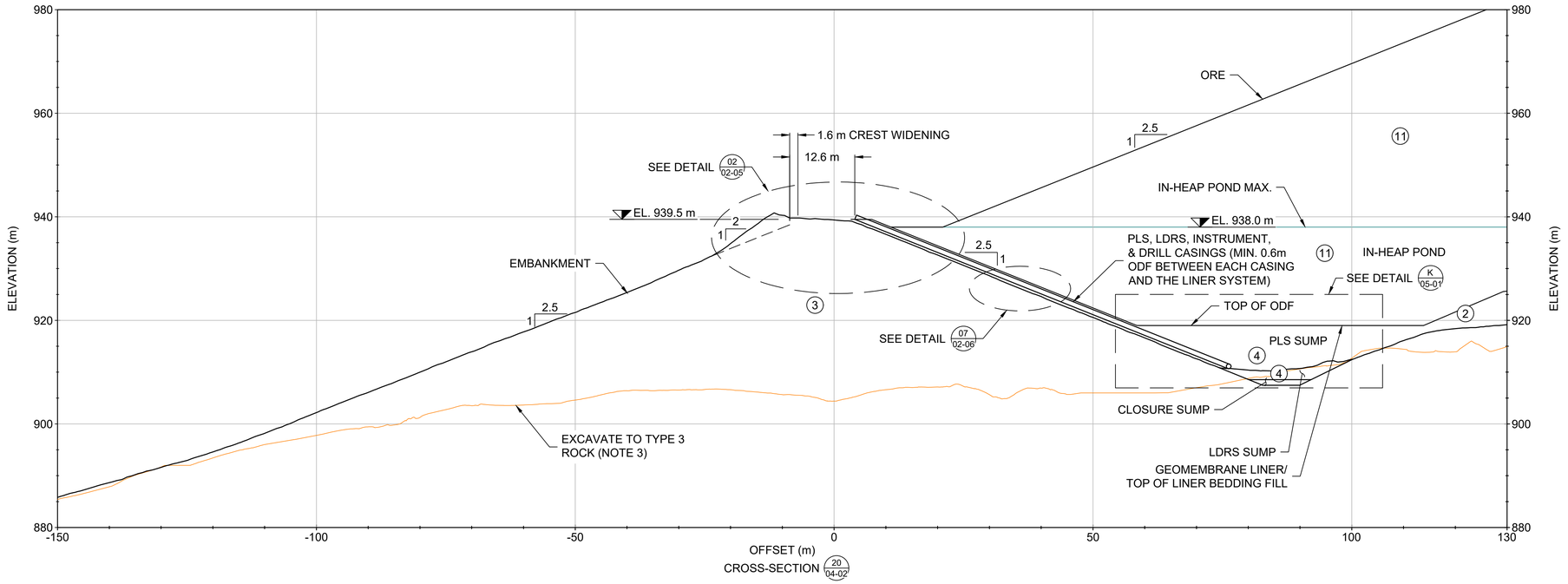
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EMBANKMENT CROSS-SECTIONS

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-04-02	1

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. PLACE AND COMPACT SITE GRADING FILL OR PLACE PLACER TAILINGS AND TREAT WITH DEEP DYNAMIC COMPACTION PER PROJECT TECHNICAL SPECIFICATIONS.
3. EMBANKMENT FOUNDATION AND ABUTMENT AREAS TO BE PREPARED BY EXCAVATION TO TYPE 3 (OR BETTER) BEDROCK PER PROJECT TECHNICAL SPECIFICATIONS. DEPTH TO TYPE 3 BEDROCK MAY VARY FROM THESE PLANS AND SHALL BE VERIFIED IN THE FIELD BY THE OWNER'S ENGINEER.
4. ORE PILE SLOPE IS 2.5H:1V OVERALL BUT SHALL BE COMPRISED OF 10 m LIFTS STACKED AT ANGLE OF REPOSE AS DETERMINED BY OTHERS.
5. SEE DRAWING EGHLF-XD-02-06 FOR IN-HEAP POND LINER DETAILS.

LEGEND
- (2) SELECT FILL
- (3) STRUCTURAL FILL
- (4) OVERLINER DRAIN FILL
- (11) ORE

AS-BUILT RECORD DRAWING

REVISION INFORMATION

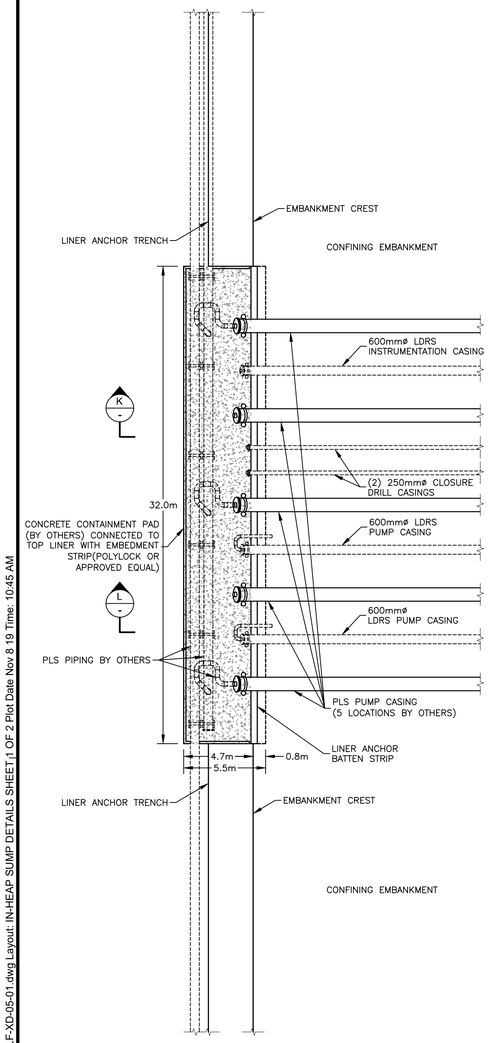
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

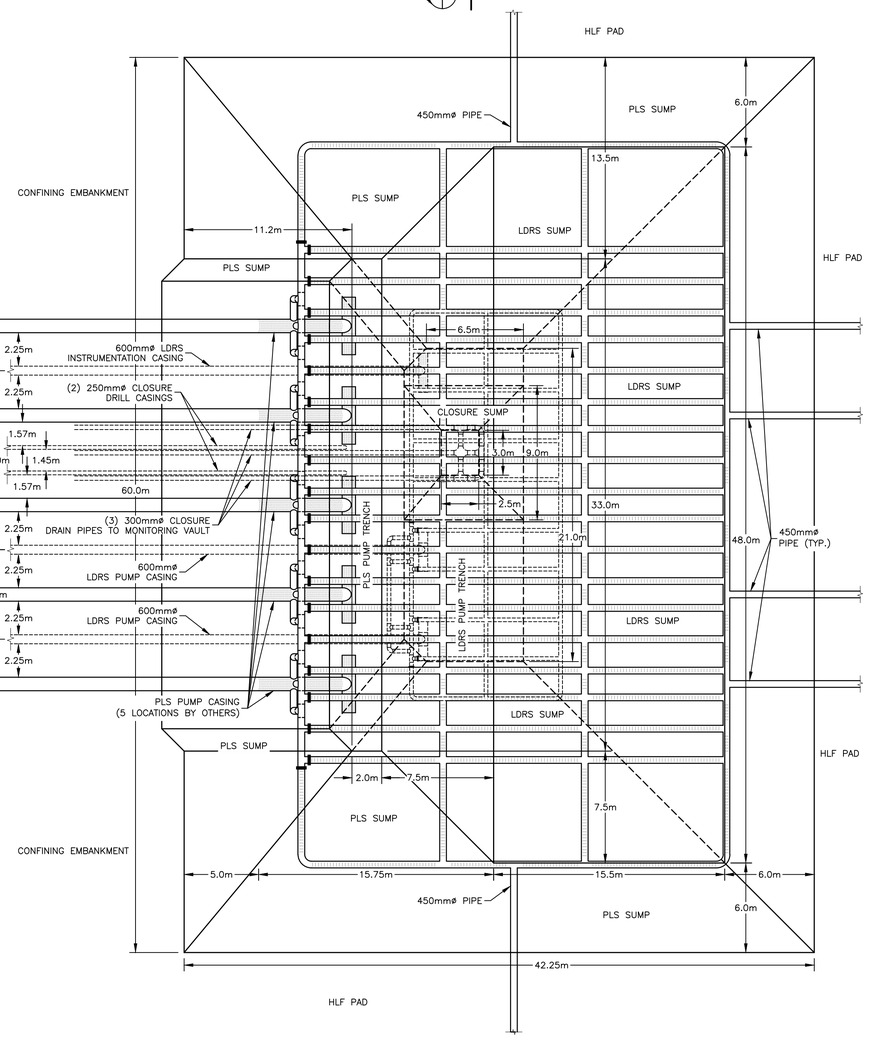
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EMBANKMENT DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:500 / DWG No.: EGHLF-XD-04-03 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

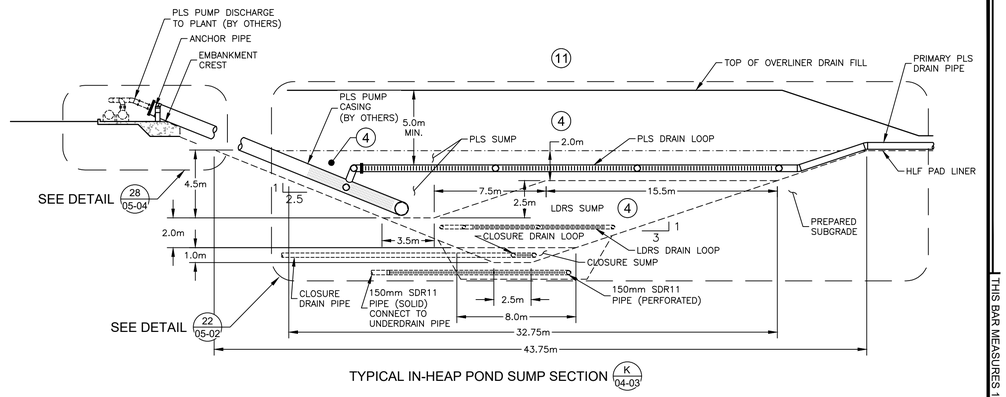
THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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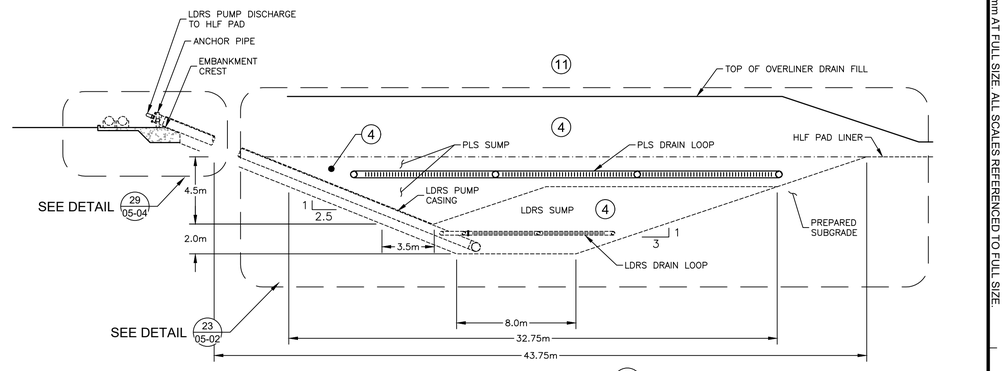




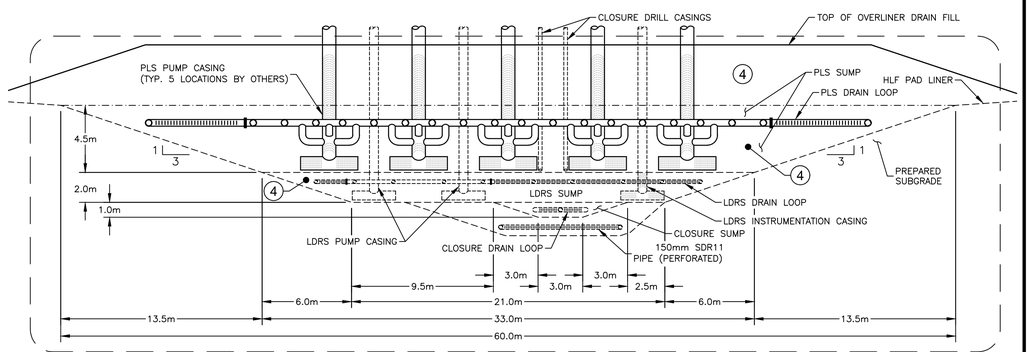
IN-HEAP POND SUMP PLAN (21, 04-01, 02-01, 03-05)



TYPICAL IN-HEAP POND SUMP SECTION (K, 04-03)



TYPICAL IN-HEAP POND SUMP SECTION (L, --)



TYPICAL IN-HEAP POND SUMP SECTION (M, --)

CONFIGURATION AND ELEVATIONS SHOWN ARE FROM IFC AND ARE FOR REFERENCE ONLY, REFER TO 05-04 FOR AS-BUILT CONDITIONS

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
4. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
5. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR 16 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
6. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
7. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH GEOCOMPOSITE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

AS-BUILT RECORD DRAWING

LEGEND
- (4) OVERLINER DRAIN FILL
- (11) SELECT DRAIN FILL

REVISION INFORMATION

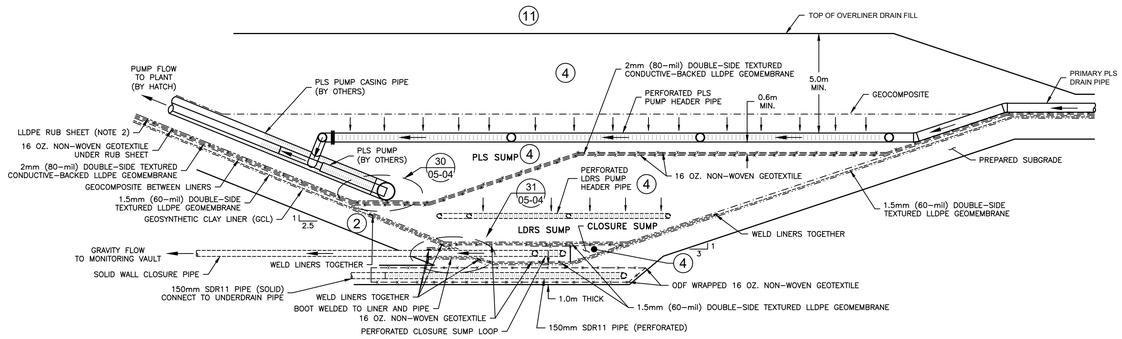
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1	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

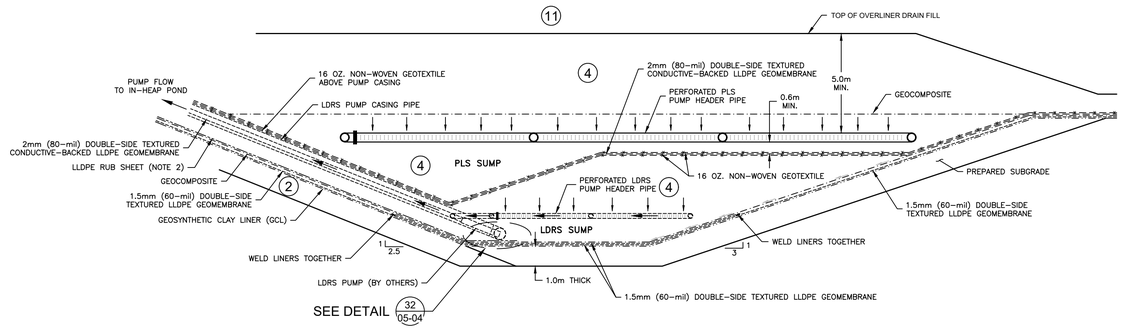
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: IN-HEAP SUMP DETAILS SHEET 1 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-01 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

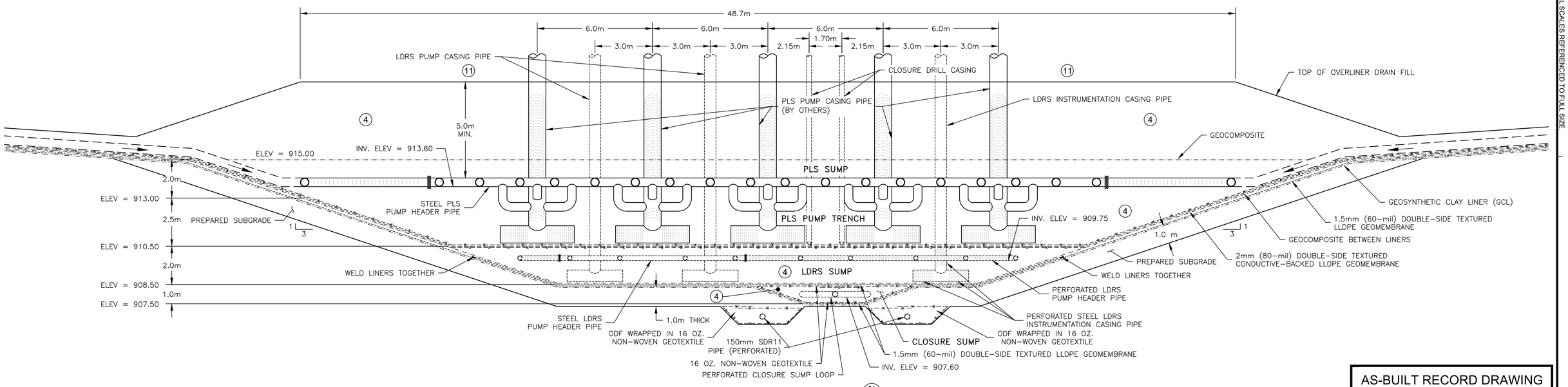
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PLS, LDRS & CLOSURE SUMP DETAIL (22 / 05-01)



PLS, LDRS & CLOSURE SUMP DETAIL (23 / 05-01)



PLS, LDRS & CLOSURE SUMP DETAIL (24 / 05-01)

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
4. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
5. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
6. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

CONFIGURATION AND ELEVATIONS SHOWN ARE FROM IFC AND ARE FOR REFERENCE ONLY, REFER TO 05-04 FOR AS-BUILT CONDITIONS

AS-BUILT RECORD DRAWING

LEGEND
- (2) SELECT FILL
- (4) OVERLINER DRAIN FILL
- (11) ORE STOCKPILE
- 16 oz NON-WOVEN GEOTEXTILE
- 2mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- 1.5mm (60-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE
- GEOCOMPOSITE
- GEOSYNTHETIC CLAY LINER (GCL)
- LLDPE RUB SHEET

REVISION INFORMATION

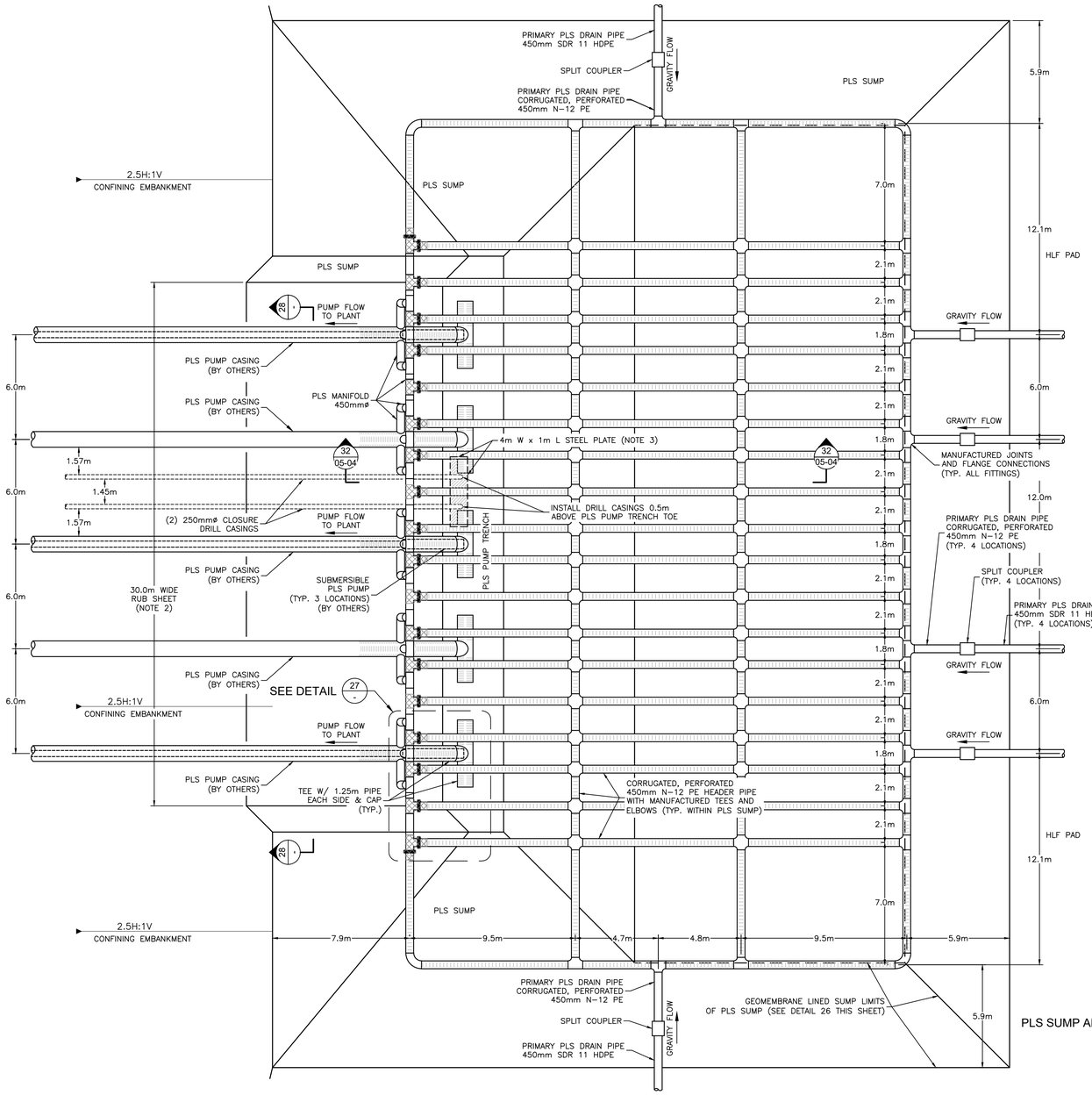
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: IN-HEAP SUMP DETAILS SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-02 / REV.: A
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

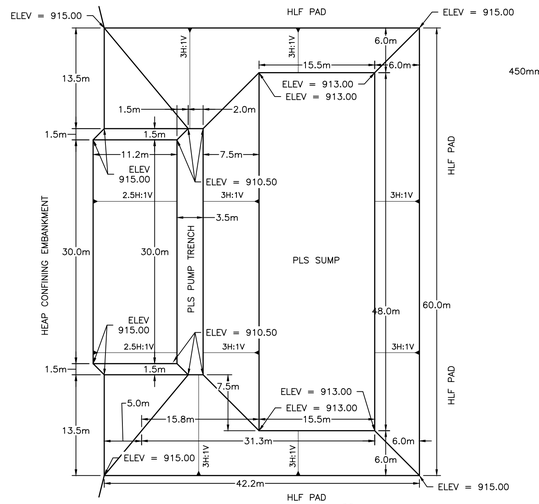
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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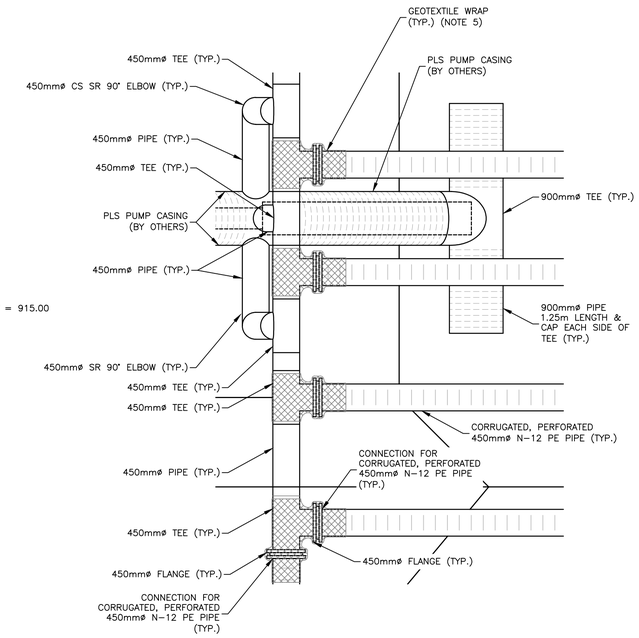


PLS SUMP AND PIPING PLAN (25, 04-01) 06-01

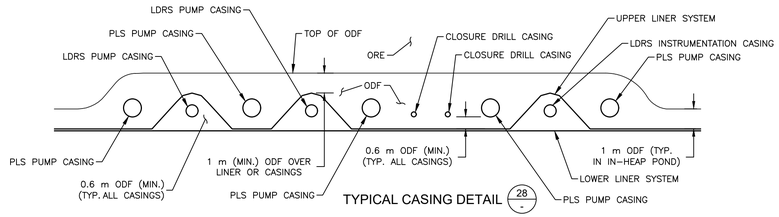
CONFIGURATION AND ELEVATIONS SHOWN ARE FROM IFC AND ARE FOR REFERENCE ONLY, REFER TO 05-04 FOR AS-BUILT CONDITIONS



PLS SUMP GEOMETRY DETAIL (26, 04-01)



PLS CASING AND MANIFOLD DETAIL (27, -)



TYPICAL CASING DETAIL (28, -)

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
3. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR TWO LAYERS OF 12 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
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5. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

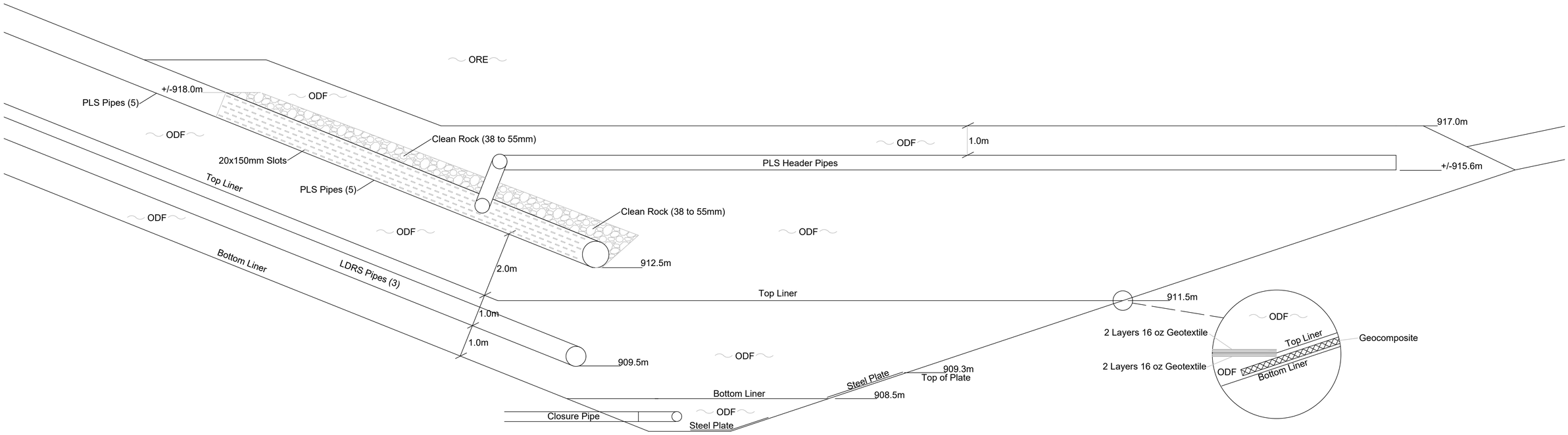
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2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PLS SUMP DETAILS SHEET 1 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-03 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL BE INSTALLED UNDER EACH STEEL CASING WITH DIRECT CONTACT TO THE LINER. RUB SHEET SHALL CONSIST OF A 16 OZ. NON-WOVEN GEOTEXTILE AND AN ADDITIONAL LAYER OF 2 mm (80-mil) DOUBLE-SIDE TEXTURED LLDPE GEOMEMBRANE PLACED BENEATH EACH PUMP CASING FOR LINER PROTECTION. TEMPORARILY SECURE RUB SHEET WITH SAND BAGS AS NEEDED.
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ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

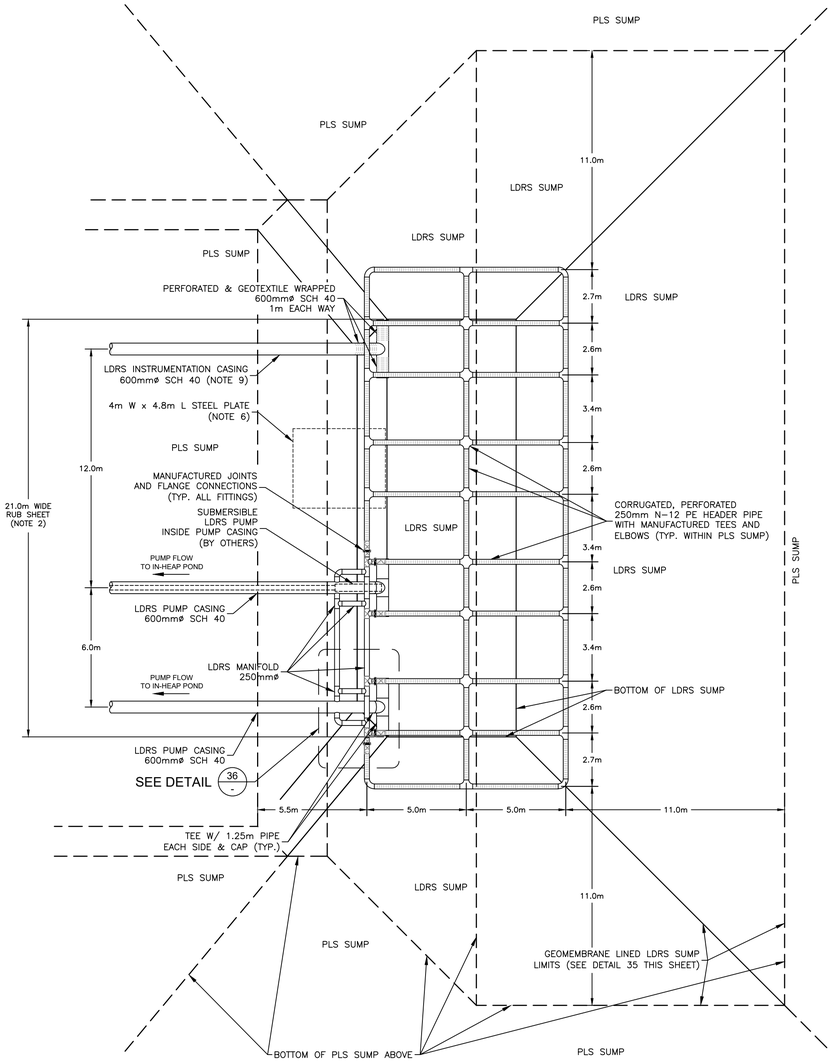
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1	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

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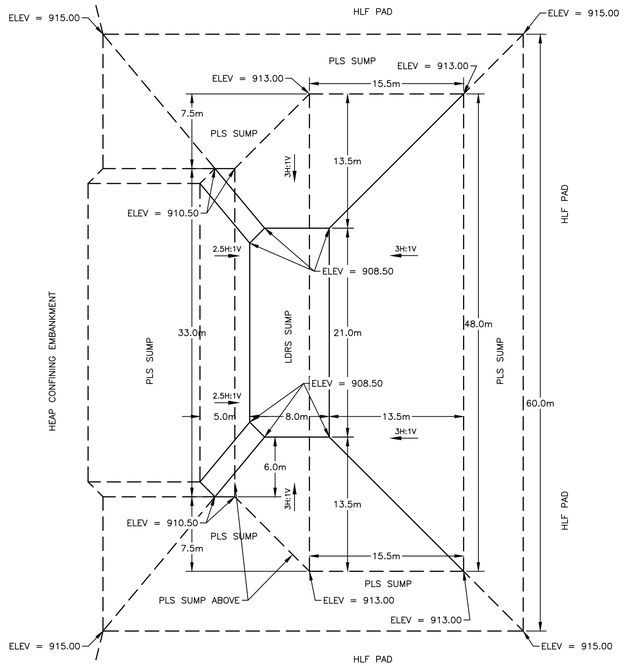
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PLS SUMP DETAILS SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-04 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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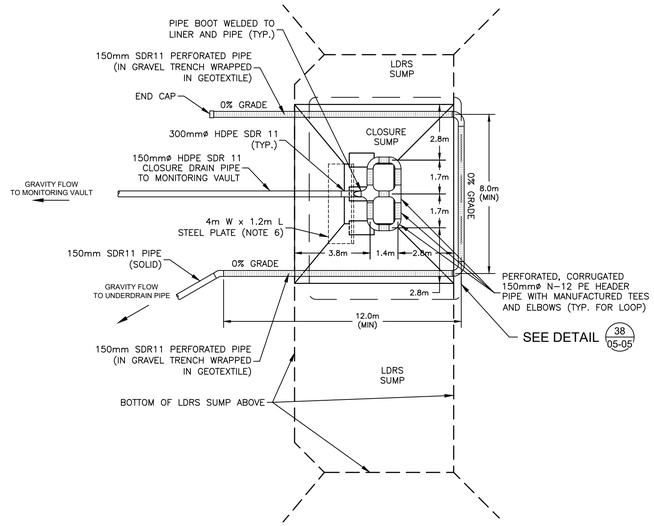


LDRS SUMP AND PIPING PLAN 34 / 05-01

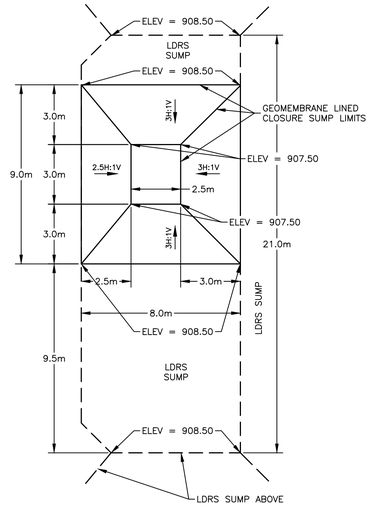


LDRS SUMP GEOMETRY DETAIL 35 -

LDRS PIPING DETAIL 36 -



CLOSURE SUMP AND PIPING PLAN 37 / 05-01, 03-05, 05-04



CLOSURE SUMP GEOMETRY DETAIL 38 -

CONFIGURATION AND ELEVATIONS SHOWN ARE FROM IFC AND ARE FOR REFERENCE ONLY, REFER TO 05-04 FOR AS-BUILT CONDITIONS

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
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3. LDRS RISER PIPE ASSEMBLIES SHALL BE 600mm O.D. FABRICATED USING ASTM 139 HIGH STRENGTH LOW ALLOY STEEL (A606 TYPE 4.) MINIMUM PIPE WALL THICKNESS SHALL BE 17.5mm (SCH 40).
4. 2 m LONG CONCRETE FILLED STEEL PIPE ANCHOR POSTS (EACH SIDE OF PUMP CASING) EMBEDDED 0.9 m INTO CONCRETE ANCHOR TO INHIBIT LATERAL MOVEMENT AND VERTICAL SETTLEMENT OF RISER.
5. ALL SOLID PIPE FITTINGS AND CONNECTIONS TO CONFORM TO AWWA C-906 STANDARDS.
6. INSTALL 12.5 mm (0.5") THICK STEEL PLATES ON TOP OF LINER TO PROTECT DURING CLOSURE DRILLING. STEEL PLATES ARE TO BE UNDERLAIN WITH CONVEYOR BELT MATERIAL OR TWO LAYERS OF 12 OZ. NON-WOVEN GEOTEXTILE AND THE EDGES BEVELLED TO PREVENT PUNCTURING OF LINER. STEEL PLATE INSTALLED IN CLOSURE SUMP IS TO INCLUDE AN ANGLE AT THE BOTTOM TO IDENTIFY TERMINATION POINT FOR DRILLING. STEEL PLATES ARE TO BE SPACED 0.2 m APART TO ALLOW ROOM FOR LINER SYSTEM BETWEEN THEM.
7. FREE-FLOATING (LOW FRICTION) PIPE SUPPORT TO BE INSTALLED AT TOP OF RISER TO ALLOW FOR THERMAL EXPANSION/CONTRACTION WHILE INHIBITING LATERAL MOVEMENT AND VERTICAL SETTLEMENT.
8. ALL CONNECTIONS BETWEEN PE AND STEEL PIPE (AND OTHER CONNECTIONS AS IDENTIFIED BY THE FIELD ENGINEER) SHALL BE COMPLETELY AND SECURELY WRAPPED WITH TWO LAYERS OF 12 OZ. GEOTEXTILE TO AT LEAST 500 mm ON BOTH SIDES OF THE CONNECTIONS.
9. THE BOTTOM 2m OF LDRS INSTRUMENTATION CASING SHALL BE SLOTTED. SLOTTING IN THE STEEL PIPE SHALL BE 2mm WIDE BY 75mm LONG (MEASURED PERPENDICULAR TO PIPE FLOW) SPACED 150mm ON CENTER AROUND THE PIPE IN ROWS SPACED 150mm ON CENTER.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

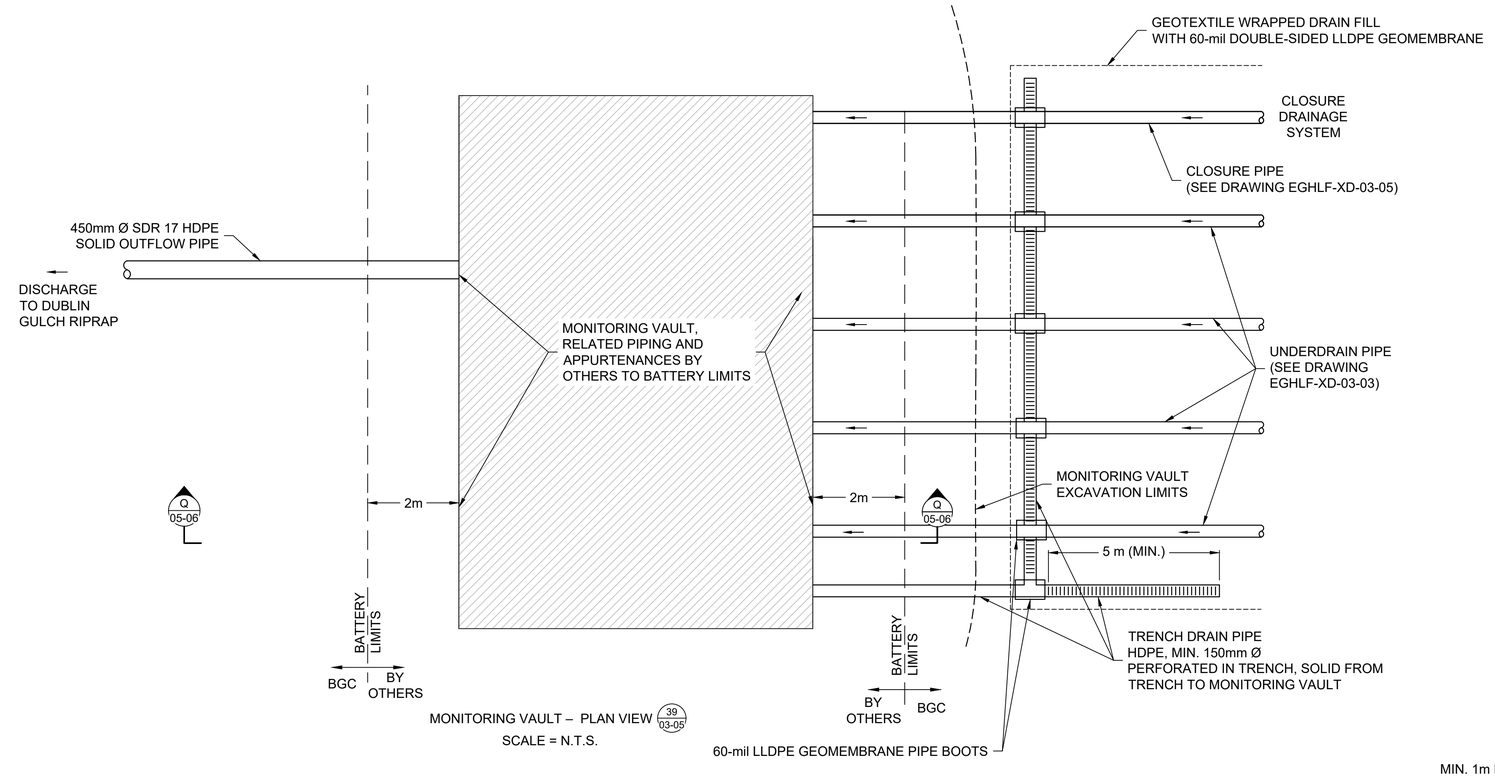
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1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAIL 37 PIPES
2	18	08	02	DAG	TLM	MEH	TLM	ADD SEEPAGE DRAIN AROUND CLOSURE SUMP
3	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: LDRS AND CLOSURE SUMP DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-05-05 / REV.: A
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

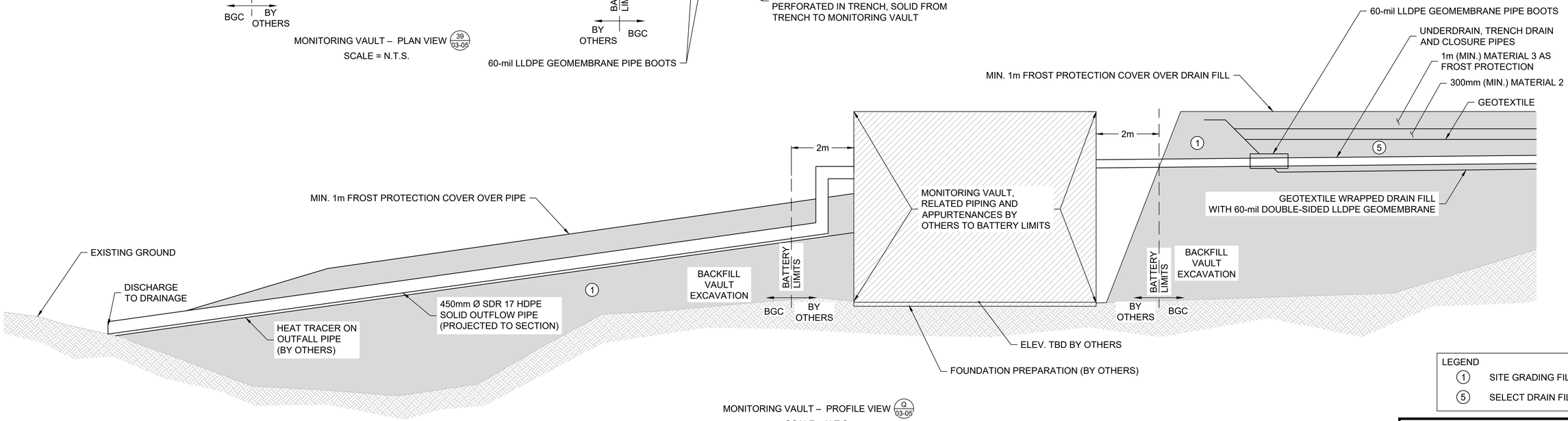
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE.

X:\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF- END OF 2019 SEASON\EGHLF-XD-05-05.dwg Layout: EGHLF-XD-05-05 Plot Date: Nov 8,19 Time: 10:48 AM



MONITORING VAULT – PLAN VIEW (39 / 03-05)

SCALE = N.T.S.



MONITORING VAULT – PROFILE VIEW (Q / 03-05)

SCALE = N.T.S.

LEGEND

(1) SITE GRADING FILL

(5) SELECT DRAIN FILL

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. MONITORING VAULT TO BE DESIGNED BY OTHERS AND SHOWN HERE FOR REFERENCE ONLY. BATTERY LIMITS FOR BGC DESIGN ARE 2 m FROM OUTSIDE OF MONITORING VAULT. DESIGN OUTSIDE TETRA TECH BATTERY LIMITS ARE FOR REFERENCE ONLY..

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	09	22	DAG	TLM	MEH	TLM	MONITORING VAULT DETAILS REVISED
2	18	04	23	DAG	TLM	MEH	TLM	TRENCH DRAIN PIPE ADDED
3	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

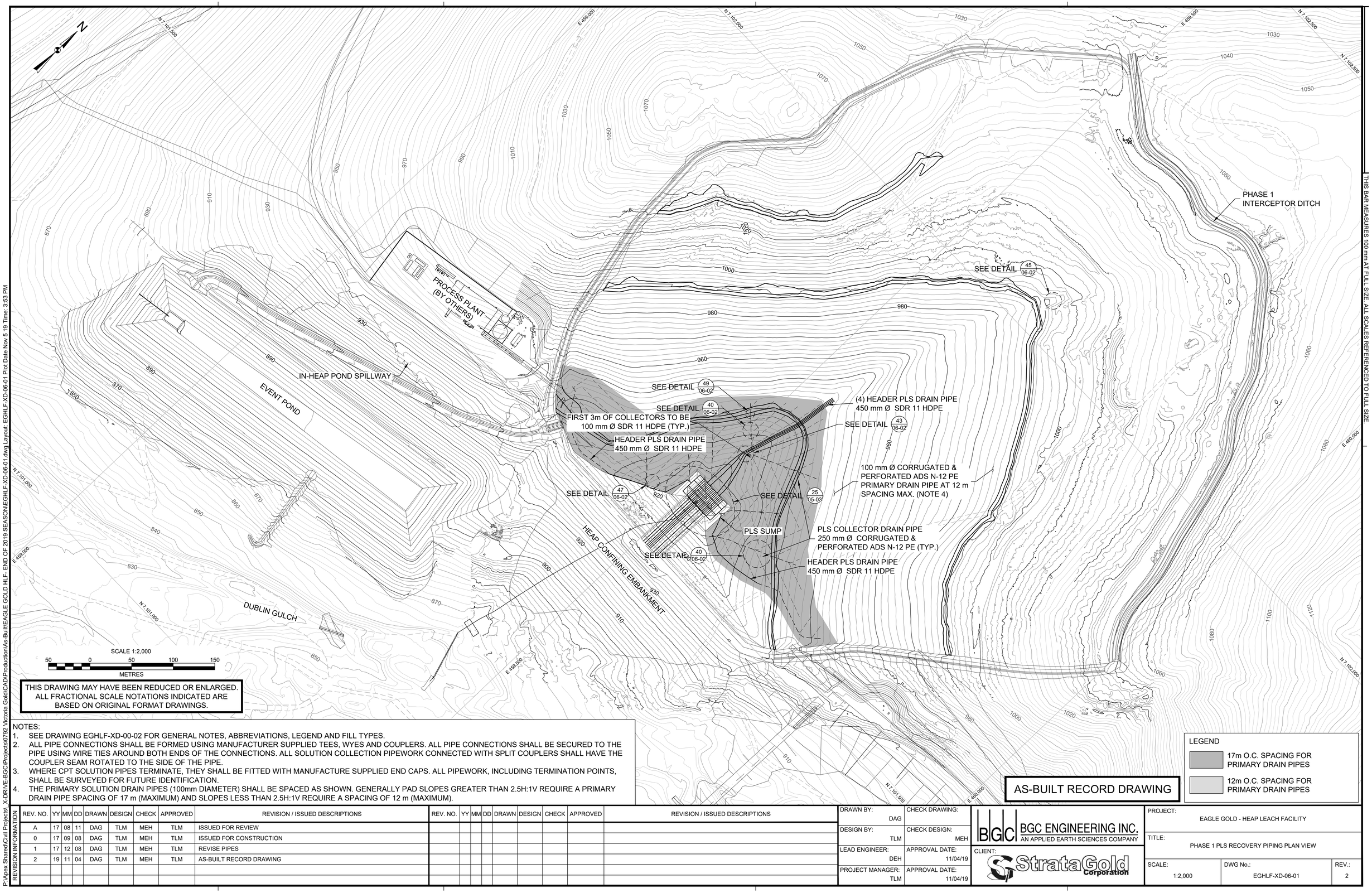
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: MONITORING VAULT DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-05-06	3

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
3. WHERE CPT SOLUTION PIPES TERMINATE, THEY SHALL BE FITTED WITH MANUFACTURE SUPPLIED END CAPS. ALL PIPEWORK, INCLUDING TERMINATION POINTS, SHALL BE SURVEYED FOR FUTURE IDENTIFICATION.
4. THE PRIMARY SOLUTION DRAIN PIPES (100mm DIAMETER) SHALL BE SPACED AS SHOWN. GENERALLY PAD SLOPES GREATER THAN 2.5H:1V REQUIRE A PRIMARY DRAIN PIPE SPACING OF 17 m (MAXIMUM) AND SLOPES LESS THAN 2.5H:1V REQUIRE A SPACING OF 12 m (MAXIMUM).

LEGEND
- 17m O.C. SPACING FOR PRIMARY DRAIN PIPES
- 12m O.C. SPACING FOR PRIMARY DRAIN PIPES

AS-BUILT RECORD DRAWING

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	12	08	DAG	TLM	MEH	TLM	REVISE PIPES
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

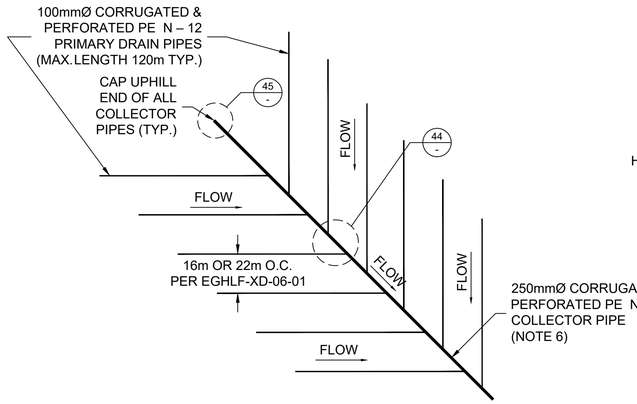
CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: PHASE 1 PLS RECOVERY PIPING PLAN VIEW

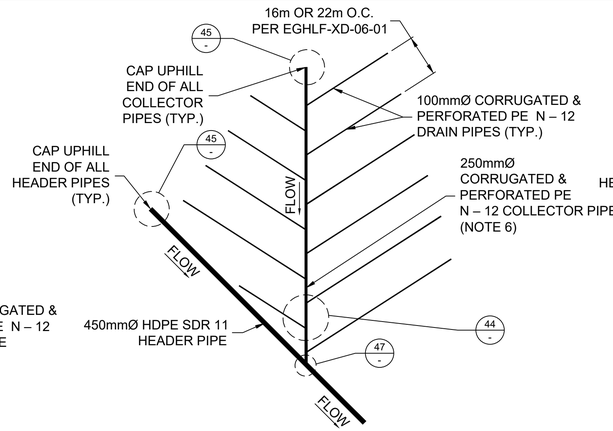
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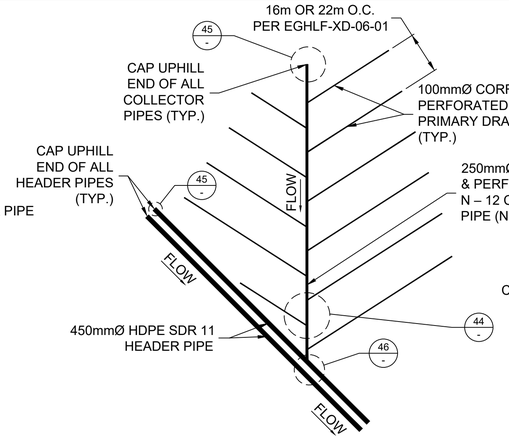
TYPICAL PRIMARY 100mm Ø PRIMARY DRAIN PIPE LAYOUT (40 / 06-01)

SCALE = N.T.S.



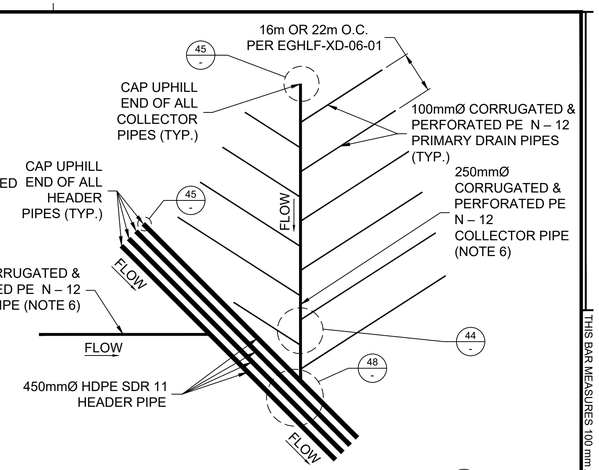
TYPICAL 250mm Ø COLLECTOR CONNECTION TO 450mm Ø HEADER PIPES LAYOUT (41 / 06-01)

SCALE = N.T.S.



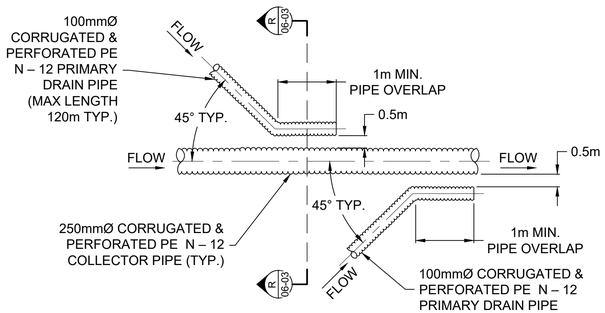
TYPICAL DOUBLE HEADER PIPE LAYOUT (42 / 06-01)

SCALE = N.T.S.



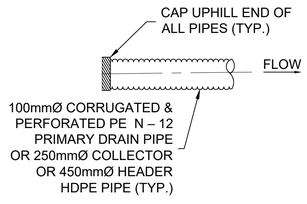
TYPICAL MULTIPLE HEADER PIPE LAYOUT (43 / 06-01)

SCALE = N.T.S.



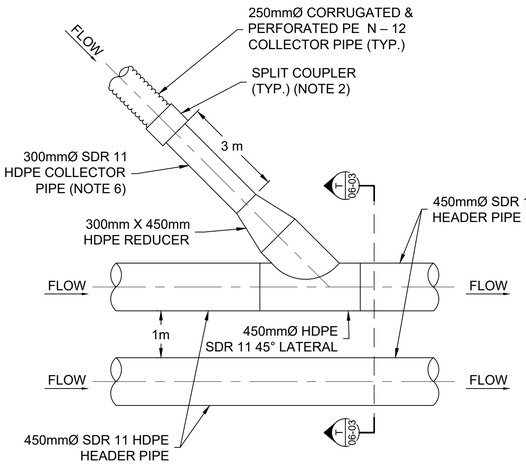
TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE DETAIL (44 / -)

SCALE = N.T.S.



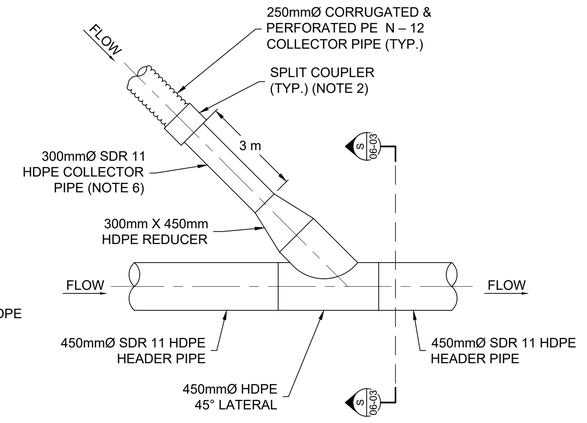
TYPICAL PIPE CAP DETAIL (45 / -)

SCALE = N.T.S.



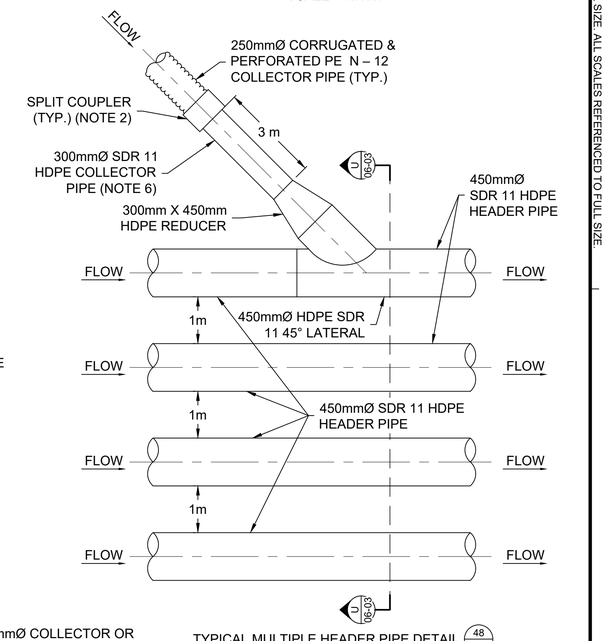
TYPICAL DOUBLE HEADER PIPE DETAIL (46 / -)

SCALE = N.T.S.



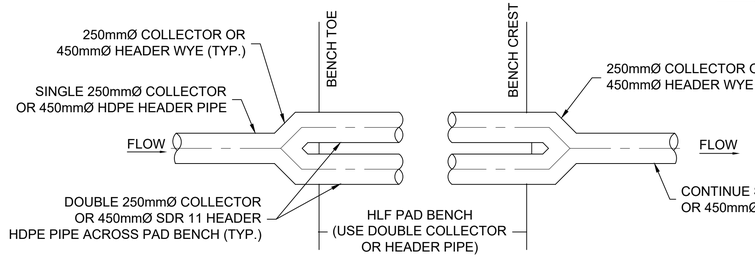
TYPICAL SINGLE HEADER PIPE DETAIL (47 / -)

SCALE = N.T.S.



TYPICAL MULTIPLE HEADER PIPE DETAIL (48 / -)

SCALE = N.T.S.



TYPICAL COLLECTOR OR HEADER PIPE AT BENCH DETAIL (49 / 06-01)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
3. WHERE CPT SOLUTION PIPES TERMINATE, THEY SHALL BE FITTED WITH MANUFACTURER SUPPLIED END CAPS. ALL PIPEWORK, INCLUDING TERMINATION POINTS, SHALL BE SURVEYED FOR FUTURE IDENTIFICATION.
4. OVERLINER DRAIN FILL THICKNESS SHALL BE 0.6 m (MINIMUM) IN UPPER PAD AREAS AND 1 m (MINIMUM) IN THE IN-HEAP POND WITH A MINIMUM 0F 0.5 m COVER DEPTH OR TWICE THE PIPE DIAMETER, WHICH EVER IS LARGER, OVER TOP OF ALL PIPES.
5. CAP UPHILL END OF ALL PIPES.
6. THE FIRST 3 m OF ALL COLLECTORS WILL BE 300mmØ HDPE SDR 11, THEN WILL TRANSITION TO 250mmØ CORRUGATED & PERFORATED PE N-12.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

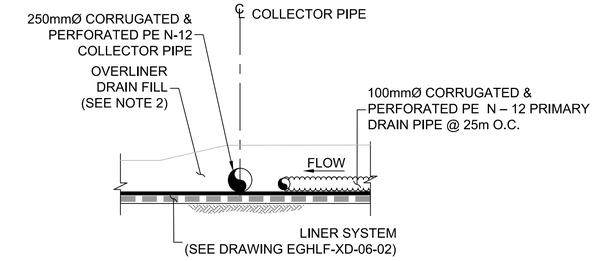
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A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	17	12	08	DAG	TLM	MEH	TLM	REVISE PIPE DETAILS AND MATERIALS, REVISE NOTE 6
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 1 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-06-02 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

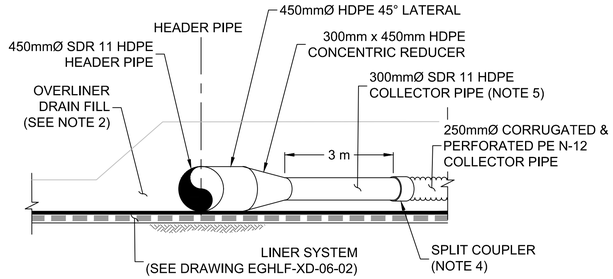
THIS BAR MEASURES 100 mm AT FULL SIZE ALL SCALES REFERENCED TO FULL SIZE

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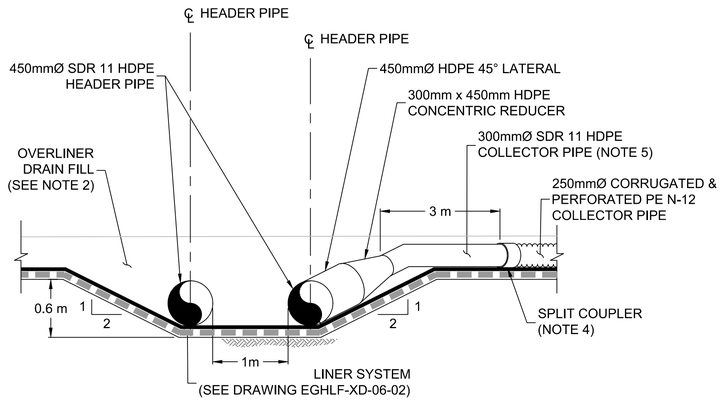
TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR CROSS SECTION (R / 06-02)

SCALE = N.T.S.



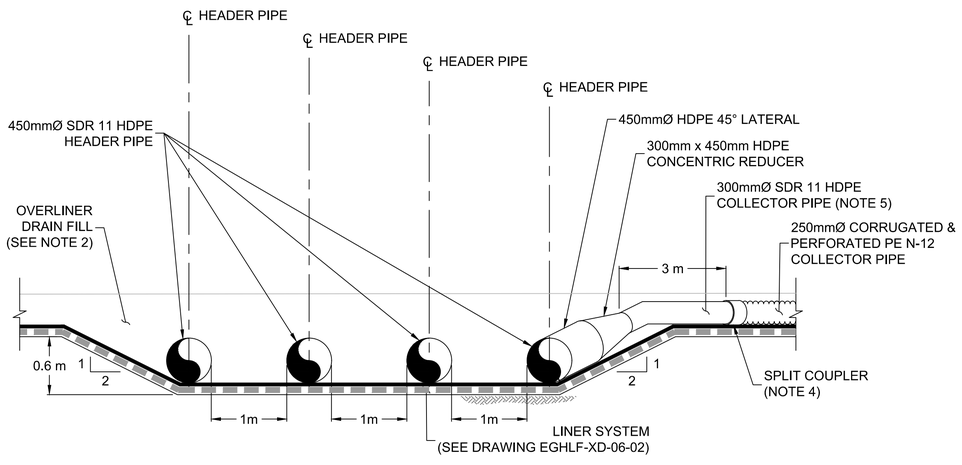
TYPICAL SINGLE HEADER CROSS SECTION (S / 06-02)

SCALE = N.T.S.



TYPICAL DOUBLE DRAIN PIPE CROSS SECTION (T / 06-02)

SCALE = N.T.S.



TYPICAL MULTIPLE DRAIN PIPE CROSS SECTION (U / 06-02)

SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. OVERLINER DRAIN FILL THICKNESS SHALL BE 0.6 m (MINIMUM) IN UPPER PAD AREAS AND 1 m (MINIMUM) IN THE IN-HEAP POND WITH A MINIMUM 0F 0.5 m COVER DEPTH OR TWICE THE PIPE DIAMETER, WHICH EVER IS LARGER, OVER TOP OF ALL PIPES.
3. CAP UPHILL END OF ALL PIPES.
4. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS. ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
5. THE FIRST 3 m OF ALL COLLECTORS WILL BE 300mmØ HDPE SDR 11, THEN WILL TRANSITION TO 250mmØ CORRUGATED & PERFORATED PE N-12. MOST, IF NOT ALL, PRIMARY TO COLLECTOR CONNECTIONS WILL BE N-12 TO N-12.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	09	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: PHASE 1 PLS RECOVERY PIPING DETAILS SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-06-03 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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N

E 458,750
E 459,000
E 459,250
N 7,101,500
N 7,101,250

BOX CULVERT
IN-HEAP POND SPILLWAY
(SEE DRAWING EGHLF-XD-08-01)
ACCESS ROAD
HEAP CONFINING
EMBANKMENT
SEE DETAIL 60 / 07-04
SEE DETAIL 58 / 07-04
SPILLWAY OUTLET
DRIVEABLE SPILLWAY
BALLAST ON TOP LINER
(TYP, NOTE 5)
5 m WIDE ACCESS ROAD (TYP.)
RUB SHEET
(NOTE 6)
SEE DETAIL 51 / 07-03
EVENT POND LDRS PUMP RISER
RUB SHEET FOR
ROLLING PUMP
SYSTEM (NOTE 4)
EVENT POND
SUMP
EVENT POND
UNDERDRAIN
SYSTEM
(SEE DRAWING
EGHLF-XD-03-03)
EVENT POND
CREST ELEV: 895.5
SEE DETAIL 53 / 07-03
RUB SHEET FOR
CASING (NOTE 4)
EVENT POND INSTRUMENTATION RISER
SEE DETAIL 62 / 07-06
EMERGENCY SPILLWAY
DRIVEABLE SWALE
EMERGENCY SPILLWAY
(SEE DRAWING EGHLF-XD-07-05)
UNDERDRAIN
DISCHARGE

2.0H:1V
2.1H:1V
2.6H:1V
1.8H:1V
2.5H:1V
4.6H:1V
2.4H:1V
3.4H:1V
1.6H:1V
1.5%
1.1%

SCALE 1:1,000
25 0 25 50 75
METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. EVENT POND PUMPING AND PIPING BY OTHERS (NOT SHOWN).
3. RUB SHEET FOR LINER PROTECTION SHALL CONSIST OF A SINGLE LAYER OF 2 mm (80 mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO TOP LINER OR LINER BENEATH LDRS PUMP CASING RESPECTIVELY.

AS-BUILT RECORD DRAWING

P:\Apex Shared\Civil Projects\...X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF- END OF 2019 SEASON\EGHLF-XD-07-01.dwg Layout: EGHLF-XD-07-01 Plot Date Nov 5 19 Time: 4:00 PM

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

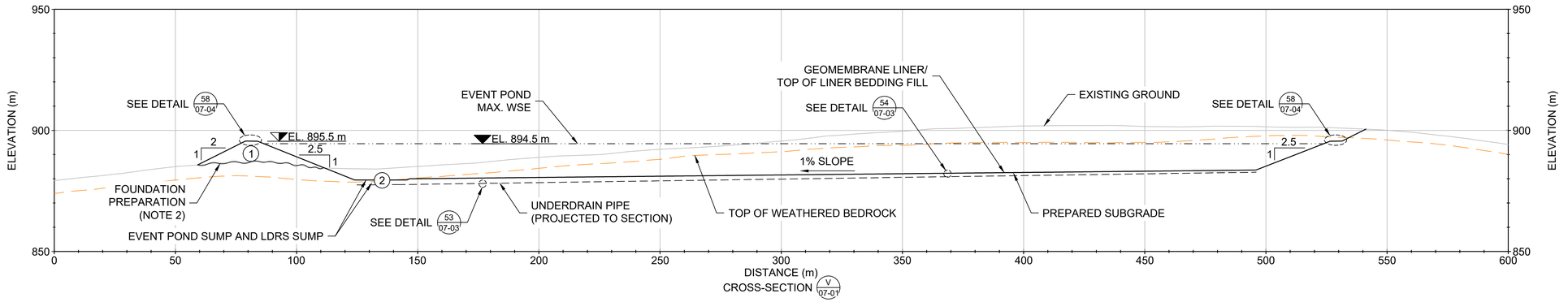
BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

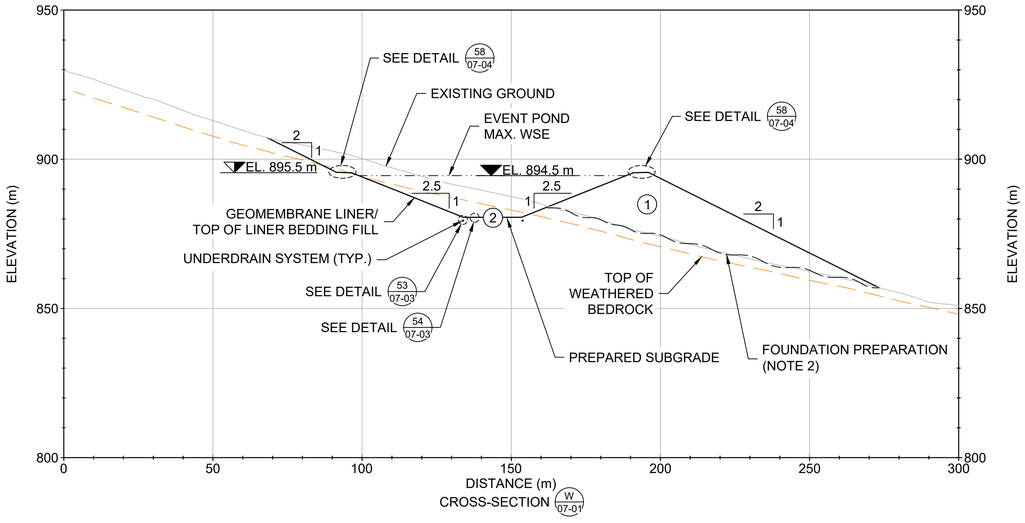
CLIENT: StrataGold Corporation

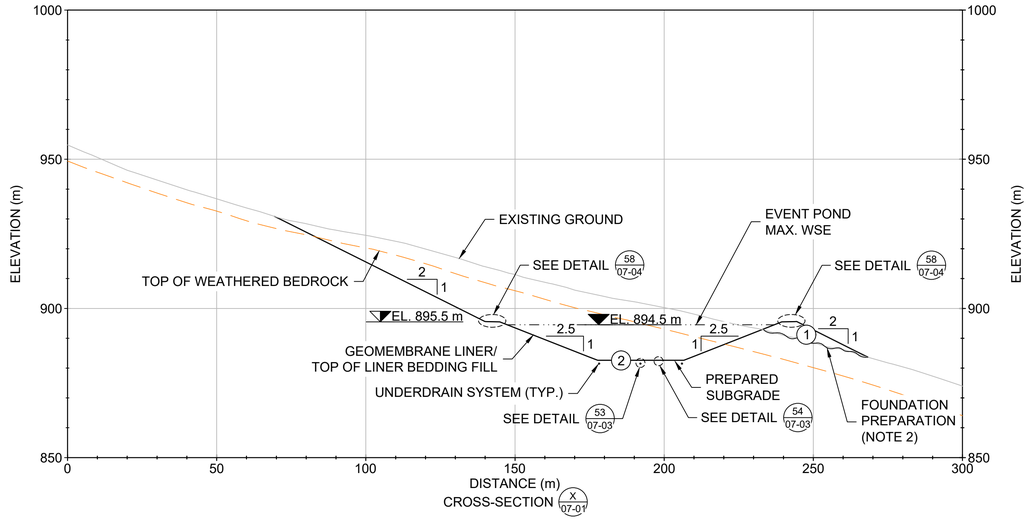
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: EVENT POND PLAN VIEW

SCALE:	DWG No.:	REV.:
1:1,000	EGHLF-XD-07-01	1







SCALE 1:1,000

25 0 25 50 75

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

AS-BUILT RECORD DRAWING

LEGEND
1 SITE GRADING FILL
2 SELECT FILL

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

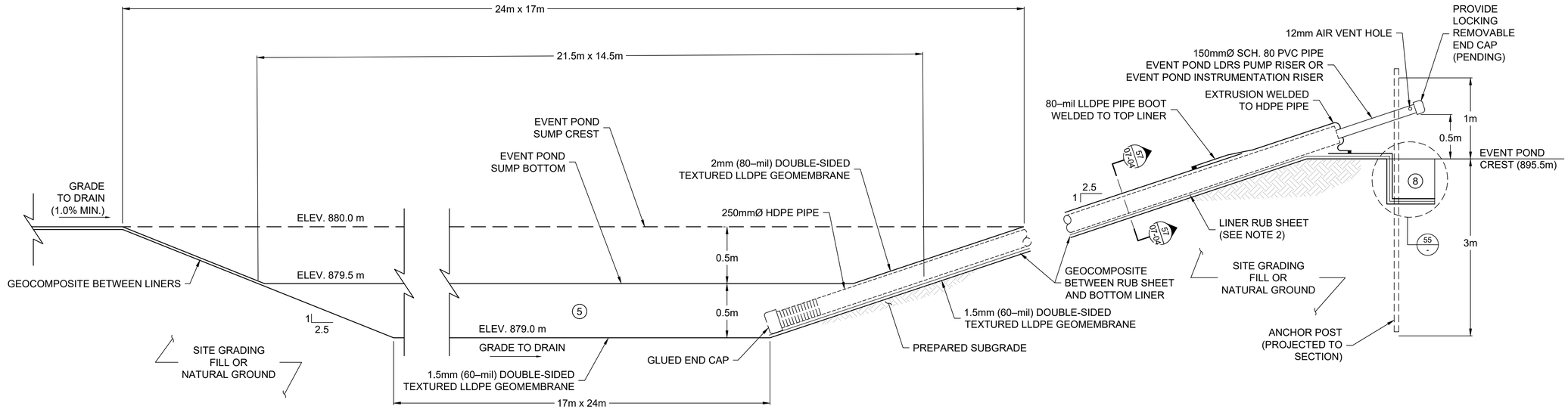
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REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

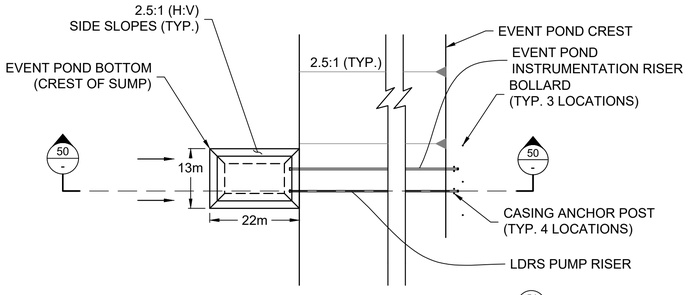
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND CROSS-SECTIONS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:1,000 / DWG No.: EGHLF-XD-07-02 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		



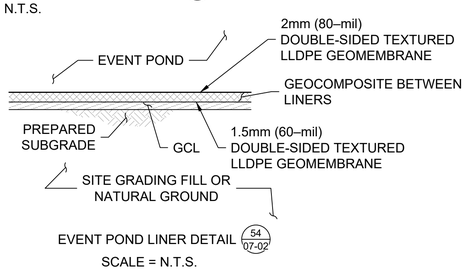
LEAK DETECTION AND RECOVERY SUMP DETAIL (50 / 07-03)

SCALE = N.T.S.



EVENT POND LEAK DETECTION SUMP PLAN – TYPICAL DETAIL (51 / 07-01)

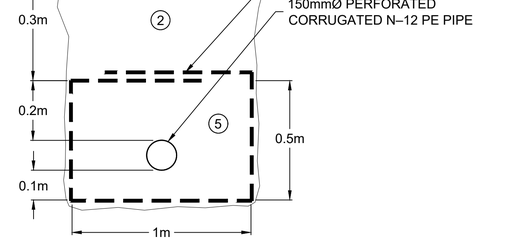
SCALE = N.T.S.



EVENT POND LINER DETAIL (54 / 07-02)

SCALE = N.T.S.

PENDING

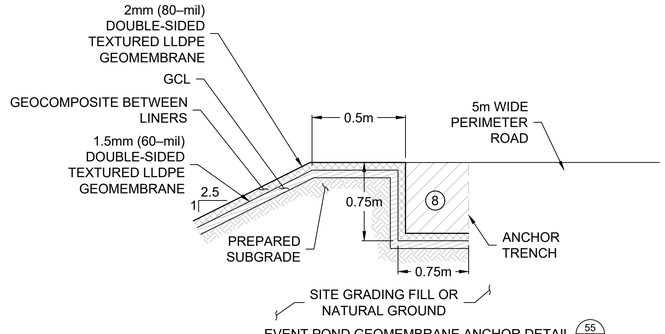


TYPICAL EVENT POND UNDERDRAIN DETAIL (53 / 07-01, 07-02)

SCALE = N.T.S.

TYPICAL BOLLARD DETAIL (52 / -)

SCALE = N.T.S.



EVENT POND GEOMEMBRANE ANCHOR DETAIL (55 / 07-02, 07-04)

SCALE = N.T.S.

LEGEND

2	SELECT FILL
5	SELECT DRAIN FILL
8	ANCHOR TRENCH FILL

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL CONSIST OF A SINGLE LAYER OF 2 mm (80-mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO LINER BENEATH LDRS PUMP CASING.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

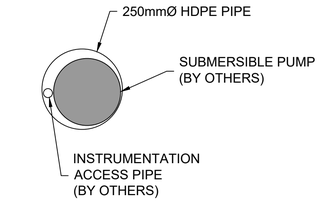
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

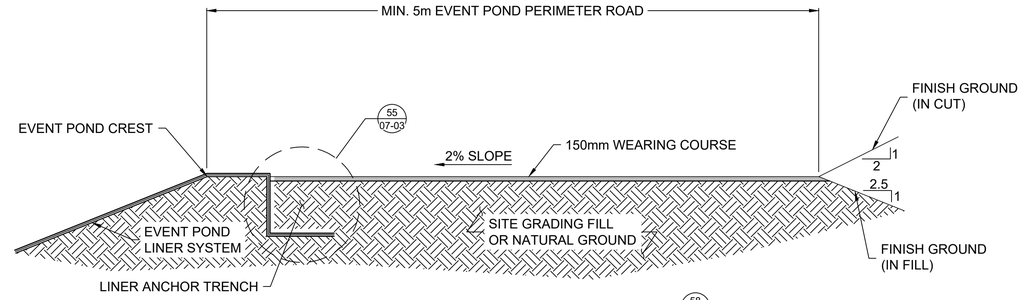
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND DETAILS SHEET 1 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-07-03 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

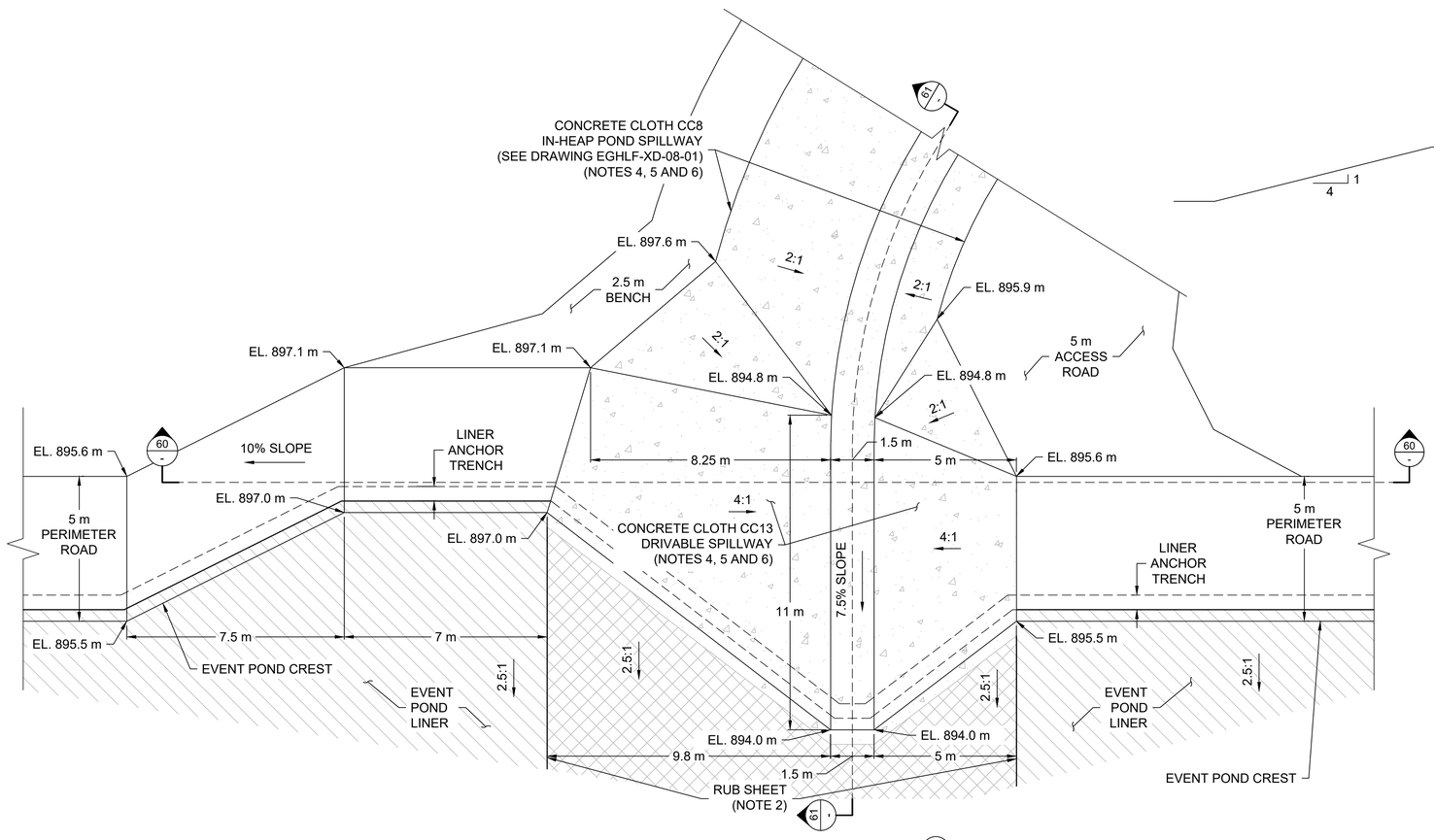
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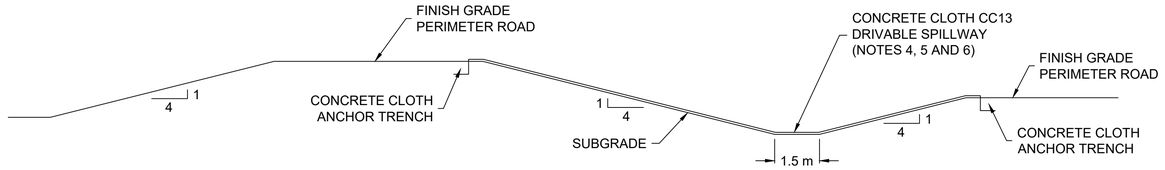
EVENT POND LDRS PUMP CASING (57 / 07-03)
SCALE = N.T.S.



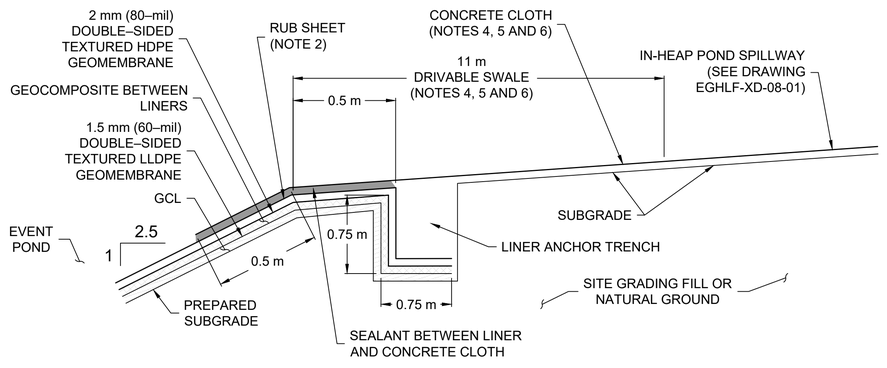
EVENT POND PERIMETER ROAD – TYPICAL DETAIL (58 / 07-02)
SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (59 / 07-01)
SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (60 / 07-02)
SCALE = N.T.S.



IN-HEAP POND SPILLWAY DRIVEABLE SWALE DETAIL (61 / 07-04)
SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. RUB SHEET SHALL CONSIST OF A DOUBLE LAYER OF 2 mm (80-mil) DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE EXTRUSION WELDED TO LINER BELOW SPILLWAY.
3. ALL ELEVATIONS SHOWN ON THIS DRAWING REPRESENT FINISHED GRADE.
4. APPLY SPILLWAY GEOMETRY FROM DETAIL AC ON 08-01 ABOVE DRIVEABLE SPILLWAY.
5. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND CC8 WHERE VEHICLES WON'T TRAVEL.
6. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

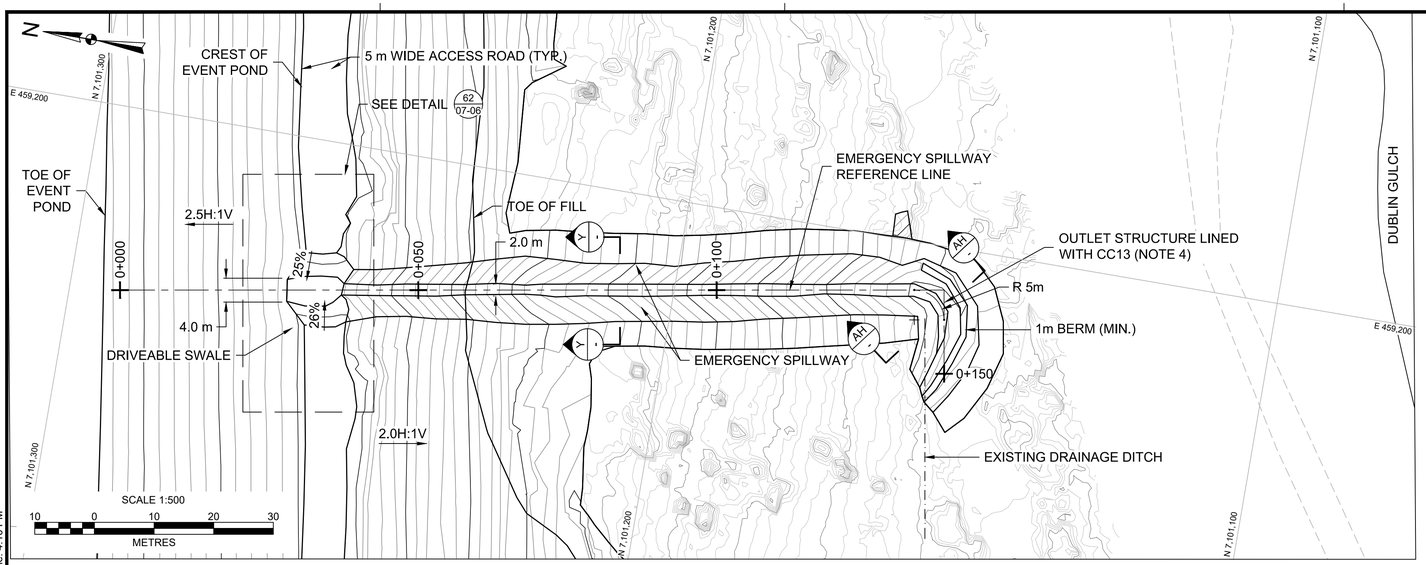
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	27	DAG	TLM	MEH	TLM	REVISE DETAILS 60, 61. ADD GEOMEMBRANE.
2	19	03	27	DAG	TLM	RM	TLM	REVISE DRIVEABLE SPILLWAY MATERIAL AND DESIGN
3	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

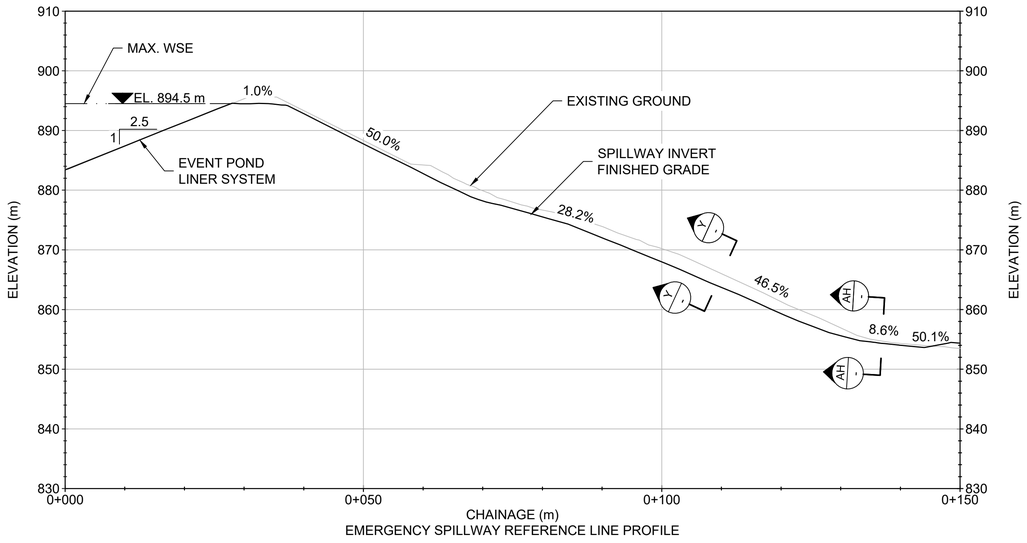
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND DETAILS SHEET 2 OF 2
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-07-04 / REV.: 3
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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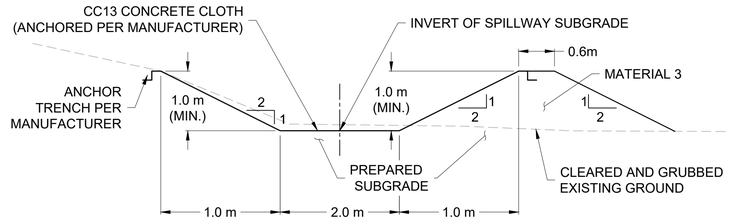




EMERGENCY SPILLWAY REFERENCE LINE PROFILE

TYPICAL EMERGENCY SPILLWAY SECTION (Y)

SCALE = N.T.S.



TYPICAL PLUNGE POOL SECTION (AH)

SCALE = N.T.S.

SCALE 1:500

10 0 10 20 30

METRES

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL Y TO AH AT STA. 1+31.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG ENTIRE SPILLWAY PROFILE.
4. CONCRETE CLOTH SHALL BE FIXED WITH TWO ANCHORS PER JOINT IN THE CHANNEL AND SIX ANCHORS PER JOINT IN THE OUTLET STRUCTURE. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

AS-BUILT RECORD DRAWING

REVISION INFORMATION

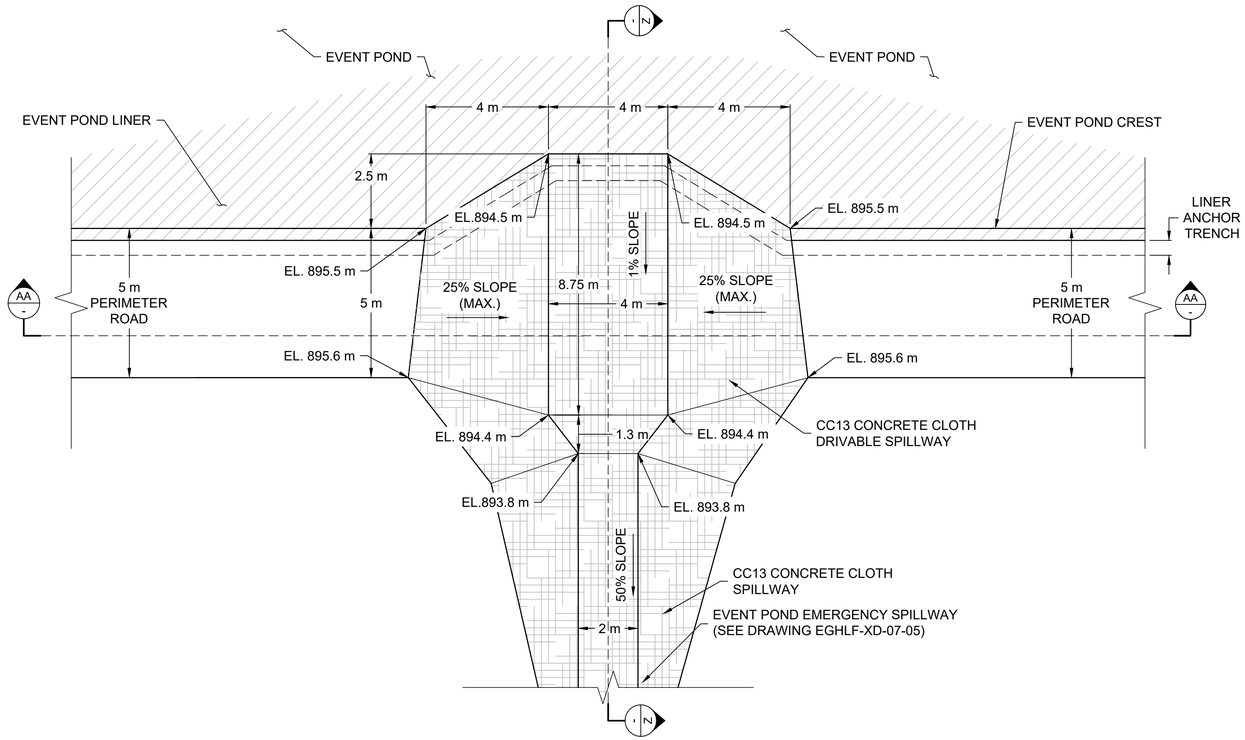
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	21	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, DRIVEABLE SWALE
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

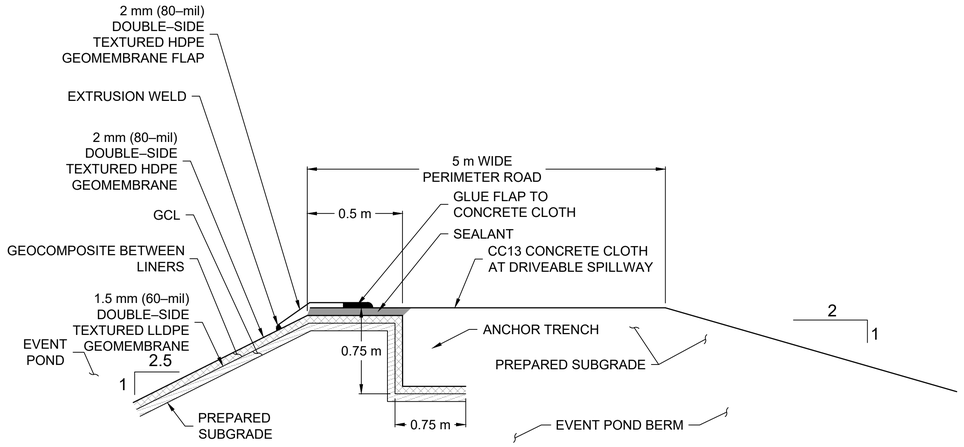
DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND SPILLWAY PLAN AND PROFILE
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: 1:500 / DWG No.: EGHLF-XD-07-05 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

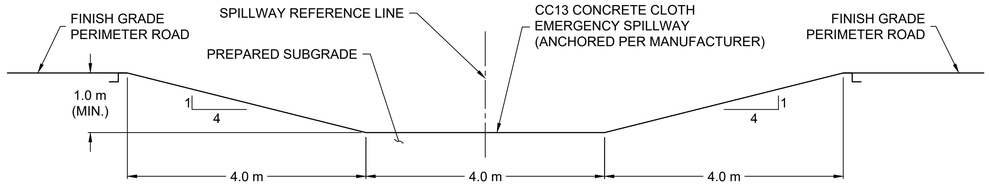
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EMERGENCY SPILLWAY DRIVEABLE SWALE DETAIL (62 / 07-06), 07-03, 07-05



EMERGENCY SPILLWAY DRIVEABLE SWALE SECTION (Z / -)
SCALE = N.T.S.



DRIVABLE EMERGENCY SPILLWAY SECTION VIEW (AA / -)
SCALE = N.T.S.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

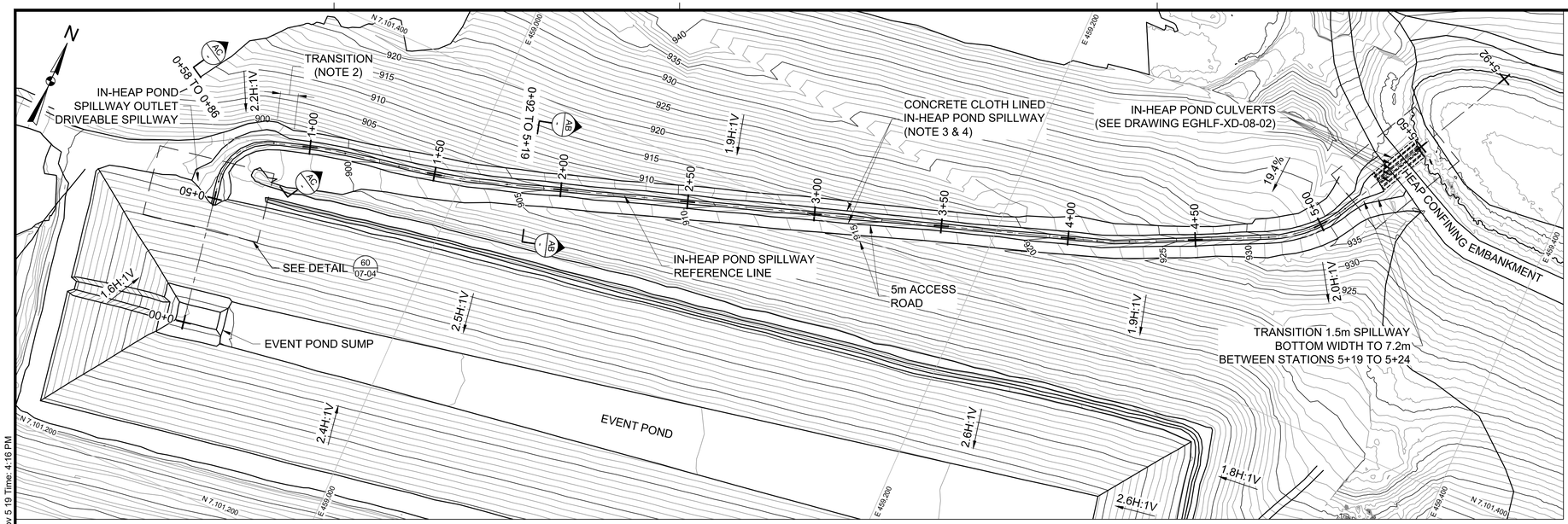
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0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	21	DAG	TLM	RM	TLM	REVISE DRIVABLE EMERGENCY SPILLWAY DIMENSIONS AND MATERIAL
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: EVENT POND SPILLWAY TYPICAL SECTIONS AND DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-07-06 / REV.: 2
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

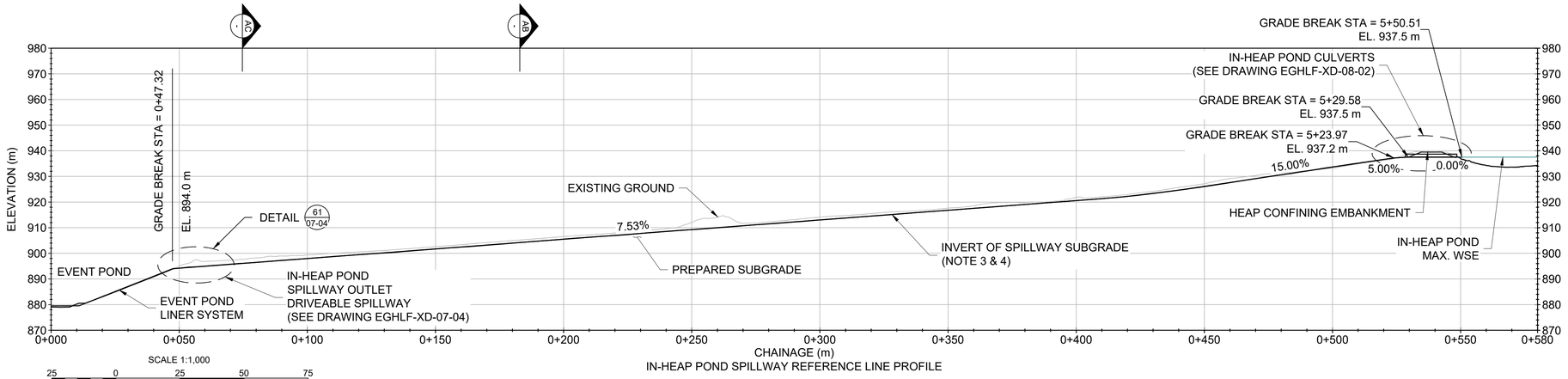
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SCALE 1:1,000

25 0 25 50 75

METRES

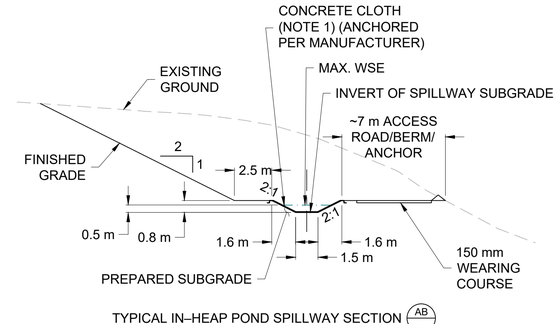


SCALE 1:1,000

25 0 25 50 75

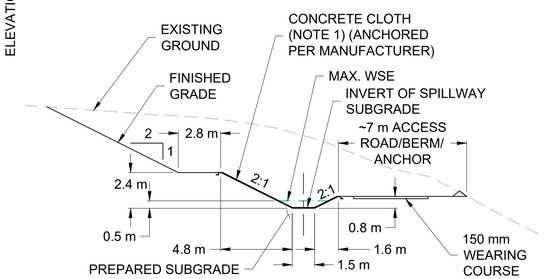
METRES

IN-HEAP POND SPILLWAY REFERENCE LINE PROFILE



TYPICAL IN–HEAP POND SPILLWAY SECTION AB -
STA. 1+00 TO END

SCALE = N.T.S.



TYPICAL IN–HEAP POND SPILLWAY SECTION AC -
STA. 0+60 TO 0+90

SCALE = N.T.S.

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. TRANSITION SPILLWAY GEOMETRY FROM DETAIL AC TO AB BETWEEN STATION 0+86 TO 0+92 AND DETAIL AB TO 7.2m BOTTOM WIDTH BETWEEN 5+19 TO 5+24.
3. CONCRETE CLOTH SHALL BE CC13 IN DRIVEABLE SWALE AND ALONG 15% SECTION AND CC8 IN ALL OTHER AREAS INCLUDING THE 7.5% SECTION.
4. CONCRETE CLOTH SHALL BE ANCHORED PER THE MANUFACTURERS REQUIREMENTS. BGC SHALL REVIEW ANCHORING METHOD PRIOR TO CONSTRUCTION.

AS-BUILT RECORD DRAWING

REVISION INFORMATION	REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
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	1	18	06	27	DAG	TLM	MEH	TLM	REVISE DETAILS FOR FEBRIFORM HEIGHT AND ADD GEOMEMBRANE
	2	19	03	18	DAG	TLM	RM	TLM	REVISE SPILLWAY MATERIAL, GRADING, CULVERTS, DRIVEABLE SWALE
	3	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

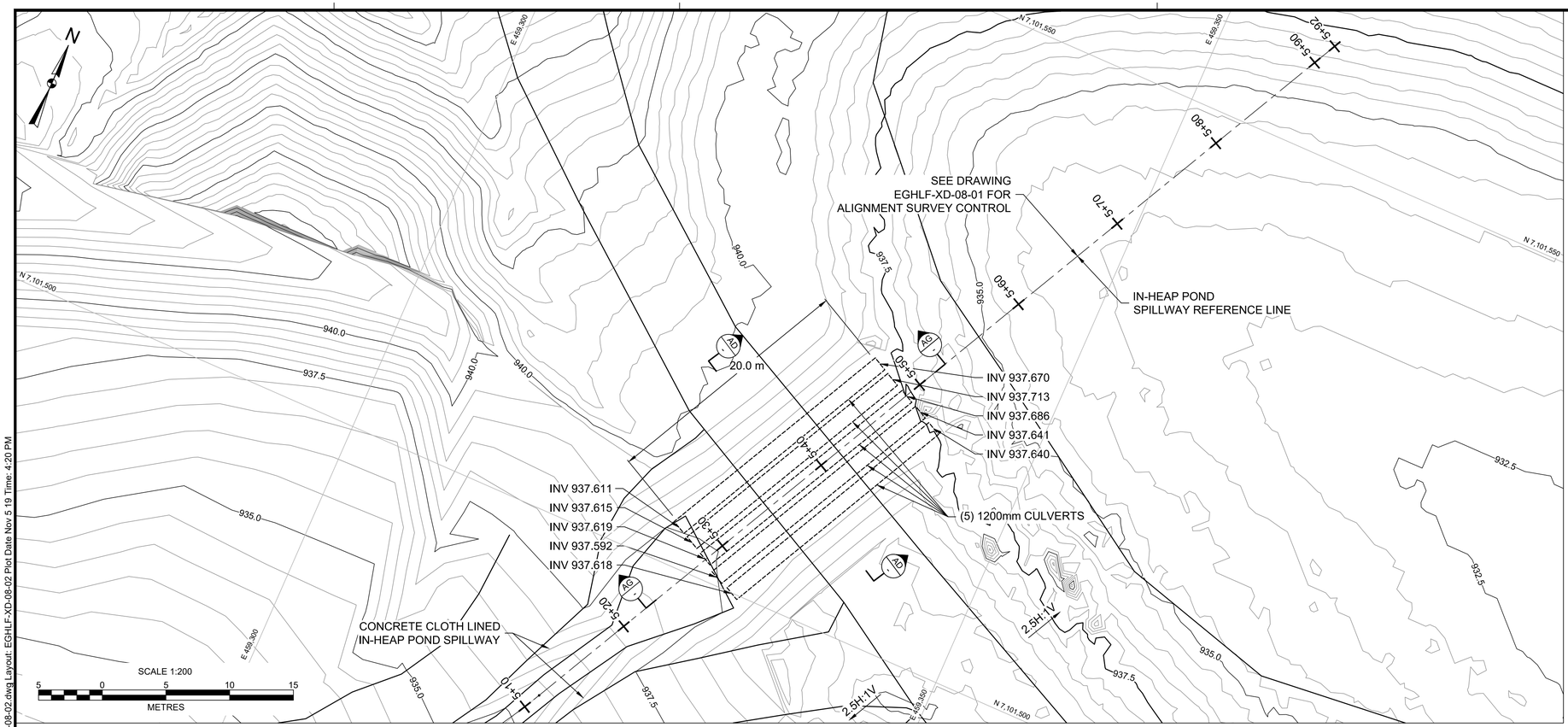
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

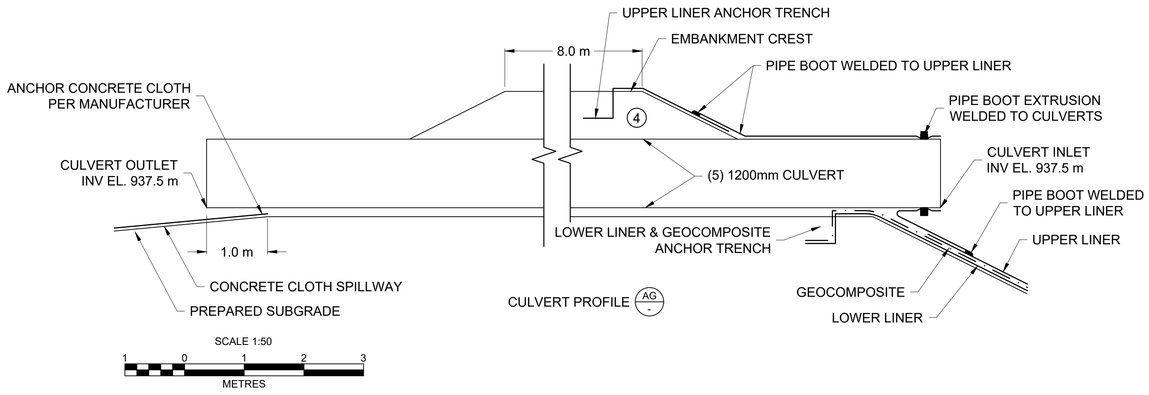
TITLE: IN-HEAP POND SPILLWAY PLAN AND PROFILE

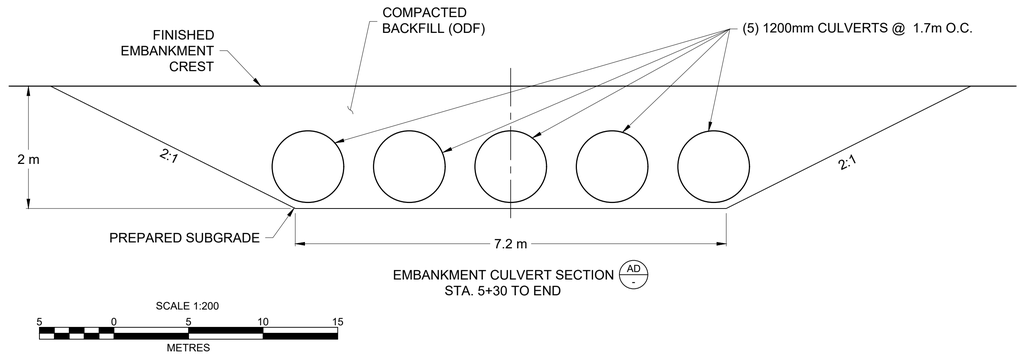
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1:1,000	EGHLF-XD-08-01	3

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

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THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED.
ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE
BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. SEE DRAWING EGHLF-XD-02-06 FOR LOWER LINER ANCHORING DETAILS.

LEGEND

(4) OVERLINER DRAIN FILL

AS-BUILT RECORD DRAWING

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	18	06	29	DAG	TLM	MEH	TLM	GEOMEMBRANE ADDED TO SPILLWAY
2	19	03	18	DAG	TLM	RM	TLM	REVISE CULVERT / SPILLWAY MATERIAL AND DESIGN
3	19	11	04	DAG	TLM	MEH	TLM	RECORD AS-BUILT DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG | CHECK DRAWING:
DESIGN BY: TLM | CHECK DESIGN: MEH
LEAD ENGINEER: DEH | APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM | APPROVAL DATE: 11/04/19

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND SPILLWAY BOX CULVERT PLAN AND PROFILE

SCALE:	DWG No.:	REV.:
1:200	EGHLF-XD-08-02	3

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

P:\Apex Shared\Civil Projects\X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF - END OF 2019 SEASON\EGHLF-XD-08-02.dwg Layout: EGHLF-XD-08-02 Plot Date Nov 5 19 Time: 4:20 PM

BOX CULVERT DETAILS ARE NO LONGER APPLICABLE

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

P:\Apex Shared\Civil Projects_X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF- END OF 2019 SEASON\EGHLF-XD-08-03.dwg Layout: EGHLF-XD-08-03 Plot Date Nov 5 19 Time: 4:21 PM

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	03	21	DAG	TLM	RM	TLM	REMOVE DETAILS THAT NO LONGER APPLY
2	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:
DESIGN BY: TLM	CHECK DESIGN: MEH
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19

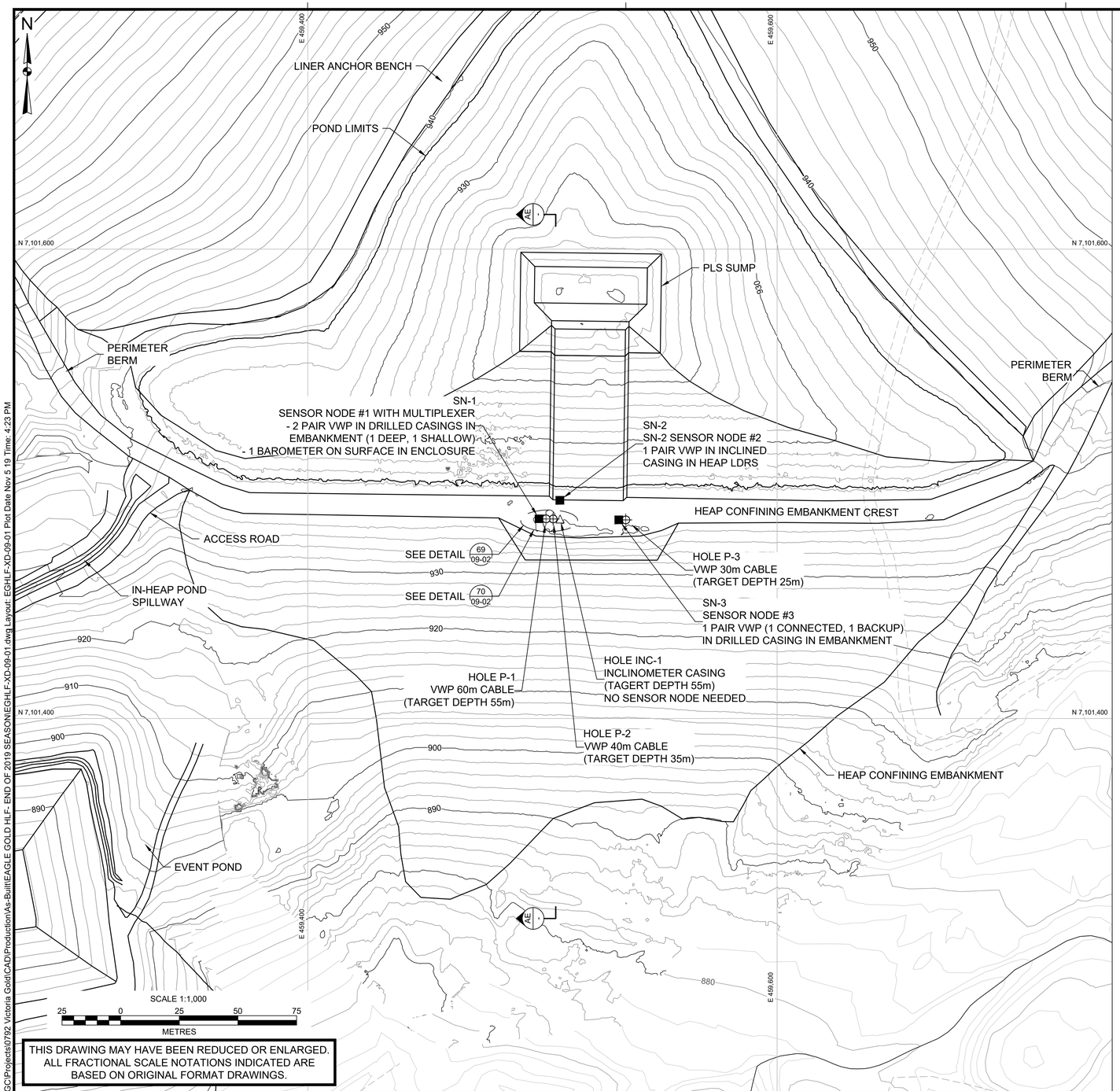
BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: StrataGold Corporation

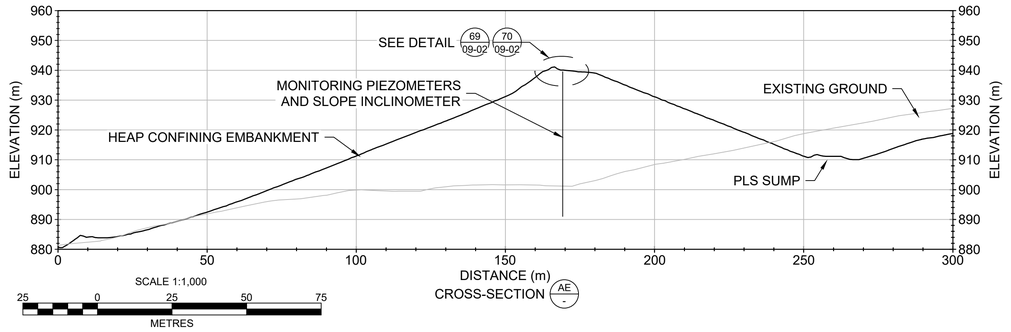
PROJECT: EAGLE GOLD - HEAP LEACH FACILITY

TITLE: IN-HEAP POND SPILLWAY DETAILS

SCALE:	DWG No.:	REV.:
N.T.S.	EGHLF-XD-08-03	2



THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.



THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

NOTES:
1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.

AS-BUILT RECORD DRAWING

LEGEND
- △ PLANNED SURVEY MONUMENT
- PLANNED EMBANKMENT PIEZOMETER
- SLOPE INCLINOMETER

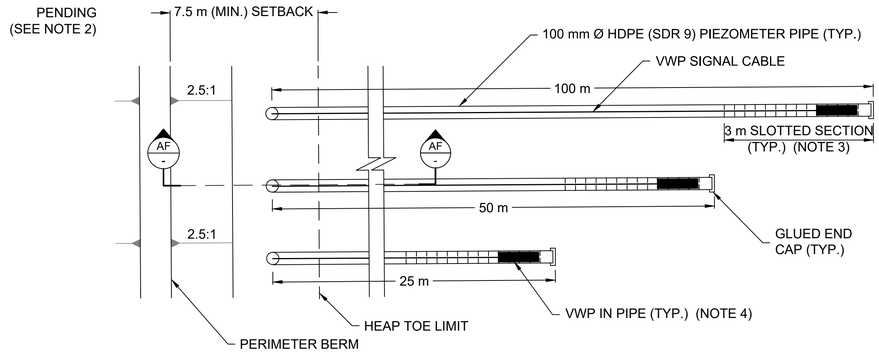
P:\Apex Shared\Civil Projects_X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF- END OF 2019 SEASON\EGHLF-XD-09-01.dwg Layout: EGHLF-XD-09-01 Plot Date: Nov 5 19 Time: 4:23 PM

REVISION INFORMATION

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

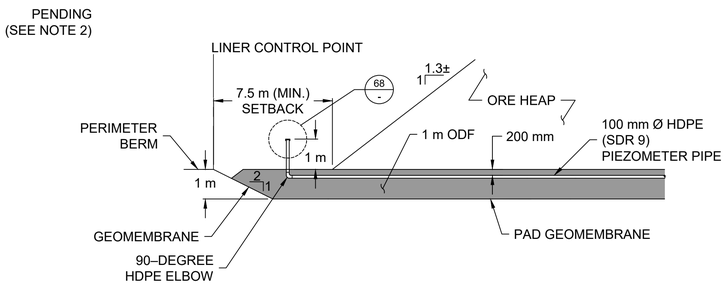
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DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: INSTRUMENTATION PLAN
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: AS-SHOWN / DWG No.: EGHLF-XD-09-01 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		



PAD CELL PIEZOMETERS TYPICAL LAYOUT (67 / 09-01)

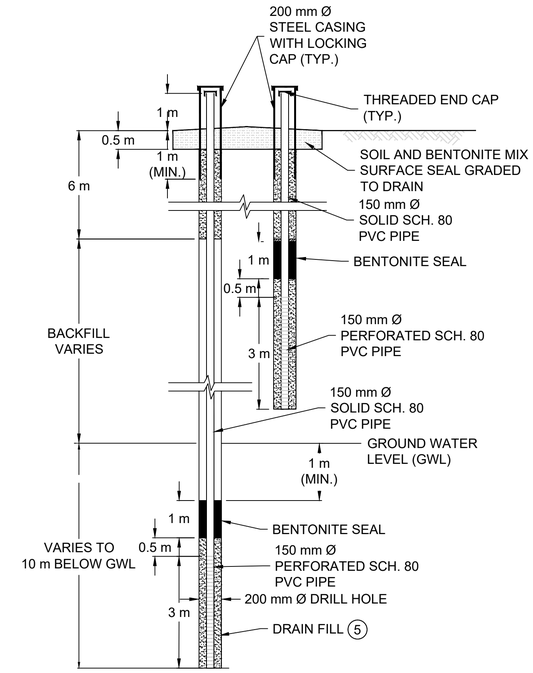
SCALE = N.T.S.

(NOTE 1)



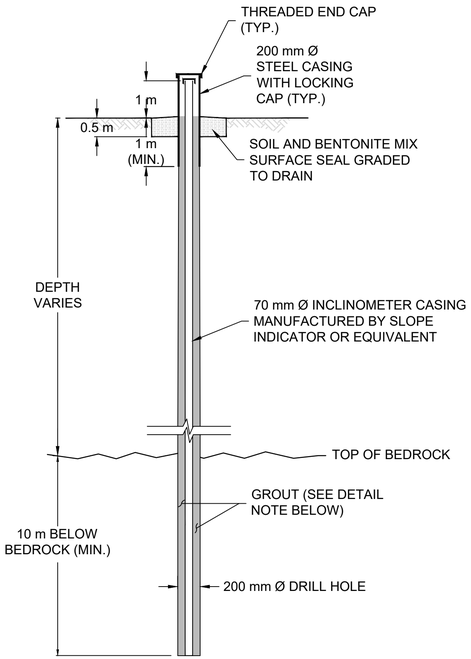
PAD CELL PIEZOMETERS PIPE SECTION (AF / -)

SCALE = N.T.S.



MONITORING PIEZOMETERS DETAIL (69 / 09-01)

SCALE = N.T.S.



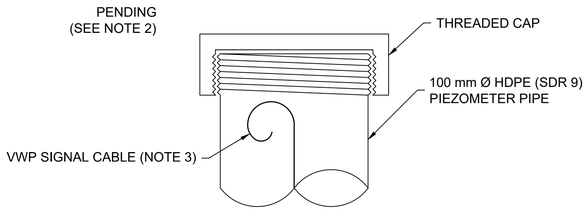
NOTE: THE ANNULUS BETWEEN THE BOREHOLE AND INCLINOMETER CASING SHOULD BE FILLED WITH GROUT AS SPECIFIED BELOW:

GROUT MIX TABLE		
MATERIALS	WEIGHT	RATIO BY WEIGHT
PORTLAND CEMENT	94 LB (1 BAG)	1
WATER	30 GALLONS	2.5
BENTONITE	+/- 25 LBS. *	0.3

* MIX CEMENT WITH WATER FIRST. THEN MIX IN THE BENTONITE. ADJUST THE AMOUNT OF BENTONITE TO PRODUCE A GROUT WITH THE CONSISTENCY OF HEAVY CREAM. IF THE GROUT IS TOO THIN, THE SOLIDS AND THE WATER WILL SEPARATE.

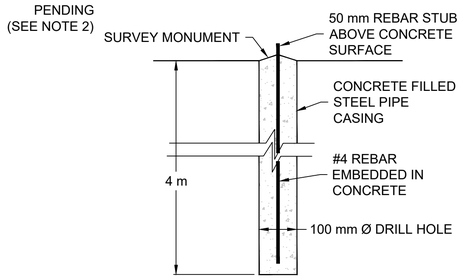
INCLINOMETER DETAIL (70 / 09-01)

SCALE = N.T.S.



PIEZOMETER PIPE CAP DETAIL (68 / -)

SCALE = N.T.S.



SURVEY MONITORING DETAIL (71 / 09-01)

SCALE = N.T.S.

LEGEND

(5) SELECT DRAIN FILL

NOTES:

1. SEE DRAWING EGHLF-XD-00-02 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. WELL LOGS ARE PROVIDED UNDER SEPERATE COVER. PAD CELL PIEZOMETER INSTALLATIONS ARE PENDING.
3. SLOTS SHALL BE AT CROWN OF PIPE AND SHALL BE EQUALLY SPACED AT 75 mm CENTRES. SLOTS DIMENSIONS SHALL BE 3 mm WIDE BY 38 mm LONG.
4. VIBRATING WIRE PIEZOMETERS (VWPs) SHALL BE GEOKON MODEL 4500AL/ALV-170kPa OR APPROVED EQUIVALENT. VWP INSTRUMENTS SHALL BE INSTALLED IN A GLYCOL BATH FOR FROST PROTECTON.

AS-BUILT RECORD DRAWING

THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. ALL FRACTIONAL SCALE NOTATIONS INDICATED ARE BASED ON ORIGINAL FORMAT DRAWINGS.

REVISION INFORMATION

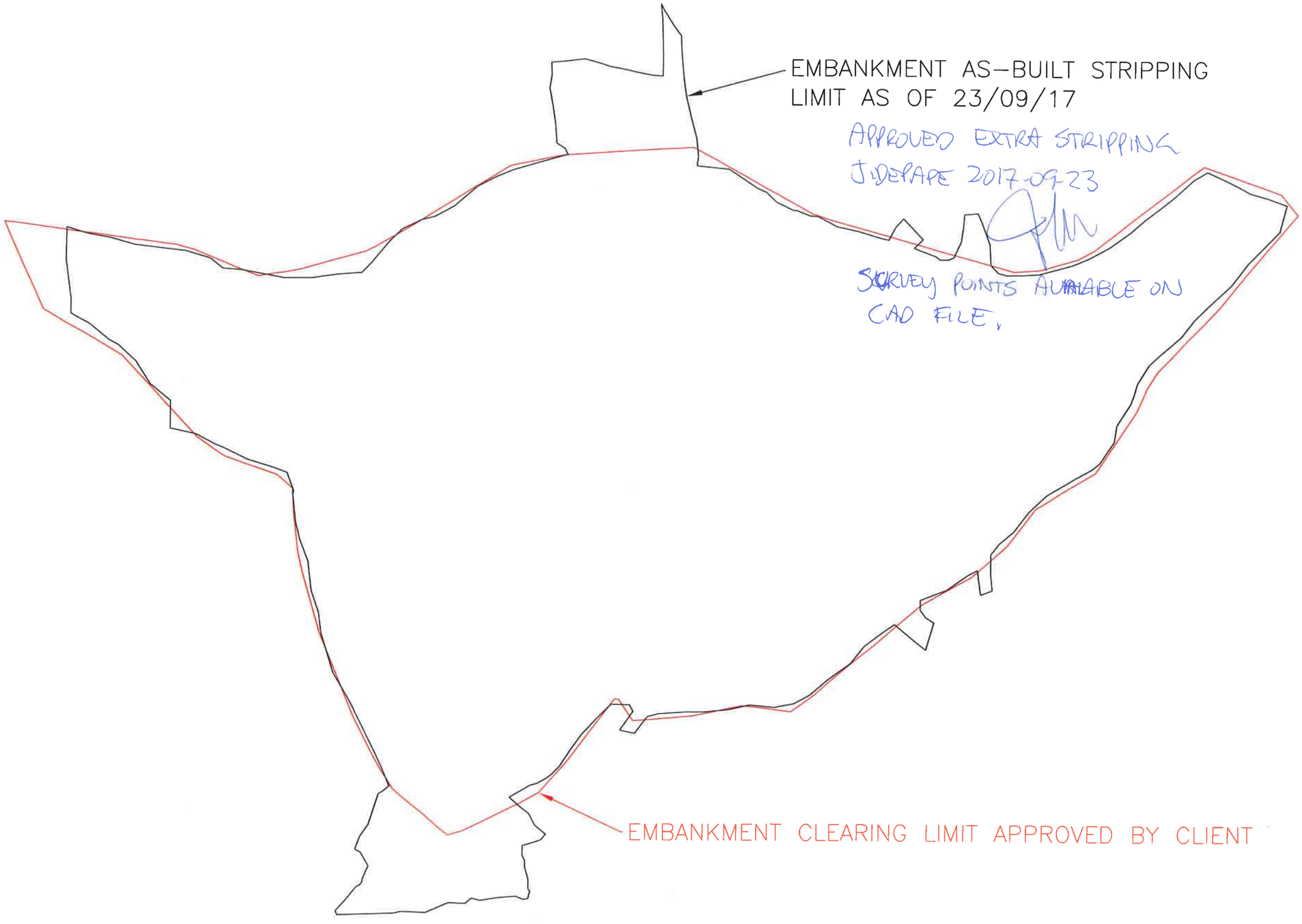
REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS
A	17	08	11	DAG	TLM	MEH	TLM	ISSUED FOR REVIEW
0	17	12	08	DAG	TLM	MEH	TLM	ISSUED FOR CONSTRUCTION
1	19	11	04	DAG	TLM	MEH	TLM	AS-BUILT RECORD DRAWING

REV. NO.	YY	MM	DD	DRAWN	DESIGN	CHECK	APPROVED	REVISION / ISSUED DESCRIPTIONS

DRAWN BY: DAG	CHECK DRAWING:	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: EAGLE GOLD - HEAP LEACH FACILITY
DESIGN BY: TLM	CHECK DESIGN: MEH		TITLE: INSTRUMENTATION DETAILS
LEAD ENGINEER: DEH	APPROVAL DATE: 11/04/19	CLIENT: StrataGold Corporation	SCALE: N.T.S. / DWG No.: EGHLF-XD-09-02 / REV.: 1
PROJECT MANAGER: TLM	APPROVAL DATE: 11/04/19		

THIS BAR MEASURES 100 mm AT FULL SIZE. ALL SCALES REFERENCED TO FULL SIZE.

P:\Apex Shared\Civil Projects_X-DRIVE-BGC\Projects\0792 Victoria Gold\CAD\Production\As-Built\EAGLE GOLD HLF - END OF 2019 SEASON\EGHLF-XD-09-02.dwg Layout: EGHLF-XD-09-02 Plot Date Nov 5 19 Time: 4:34 PM



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. BLACK LINE DENOTES STRIPPING LIMIT AS-BUILT
2. RED LINE DENOTES CLEARING LIMIT LAYOUT APPROVED BY CLIENT

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	17/09/23	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: EMBANKMENT STRIPPING LIMITS AS-BUILT

DRAWING SCALE: 1:1500

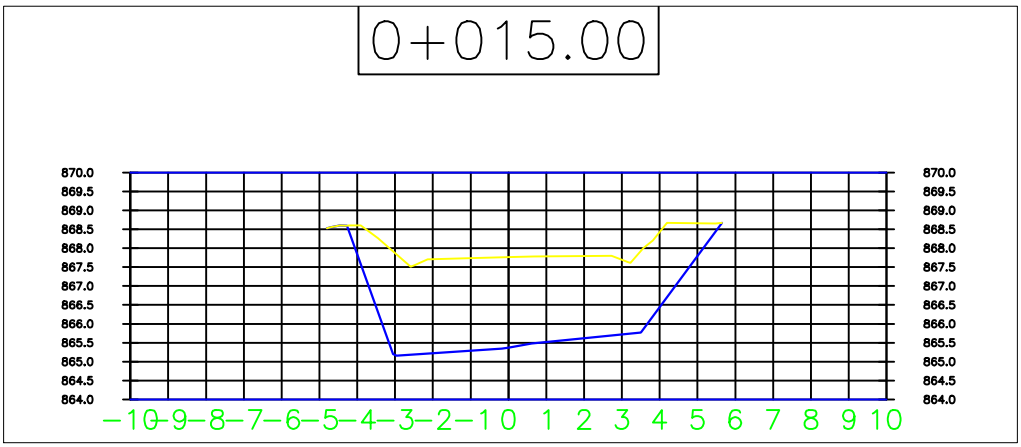
DATE:	17/09/23	DWG No:	EMB-002 REV 1.0
SURVEYED:	C.M & C.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

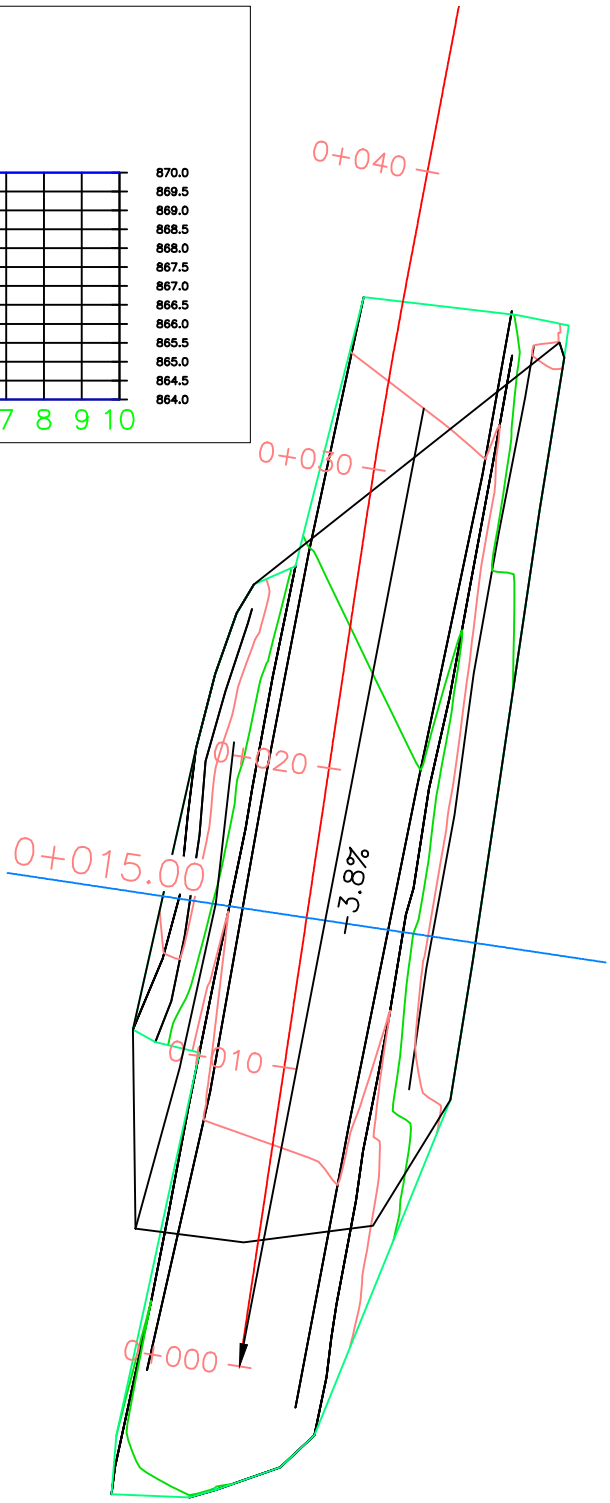
DRAWING FILE: 170922 EMB STRIPPING LIMITS ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001





REFERENCE DRAWINGS:	
NO.	DRAWING FILE:

LEGEND

EXCAVATION

FINAL ASBUILT SURFACE

Notes: Showing Embankment Toe Type 2 Material placed on excavation and final asbuilt surface.
GeoFabric installed at 0.5m above excavation surface and 0.5m below final grade.

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION

eshemuta Construction Surveyors

SURVEYED: C.M./BAX DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMB TOE EXCAVATION AND FINAL ASBUILT SECTION

DRAWING SCALE: H 1:250

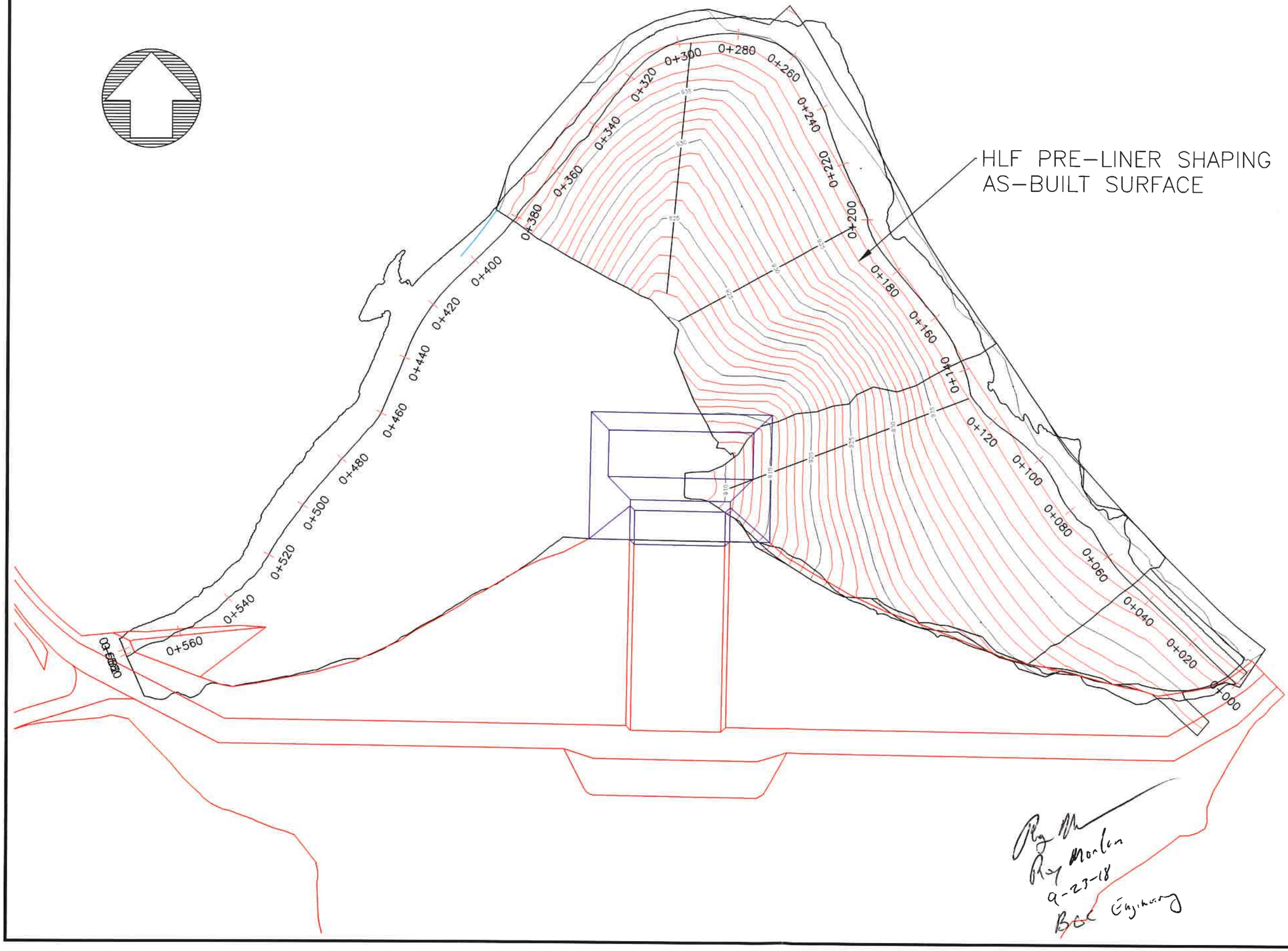
DATE: 18/07/04 DWG No: EMB-008-03

DRAWING FILE: 180704 HLF EMB TOE_SCTN

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



Roy Morlen
9-27-18
BGC Engineering

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/12	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY
SHAPING AS-BUILT 0+000 to 0+380

DRAWING SCALE: 1:1250

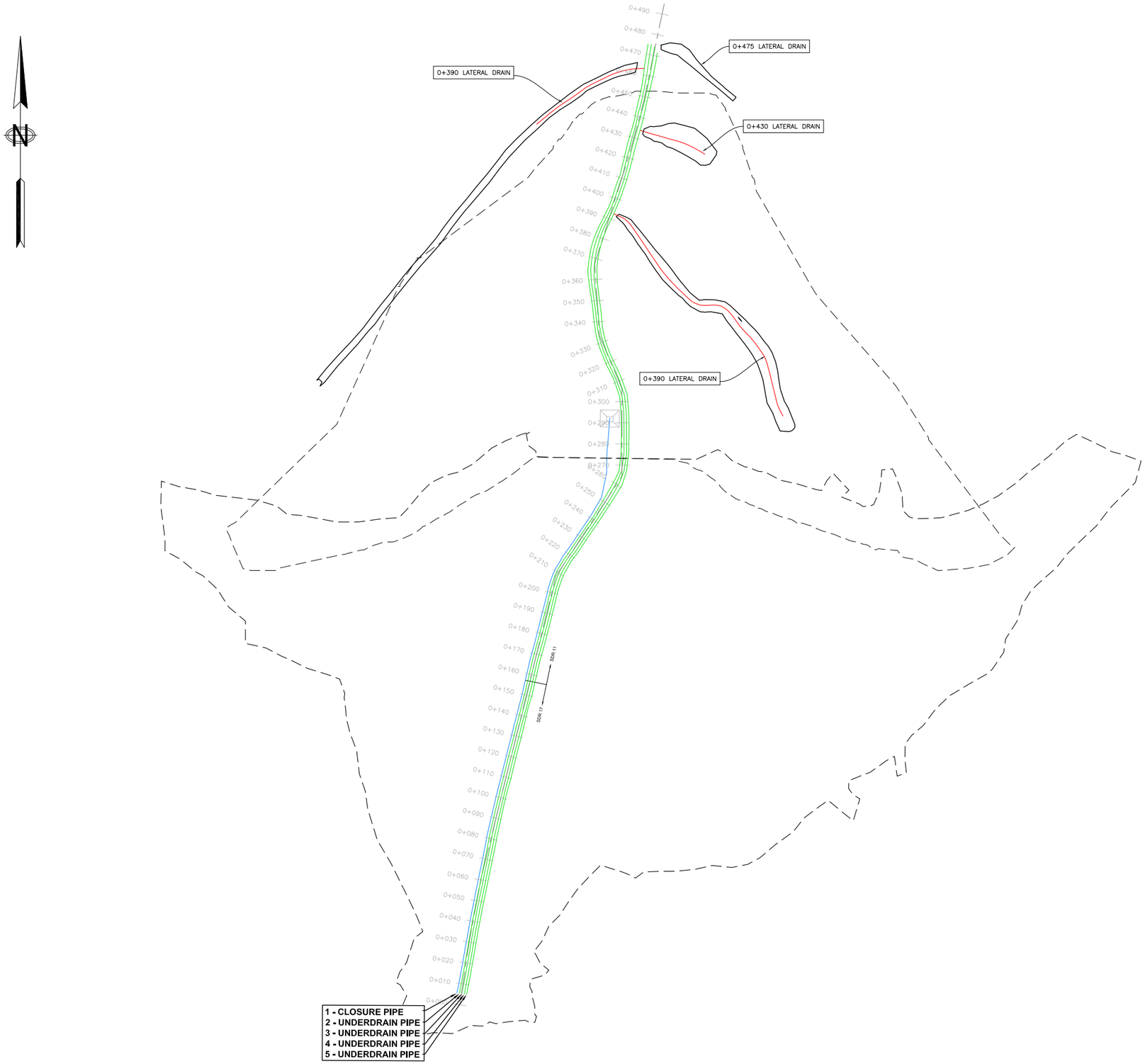
DATE: 18/09/22	DWG No: HLF-012-S2
SURVEYED: C.M./BAX	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 180922 HLF PRE-LINER SHAPING ASB 0+000 - 0+380.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. CLOSURE DRAIN PIPE SHOWN IN BLUE.
2. UNDERDRAIN PIPES SHOWN IN GREEN.
3. LATERAL DRAIN PIPES SHOWN IN RED.
4. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE26 TO SEPTEMBER 14, 2018.

UNDERDRAIN - OVERALL 2018 PROGRESS		
PIPE ID	**SDR 17**	**SDR 11**
1 - CLOSURE	153.17 m	134.46 m
2 - UNDERDRAIN	152.94 m	323.09 m
3 - UNDERDRAIN	152.74 m	323.24 m
4 - UNDERDRAIN	152.63 m	322.40 m
5 - UNDERDRAIN	152.46 m	319.94 m
TOTALS	**763.94 m**	**1423.13 m**

LATERAL DRAIN - PROGRESS TO DATE	
DRAIN ID	**LENGTH**
0+390	132.00 m
0+430	33.13 m
0+462.5	58.50 m
0+475	no pipe installed
TOTAL	**223.63 m**

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/04	CB	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PIPING INSTALLATION OVERALL PROGRESS

DRAWING SCALE: H 1:2000

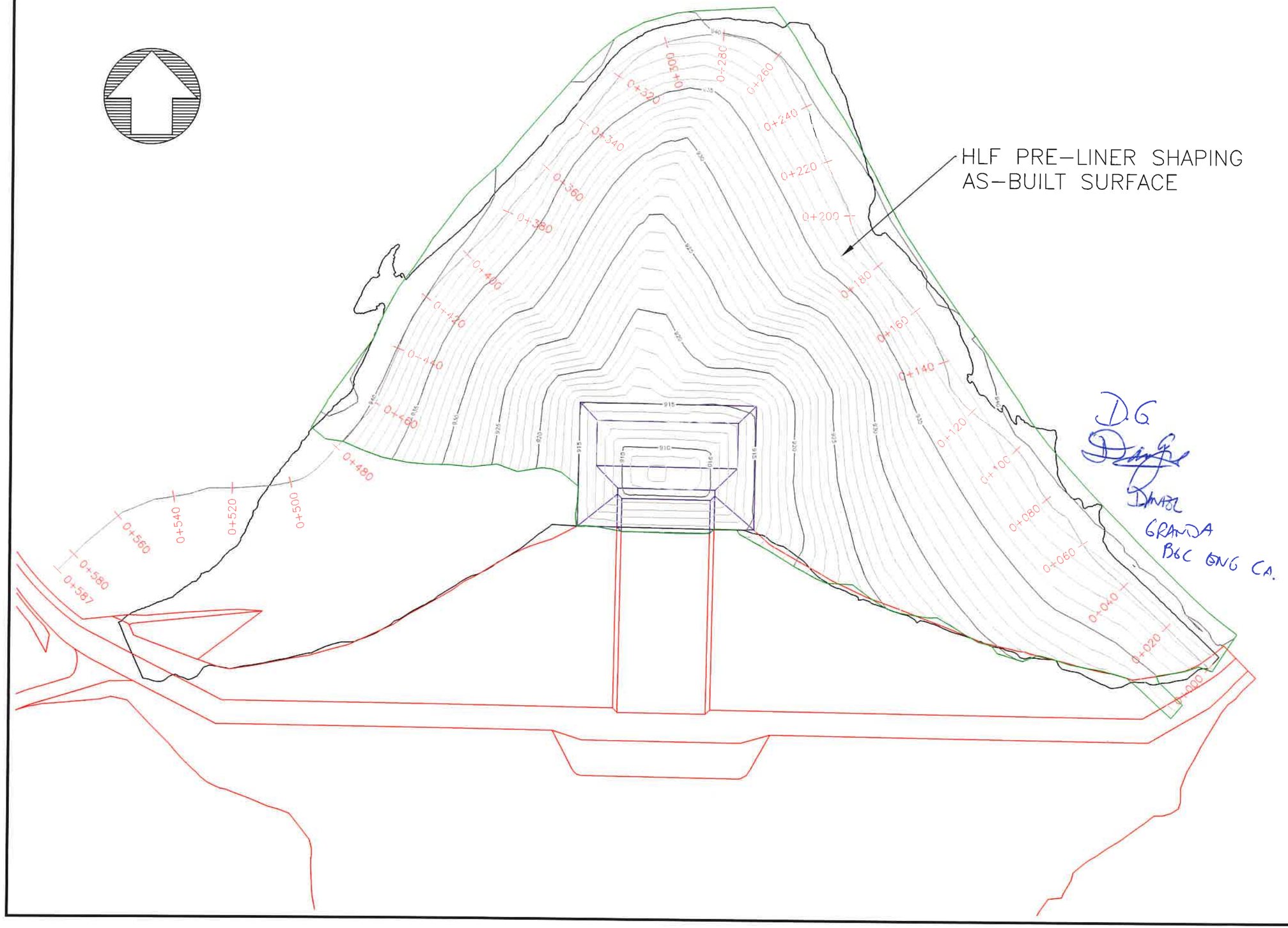
DATE:	18/10/04	**DWG No:**	184110-014
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CB, JB	**APPROVED:**	

DRAWING FILE: 181004 HLF EMB UD & LATERAL DRAINS OVERALL PROGRESS.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



D.G
D.G
DAVID
GRANJA
B&C ENG CA.

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
6.0	18/10/04	CM	ISSUED FOR INFORMATION

CLIENT:
Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE:
1:1250

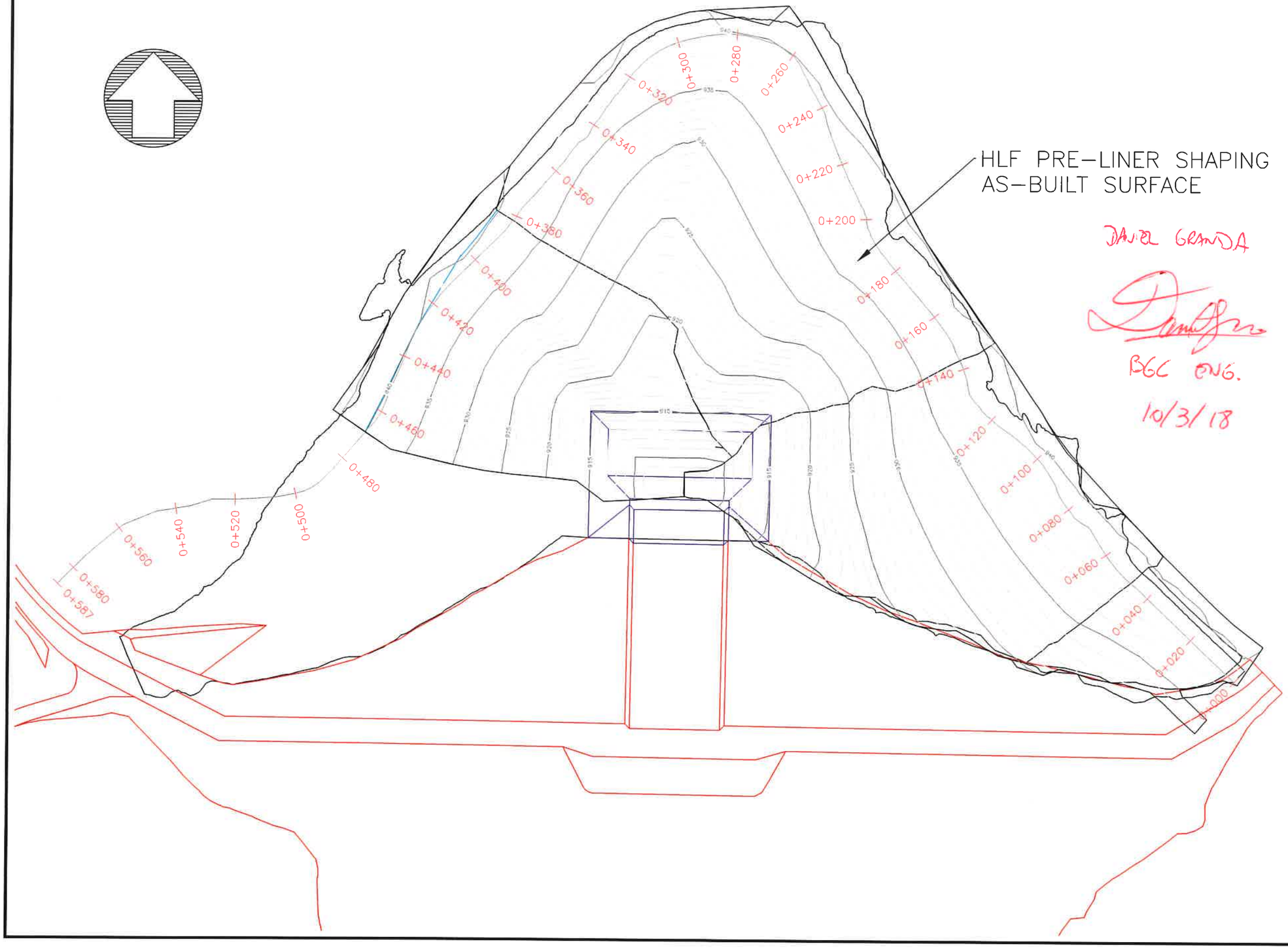
DATE:	18/10/04	DWG No:	HLF-012
SURVEYED:	C.M./BAX/E.J.	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE:
181004 HLF PRE-LINER SHAPING ASB.dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001



DANIEL GRANDA

BGC ENG.

10/3/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. SURFACE CONTOUR INTERVALS ARE SET AT 1M & 5M
2. RED LINES DENOTE EMBANKMENT DESIGN
3. PURPLE LINES DENOTE HLF SUMP DESIGN
4. BLACK LINE REPRESENTS BGC HLF DESIGN SURFACE BOUNDARY
5. SECTION APPROVALS ARE INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS SURVEYED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/30	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PRE-LINER TOPOGRAPHY SHAPING AS-BUILT 0+000 to 0+470

DRAWING SCALE: 1:1250

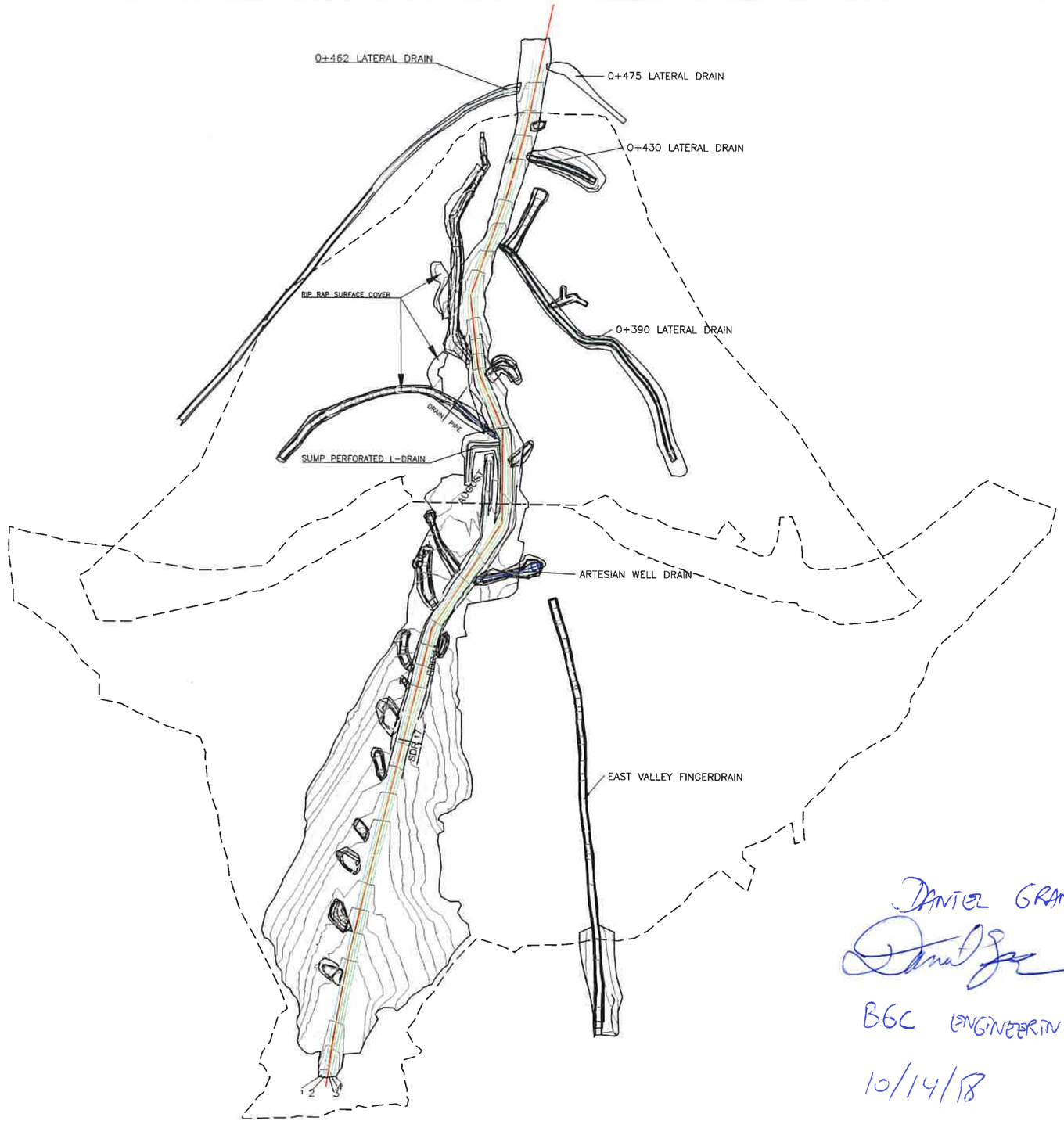
DATE: 18/09/30	DWG No: HLF-012-S3
SURVEYED: C.M./BAX/E.J.	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 180930 HLF PRE-LINER SHAPING ASB 0+000 - 0+470.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA

B&C ENGINEERING

10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. SHOWING FINGERDRAIN SURFACES ALONG CLOSURE AND UNDERDRAIN ALIGNMENT.
2. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 20 TO SEPTEMBER 17, 2018.
3. ALL SURFACES SURVEYED WITH GPS.
4. EACH FINGERDRAIN CONSISTS OF EXCAVATION, DRAIN ROCK AND REJECT SAND SURFACES UNLESS NOTED.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/22	BAX	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT OVERALL DRAIN INSTALLATION

DRAWING SCALE: H 1:2000

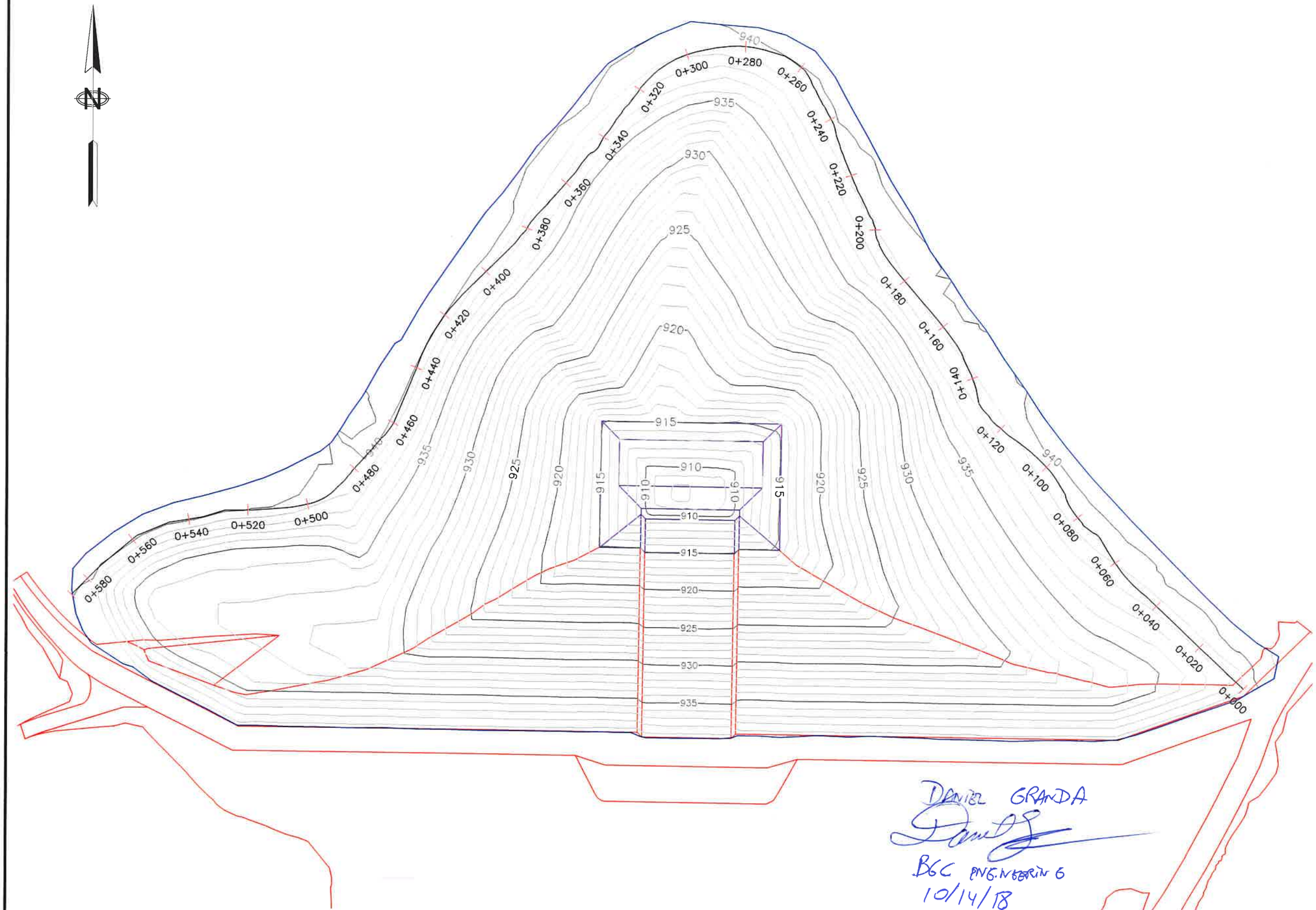
DATE:	18/09/25	DWG No:	184110-010
SURVEYED:	TEAM	CHECKED:	
DRAWN:	CM/BAX	APPROVED:	

DRAWING FILE: 180925 MASTER HLF EMB OVERALL DRAIN INSTALLATION ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA
BGC ENGINEERING
10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	100-302-CP-3D.dwg

DRAWING NOTES:

1. RED LINES DENOTE EMBANKMENT DESIGN
2. PURPLE LINES DENOTE HLF SUMP DESIGN
3. BLUE LINE REPRESENTS HLF AS-BUILT BOUNDARY
4. BLACK LINE DEONTES DESIGN HLF 940m BENCH ALIGNMENT
5. HLF SHAPING SURFACE IS INSPECTED BY BGC FIELD REPRESENTATIVE BEFORE FINAL PRE-LINER TOPOGRAPHY IS APPROVED
6. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/13	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

Eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF FINAL PRE-LINER TOPOGRAPHY SHAPING AS-BUILT

DRAWING SCALE: H 1:1250

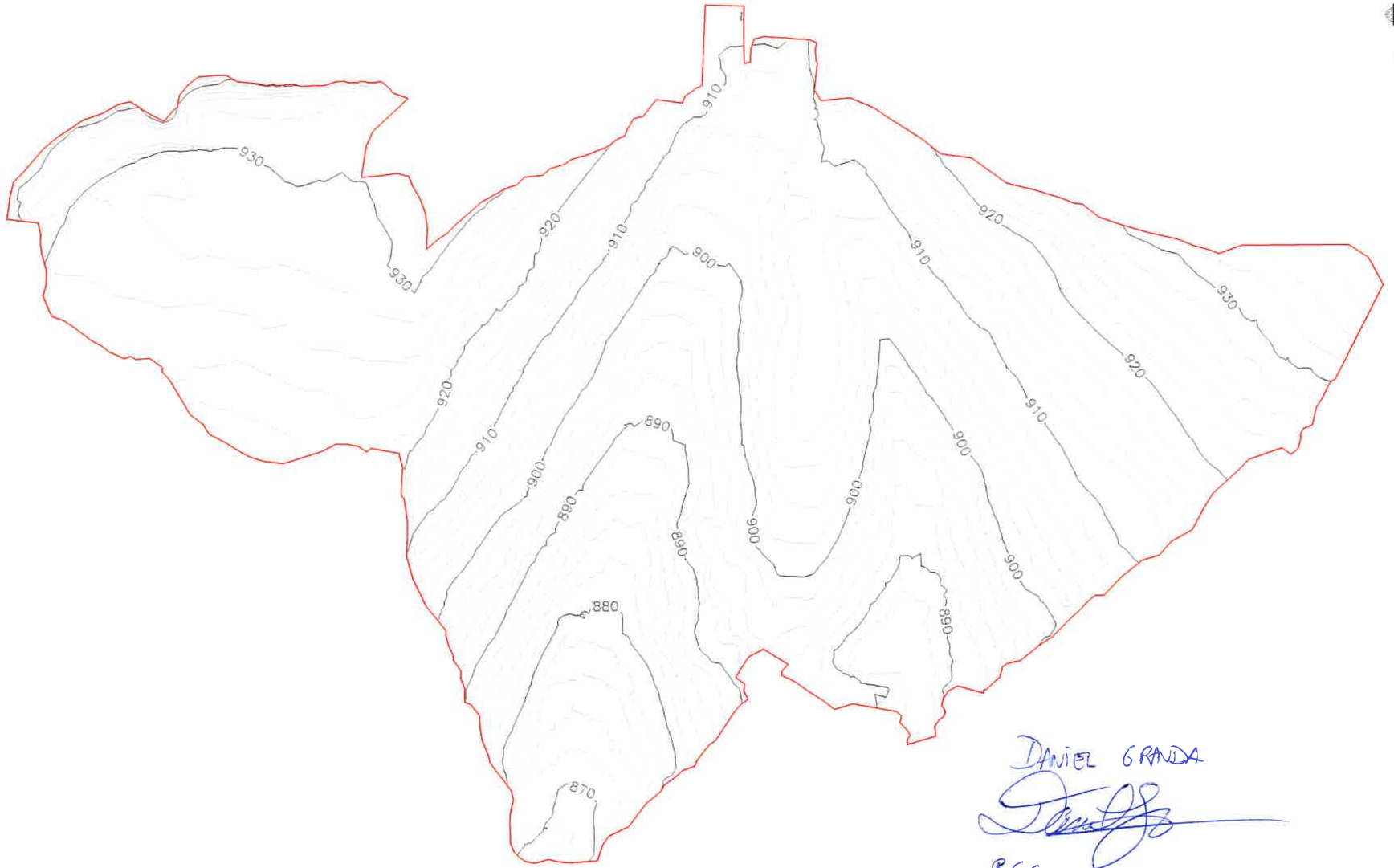
DATE: 18/10/13	DWG No: HLF-012-FINAL
SURVEYED: TEAM	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 181013 HLF PRE-LINER SHAPING ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA
BGC ENGINEERING
10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. DRAWING SHOWING EMBANKMENT EXCAVATION TO APPROVED TYPE 3 MATERIAL
2. SURFACE MATERIAL WAS INSPECTED AND APPROVED BY BGC REPRESENTATIVE PRIOR TO ALL TOPOGRAPHY AS-BUILT SURVEYS
3. CONTOUR INTERVAL = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/10/13	CM	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE CONSTRUCTION

TITLE:
HLF EMBANKMENT APPROVED TYPE 3 EXCAVATION AS-BUILT

DRAWING SCALE: H 1:1500

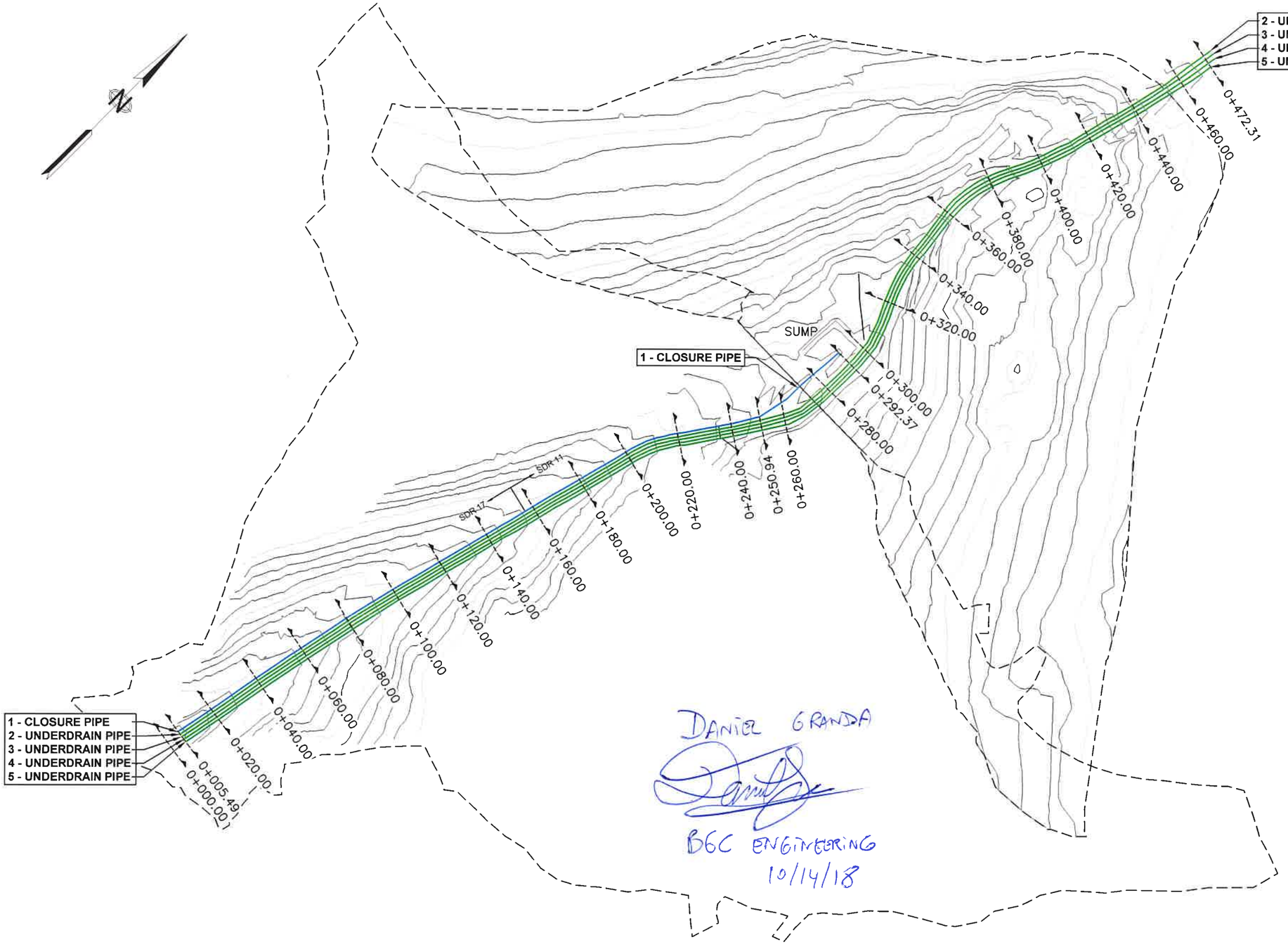
DATE: 18/10/13	DWG No: 184110-17
SURVEYED: TEAM	CHECKED:
DRAWN: C.M.	APPROVED:

DRAWING FILE: 181013 HLF EMB APPROVED TYPE 3 EXCAVATION ASB.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



DANIEL GRANDA

B&C ENGINEERING

10/14/18

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. CLOSURE DRAIN PIPE SHOWN IN BLUE.
2. UNDERDRAIN PIPES SHOWN IN GREEN.
3. AS-BUILT SURVEYS EXECUTED BETWEEN JUNE 26 AND SEPTEMBER 2, 2018.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/02	CB	ISSUED FOR INFORMATION
1.0	18/09/17	CB	ASBUILT ISSUE
2.0	18/09/25	CB	RE-ISSUED FOR ASBUILT

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF PIPING INSTALLATION SITE PLAN (ASBUILT)

DRAWING SCALE: H 1:1500

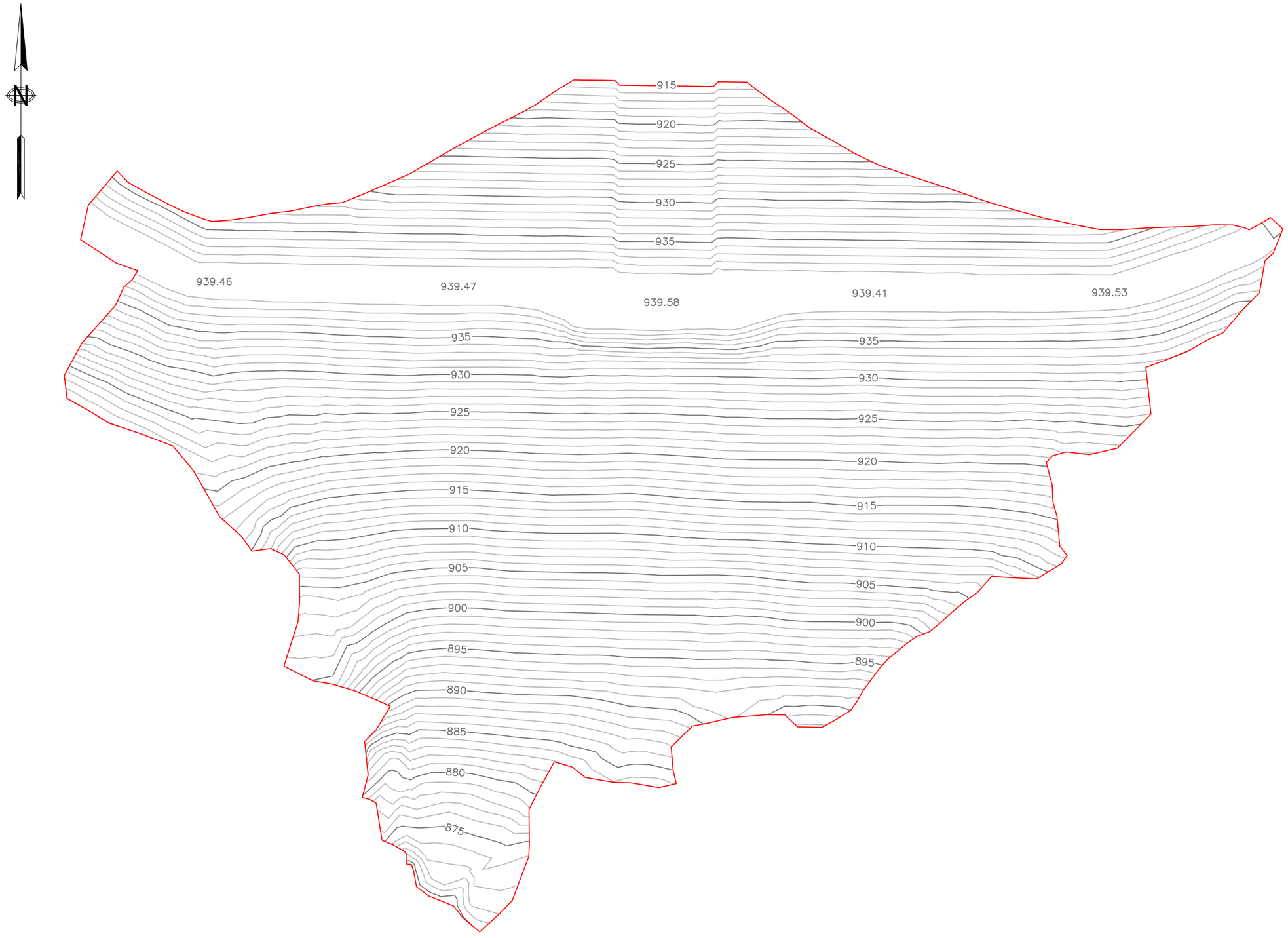
DATE:	18/09/25	DWG No:	184110-011
SURVEYED:	EJB SP CM	CHECKED:	
DRAWN:	JB CB FvD	APPROVED:	

DRAWING FILE: 180925 HLF EMB UNDERDRAIN AND CLOSURE PIPE ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. HLF EMBANKMENT FINAL AS-BUILT SURFACE SHOWN IN RED
2. CONTOUR INTERVAL = 1m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/11/03	CM	ISSUED FOR TURNOVER

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF EMBANKMENT FINAL AS-BUILT

DRAWING SCALE: H 1:1250

DATE:	18/11/03	DWG No:	184110-18
SURVEYED:	TEAM	CHECKED:	
DRAWN:	C.M.	APPROVED:	

DRAWING FILE: 181103 HLF EMBANKMENT SURFACE ASB - FINAL.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

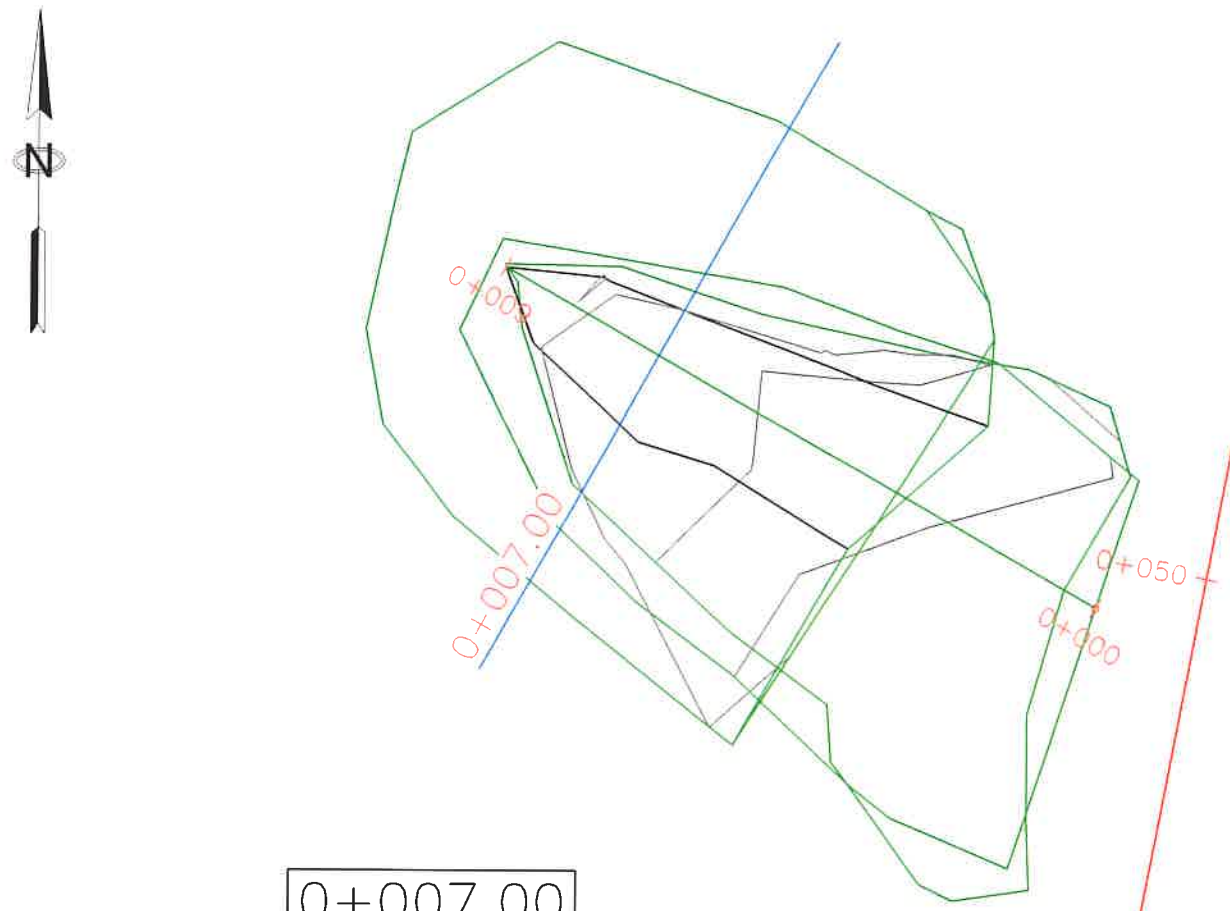
Contract No. **CC204**
ITP No. **006-A**
Date: **20-Jun-18**
Station: **STA 0+60 RT**

Pelly Construction Ltd.

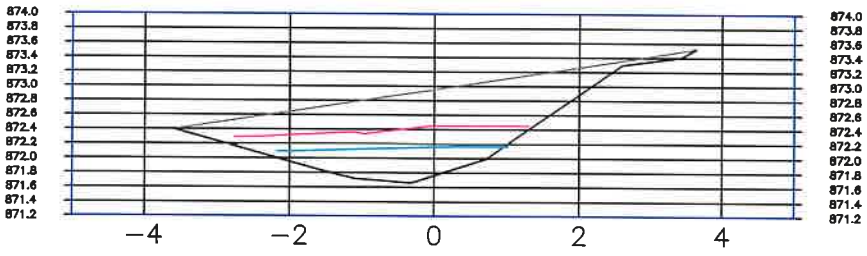
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	Jun			
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	SZ				
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	Jun			
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	Jun			
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	Jun			
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morden (print) _____ (sign) June 21, 2018 (date)

Contractor Rep: SHIPENG ZHENG (print) _____ (sign) June 21, 2018 (date)



0+007.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP STRUCTURAL FILL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+050

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD0050

DRAWING FILE: 180718 FINGERDRAIN 0+050

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

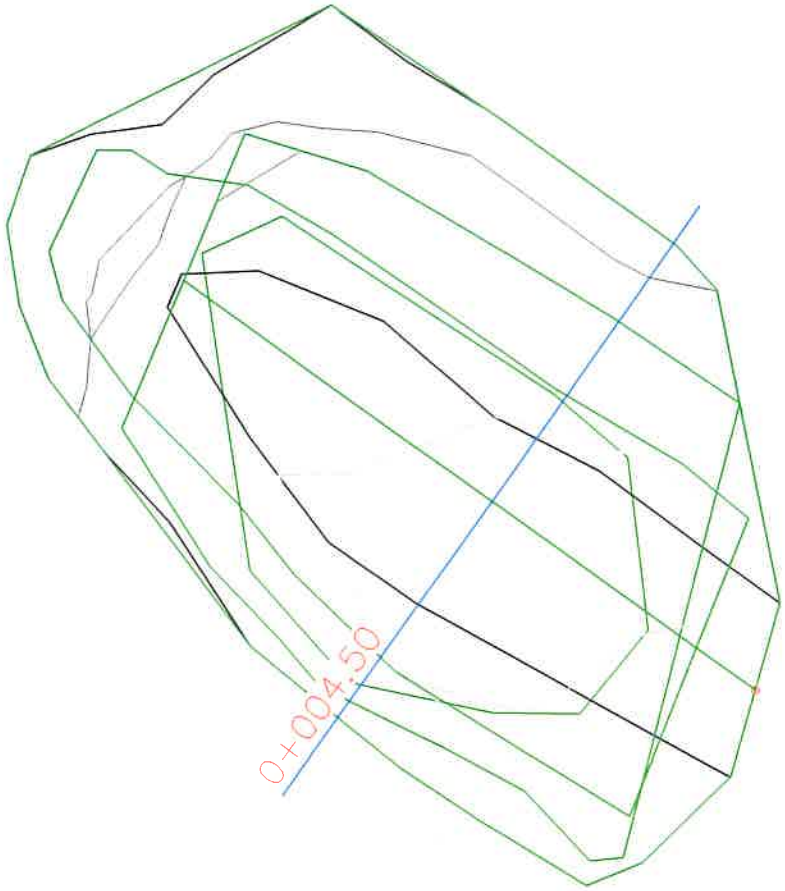
Contract No. **CC204**
ITP No. **006-B**
Date: **20-Jun-18**
Station: **STA 0+90 RT**

Pelly Construction Ltd.

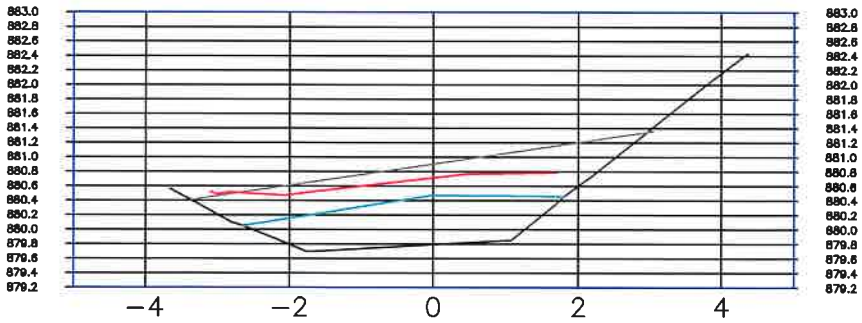
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	RM			
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	RM			
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	RM			
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	RM			
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	RM			
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	RM			
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	RM			
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	RM			
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mullen (print) RM (sign) June 21, 2018 (date)

Contractor Rep: SHIPENG ZHEN (print) (sign) June 21, 2018 (date)



0+004.50



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	D.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+090

DRAWING SCALE: H 1:100

DATE: 18/07/01 | DWG No: EMB-FD3090

DRAWING FILE: 180702 FINGERDRAIN 0+090

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **TBD**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-D**
Date: **20-Jun-18**
Station: **STA 0+100 RT**

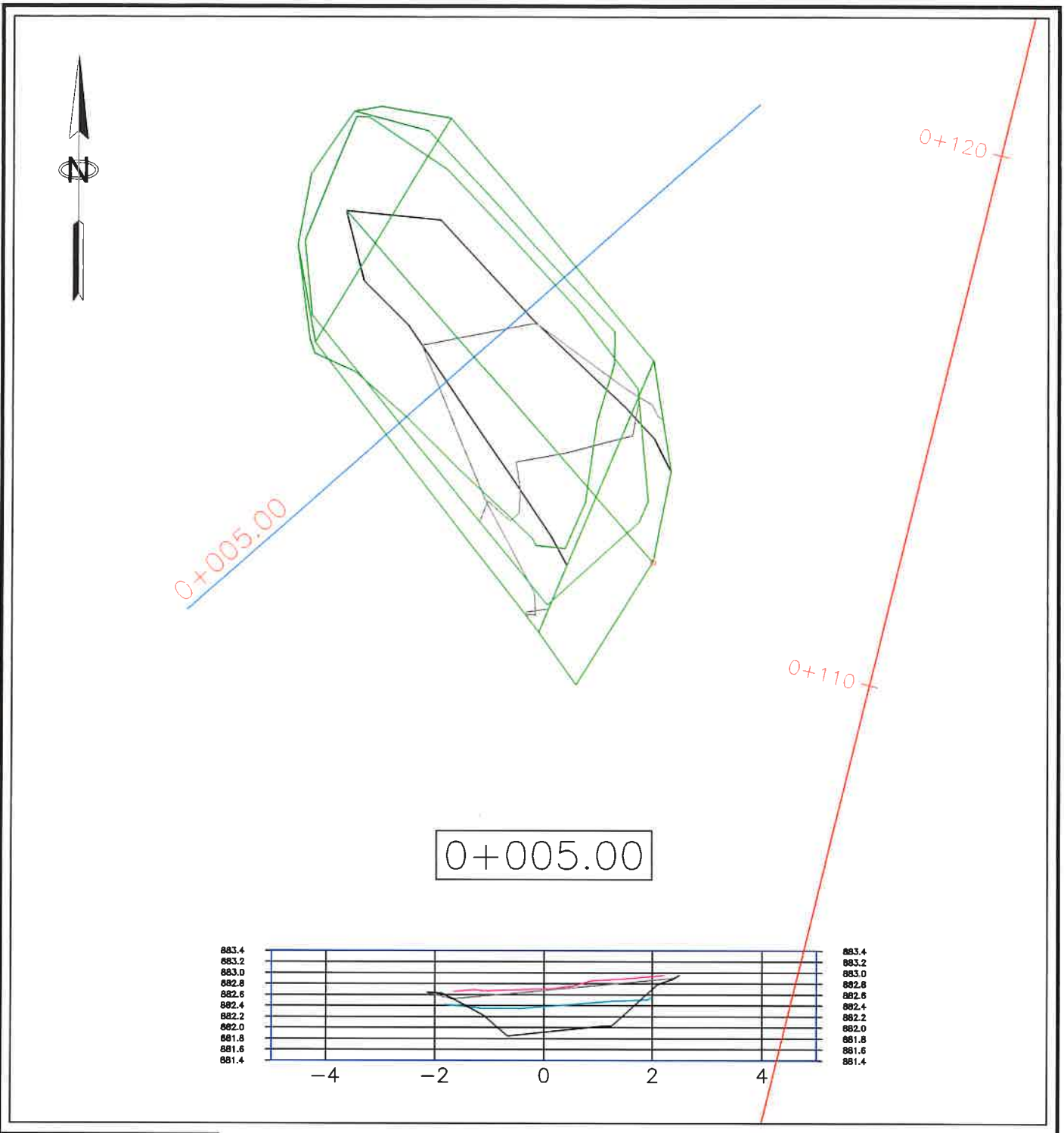
Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures					
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ		RM	625/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ		RM	625/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ		RM	625/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ		RM	625/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ		RM	625/18	

Client Rep: Ray Marlow — print; sign; 6-25-18 — date

Contractor Rep: SHIPENG ZHENG — print; sign; June 25, 2018 — date

* As built Pending RM 625/18



0+005.00

REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+110

DRAWING SCALE: H 1:100

DATE: 18/07/03 | DWG No: EMB-FD3110

DRAWING FILE: 180703 FINGERDRAIN_0+110

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

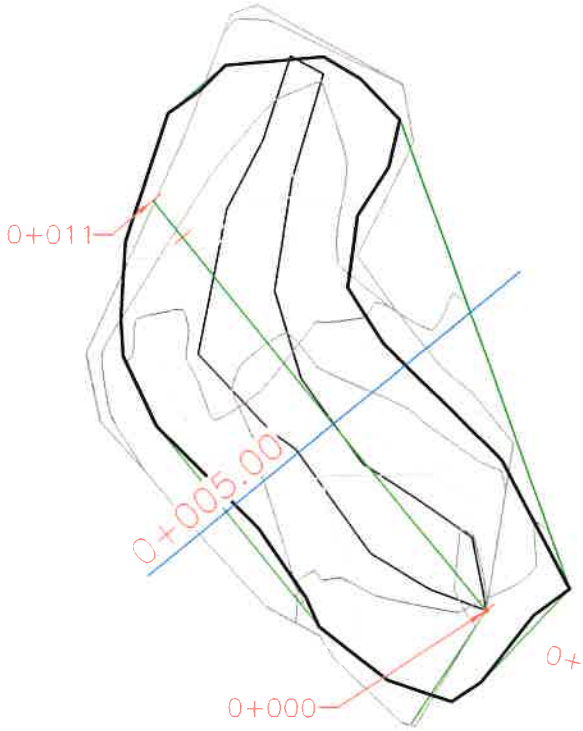
Contract No. **CC204**
ITP No. **006-E**
Date: **20-Jun-18**
Station: **STA 0+70 RT**

Pelly Construction Ltd.

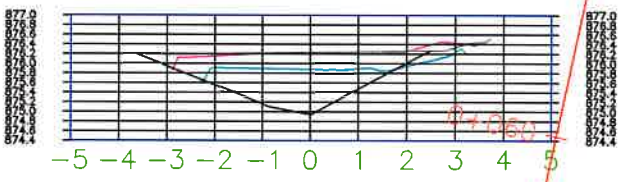
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DLine	7/10	EJF	7/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DLine	7/10	EJF	7/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DLine	7/10	EJF	7/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DLine	7/10	EJF	7/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DLine	7/10	EJF	7/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DLine	7/10	EJF	7/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DLine	7/10	EJF	7/10	

Client Rep: ETHAN FABER (print) _____ (sign) 07/10/18 (date)

Contractor Rep: _____ (print) _____ (sign) 07/10/18 (date)



0+005.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INT.	DESCRIPTION
1.0	18/07/19	CM	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX | DRAWN: BAX | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+070

DRAWING SCALE: H 1:150

DATE: 18/07/08 | DWG No: EMB-FD0070

DRAWING FILE: 180708 FINGERDRAIN 0+070

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

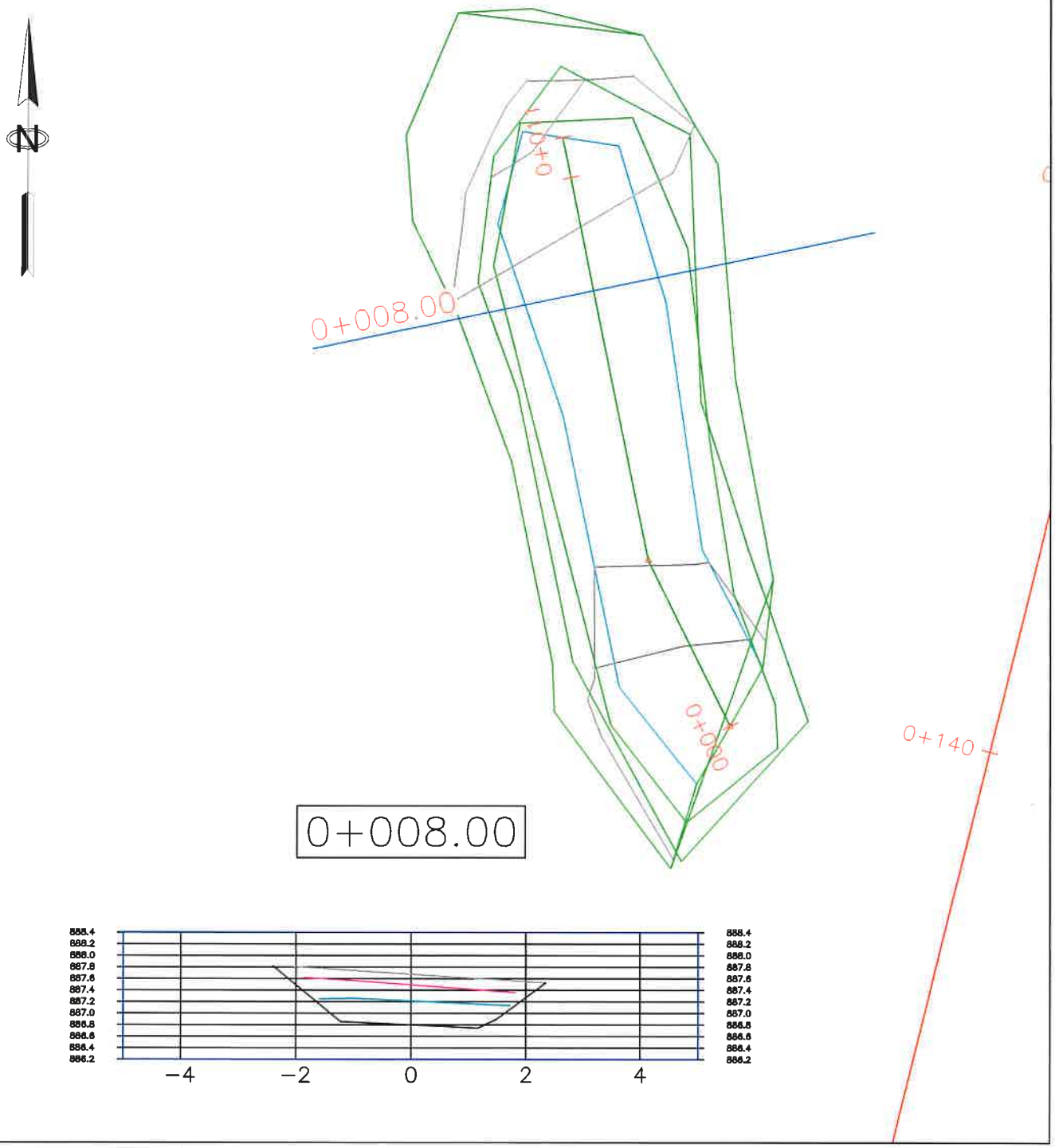
Contract No. **CC204**
ITP No. **006-F**
Date: **20-Jun-18**
Station: **STA ~~0+60~~ RT** D+140

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	Dino	7/10	EJF	7/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	Dino	7/10	EJF	7/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	Dino	7/10	EJF	7/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	Dino	7/10	EJF	7/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	Dino	7/10	EJF	7/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	Dino	7/10	EJF	7/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	Dino	7/10	EJF	7/10	

Client Rep: ETHAN FARGE _____ 07/10/18
print sign date

Contractor Rep: Daniel M. Oppie _____ 07/10/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+140

DRAWING SCALE: H 1:100

DATE: 18/07/18 | DWG No: EMB-FD0140

DRAWING FILE: 180718 FINGERDRAIN 0+140

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

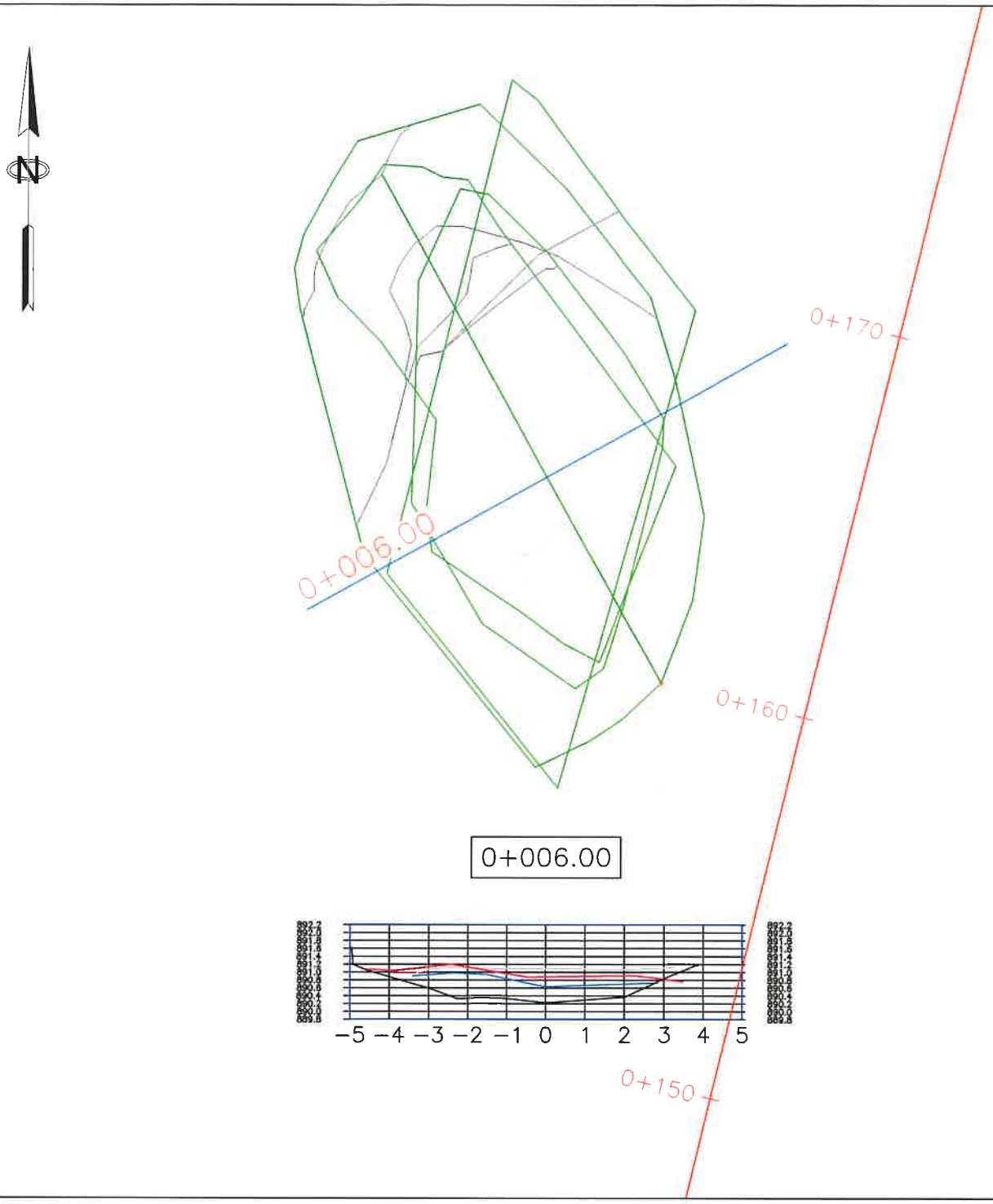
Contract No. **CC204**
ITP No. **006-G**
Date: ~~**20-Jun-18**~~ July 12TH 2018
Station: **STA 0+~~115~~ 160 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DAS	7/13/18	EJF	7/13	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DAS	7/13/18	EJF	7/13	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DAS	7/13/18	EJF	7/13	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DAS	7/13/18	EJF	7/13	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DAS	7/13/18	EJF	7/13	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DAS	7/13/18	EJF	7/13	

Client Rep: ETHAN FASER _____ 7/13/18
print sign date

Contractor Rep: DEAN SEKELA _____ 7/13/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

LEGEND:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+160

DRAWING SCALE: H 1:150

DATE: 18/07/03 DWG No: EMB-FD0160

DRAWING FILE: 180702 FINGERDRAIN 0+160

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

SURVEYED: BAX DRAWN: BAX CHECKED: APPROVED:

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

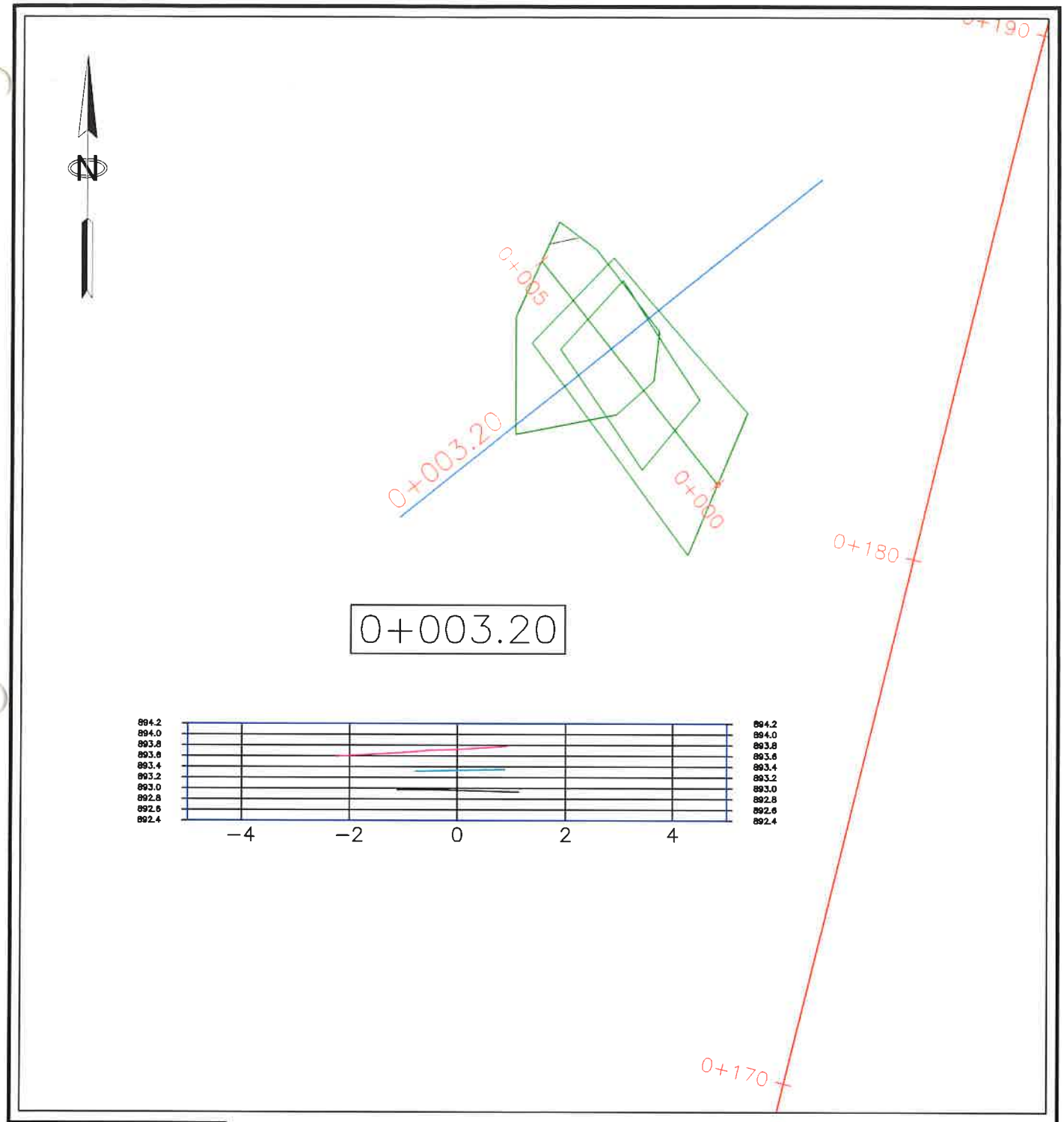
Contract No. **CC204**
ITP No. **006-H**
Date: **13-Jul-18**
Station: **STA 0+190 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	DAS	7/13/18	EJF	7/12/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	DAS	7/13/18	EJF	7/13/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	DAS	7/13/18	EJF	7/13/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	DAS	7/13/18	EJF	7/13/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/13/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	DAS	7/13/18	EJF	7/15/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	DAS	7/13/18	EJF	7/13/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	DAS	7/13/18	EJF	7/13/18	

Client Rep: ETHAN FABER (print)  (sign) 7/13/18 (date)

Contractor Rep: DEAN SERETO (print)  (sign) 7/13/18 (date)



0+003.20

REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/19	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDE DRAIN 0+~~110~~ 180

DRAWING SCALE: H 1:100

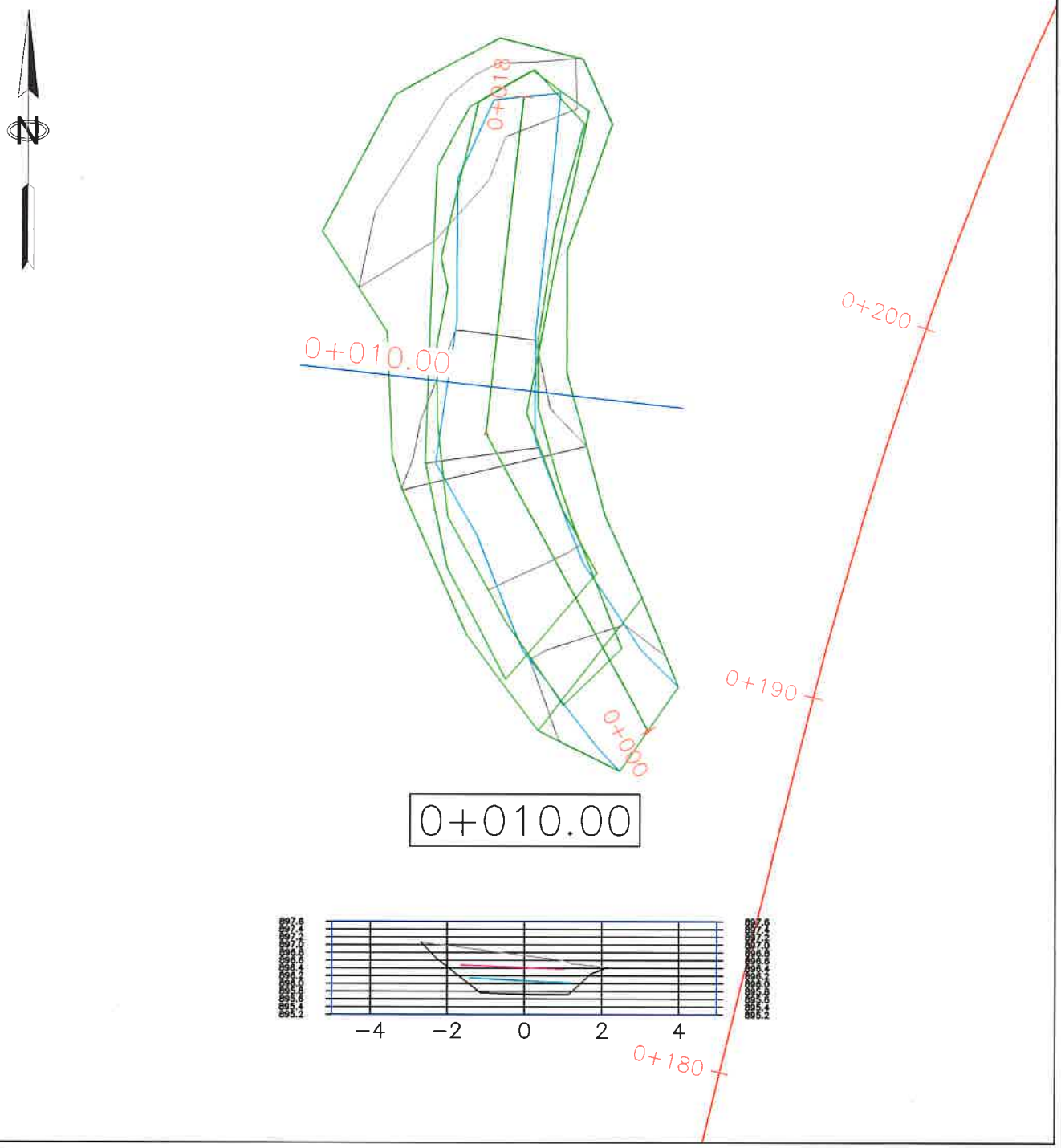
DATE: 18/07/19 DWG No: EMB-SD0180

DRAWING FILE: 180719 SIDEDRAIN 0+180

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/18	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+190

DRAWING SCALE: H 1:150

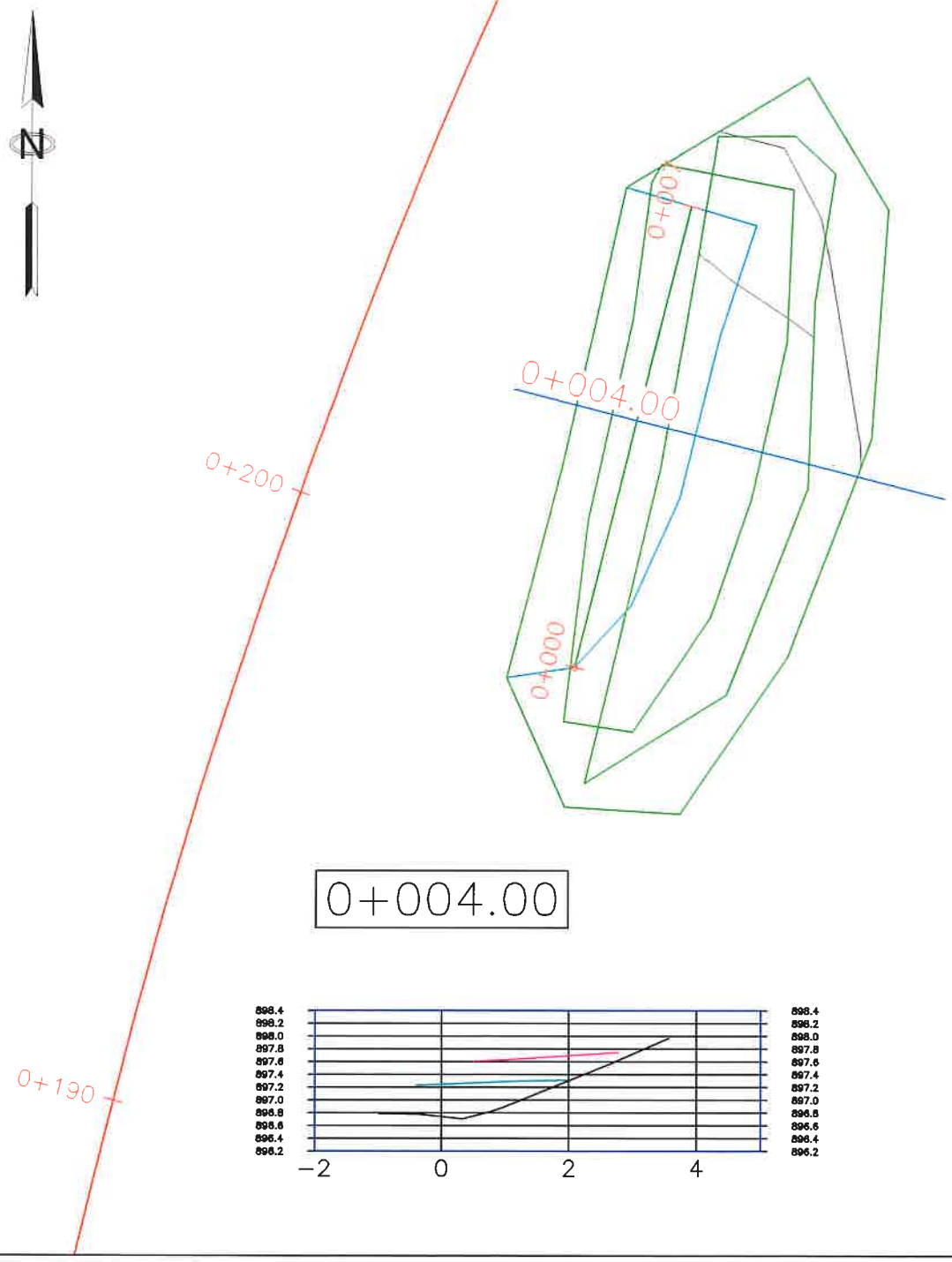
DATE: 18/07/18 DWG No: EMB-FD0190

DRAWING FILE: 180703 FINGERDRAIN 0+190

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/22	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT SIDEDRAIN 0+200

DRAWING SCALE: H 1:100

DATE: 18/07/22 | DWG No: EMB-SD0200

DRAWING FILE: 180722 FINGERDRAIN 0+220

DRAWING VIEW: 8.5x11 Portrait

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

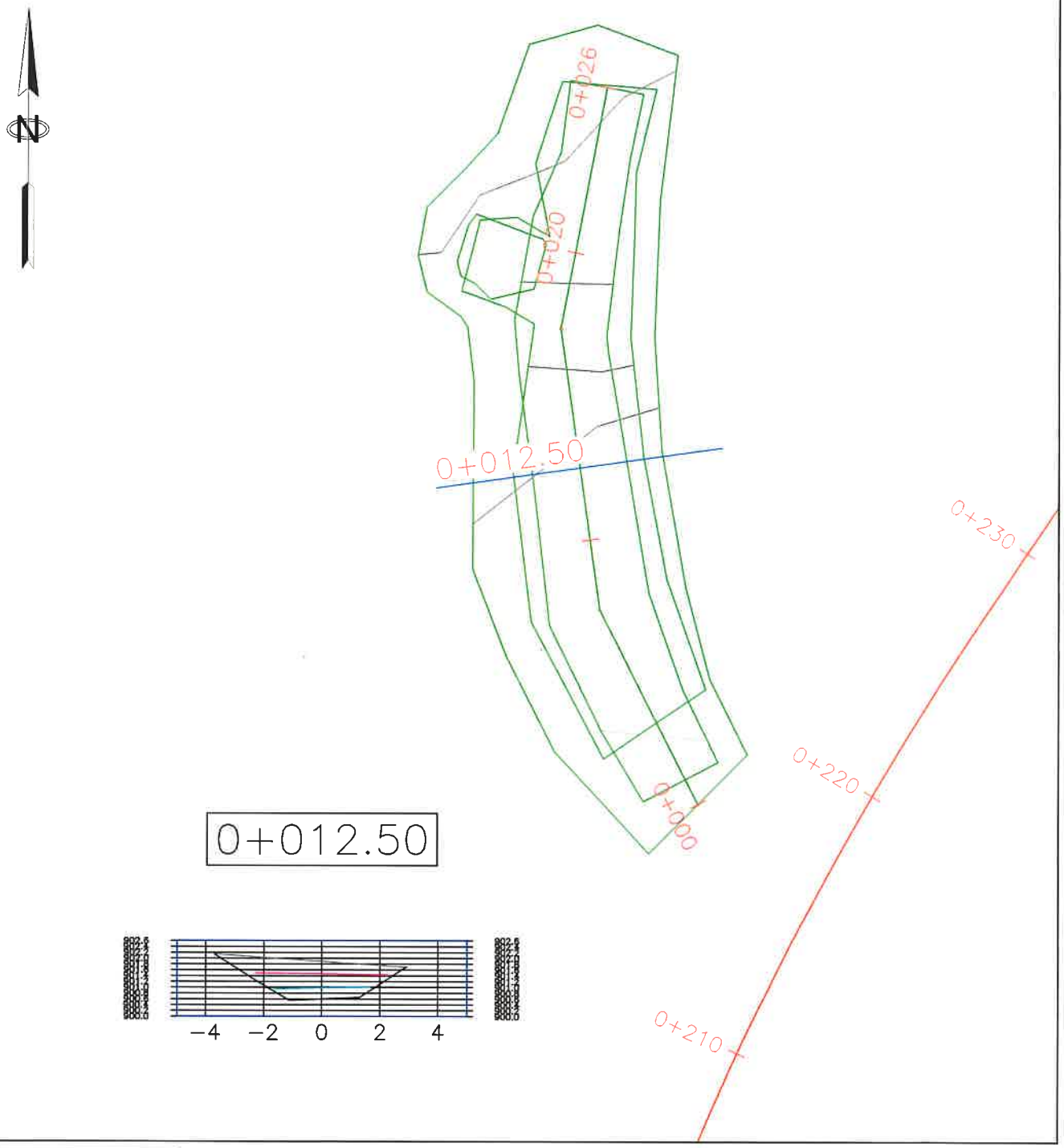
Contract No. **CC204**
ITP No. **006-I**
Date: **13-Jul-18**
Station: **STA 0+220 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SS	July 22/18	D.6	July 23/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SS	July 22/18	D6	July 23/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SS	Jul 22/18	D6	July 23/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D 6	July 23/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SS	Jul 22/18	D.6	July 23/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morlan _____ 11-27-18
print sign date

Contractor Rep: DEAN SEREDA _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/07/21	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+215

DRAWING SCALE: H 1:200

DATE: 18/07/21 | DWG No: EMB-FD215

DRAWING FILE: 180721 FINGERDRAIN 0+215

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Artesian**
Date: **30-Jul-18**
Station: **STA**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	8-6-18	RM	8-6-18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	YF	8-6-18	RM	8-6-18	
1.3	Artesian drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8-6-18	RM	8-6-18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	YF	Aug 6/18	RM	8-6-18	
1.5	Engineers approval of drain excavation *	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8-6-18	RM	8-6-18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.7	Installation of ~~select~~ ODF or Concrete aggs drain fill to minimum of 0.3m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.8	Iinstallation of SDR 11 perforated pipe loop	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	YF	8-6-18	RM	8-6-18	
1.9	Installation of select drain fill to minimum of 0.7m above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.10	Installation of the bentonite plug	Install the betonite plug	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.11	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.12	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.13	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.14	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

*Min excavation changed from 3m to 2m

Upstream from bentonite plug material changed from select drain fill to ODF and concrete aggregate

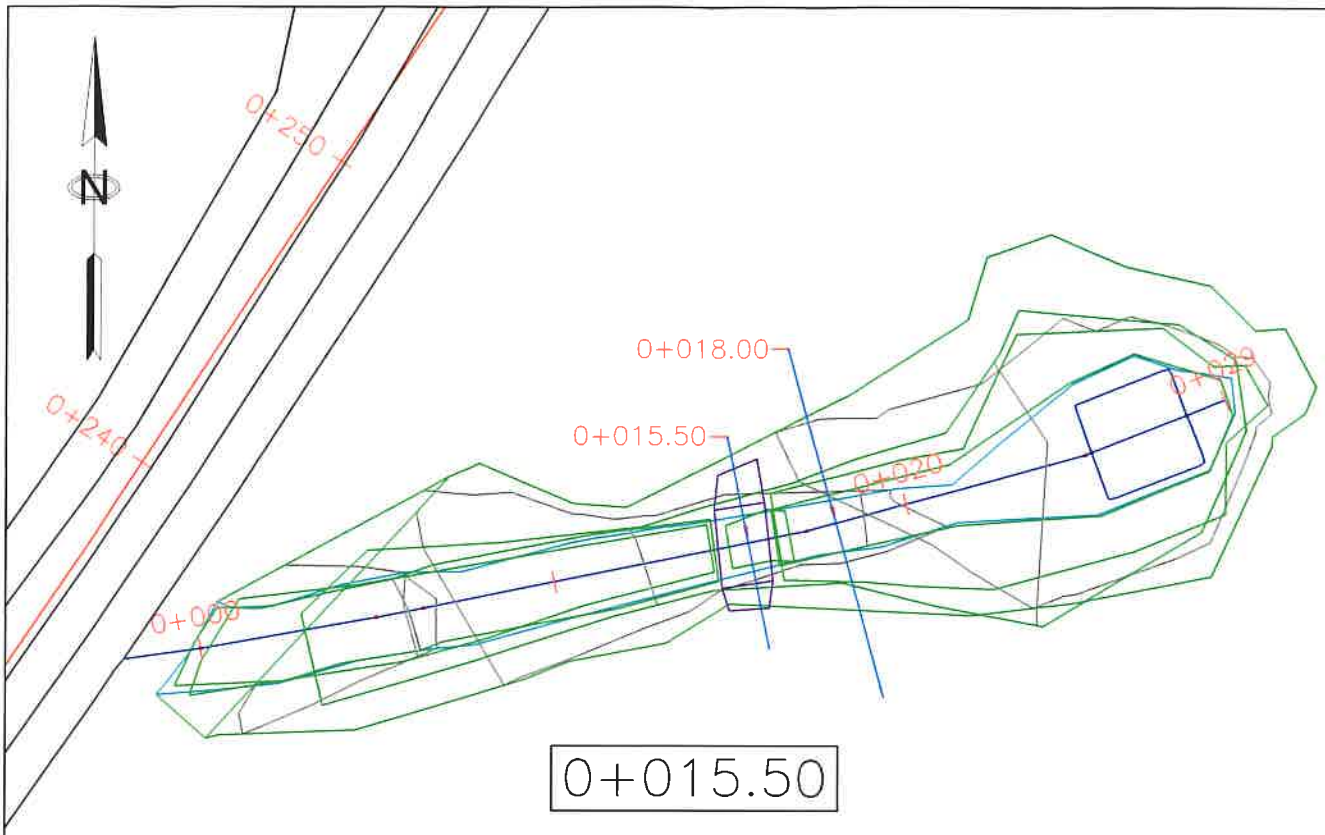
Min 0.1m drain fill below pipe

Client Rep: Roy Morlan _____ 11-27-18
print / sign / date

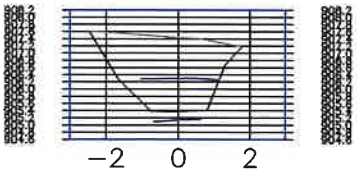
Contractor Rep: DEAN SERGEO _____ 11/27/18
print / sign / date

also other changes: See as built

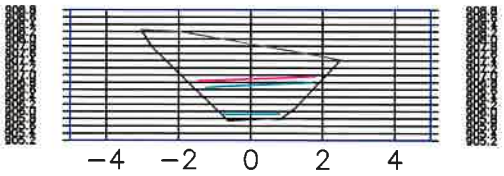
Roy Morlan _____ 8-6-18



0+015.50



0+018.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11
- BENTONITE PLUG

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
1.0	18/07/19	CM	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: BAX & SP | DRAWN: CM

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT ARTESIAN WELL DRAIN

DRAWING SCALE: H 1:200

DATE: 18/08/11 | DWG No: EMB-AW023

DRAWING FILE: 180811 ARTESIAN WELL DRAIN COMPLETE ASB.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

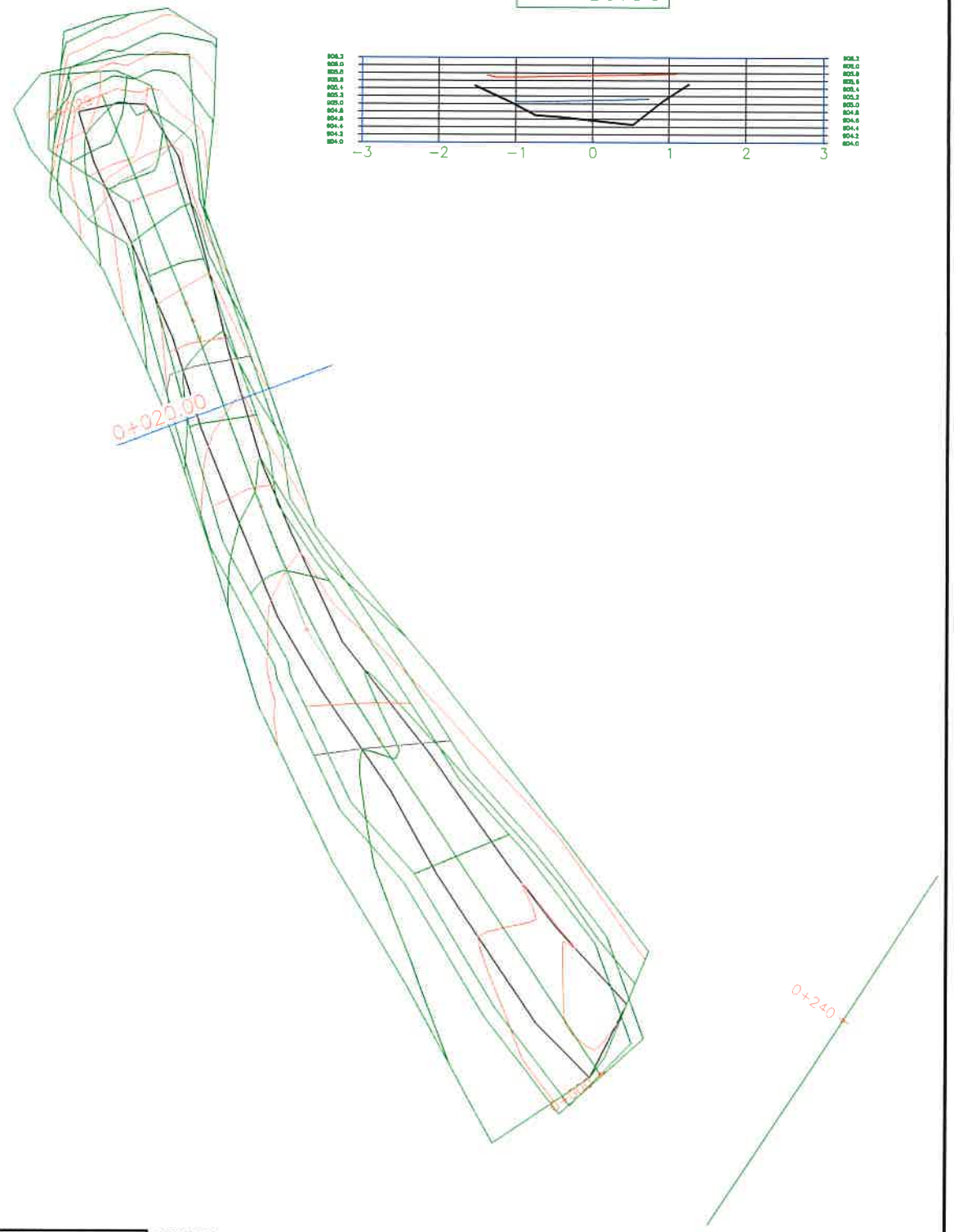
Contract No. **CC204**
ITP No. **006-J**
Date: **31-Jul-18**
Station: **STA 0+240 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	08/18/18	H.V.	08/18/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms			H.V.	08/18/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	08/18/18	H.V.	08/18/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	〃	H.V.	08/18/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/18/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/18/18	
1.7	Installation of select drain fill to minimum of 0.20m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.9	Place and compact minimum 0.2m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	〃	H.V.	08/14/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	〃	H.V.	08/14/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	SZ	〃	H.V.	08/14/18	

Client Rep: Harra Vardeleon (print) (sign) 08/14/18 (date)

Contractor Rep: SHIPENG ZHENG (print) (sign) 08/18/18 (date)



REFERENCE DRAWINGS:	
NO.	DRAWING FILE
01	HLF UNDERDRAIN AND CLOSURE ALIGNMENT

DRAWING NOTES:

LEGEND

- SAND
- GRAVEL
- TRENCH

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0-0	17/XX/01	CB	ISSUED FOR...

eshemuta Construction Surveyors

SURVEYED: C.B. DRAWN: C.B.

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+235 BLANKET DRAIN SECTION

DRAWING SCALE: H 1:100

DATE: 18/08/18 DWG No: EMB-FD-0235

DRAWING FILE: 180818 0235 BLANKET DRAIN SECTION dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Closure Sump Interceptor Drain**
Date: **06-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

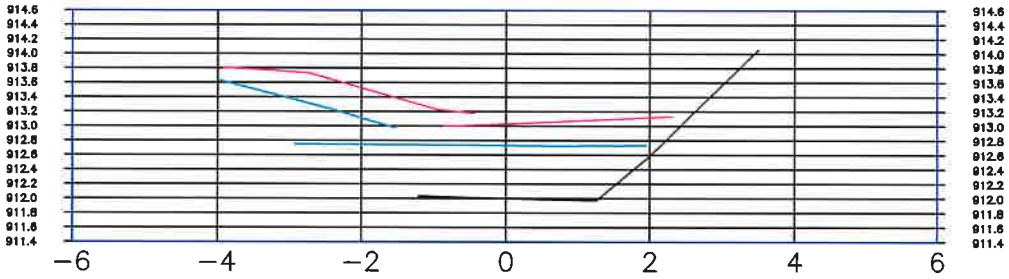
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	8-8-18	RM	8-8-18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	YF	8-8-18	RM	8-8-18	
1.3	Closure sump interceptor drain design	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8-8-18	RM	8-8-18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	12/8/18	H.V.	08/14/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8-8-18	RM	8-8-18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.7	Installation of ODF or Concrete Aggregate below pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.8	Iinstallation of SDR 11 perforated piping	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.9	Installation of ODF or Concrete Aggregate above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.10	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.11	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	12/8/18	H.V.	08/14/18	
1.12	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested					
1.13	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mowlam _____ 11-27-18
print / sign / date

Contractor Rep: DEAN SORELL _____ 11/27/18
print / sign / date



0+013.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. | DRAWN: C.M. | CHECKED: | APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN L-DRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-LD

DRAWING FILE: 180725 FINGERDRAIN L-DRAIN.dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT**
Revision: **0**

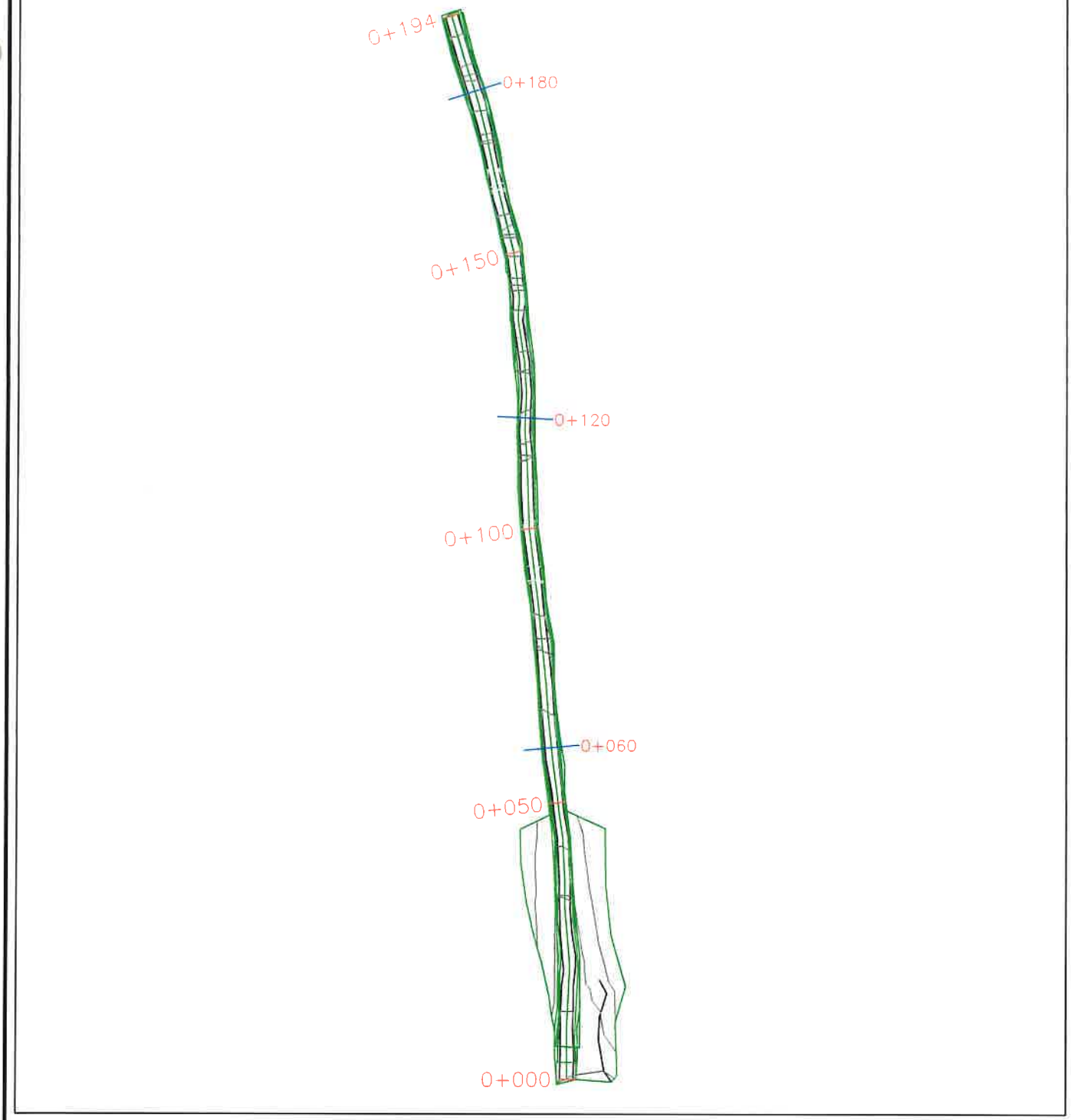
Contract No. **CC204**
ITP No. **006-East Underdrain**
Date: **14-Aug-18**
Station: **East Valley EMB Footprint**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	18/08/18	CKM	18/08/19	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Underdrain design drawing (Verbal direction from BGC)	Verbal requirements received from BGC Engineer	Contractor/Client	Design Received	SZ	18/08/18	CKM	18/08/19	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	18/08/18	CKM	18/08/19	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.7	Installation of select drain fill to minimum of 0.70m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	18/08/18	CKM	18/08/19	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	18/08/18	CKM	18/08/19	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Morlan _____ 11-27-18
print sign date

Contractor Rep: DEAN SOREN _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:1000

DATE: 18/08/25 | DWG No: EMB-FD-EV

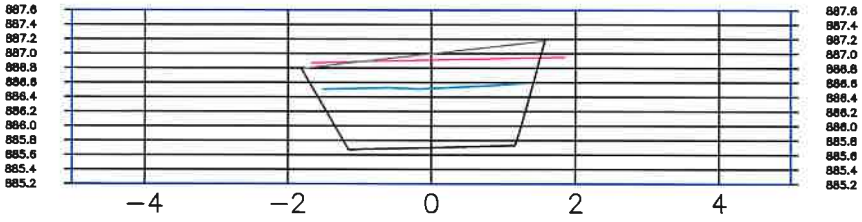
DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

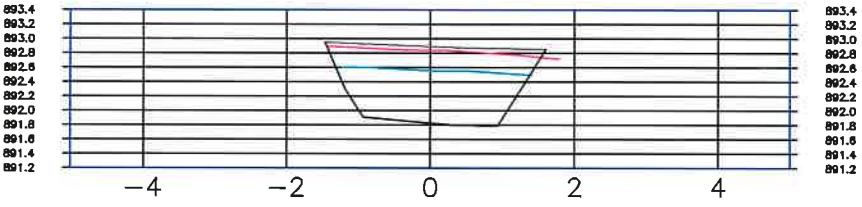
PROJECT NO.: 17003

SHEET: 001

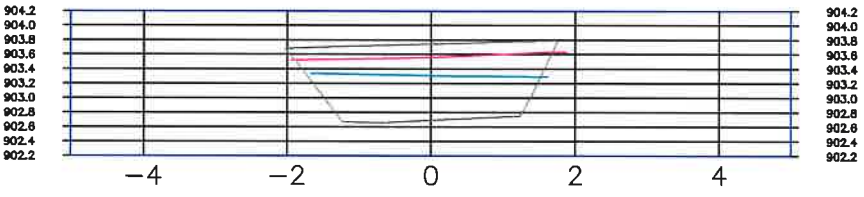
0+060.00



0+120.00



0+180.00



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/08/25	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: SP, CM, CJ | DRAWN: C.M.

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT EAST VALLEY FINGERDRAIN

DRAWING SCALE: H 1:100

DATE: 18/08/25 | DWG No: EMB-FD-EV2

DRAWING FILE: 180825 FINGERDRAIN EAST VALLEY.dwg

DRAWING VIEW: 8.5x11 Portrait

SHEET: 001

PROJECT NO.: 17003

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT BLANKET DRAIN**
Revision: **0**

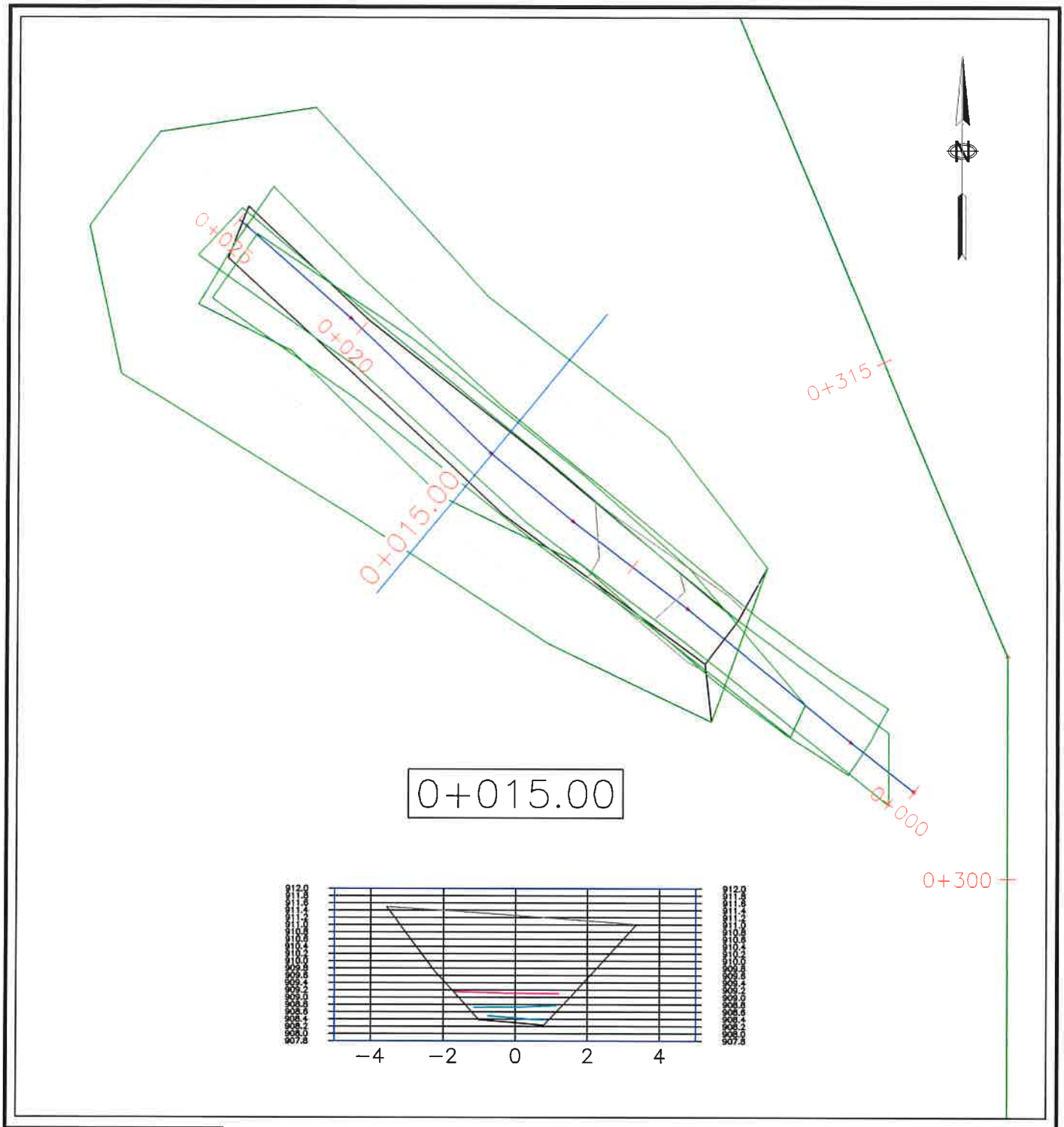
Contract No. **CC204**
ITP No. **006-K**
Date: **18-Aug-18**
Station: **HLF In-heap Sump**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	SZ	08/18/18	EFM	08/19/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	SZ	08/18/18	EFM	08/19/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	SZ	08/18/18	EFM	08/19/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.7	Installation of select drain fill to minimum of 0.3m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	SZ	08/18/18	EFM	08/19/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	SZ	08/18/18	EFM	08/19/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

Client Rep: Roy Mullen _____ 11-27-18
print sign date

Contractor Rep: DEAN SERESS _____ 11/27/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

- TYPE 3 MATERIAL
- TOP TYPE 2 MATERIAL
- TOP DRAIN ROCK
- EXCAVATION
- PERFORATED 150mm SDR11

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	18/09/12	C.M.	ISSUED FOR INFORMATION

eshemuta Construction Surveyors

SURVEYED: C.M. DRAWN: C.M. CHECKED: APPROVED:

CLIENT: Pelly Construction Ltd.

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: HLF EMBANKMENT FINGERDRAIN 0+300

DRAWING SCALE: H 1:150

DATE: 18/07/18 DWG No: EMB-FD0300

DRAWING FILE: 180912 HLF FINGERDRAIN 0+300 ASB dwg

DRAWING VIEW: 8.5x11 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-Upslope In Heap Interceptor Drain**
Date: **21-Aug-18**
Station: **Closure Sump**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	YF	Aug 25/18	[sig]	8/25	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms					
1.3	Closure sump interceptor drain design	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	YF	8/25	[sig]	8/25	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	YF	8/25	[sig]	8/25	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.7	Installation of ODF or Concrete Aggregate below pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.8	Iinstallation of SDR 11 perforated piping	Install the perforated pipe as per design	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.9	Installation of ODF or Concrete Aggregate above the pipe	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.10	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.11	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	YF	8/25	[sig]	8/25	
1.12	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	YF	8/25	[sig]	8/25	
1.13	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP					

* DRAIN WAS EXTENDED WEST UPSLOPE TO TIE INTO EXFILTRATION TRENCH CAPTURING MELT WATER; EXCAVATION WAS 1.5m BELOW LINER SURFACE AND WIDTH OF LB 490 EXCAVATOR BUCKET; NO GEOTEXTILE REQUIRED AS PER BGC; EXTENSION WAS FILLED WITH 0.5m of RIP RAP MATERIAL; MINIMUM 0.45m OF STRUCTURAL FILL WAS PLACED AND COMPACTED ABOVE. [sig] 9/18/2018

Client Rep: Roy McLean [sig] 11-27-18
print sign date

Contractor Rep: DEAN SERGO [sig] 11/27/18
print sign date

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

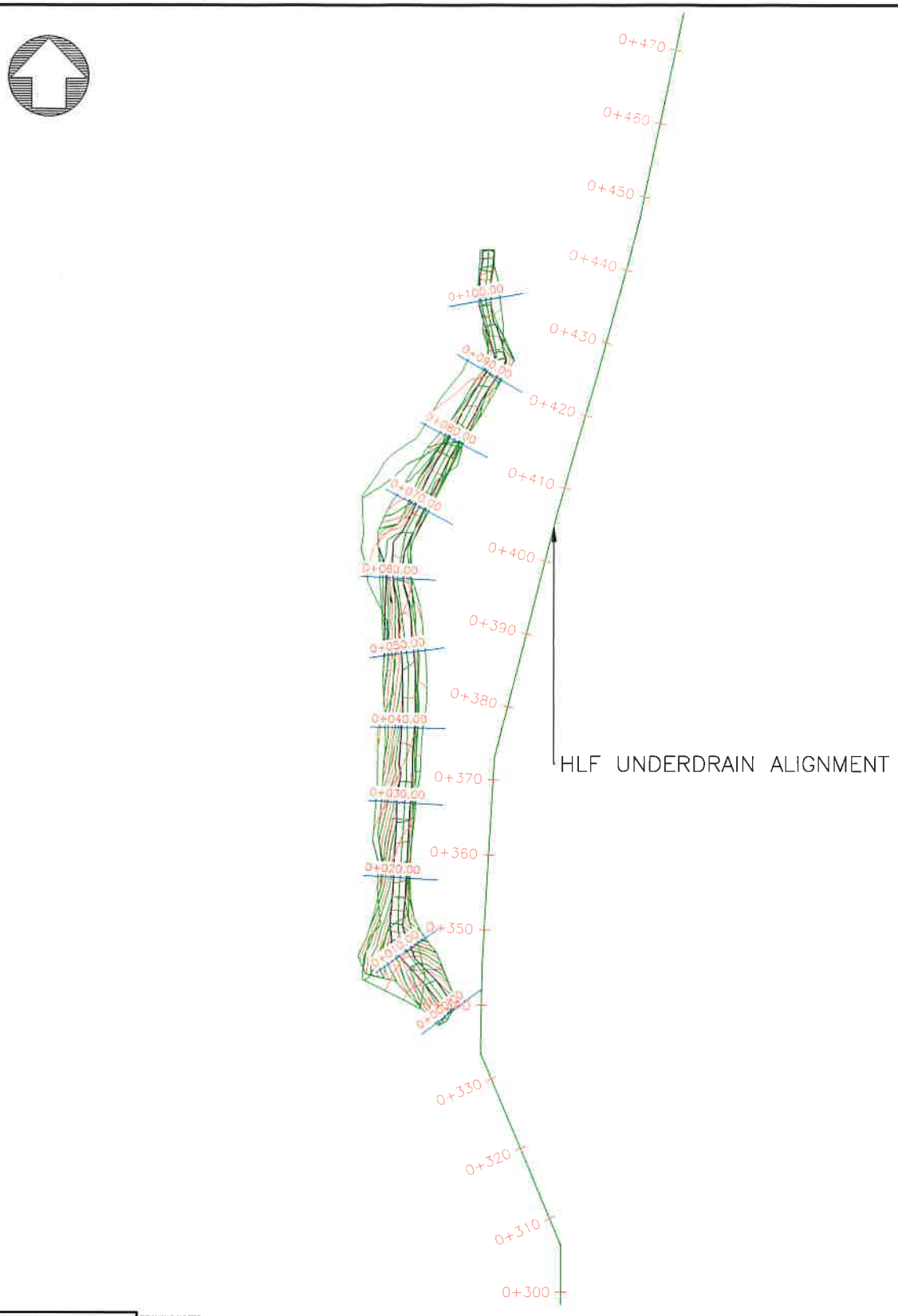
Contract No. **CC204**
ITP No. **006-L Perimeter Drain**
Date: **07-Sep-18**
Station: **STA 0+340 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/7/18	EJF	9/8/18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.50m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.30m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Place 12oz non woven geotextile on top of 0.30m SDF	Geotextile to fully cover layer of SDF extending upslope on bank	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place rock material on top of geotextile	Rock to cover geotextile extending upslope on bank	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material 2 or material 3 to be placed where rock material not needed	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: ETHAN FARRER _____ 9/8/18
print sign date

Contractor Rep: DEAN SERETO _____ 9/7/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE
01	Xref.dwg

DRAWING NOTES:

1 SHOWING FINGERDRAIN INSTALLED AT 0+0340 OF UNDERDRAIN TRENCH

ISSUES:			
REV.	YY/MM/DD	INT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

eshemuta Construction Surveyors

SURVEYED: C B | DRAWN: BAX

CLIENT: Pelly Construction Ltd.

CHECKED: | APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN 0+340

DRAWING SCALE: H 1:500

DATE: 18/09/12 | DWG No: EMB-FD-0340

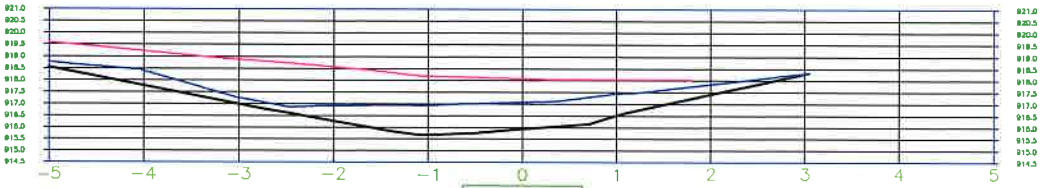
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DRAWING VIEW: 11x17 Portrait

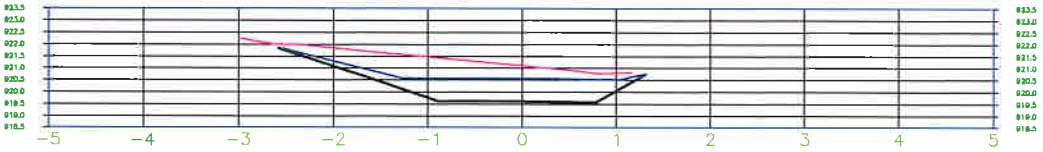
PROJECT NO.: 17003

SHEET: 001

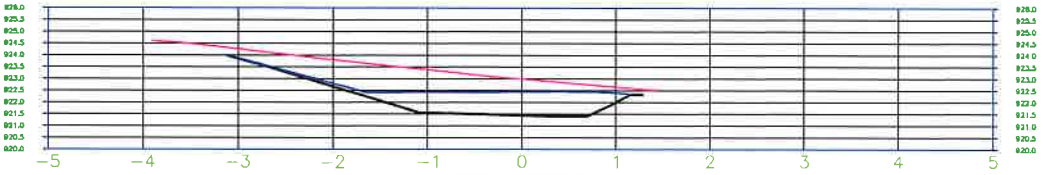
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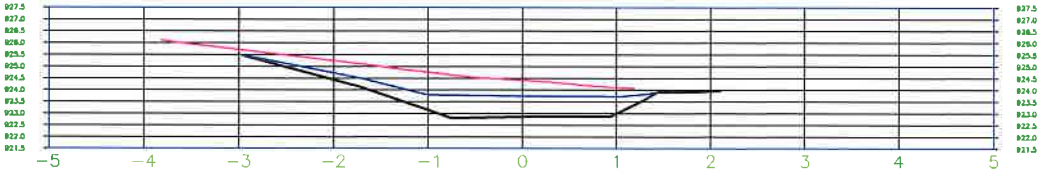
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0+030.00



0+040.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE
01	Xref 0=0

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0 0	YY/MM/DD	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN 0+340 SECTIONS 0+010 TO 0+040

DRAWING SCALE: NOT TO SCALE

DATE: 18/09/12 | DWG No: [illegible]

SURVEYED: E.J. | CHECKED:

DRAWN: BAX | APPROVED:

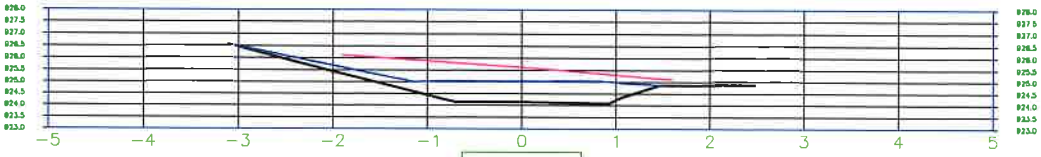
DRAWING FILE: 180912 0340 FINGER DRAIN SECTION dwg

DRAWING VIEW: 11x17 Landscape

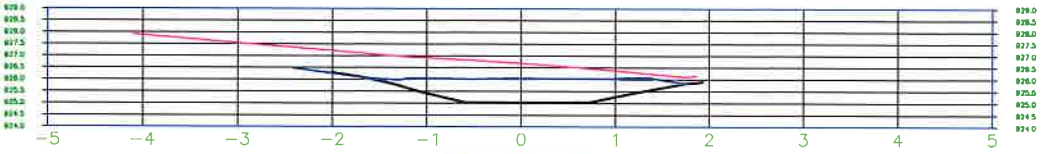
PROJECT NO.: 17003

SHEET: 001

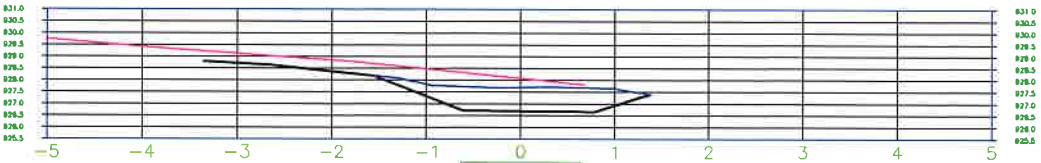
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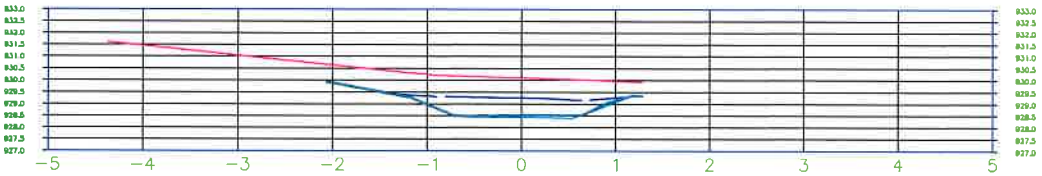
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0+070.00



0+080.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE
01	Xref dwg

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/07/01	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:
EAGLE GOLD MINE
CONSTRUCTION

TITLE:
FINGERDRAIN
0+340 SECTIONS
0+050 TO 0+080

DRAWING SCALE: NOT TO SCALE

DATE:	18/09/12	DWG No:	
SURVEYED:	E.J	CHECKED:	
DRAWN:	BAX	APPROVED:	

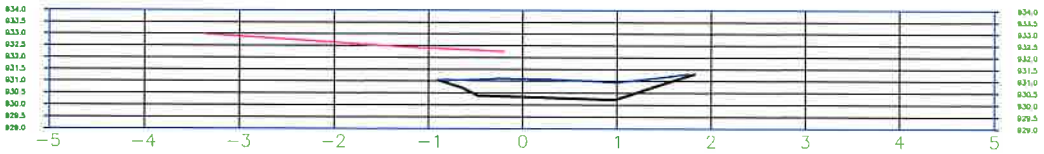
DRAWING FILE: 190912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

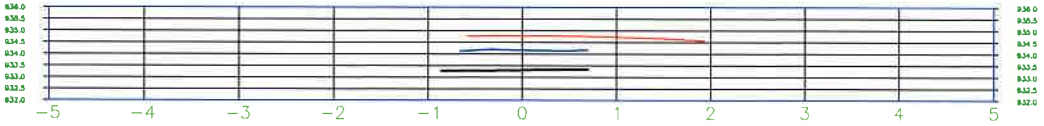
PROJECT NO : 17003

SHEET: 001

0+090.00



0+100.00



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

LEGEND

- SAND
- RIP RAP
- GRAVEL
- TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	17/01/01	CB	ISSUED FOR...

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

FINGERDRAIN
0+340 SECTIONS
0+090 TO 0+100

DRAWING SCALE:

NOT TO SCALE

DATE:	18/09/12	DWG No:	
SURVEYED:	E.J /C.M	CHECKED:	
DRAWN:	BAX	APPROVED:	

DRAWING FILE:
190912 0340 FINGER DRAIN SECTION.dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

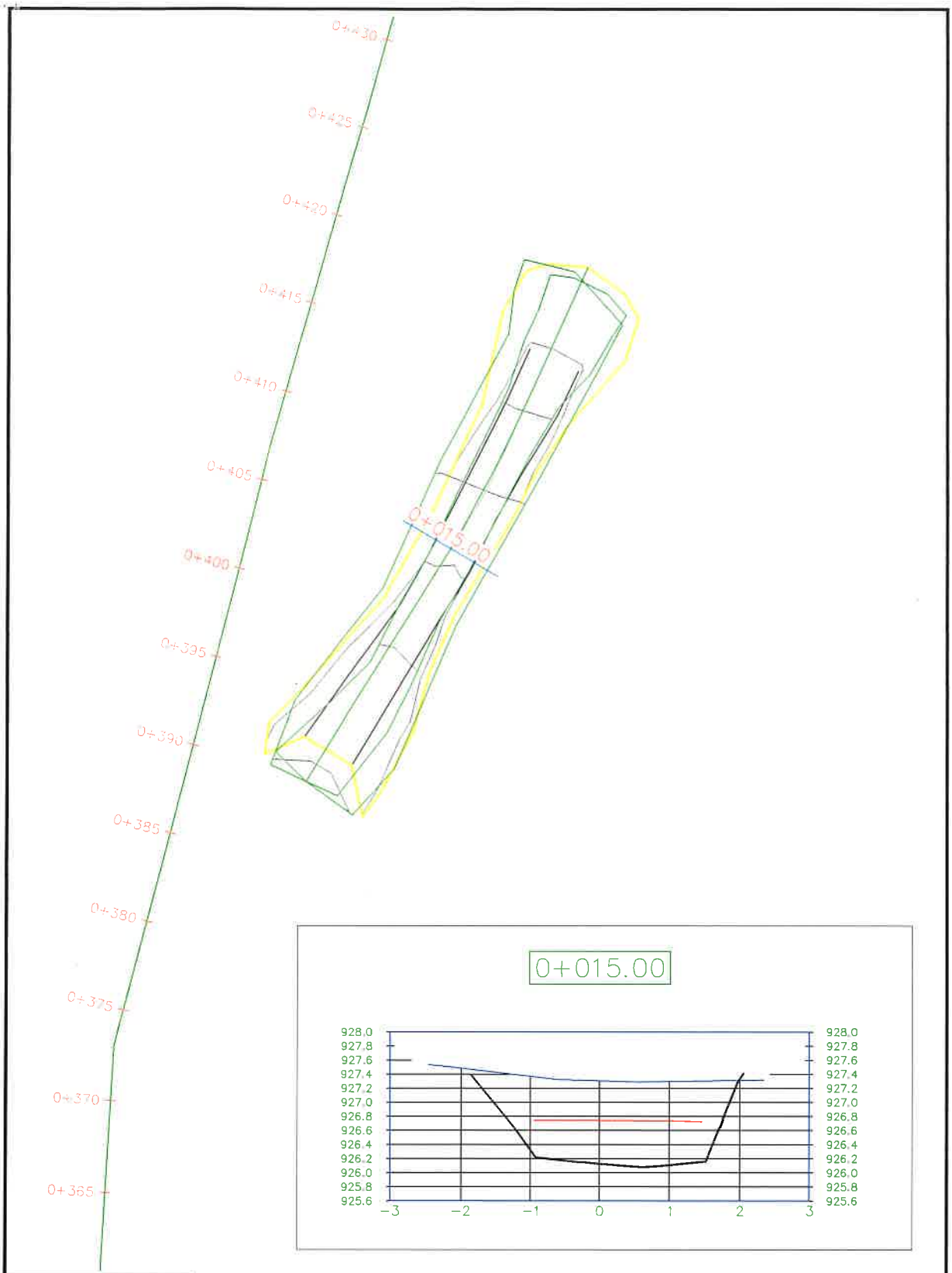
Contract No. **CC204**
ITP No. **006-M**
Date: **13-Jul-18**
Station: **STA 0+390 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S	9/7/18	EJF	9/8/18	EMAIL
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: ETHAN FABER _____ 9/8/18
print sign date

Contractor Rep: DEAN SEREDA _____ 9/7/18
print sign date



REFERENCE DRAWINGS:	
NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

1 SHOWING FINGERDRAIN INSTALLED AT APPROXIMATELY STA 0+390 OF UNDERDRAIN TRENCH ALIGNMENT

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:			
REV.	YY/MM/DD	INIT.	DESCRIPTION
00	17/07/01	CB	ISSUED FOR:

eshemuta Construction Surveyors

SURVEYED: C.B DRAWN: C.B

CLIENT: Pelly Construction Ltd.

CHECKED: APPROVED:

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+390 FINGERDRAIN CROSS SECTION

DRAWING SCALE: H 1:200

DATE: 19/09/09 DWG No: FDRN-0390

DRAWING FILE: 190905 0390 FINGERDRAIN SECTION dwg

DRAWING VIEW: 11x17 Portrait

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

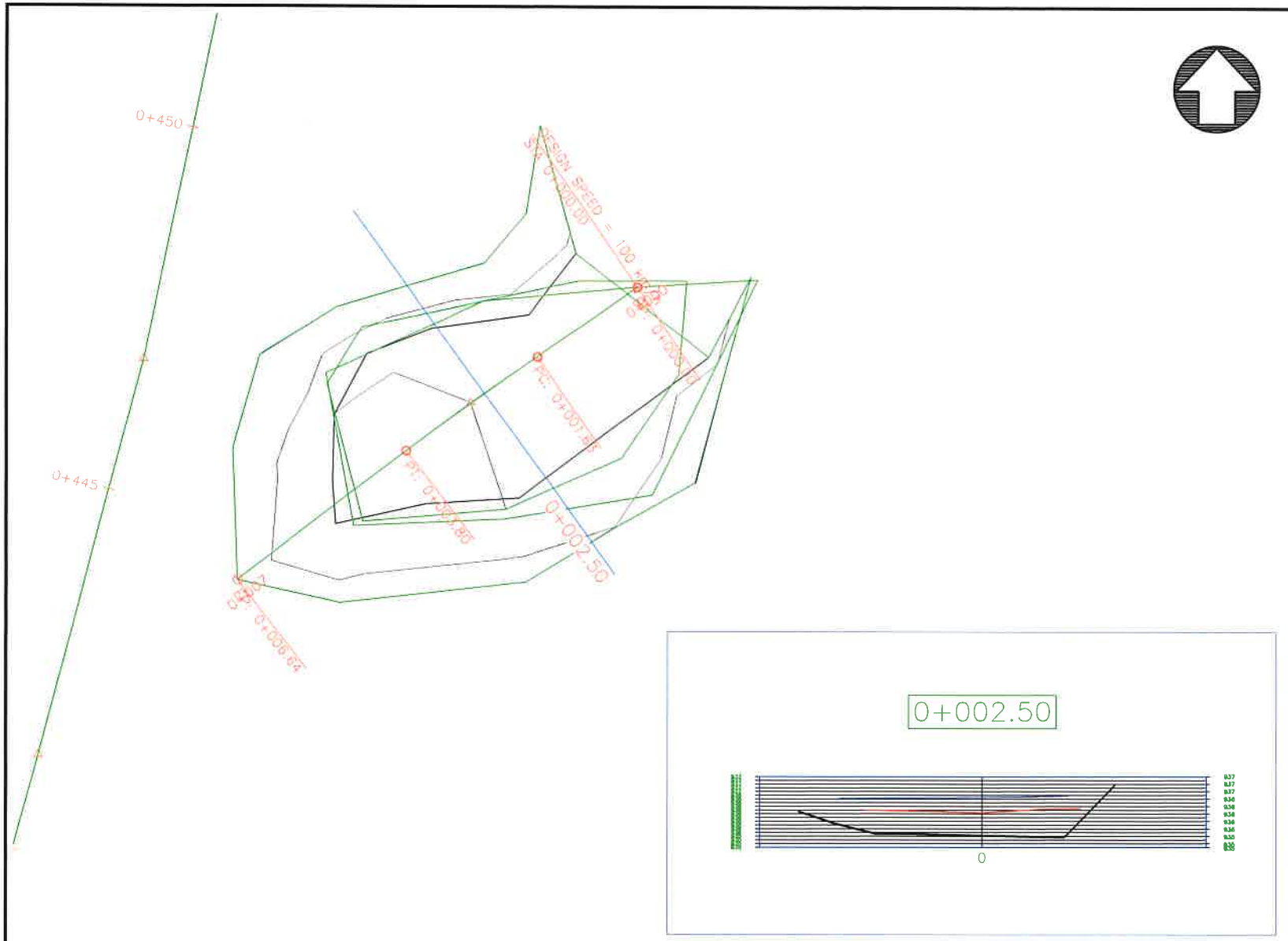
Contract No. **CC204**
ITP No. **006-N**
Date: **13-Jul-18**
Station: **STA 0+445 RT**

Pelly Construction Ltd.

ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP INITIALS	CONTRACTOR REP DATE	CLIENT REP INITIALS	CLIENT REP DATE	COMMENTS
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/7/18	EJF	9/8/18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/7/18	EJF	9/8/18	EMAIL
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/7/18	EJF	9/8/18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/7/18	EJF	9/8/18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Install geotextile as per design engineers correspondence	Contractor/Client	Engineers initials on this document	D.S.	9/7/18	EJF	9/8/18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/7/18	EJF	9/8/18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/7/18	EJF	9/8/18	

Client Rep: EITHAN FABEN _____ 9/8/18
print sign date

Contractor Rep: DEAN SERELO _____ 9/7/18
print sign date



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	footprint.dwg

DRAWING NOTES:

1. SHOWING CROSS SECTION OF FINGERDRAIN AT STA. 0+445 OF UNDERDRAIN AND CLOSURE TRENCH

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION:
00	YY/07/01	DB	ISSUED FOR...

CLIENT:

eshemuta
Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

FINGERDRAIN 0+445
CROSS-SECTION

DRAWING SCALE:

H 1:100

DATE: 18/09/10	DWG No: EMB-FD-0445
SURVEYED: E.J	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE:
190910 0445 FINGERDRAIN SECTION dwg

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

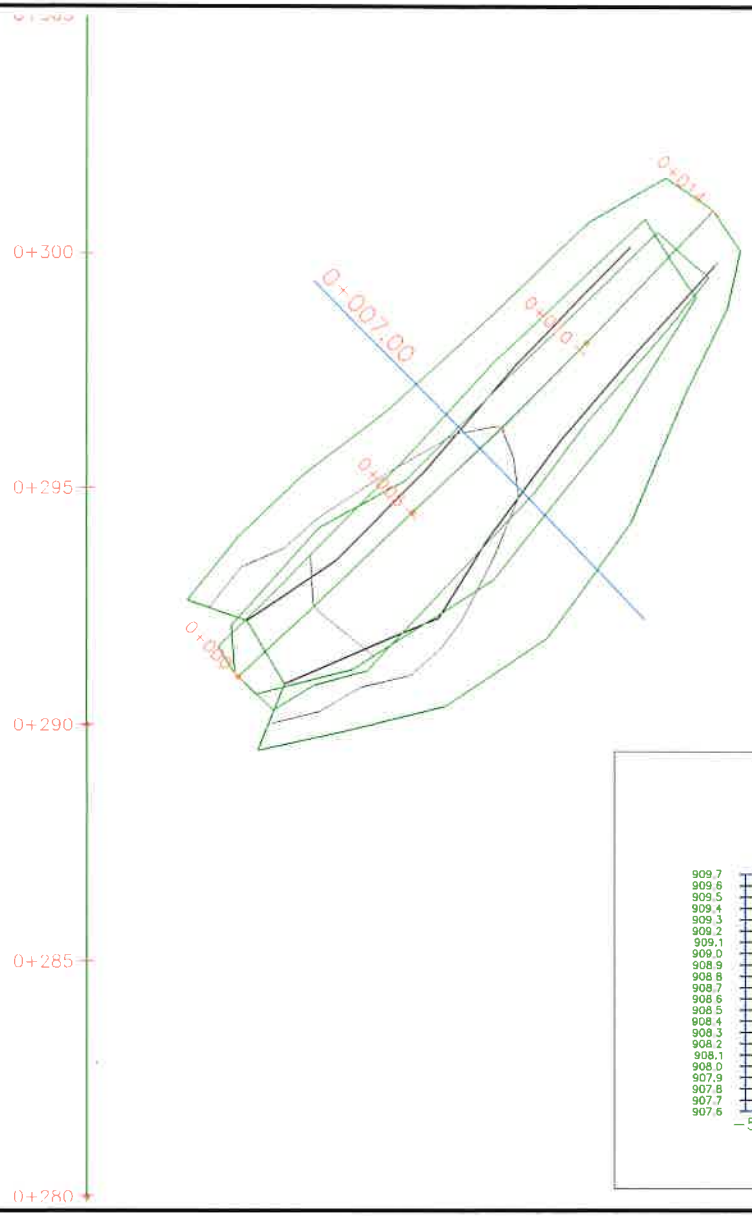
Contract No. **CC204**
ITP No. **006-O**
Date: **09-Sep-18**
Station: **STA 0+292 RT**

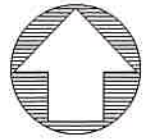
Pelly Construction Ltd.

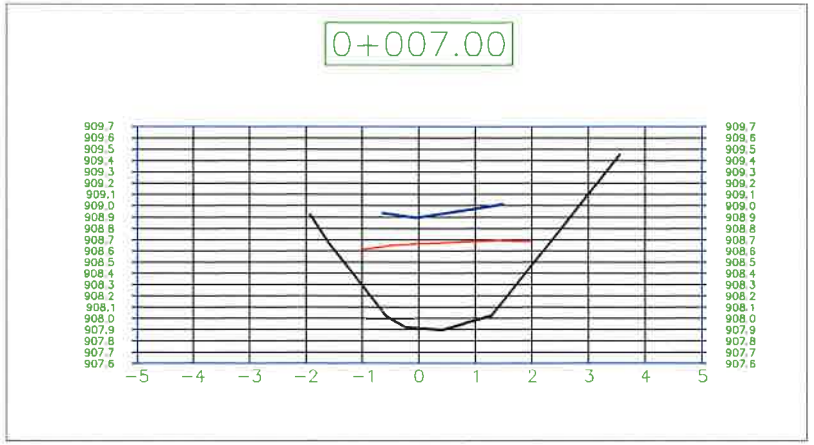
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	9/10/18	EJF	9/10	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	9/10/18	EJF	9/10	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	9/10/18	EJF	9/10	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	9/10/18	EJF	9/10	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.7	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material thickness and compaction to meet specifications	Contractor/Client	Engineers initials on this document	D.S.	9/10/18	EJF	9/10	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	9/10/18	EJF	9/10	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	9/10/18	EJF	9/10	

Client Rep: ETHAN FORBES _____ 9/10/18
print sign date

Contractor Rep: DEAN SERELO _____ 9/10/18
print sign date







REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref dwg

DRAWING NOTES:

1. SHOWING CROSS SECTION OF FINGERDRAIN AT STA 0+292 OF UNDERDRAIN AND CLOSURE TRENCH

LEGEND

- TRENCH EXCAVATION
- DRAIN ROCK
- SAND

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
00	17/07/01	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: CROSS- SECTION FINGERDRAIN 0+292

DRAWING SCALE: H 1:100

DATE: 18/09/10	DWG No: EMB-FD-0292
SURVEYED: C.M	CHECKED:
DRAWN: BAX	APPROVED:

DRAWING FILE: 190910 0+292 FINGERDRAIN SECTION.dwg

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

Title: **INSPECTION AND TEST PLAN FOR HLF EMBANKMENT FINGER DRAINS**

Contractor: **PELLY CONSTRUCTION LTD**
Project: **EAGLE GOLD PROJECT**
Item: **9000.13**
CWP: **HLF EMBANKMENT FINGER DRAINS**
Revision: **0**

Contract No. **CC204**
ITP No. **006-O**
Date: **10-Sep-18**
Station: **STA 0+035 along 0+390 E Lateral**

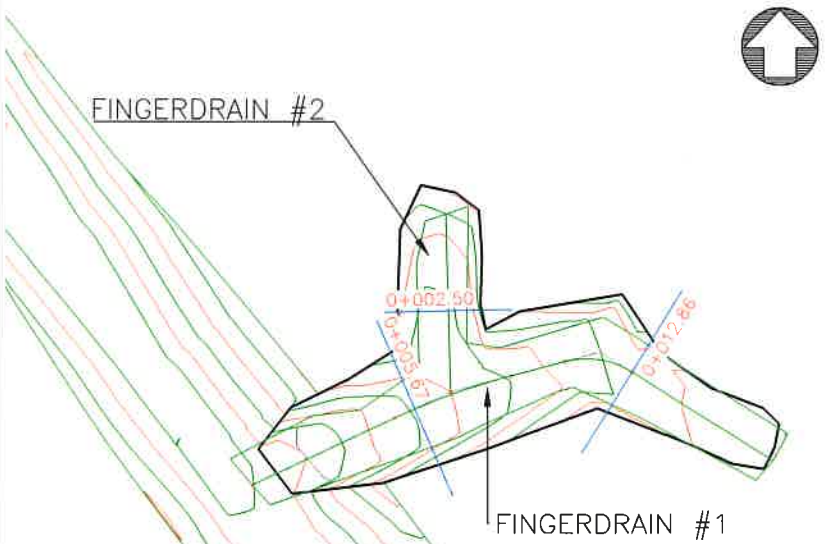
Pelly Construction Ltd.

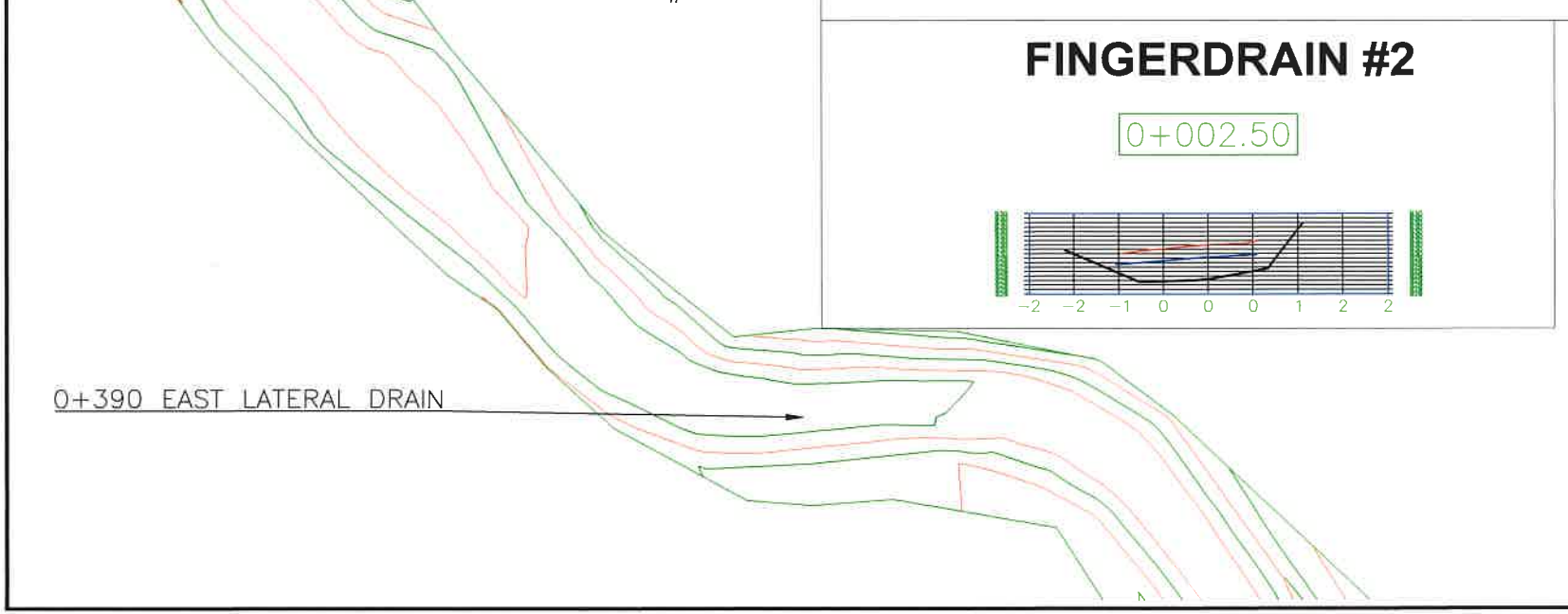
ITEM NO.	TASK DESCRIPTION	ACTIVITIES AND ACCEPTANCE CRITERIA	PARTY RESPONSIBLE	VERIFICATION DOCUMENT OR FORM	CONTRACTOR REP		CLIENT REP		COMMENTS
					INITIALS	DATE	INITIALS	DATE	
1.1	ITP review and approval	Client approval	Client	This approved ITP document bearing signatures	D.S.	12/09/18		9.13.18	
1.2	RFI's	Obtain RFI response to close request	Client	Client RFI forms	D.S.	12/09/18		9.13.18	
1.3	Finger drain design drawing	Drawing received by Contractor; Verify design drawing	Contractor/Client	Drawings reviewed	D.S.	12/09/18		9.13.18	
1.4	Quality of materials	Verify materials received meet all requirements	Contractor/Client	Material specification sheet and quality/inspection certificates	D.S.	12/09/18		9.13.18	
1.5	Engineers approval of drain excavation	Inspection of excavation to design depth, width, and subgrade foundation	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.6	Installation of 12oz nonwoven geotextile	Install geotextile as per design	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.7*	Installation of select drain fill to minimum of 0.45m	Install drain fill as per design; Thickness to meet requirement	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.8	Close envelope of 12oz nonwoven geotextile	Geotextile to fully encompass drain fill maintaining minimum 0.5m overlap	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.9	Place and compact minimum 0.3m of material 2 or material 3 above getotextile top layer	Material thickness and compaction to meet specifications	Contractor/Client	Engineers initials on this document	D.S.	12/09/18		9.13.18	
1.10	Survey asbuilt of requested construction steps	Survey to asbuilt steps during construction as requested	Contractor/Client	Asbuilt drawings provided as requested	D.S.	12/09/18		9.13.18	
1.11	Quality records complete and in turnover package	To be updated throughout the project	Contractor	As per documentation outlined in this ITP	D.S.	12/09/18		9.13.18	

* SDF was placed between 0.3-0.45m to allow for fill between drain and liner surface

Client Rep: Roy Morlan _____ 9-13-18
print sign date

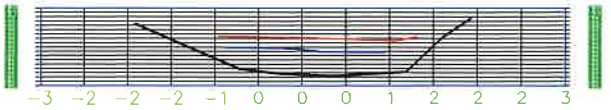
Contractor Rep: DEAN SERLO _____ 12/09/18
print sign date



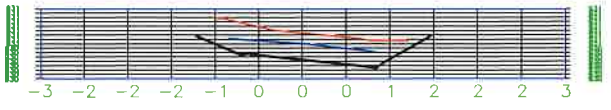


FINGERDRAIN #1

0+005.67



0+012.86



FINGERDRAIN #2

0+002.50

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	180829 925m EAST LATERAL DRAIN E.X ASB.dwg

DRAWING NOTES:

1. SHOWING FINGERDRAIN EXCAVATED ALONG EAST LATERAL DRAIN
2. EAST LATERAL DRAIN IS LOCATED AT 0+390 OF UNDERDRAIN TRENCH

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
00	11/01/07	CB	ISSUED FOR...

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: FINGERDRAIN INSTALLED ON EAST LATERAL DRAIN

DRAWING SCALE: H 1:150

DATE: 18/09/11	DWG No: HLF - FD -EL
SURVEYED: C.B	CHECKED:
DRAWN: C.B	APPROVED:

DRAWING FILE: 0+390 EAST LATERAL DRAIN FINGERDRAIN dwg

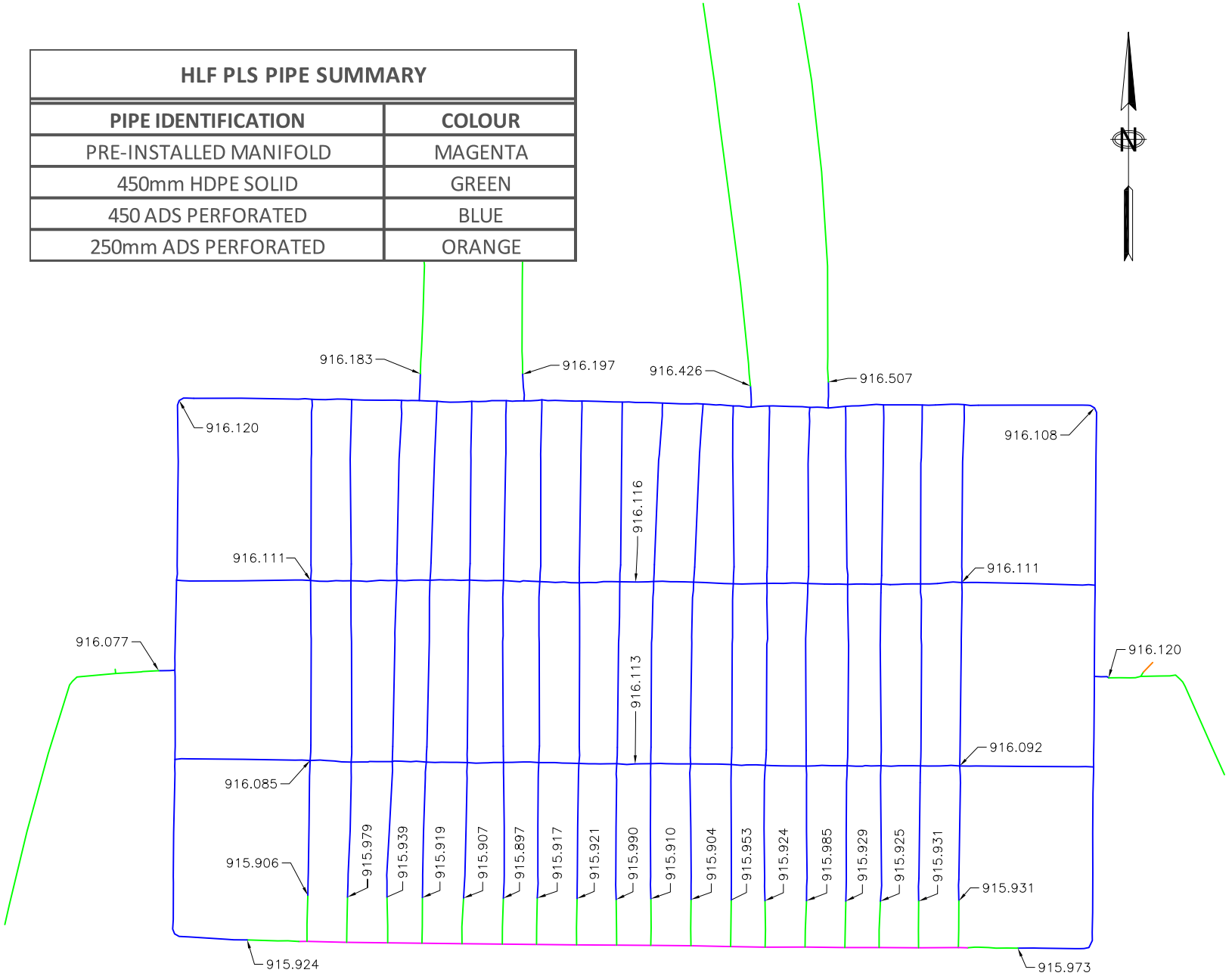
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001

HLF PLS PIPE SUMMARY

PIPE IDENTIFICATION	COLOUR
PRE-INSTALLED MANIFOLD	MAGENTA
450mm HDPE SOLID	GREEN
450 ADS PERFORATED	BLUE
250mm ADS PERFORATED	ORANGE



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. MAGENTA LINES REPRESENT THE PRE-INSTALLED MANIFOLD.
2. GREEN LINES REPRESENT THE 450mm SOLID HDPE PIPES.
3. BLUE LINES REPRESENT THE 450mm PERFORATED ADS PIPES.
4. ORANGE LINES REPRESENT THE 250mm PERFORATED ADS PIPES.
5. 450mm CORRUGATED PIPES (BLUE) WERE SURVEYED ON TOP OF THE PIPE IN THE CORRUGATION VALLEY TO TARGET AN ELEVATION OF 196.100m.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/10	FGG	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PLS SUMP PIPE INSTALLATION AS-BUILT

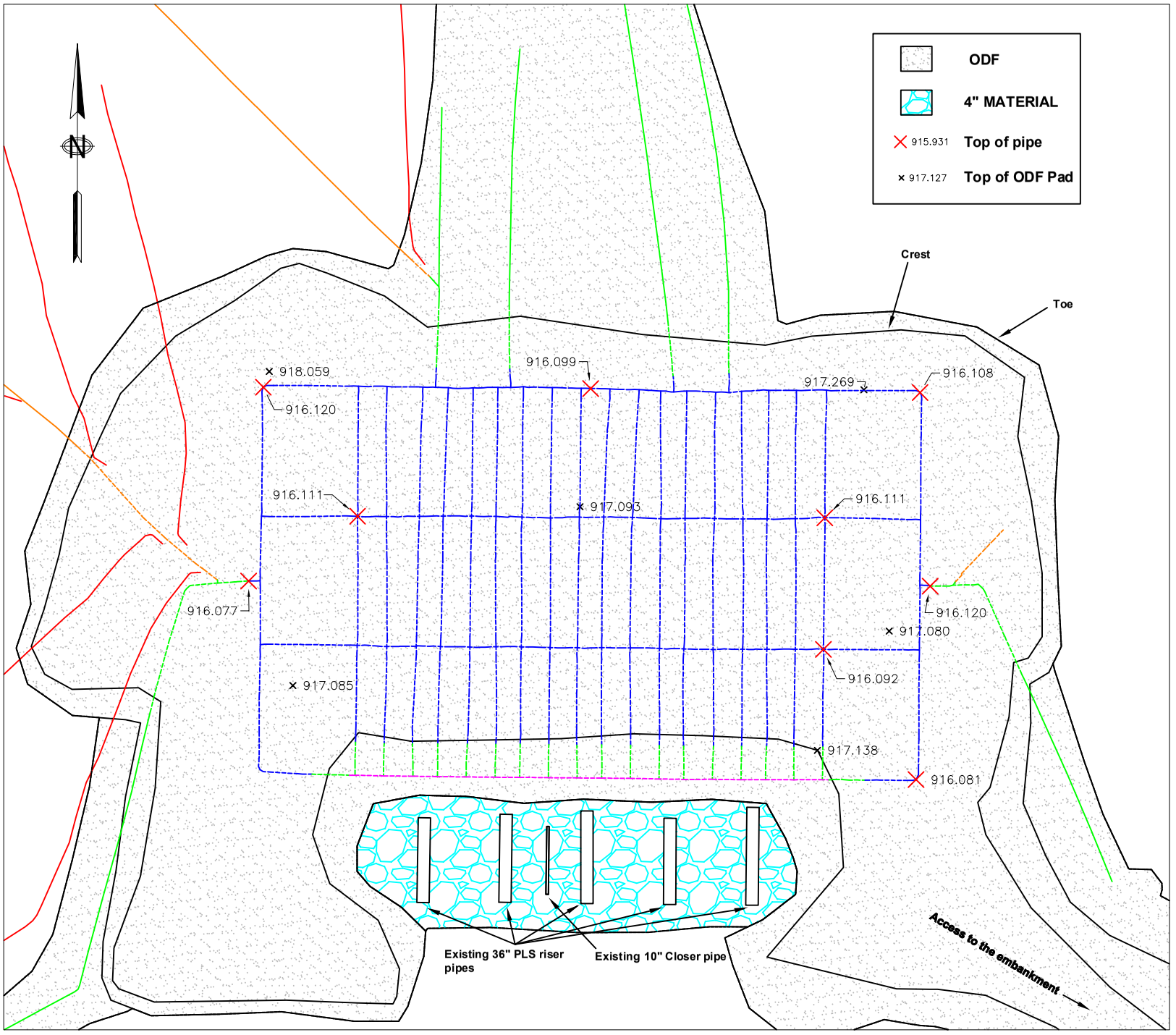
DRAWING SCALE: H 1:300

DATE: 19/0510	DWG No:
SURVEYED: TEAM	CHECKED:
DRAWN: FGG	APPROVED:

DRAWING FILE: 190510 HLF PLS PIPE ASB.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003



REFERENCE DRAWINGS:

NO.	DRAWING FILE:

DRAWING NOTES:

1. This drawing represents the 1.0 meter cover of ODF required on top of the BBQ Grill. Targeted elevation on top of the 450mm ADS Perforated pipes (blue) was 916.1m.
2. The green lines represent the 450mm HDPE Solid pipes.
3. The blue lines represent the 450mm ADS Perforated pipes.
4. The orange lines represent the 250mm ADS Perforated pipes.
5. The red lines represent the 100mm ADS Perforated pipes.
6. The magenta line represent the pre-installed manifold.
7. The dashed lines represent the portion of the pipes that is buried.
8. The continuous lines represent the portion of the pipes that is still exposed.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/15	FGG	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

ELEVATION 917.1m ODF PAD OVER HLF PLS SUMP BBQ GRILL

DRAWING SCALE:

H 1:400

DATE: 19/05/15	DWG No:
SURVEYED: TEAM	CHECKED:
DRAWN: FGG	APPROVED:

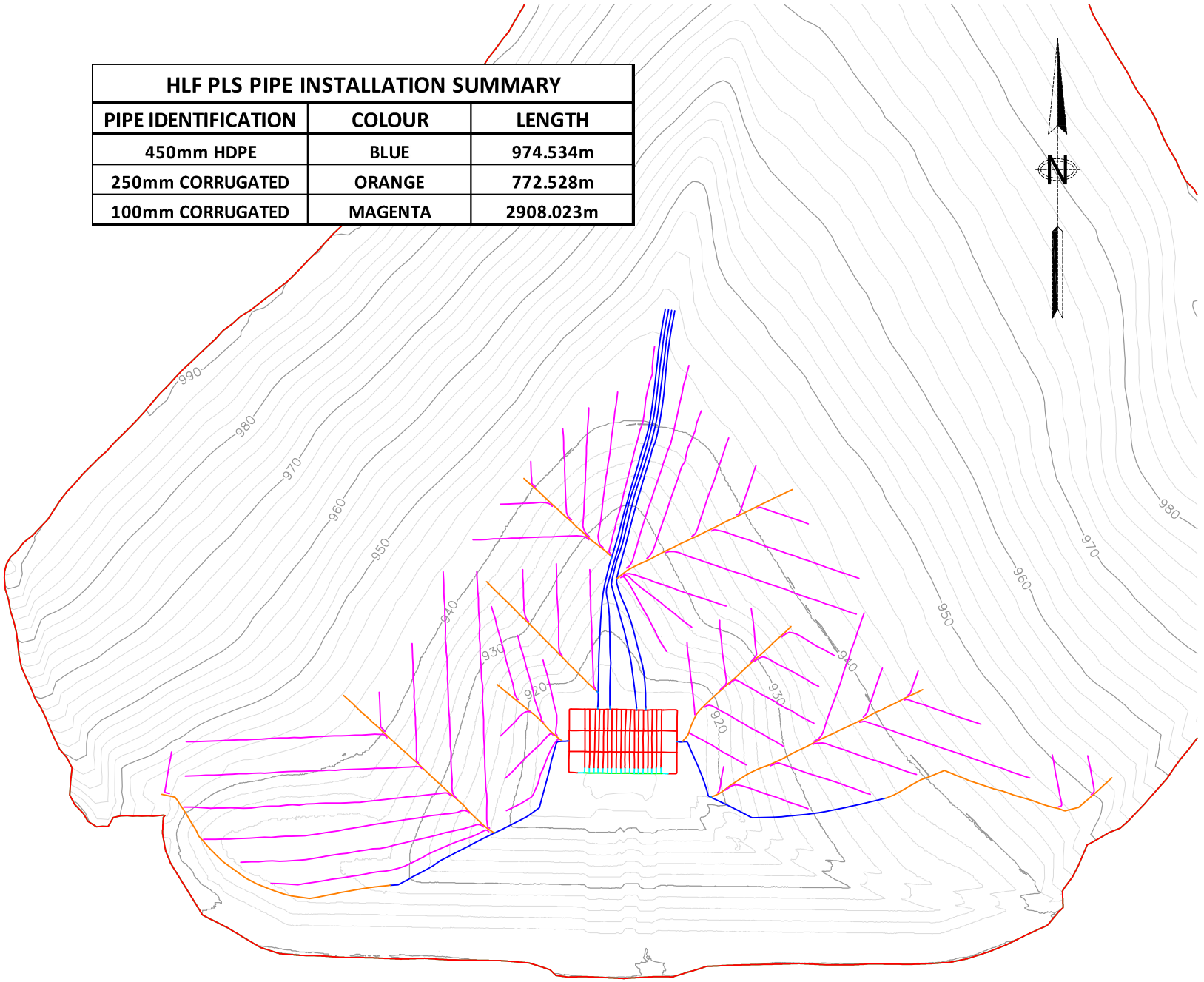
DRAWING FILE:
190515 HLF PLS SUMP 917.1m ODF PAD.dwg

DRAWING VIEW:
8.5x11 Landscape

PROJECT NO.:
17003

HLF PLS PIPE INSTALLATION SUMMARY

PIPE IDENTIFICATION	COLOUR	LENGTH
450mm HDPE	BLUE	974.534m
250mm CORRUGATED	ORANGE	772.528m
100mm CORRUGATED	MAGENTA	2908.023m



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. BLUE LINES REPRESENT INSTALLED 450mm HDPE PIPE.
2. ORANGE LINES REPRESENT INSTALLED 250mm CORRUGATED PIPE.
3. MAGENTA LINES REPRESENT INSTALLED 100mm CORRUGATED PIPE.
4. RED LINES REPRESENT INSTALLED 450mm CORRUGATED PIPE.
5. CYAN LINES REPRESENT 450mm CORRUGATED PIPE TO PRE-INSTALLED MANIFOLD CONNECTORS.
6. GREEN LINE REPRESENTS PRE-INSTALLED (HEAVY NORTH) PIPE MANIFOLD.
7. AS-BUILTS SHOWN REPRESENT ONLY PIPE INSTALLED IN FINAL RESTING LOCATIONS.
8. PIPE AS-BUILT SURVEYS WERE PERFORMED BETWEEN JUNE 03, 2019 - JUNE 30, 2019.
9. SURFACE SHOWN IS A COMBINATION OF THE 190426 UNDERHILL DRONE SURFACE (940m DOWN) MERGED WITH THE MOST RECENT 940m BENCH UPWARD AS-BUILT BEFORE LINER. SURFACE BOUNDARY SHOWN IN RED.
10. CONTOURS = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/07/02	FGG	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HEAP LEACH FACILITY PLS PIPE INSTALLATION SUMMARY

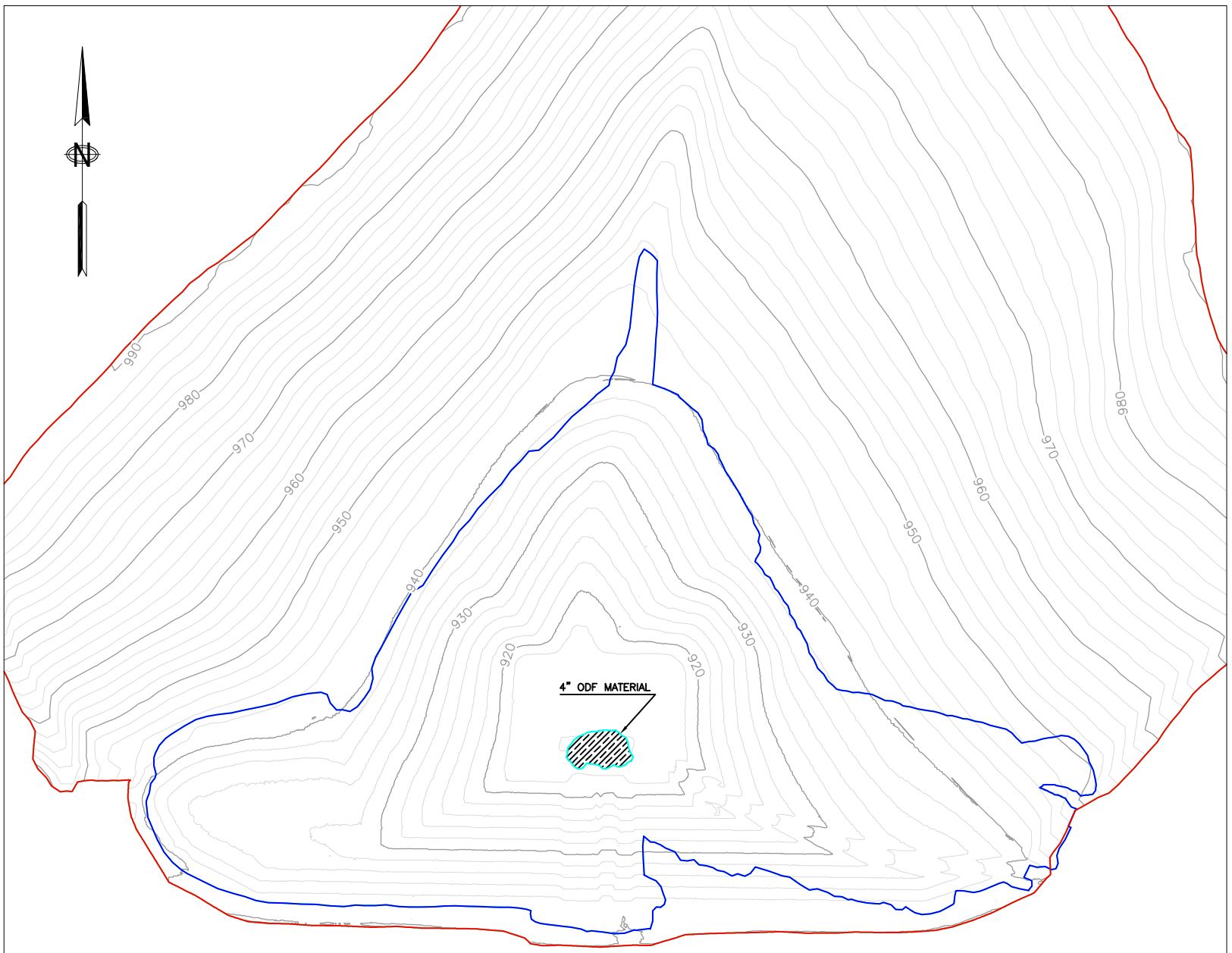
DRAWING SCALE: H 1:2500

DATE: 19/07/02	DWG No: 184110-050
SURVEYED: TEAM	CHECKED:
DRAWN: FGG, CM	APPROVED:

DRAWING FILE: 190701 HLF PLS PIPE INSTALLATION SUMMARY.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
190630 HLF ODF INSTALLATION PROGRESS VOLUME	**1.000**	**1.000**	51074.76sq.m	201.09 Cu. M.	59074.11 Cu. M.	58873.02 Cu. M.<Fill>
190630 HLF 4IN ODF INSTALLATION VOLUME	**1.000**	**1.000**	371.41sq.m	0.00 Cu. M.	849.50 Cu. M.	849.50 Cu. M.<Fill>
Totals			51446.16sq.m	201.09 Cu. M.	59923.61 Cu. M.	59722.52 Cu. M.<Fill>

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. OVER-LINER DRAIN FILL INSTALLATION BOUNDARY SHOWN IN BLUE.
2. INSTALLED 4" OVER LINER DRAIN FILL MATERIAL BOUNDARY SHOWN IN CYAN.
3. BASE SURFACE USED FOR VOLUME CALCULATION IS A COMBINATION OF THE 190426 DRONE SURFACE (UNDERHILL) MERGED WITH THE MOST RECENT 940m BENCH UPWARDS AS-BUILT BEFORE LINER. BASE SURFACE BOUNDARY SHOWN IN RED.
4. OVER-LINER DRAIN FILL VOLUME LOCATED OVER THE FOOTPRINT OF THE TELESTACKER PAD, THE PAD EXTENSION OR THE UNPLACED STOCKPILE WAS COMPUTED AS A 1.0M THICK LAYER ABOVE LINER. EVERYTHING ABOVE THAT 1.0M HAS BEEN DISCARDED FROM VOLUME CALCULATION.
5. OVER-LINER DRAIN FILL PROGRESS AS-BUILT SURVEYS PERFORMED BETWEEN JUNE 26, 2019 - JUNE 30, 2019.
6. CONTOURS = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/07/01	FGG	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HEAP LEACH FACILITY OVER-LINER DRAIN FILL INSTALLATION PROGRESS VOLUME

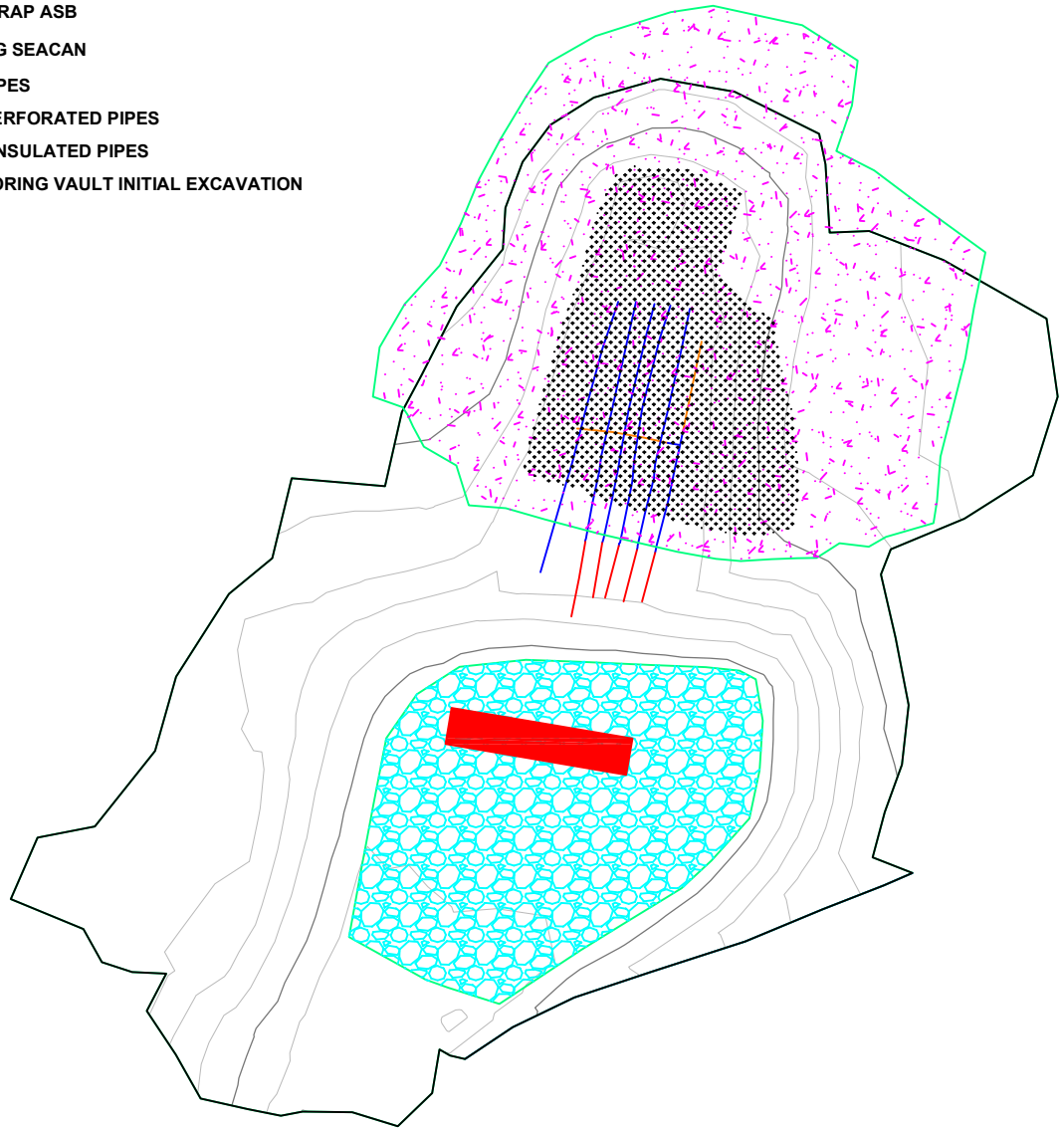
DRAWING SCALE: H 1:2500

DATE: 19/07/01	DWG No: 184110-049
SURVEYED: TEAM	CHECKED:
DRAWN: FGG	APPROVED:

DRAWING FILE: 190701 HLF ODF INSTALLATION PROGRESS VOLUME.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. BLACK LINES REPRESENT THE BOUNDARY OF THE INITIAL EXCAVATION OF THE HLF MONITORING VAULT.
2. CONTOURS FOR THE HLF MONITORING VAULT EXCAVATION = 1m.
3. BLUE LINES REPRESENT 6 INCHES HDPE PIPES.
4. ORANGE LINES REPRESENT 6 INCHES PERFORATED PIPES.
5. RED LINES REPRESENT 12 INCHES INSULATED PIPES.
6. MAGENTA LINES REPRESENT THE BOUNDARY OF THE DIRT COVER.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/08/08	FGG	ISSUED FOR TURNOVER

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF MONITORING VAULT AS-BUILT TURNOVER

DRAWING SCALE:

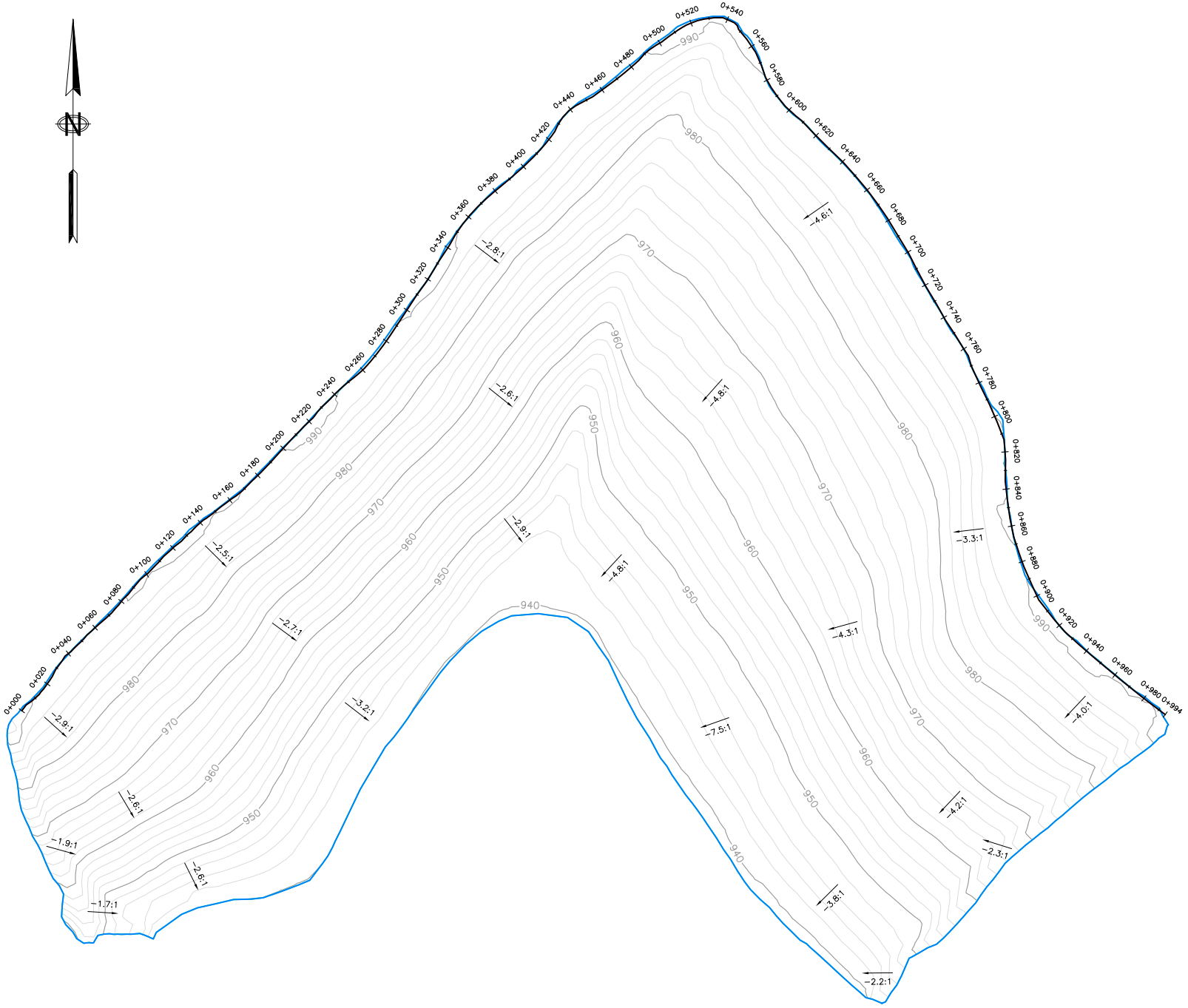
H 1:500

DATE: 19/08/08	DWG No: 184110-051
SURVEYED: TEAM	CHECKED:
DRAWN: FGG	APPROVED:

DRAWING FILE:
190808 HLF MONITORING VAULT TURNOVER ASB.dwg

DRAWING VIEW:
8.5x11 Landscape

PROJECT NO.:
17003



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. SURFACE SHOWN IS THE APPROVED FINAL PRE-LINER SHAPING AS-BUILT.
2. SURFACE BOUNDARY SHOWN IN BLUE.
3. SURVEY AS-BUILTS WERE PERFORMED BETWEEN APRIL 29 - JUNE 12, 2019.
4. CONTOURS = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/06/13	CM	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HEAP LEACH FACILITY: 940m BENCH UPWARDS APPROVED FINAL SHAPING AS-BUILT

DRAWING SCALE:

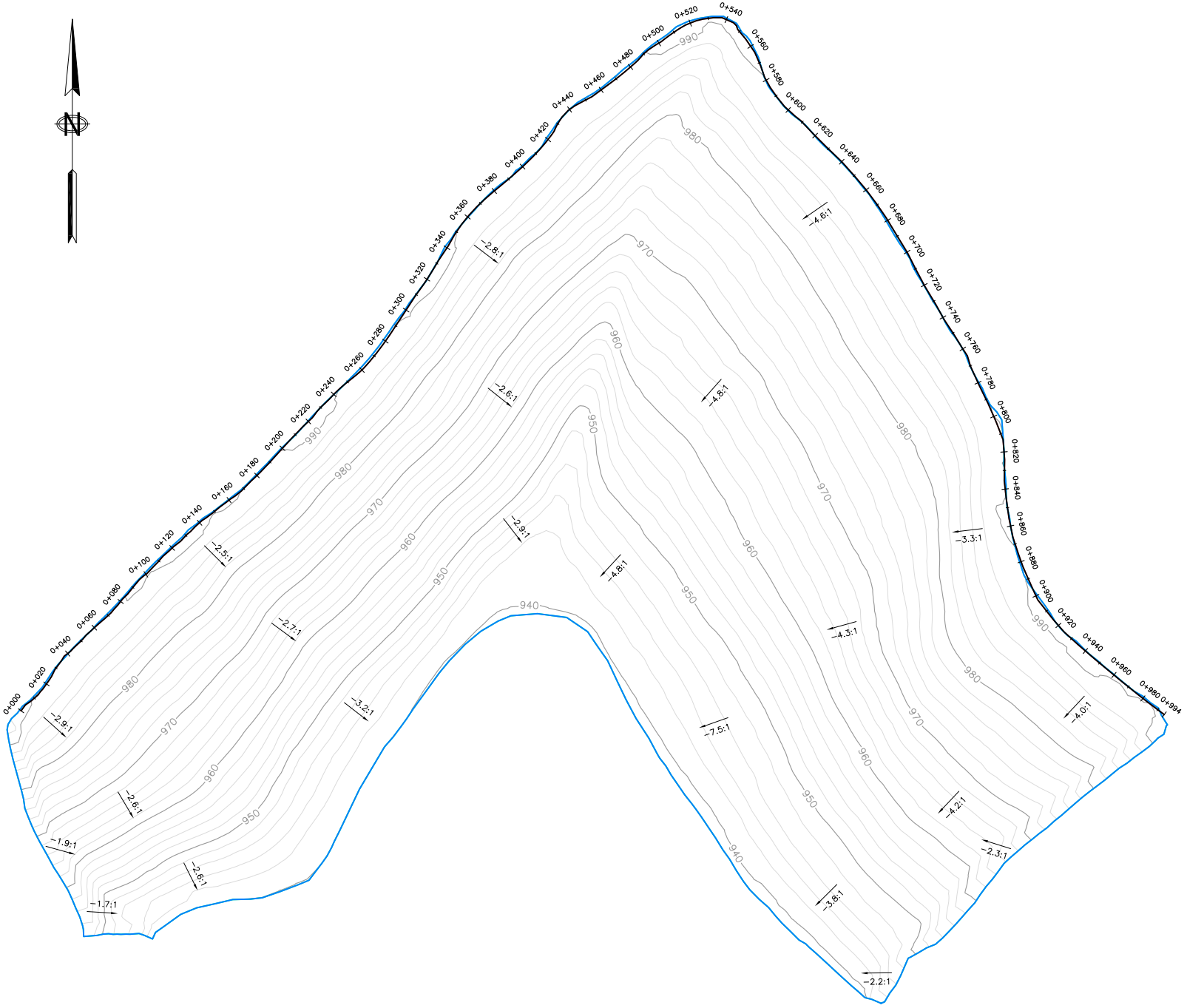
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DATE:	19/06/13	**DWG No:**	184110-047
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM	**APPROVED:**	

DRAWING FILE:
190613 HLF 940UP APPROVED SHAPING ASB - FINAL.dwg

DRAWING VIEW:
8.5x11 Landscape

PROJECT NO.:
17003



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	Xref.dwg

DRAWING NOTES:

1. SURFACE SHOWN IS THE APPROVED FINAL PRE-LINER SHAPING AS-BUILT.
2. SURFACE BOUNDARY SHOWN IN BLUE.
3. SURVEY AS-BUILTS WERE PERFORMED BETWEEN APRIL 29 - JUNE 12, 2019.
4. CONTOURS = 2m

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/06/13	CM	ISSUED FOR INFORMATION

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HEAP LEACH FACILITY: 940m BENCH UPWARDS APPROVED FINAL SHAPING AS-BUILT

DRAWING SCALE:

H 1:3000

DATE:	19/06/13	**DWG No:**	184110-047
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM	**APPROVED:**	

DRAWING FILE:
190613 HLF 940UP APPROVED SHAPING ASB - FINAL.dwg

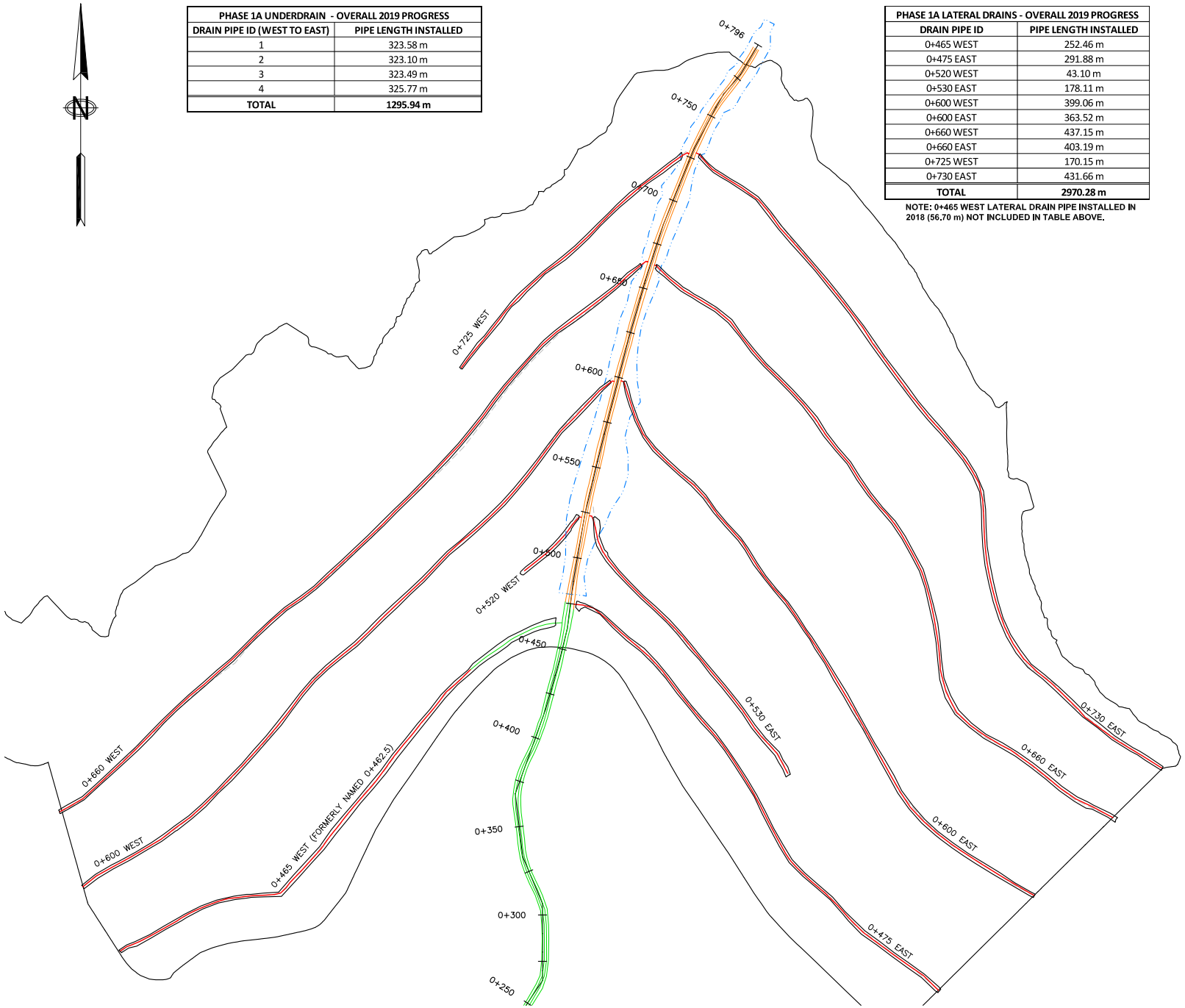
DRAWING VIEW:
8.5x11 Landscape

PROJECT NO.:
17003

PHASE 1A UNDERDRAIN - OVERALL 2019 PROGRESS	
DRAIN PIPE ID (WEST TO EAST)	PIPE LENGTH INSTALLED
1	323.58 m
2	323.10 m
3	323.49 m
4	325.77 m
TOTAL	1295.94 m

PHASE 1A LATERAL DRAINS - OVERALL 2019 PROGRESS	
DRAIN PIPE ID	PIPE LENGTH INSTALLED
0+465 WEST	252.46 m
0+475 EAST	291.88 m
0+520 WEST	43.10 m
0+530 EAST	178.11 m
0+600 WEST	399.06 m
0+600 EAST	363.52 m
0+660 WEST	437.15 m
0+660 EAST	403.19 m
0+725 WEST	170.15 m
0+730 EAST	431.66 m
TOTAL	2970.28 m

NOTE: 0+465 WEST LATERAL DRAIN PIPE INSTALLED IN 2018 (56.70 m) NOT INCLUDED IN TABLE ABOVE.



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
1	190220 HLF LATERAL DRAINS PROGRESS MASTER ASB.dwg

DRAWING NOTES:

1. HLF LATERAL DRAIN PIPES INSTALLED AND ACCOUNTED FOR WITH THIS PROGRESS SHOWN IN RED.
2. HLF DESIGN LATERAL DRAIN PIPE CENTERLINES SHOWN IN DASHED GRAY.
3. HLF LATERAL DRAIN EXCAVATION SURFACE BOUNDARIES OUTLINED IN BLACK.
4. HLF UNDERDRAIN PIPING EXCAVATION OUTLINED IN BLUE.
5. UNDERDRAIN PIPES INSTALLED IN 2019 SHOWN IN ORANGE.
6. UNDERDRAIN AND LATERAL PIPES INSTALLED IN 2018 SHOWN IN GREEN.
7. AS-BUILT SURVEYS EXECUTED BETWEEN JANUARY 8 AND MARCH 12, 2019.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
3.0	19/03/14	CB	ISSUED FOR INFORMATION

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PHASE 1A UNDERDRAIN & LATERAL DRAINS INSTALLATION 2019 OVERALL PROGRESS

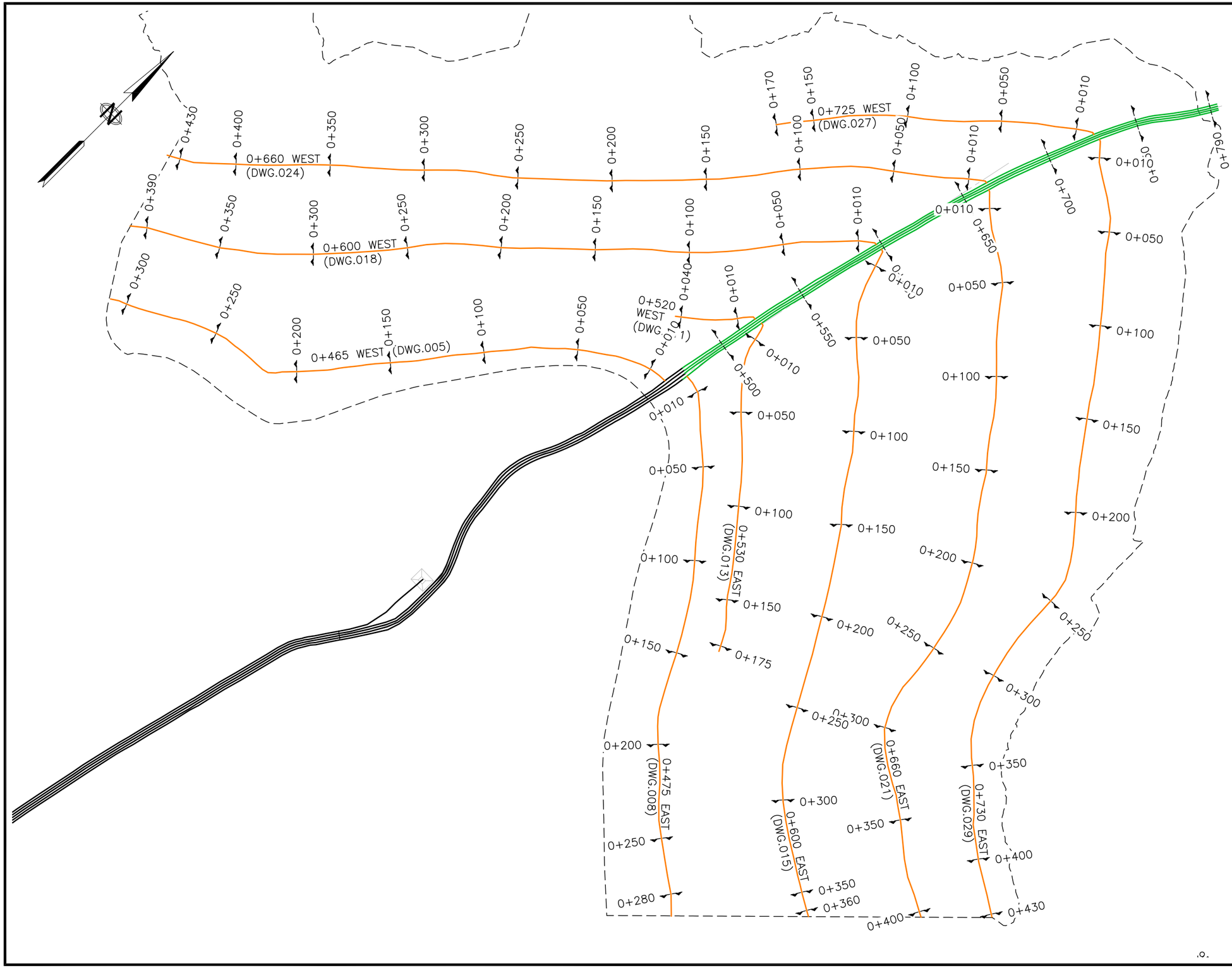
DRAWING SCALE: H 1:3000

DATE:	19/03/14	DWG No:	184110-034
SURVEYED:	TEAM	CHECKED:	
DRAWN:	CB CM	APPROVED:	

DRAWING FILE: 190314 HLF LATERALS & UNDERDRAIN PROGRESS MASTER ASB.dwg

DRAWING VIEW: 8.5x11 Landscape

PROJECT NO.: 17003



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

1. UNDERDRAIN PIPES SHOWN IN GREEN.
2. LATERAL PIPES SHOWN IN RED.
3. SURVEYS EXECUTED BETWEEN SEPTEMBER, 2018 AND MARCH, 2019.

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

2019 HLF PIPING INSTALLATION SITE PLAN (ASBUILT)

DRAWING SCALE: H 1:2000

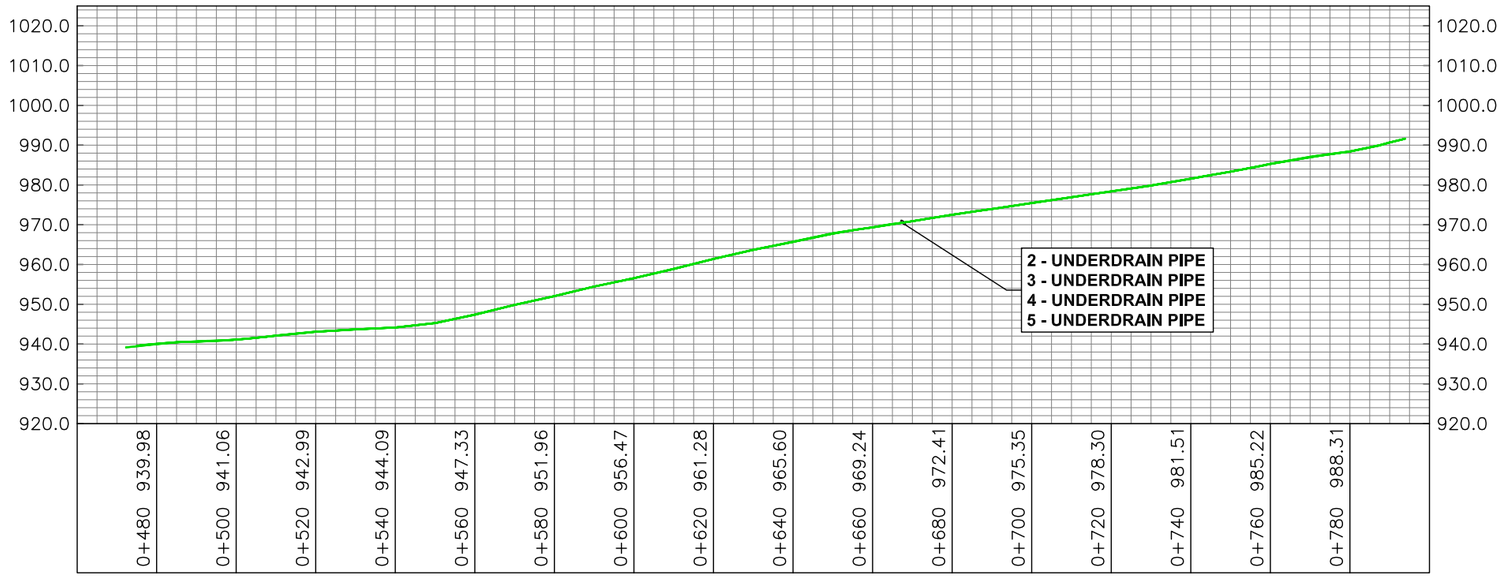
DATE: 19/05/14	DWG No: 184010-038
SURVEYED: TEAM	CHECKED:
DRAWN: CM CB FvD	APPROVED:

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 001



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A UNDERDRAIN PIPE INSTALLATION

PIPE 2: 323.58m INSTALLED
PIPE 3: 323.10m INSTALLED
PIPE 4: 323.49m INSTALLED
PIPE 5: 325.77m INSTALLED

TOTAL: 1295.94m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PIPING INSTALLATION PROFILE (ASBUILT)

DRAWING SCALE: H 1:1500, V 1:1500

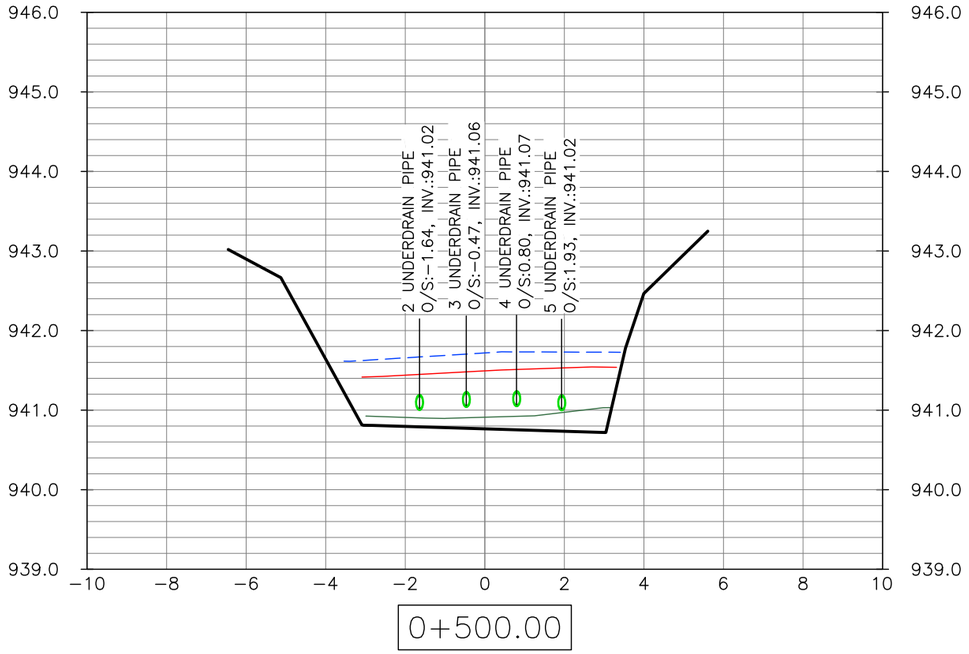
DATE: 19/05/14	**DWG No:** 184010-038
SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

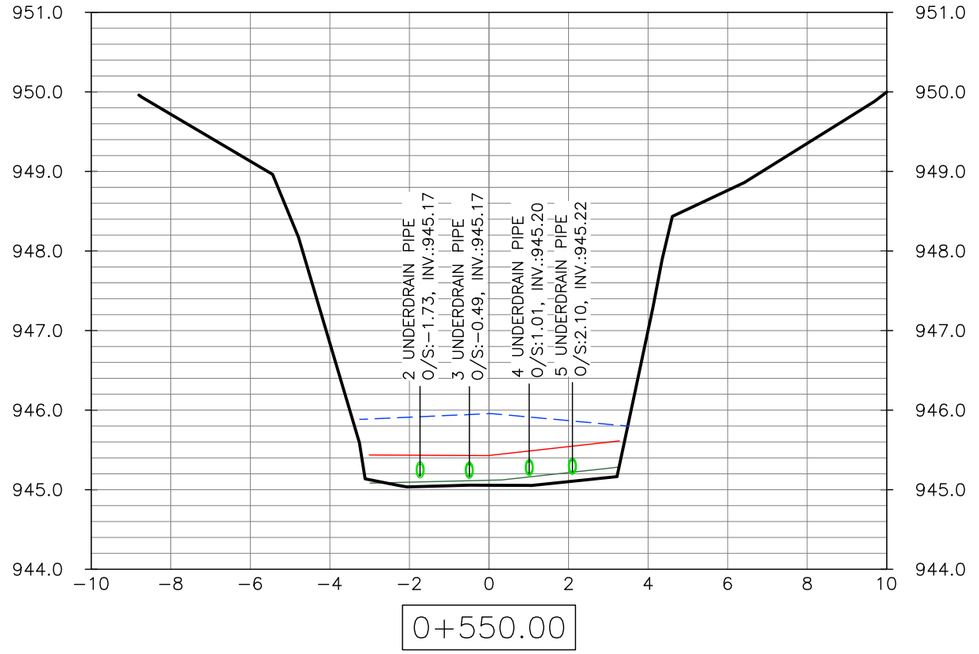
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

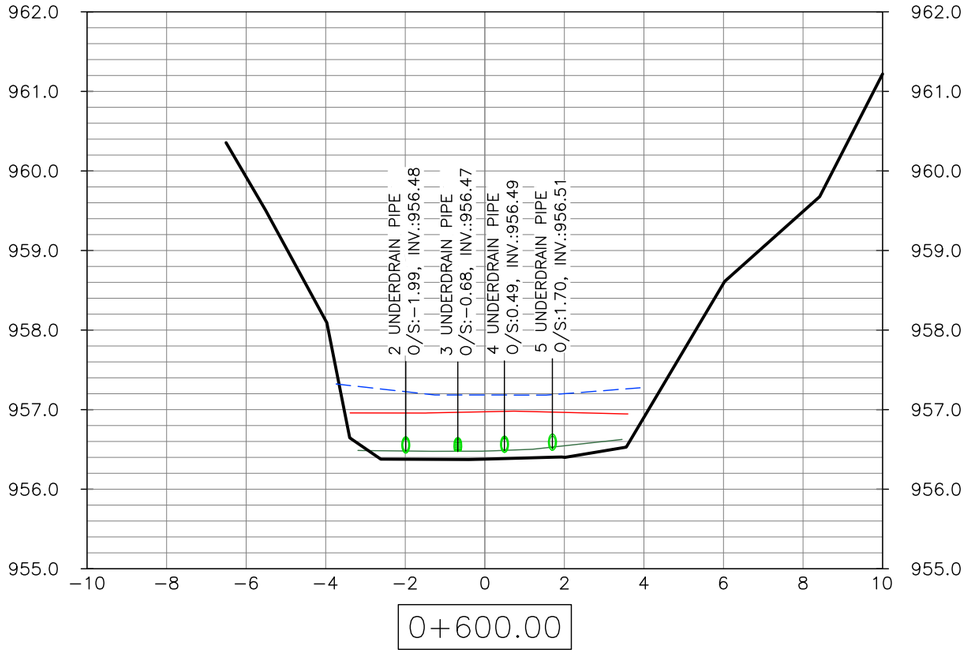
SHEET: 002



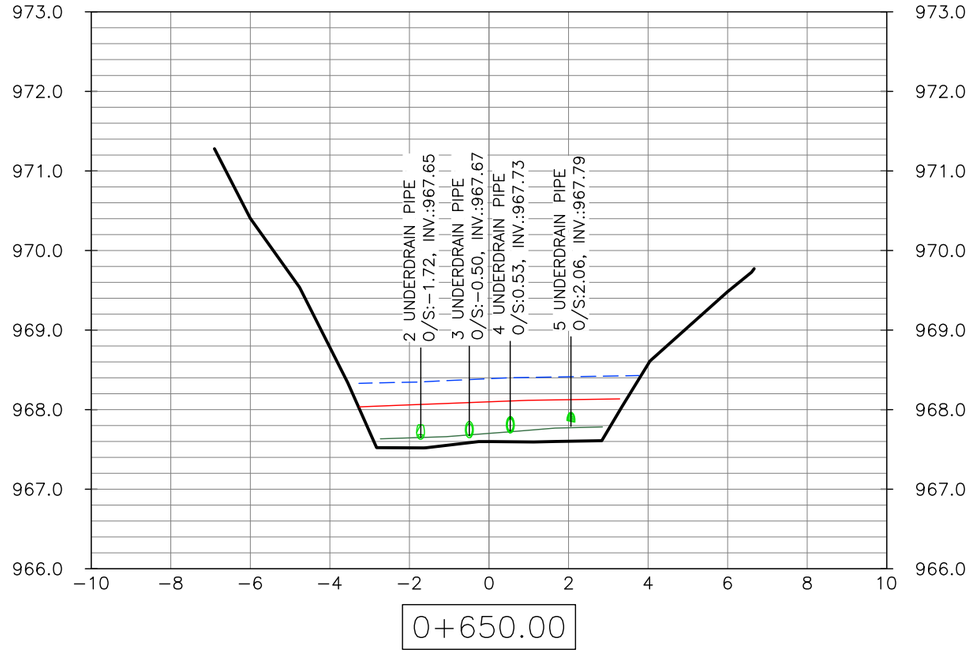
0+500.00



0+550.00



0+600.00



0+650.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A UNDERDRAIN PIPE INSTALLATION

PIPE 2: 323.58m INSTALLED
PIPE 3: 323.10m INSTALLED
PIPE 4: 323.49m INSTALLED
PIPE 5: 325.77m INSTALLED

TOTAL: 1295.94m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PIPING INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

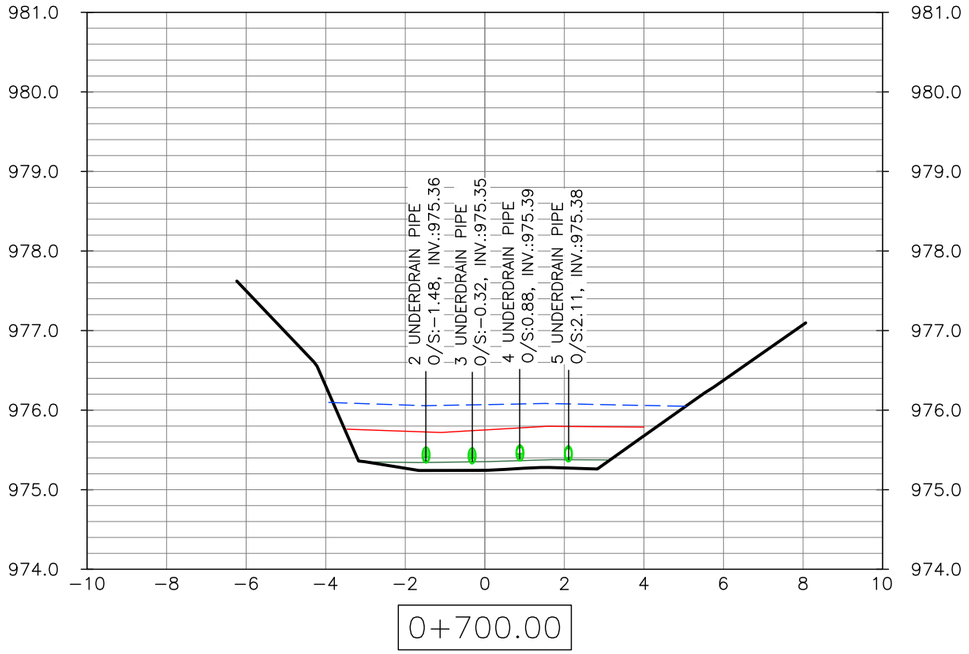
DATE:	19/05/14	**DWG No:**	184010-038
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

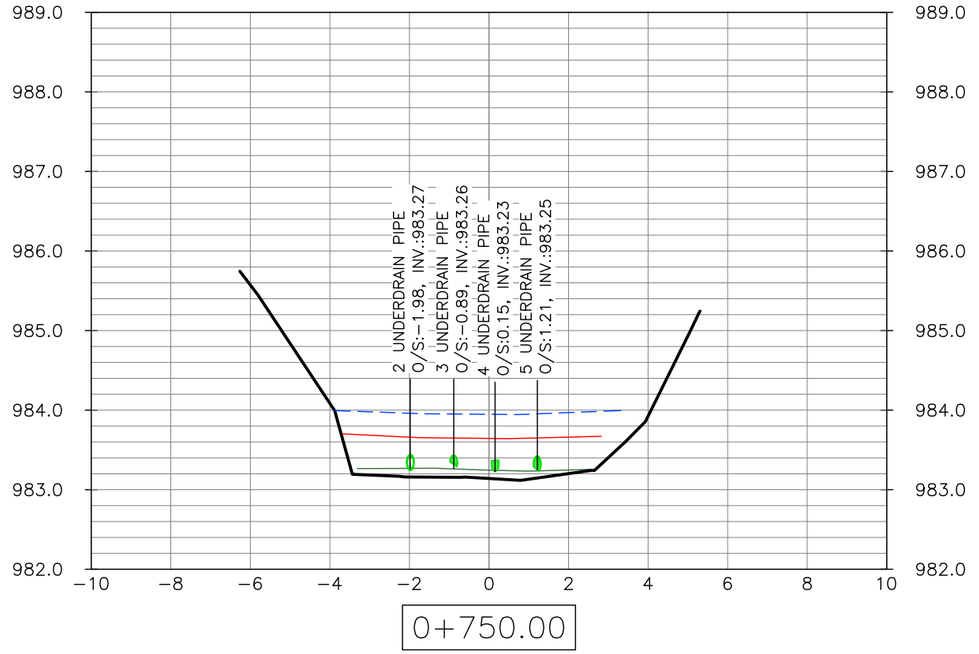
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

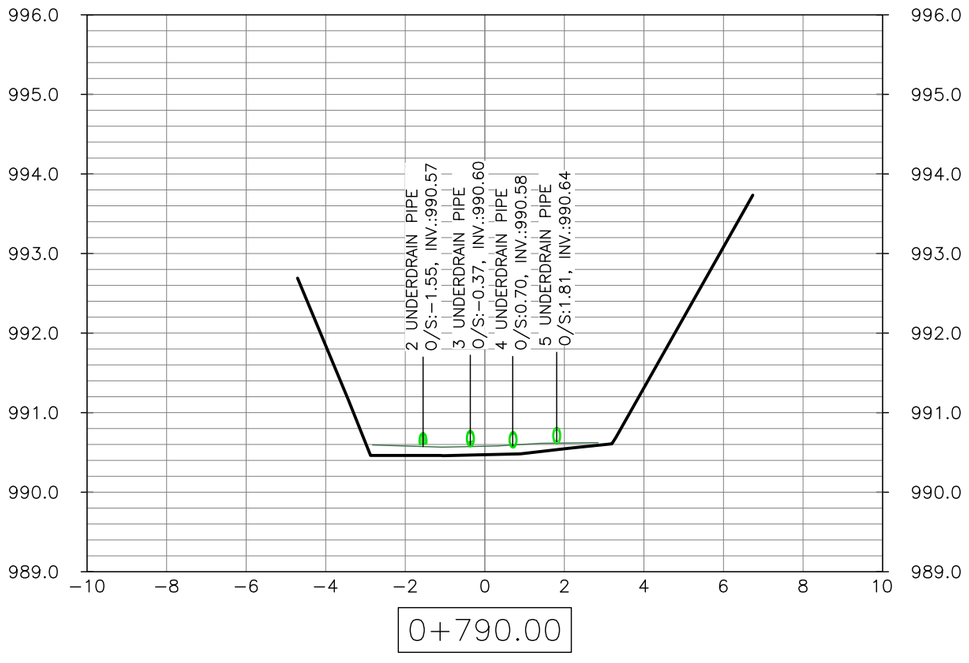
SHEET: 003



0+700.00



0+750.00



0+790.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A UNDERDRAIN PIPE INSTALLATION

PIPE 2: 323.58m INSTALLED
PIPE 3: 323.10m INSTALLED
PIPE 4: 323.49m INSTALLED
PIPE 5: 325.77m INSTALLED

TOTAL: 1295.94m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

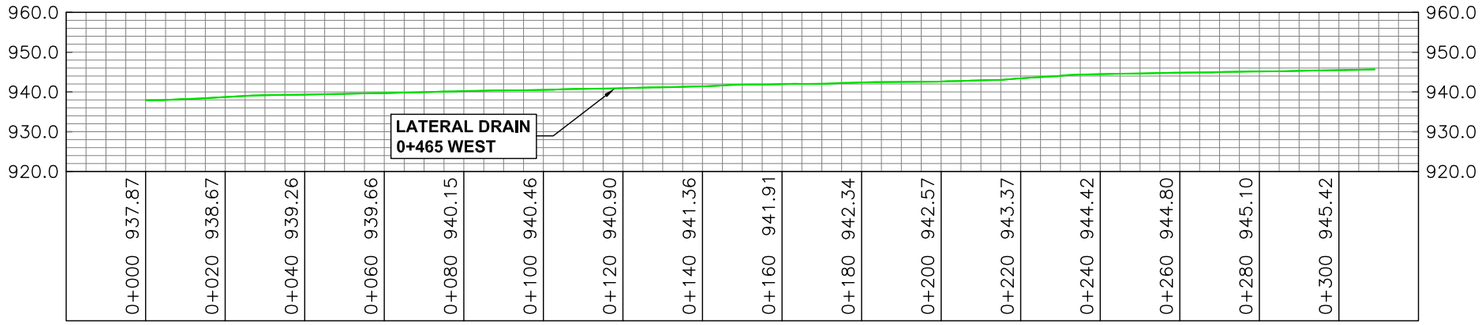
EAGLE GOLD MINE CONSTRUCTION

TITLE:

HLF PIPING INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

DATE: 19/05/14
DWG No: 184010-038
SURVEYED: TEAM
CHECKED:
DRAWN: CM CB FvD
APPROVED:
DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG
DRAWING VIEW: 11x17 Landscape
PROJECT NO.: 17003
SHEET: 004



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+465 WEST: 252.46m INSTALLED
(ADDITIONAL 56,70m WAS INSTALLED IN 2018)

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+465 WEST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:
H 1:1500, V 1:1500

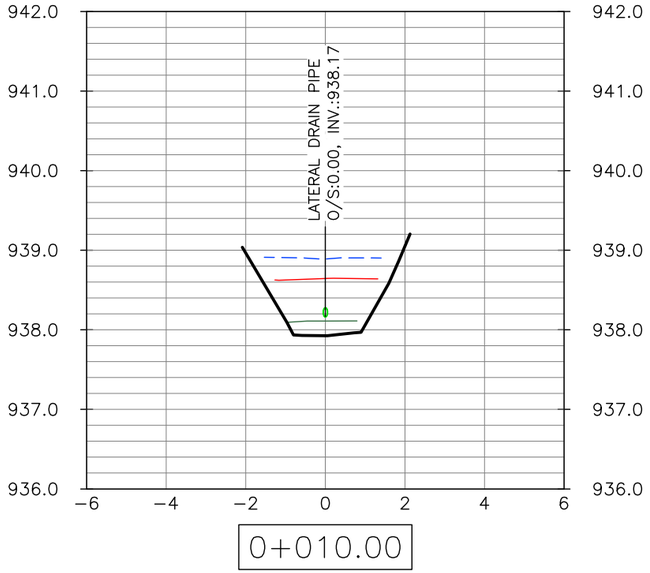
DATE: 19/05/14	**DWG No:** 184010-038
SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

DRAWING FILE:
190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

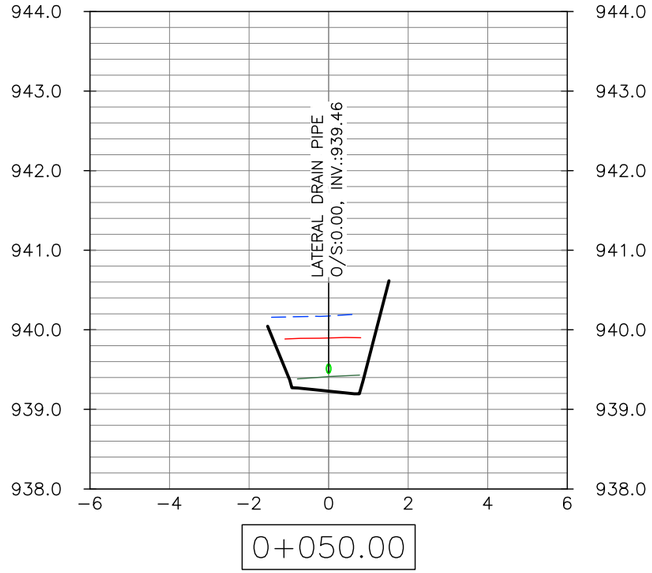
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

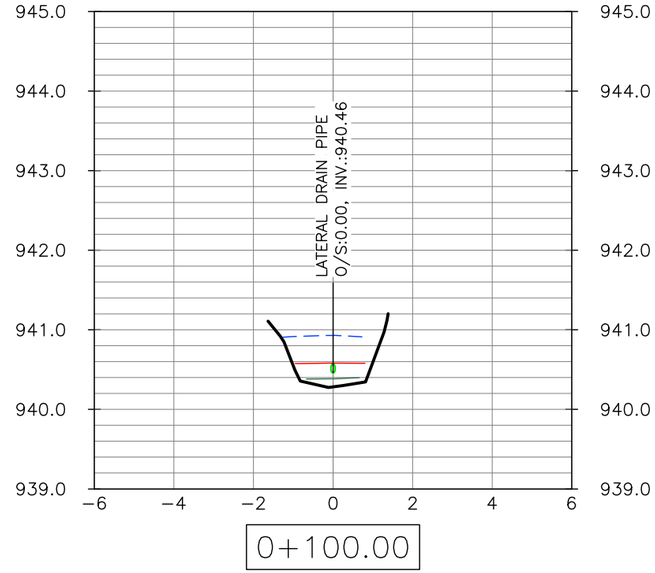
SHEET:
005



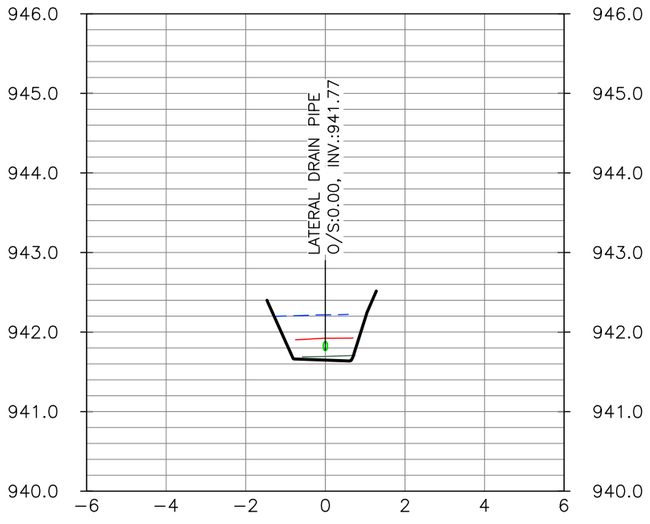
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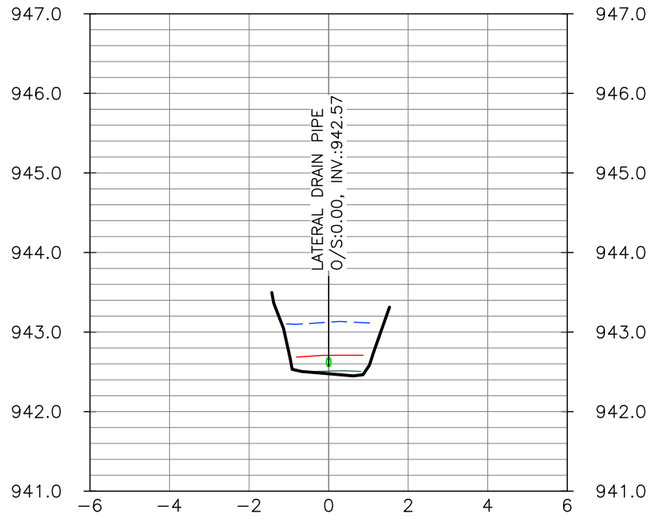
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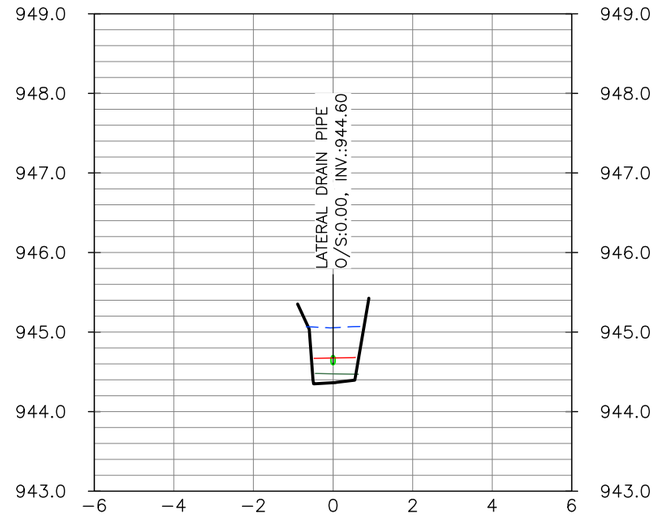
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REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+465 WEST: 252.46m INSTALLED
(ADDITIONAL 56,70m WAS INSTALLED IN 2018)

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+465 WEST
LATERAL DRAIN
INSTALLATION
SECTIONS (ASBUILT)

DRAWING SCALE:
H 1:150, V 1:75

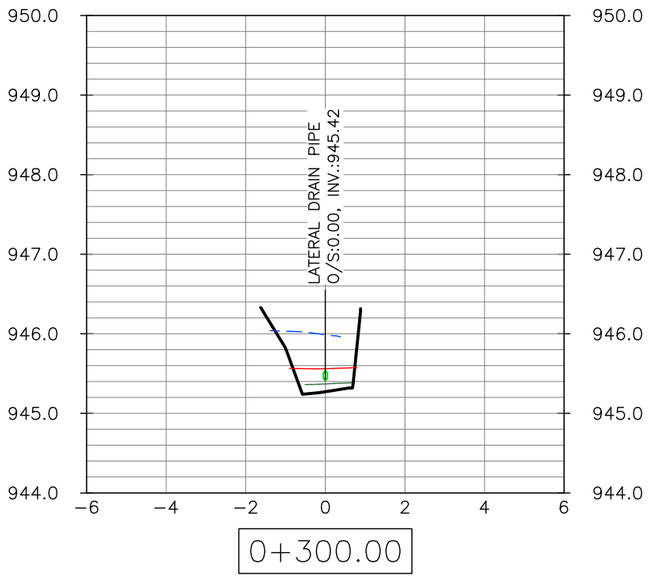
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SURVEYED:	TEAM	CHECKED:	
DRAWN:	CM CB FvD	APPROVED:	

DRAWING FILE:
190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
006



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+465 WEST: 252.46m INSTALLED (ADDITIONAL 56,70m WAS INSTALLED IN 2018)

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+465 WEST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

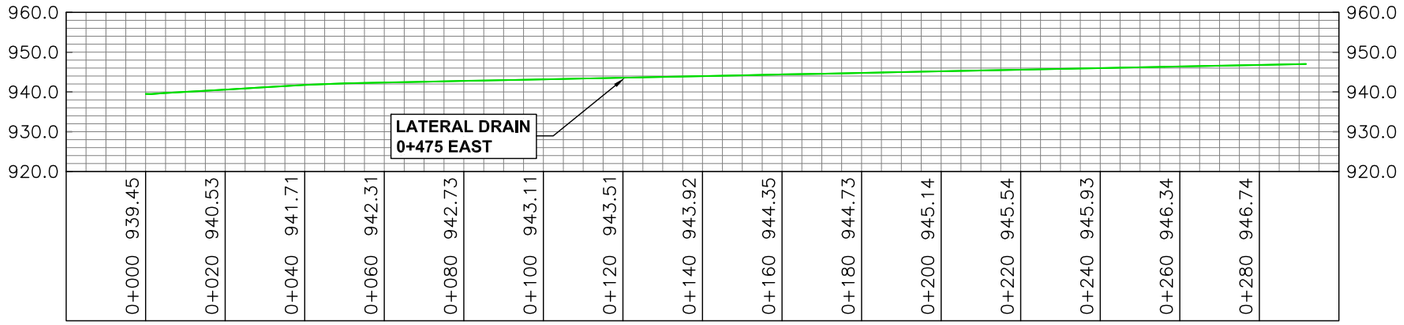
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 007



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+475 EAST: 291.88m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+475 EAST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE: H 1:1500, V 1:1500

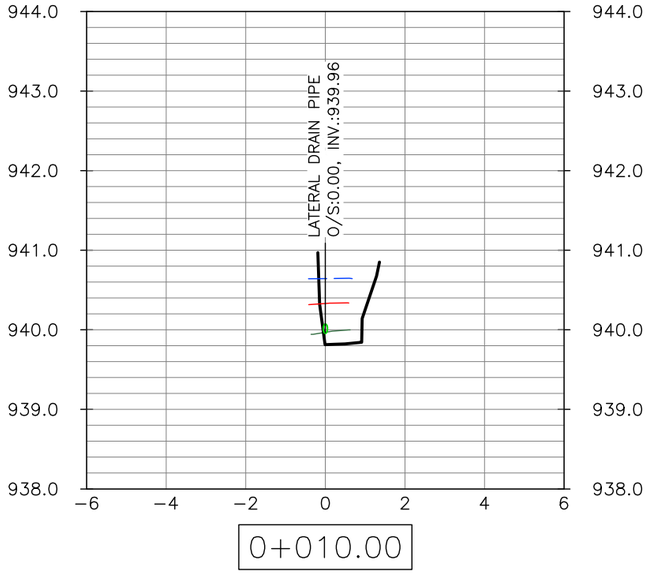
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

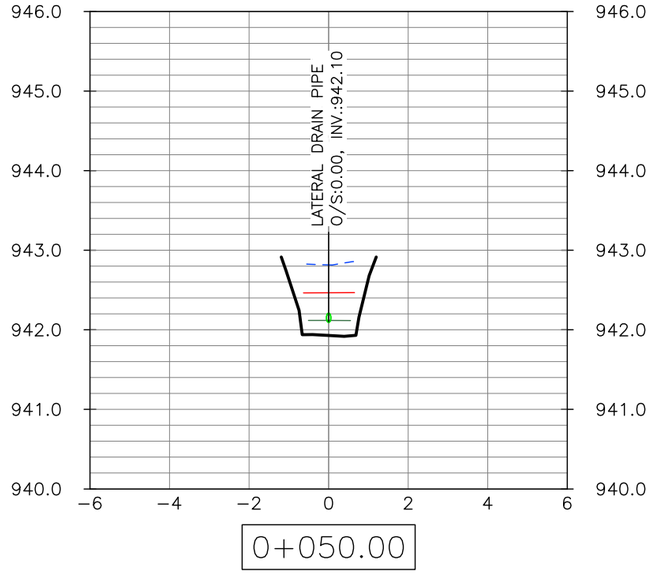
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

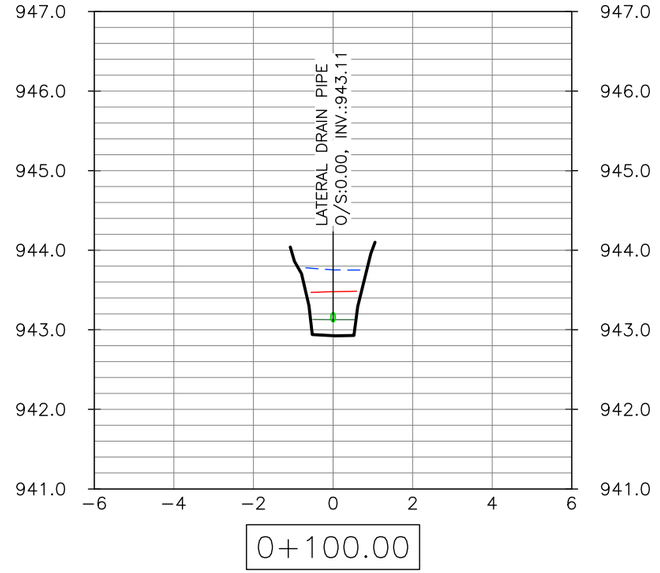
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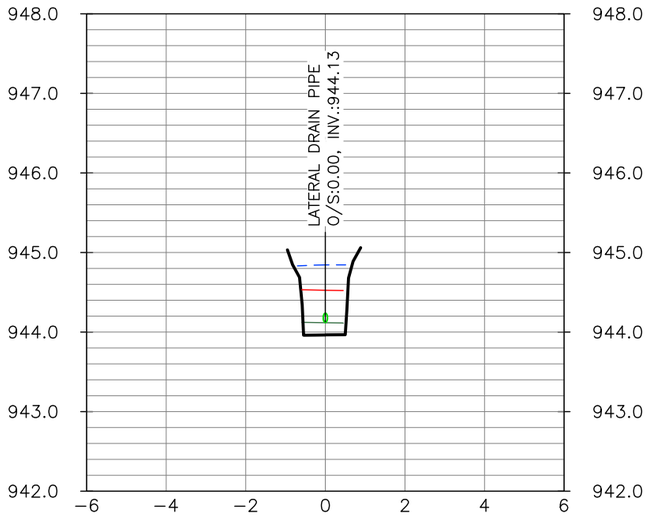
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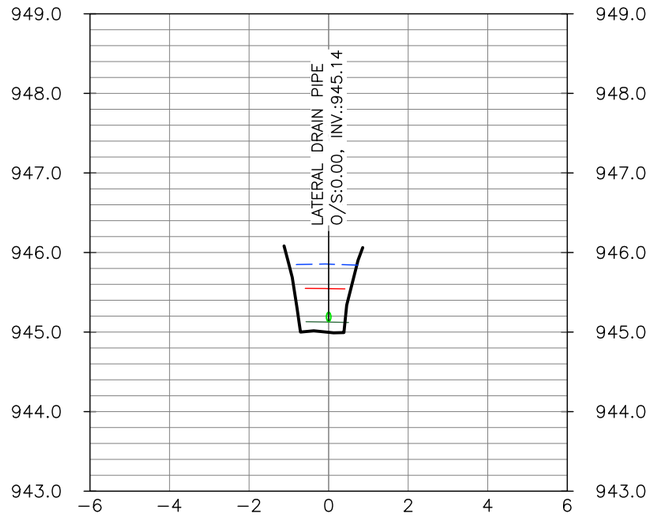
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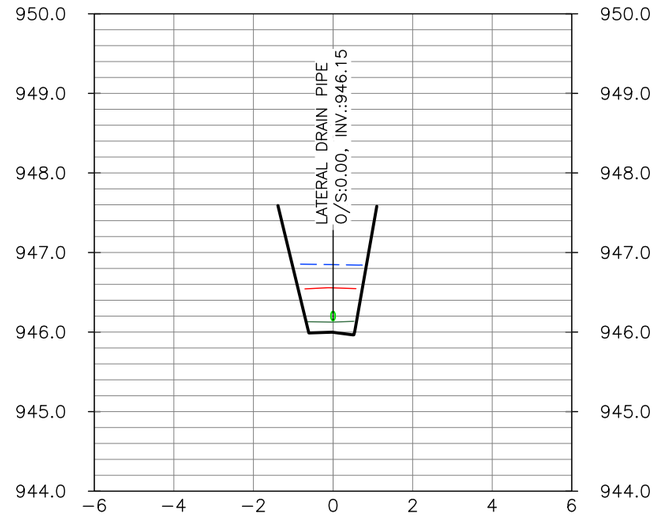
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0+200.00



0+250.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+475 EAST: 291.88m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+475 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

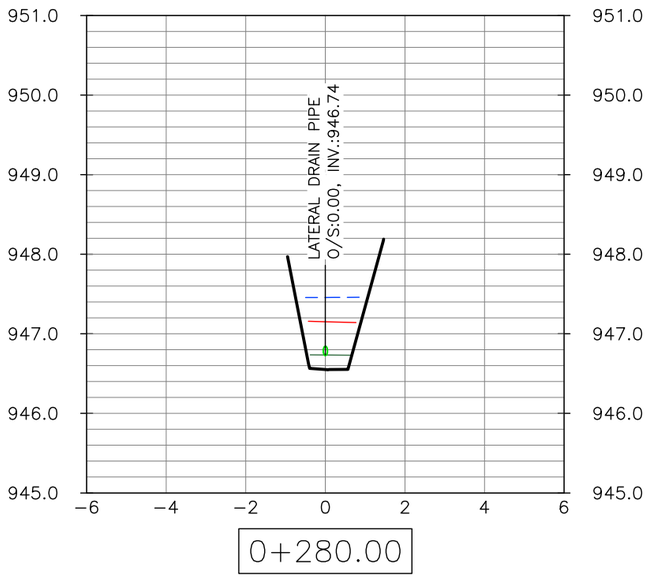
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 009



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+475 EAST: 291.88m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+475 EAST
LATERAL DRAIN
INSTALLATION
SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

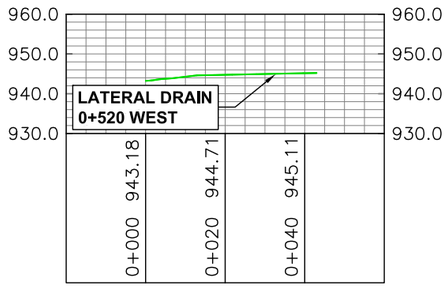
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DRAWING FILE: 190415 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 010



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+520 WEST: 43.10m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+520 WEST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

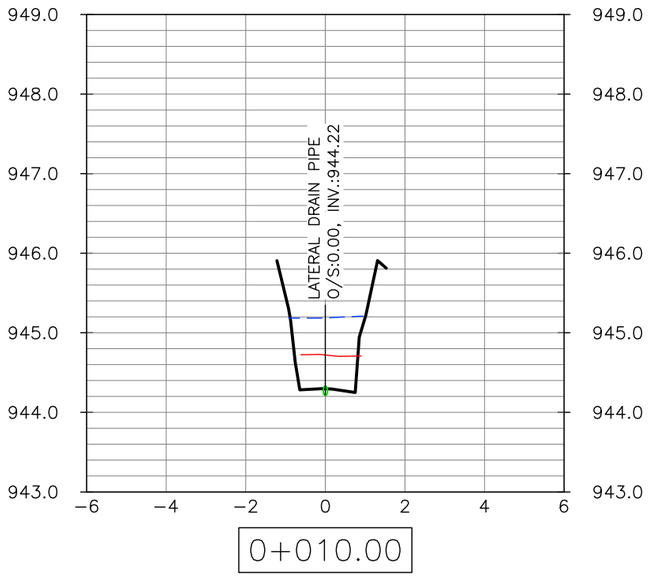
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

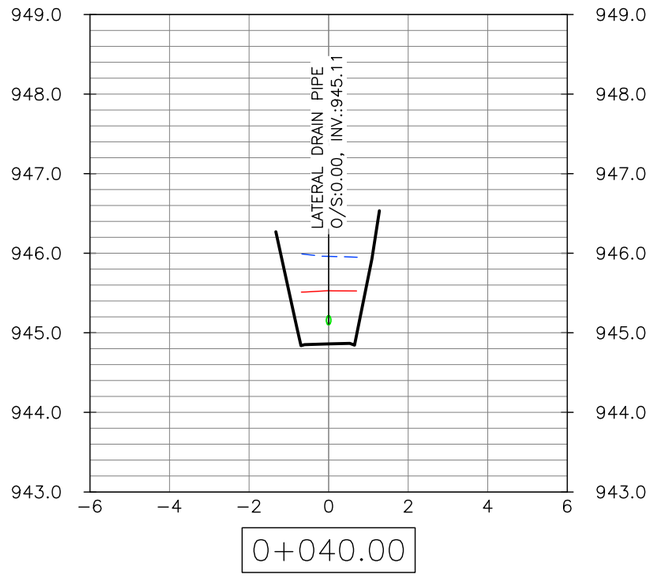
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190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

SHEET:
011





REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+520 WEST: 43.10m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+520 WEST
LATERAL DRAIN
INSTALLATION
SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

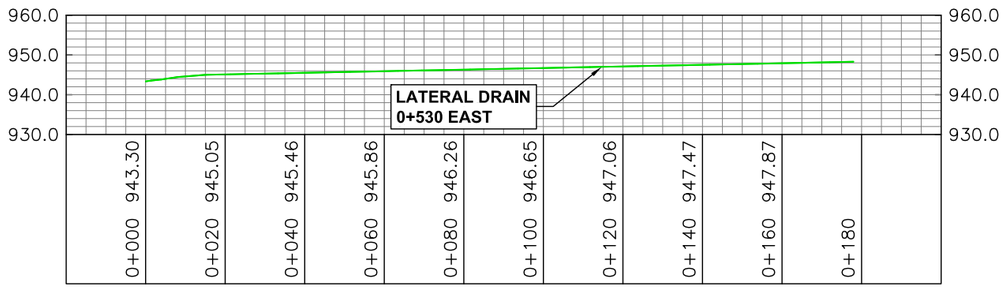
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 012



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+530 EAST: 178.11m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+530 EAST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

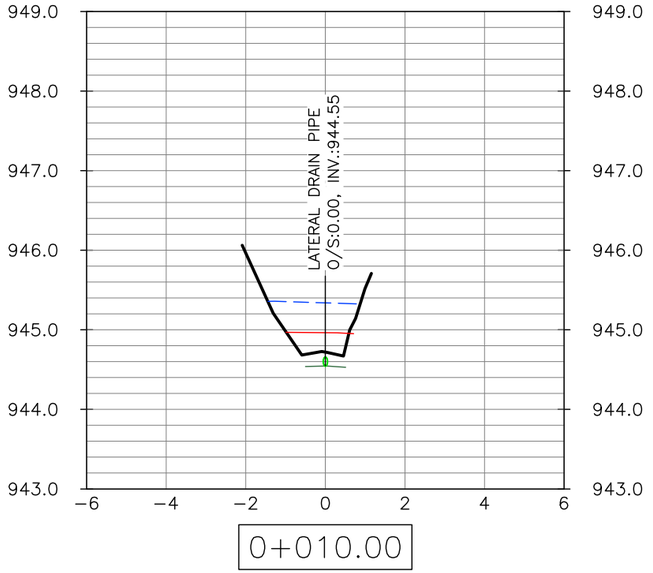
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SURVEYED: TEAM	**CHECKED:**
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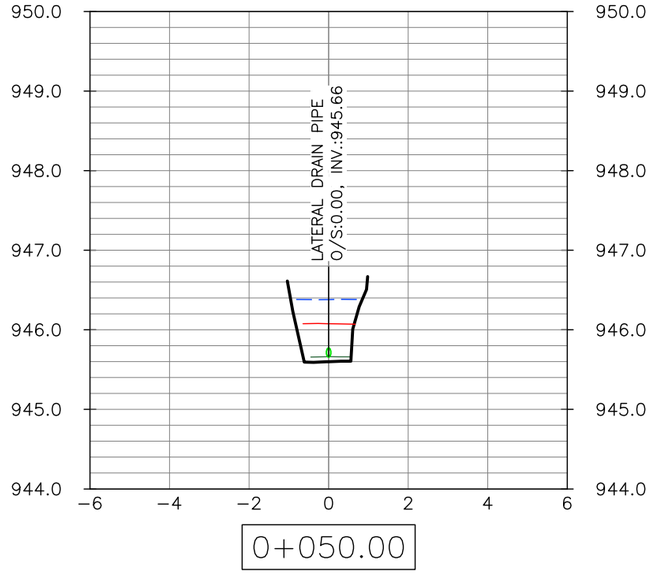
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190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

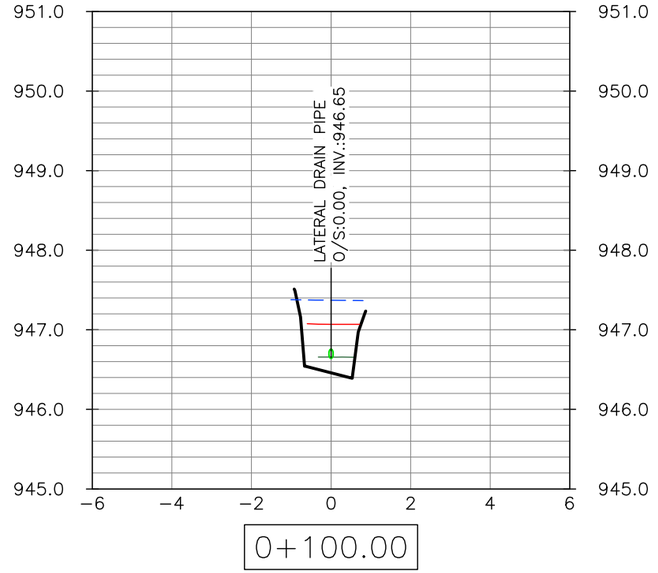
DRAWING VIEW:
11x17 Landscape

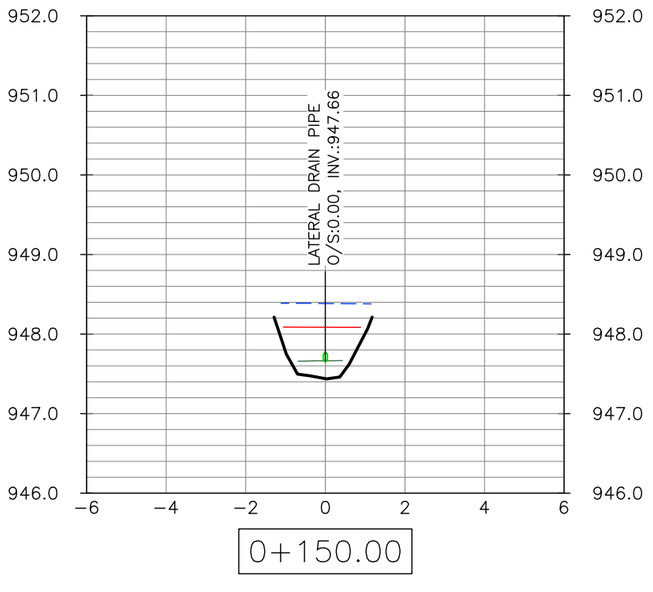
PROJECT NO.:
17003

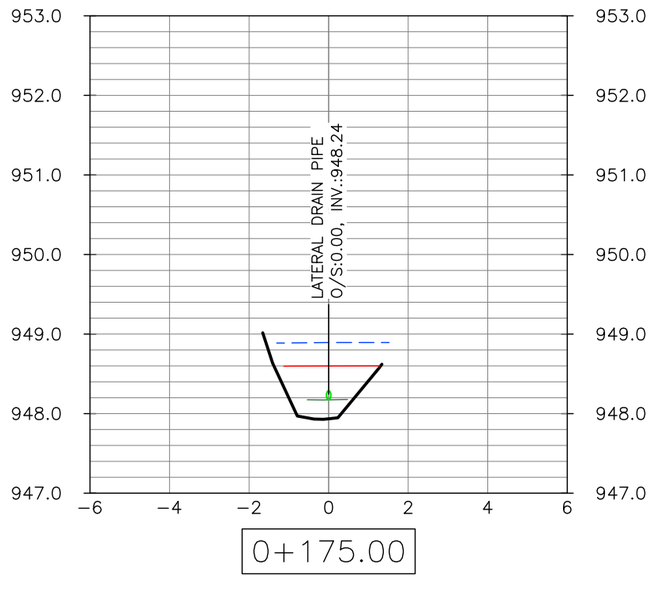
SHEET:
013











REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+530 EAST: 178.11m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+530 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

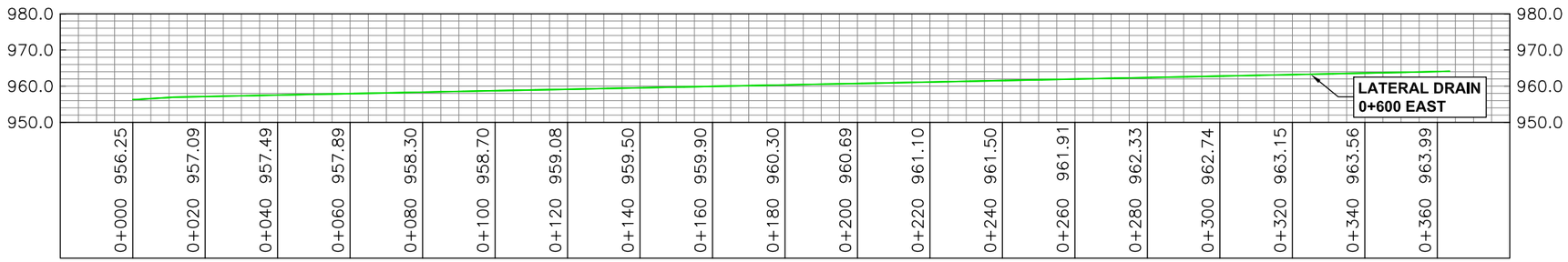
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 014



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 EAST: 363.52m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+600 EAST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

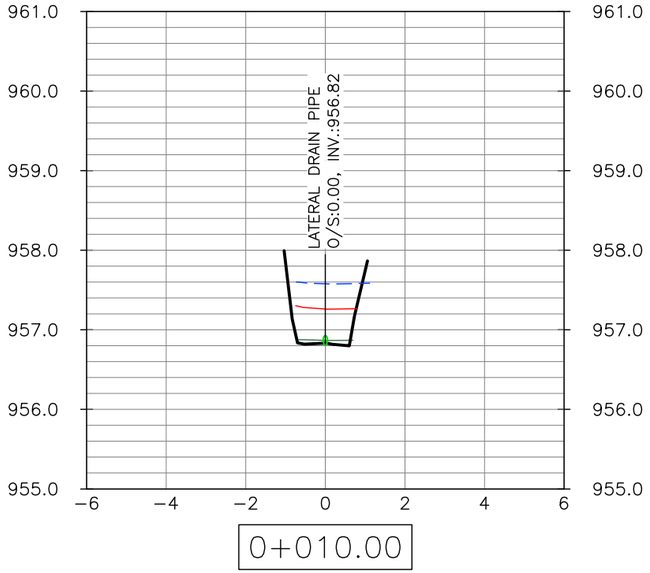
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

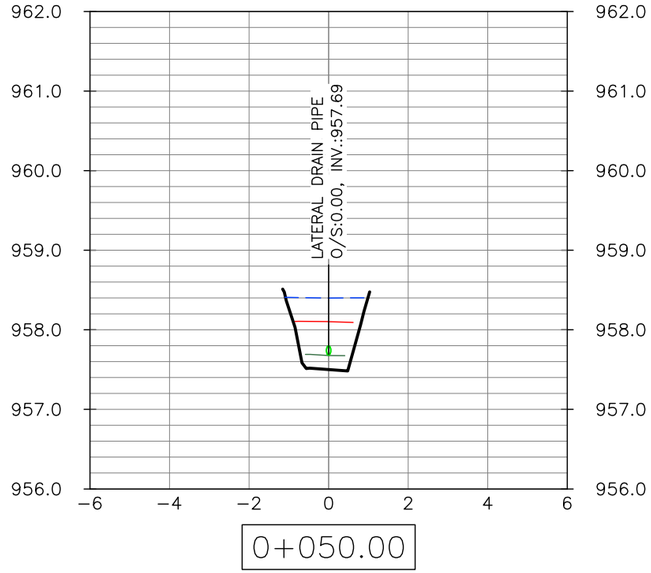
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

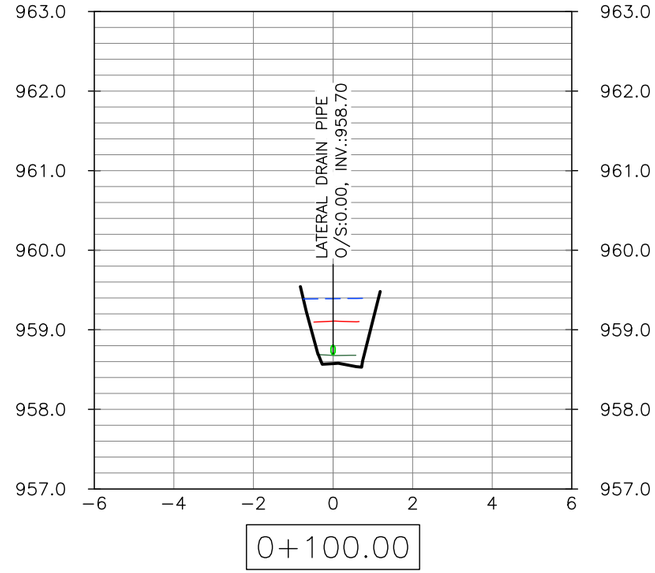
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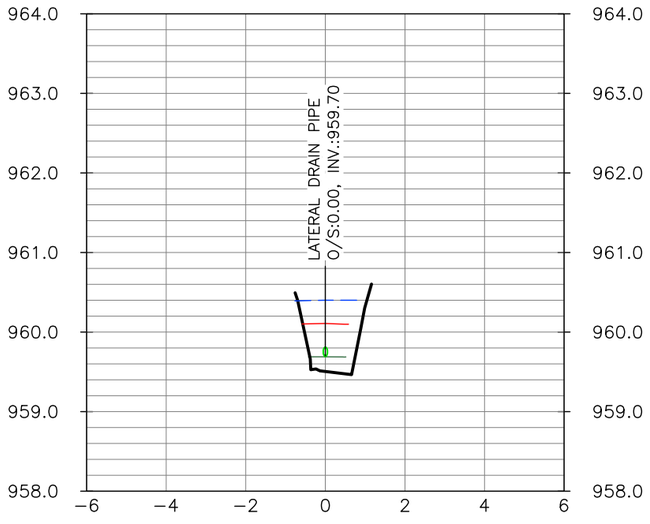
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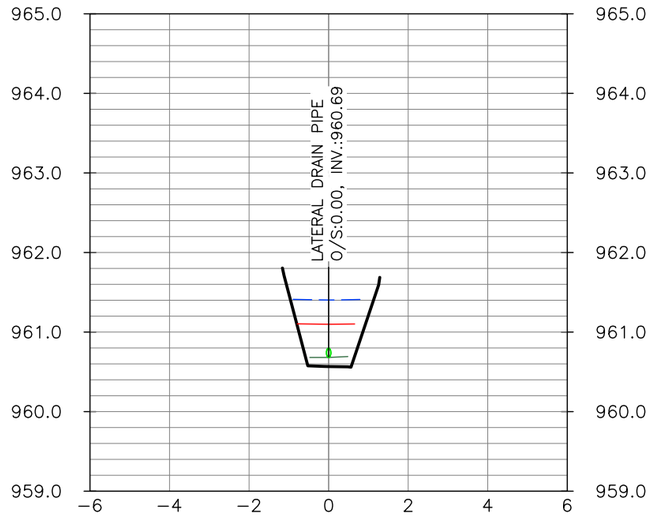
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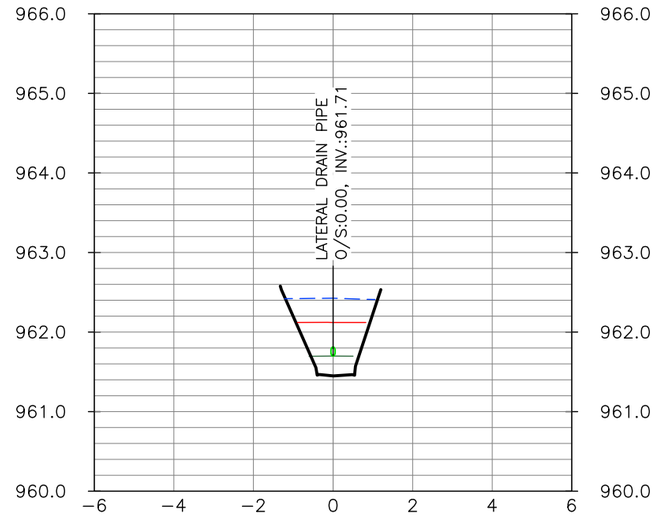
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0+150.00



0+200.00



0+250.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 EAST: 363.52m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+600 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

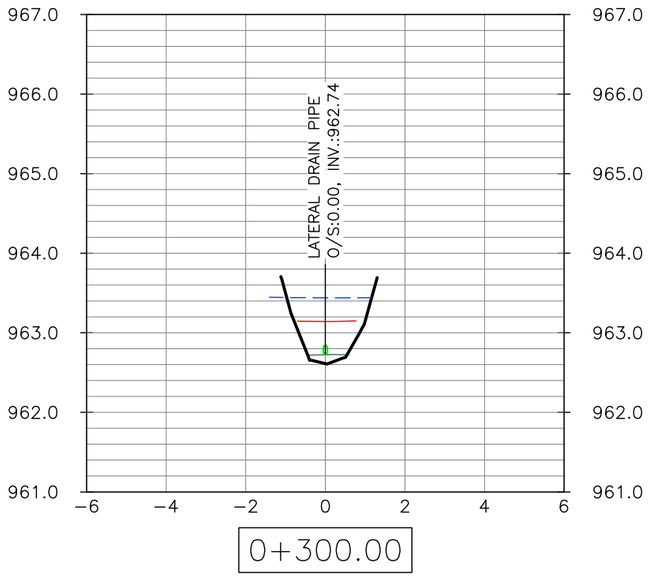
DATE:	19/05/14	**DWG No:**	184010-038
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

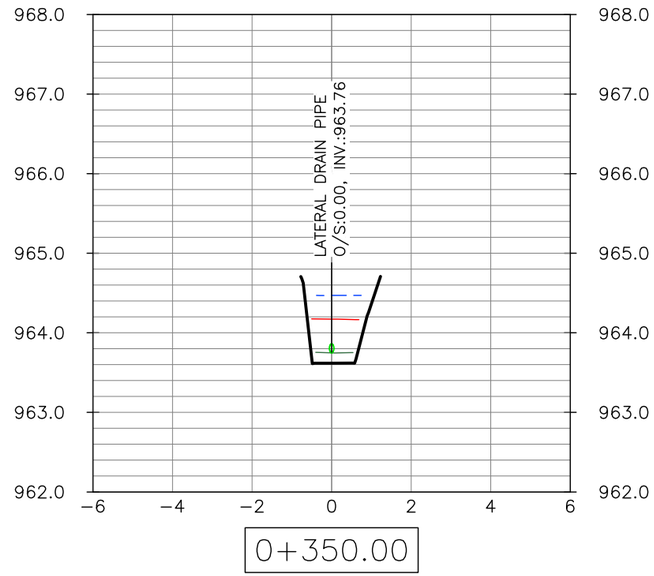
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

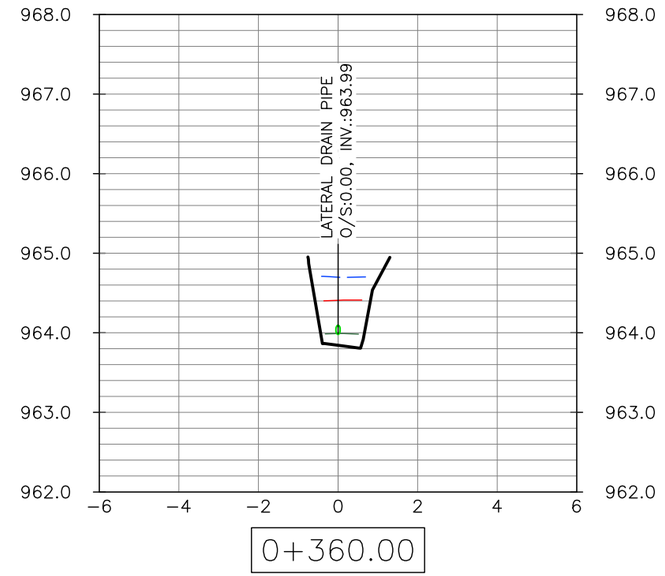
SHEET: 016



0+300.00



0+350.00



0+360.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 EAST: 363.52m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+600 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

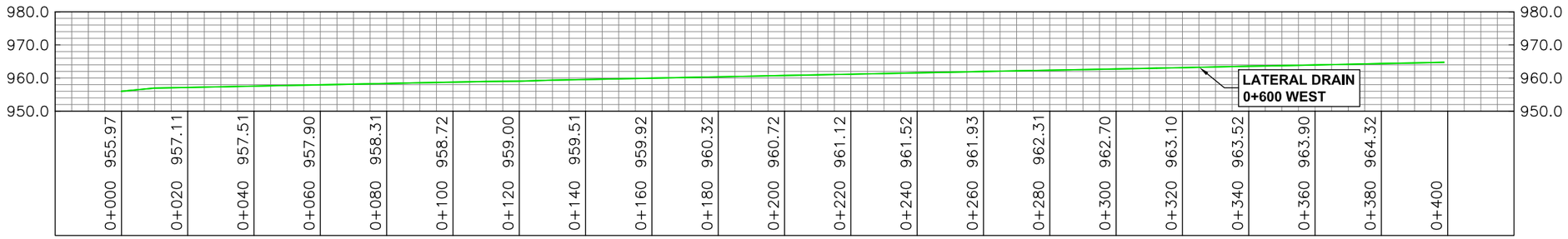
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 017



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 WEST: 399.06m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+600 WEST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

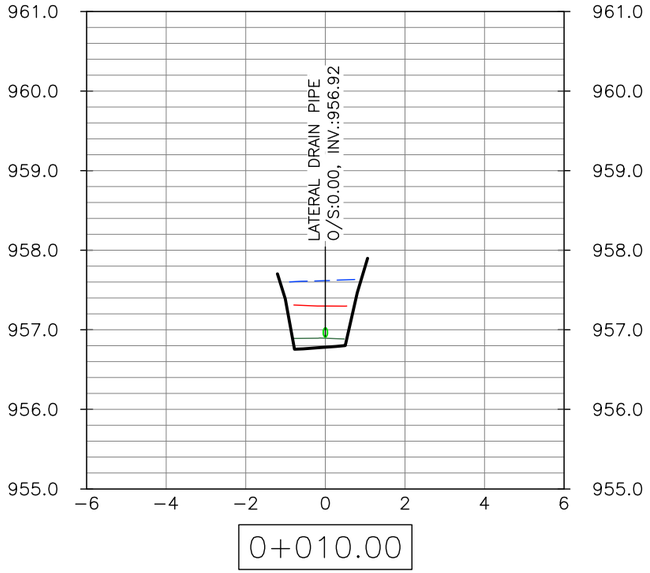
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

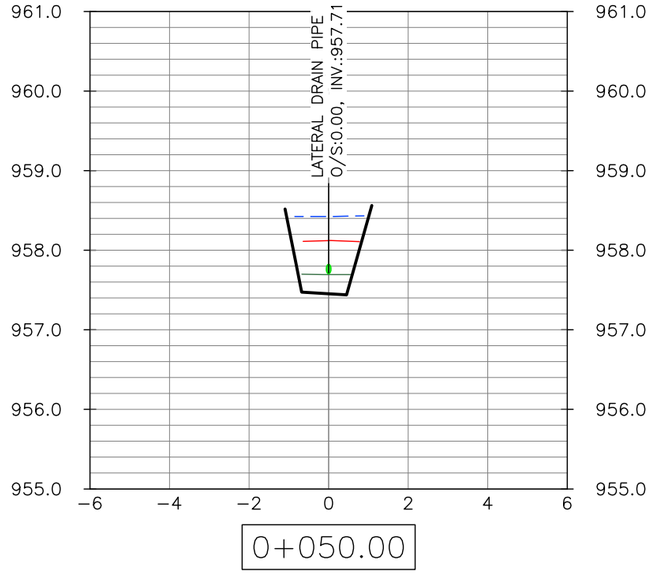
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

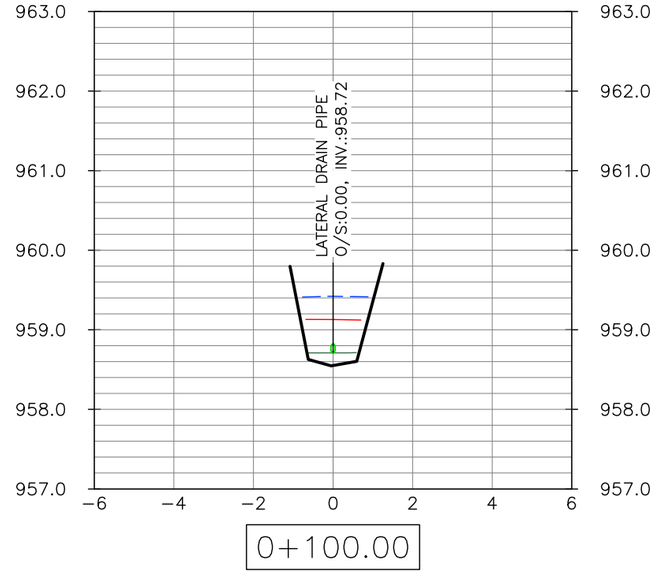
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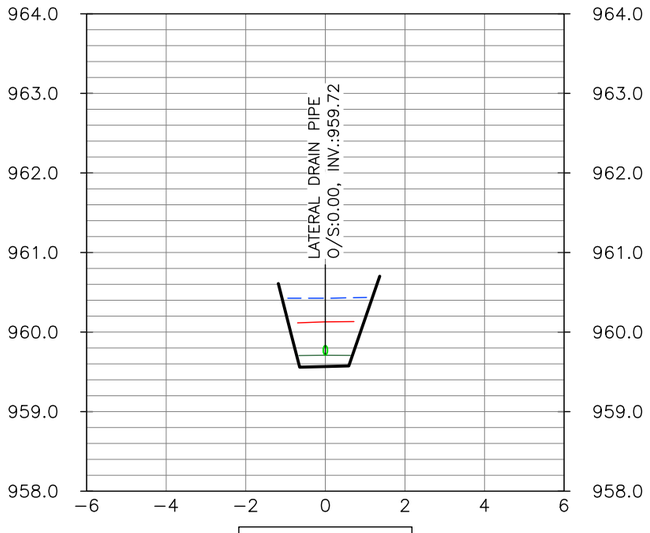
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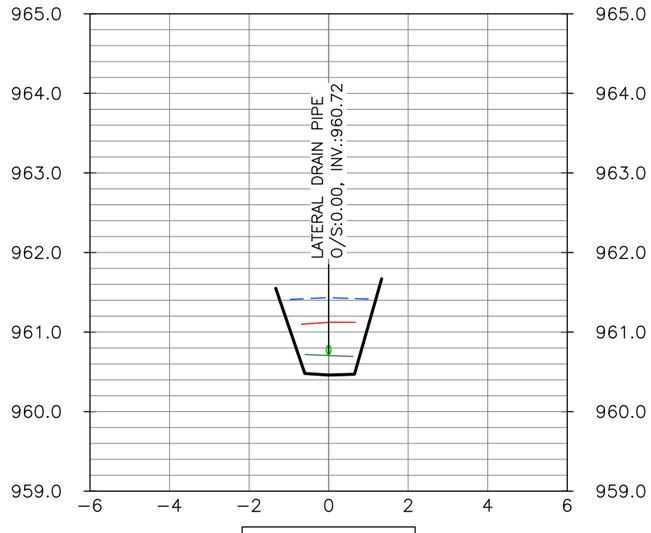
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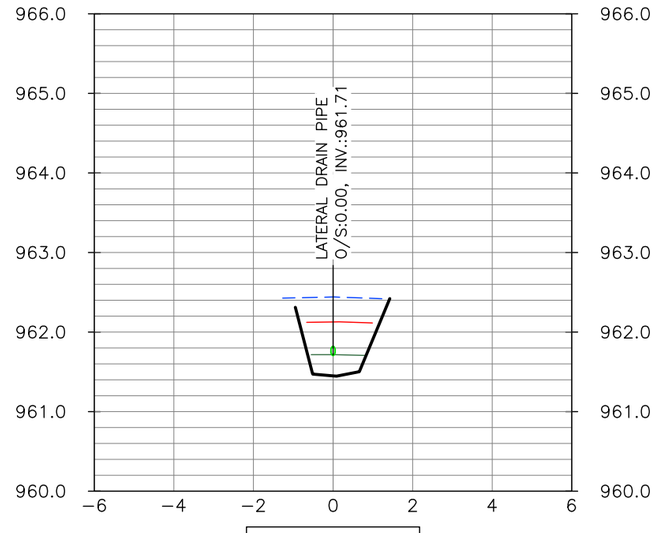
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0+150.00



0+200.00



0+250.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 WEST: 399.06m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+600 WEST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

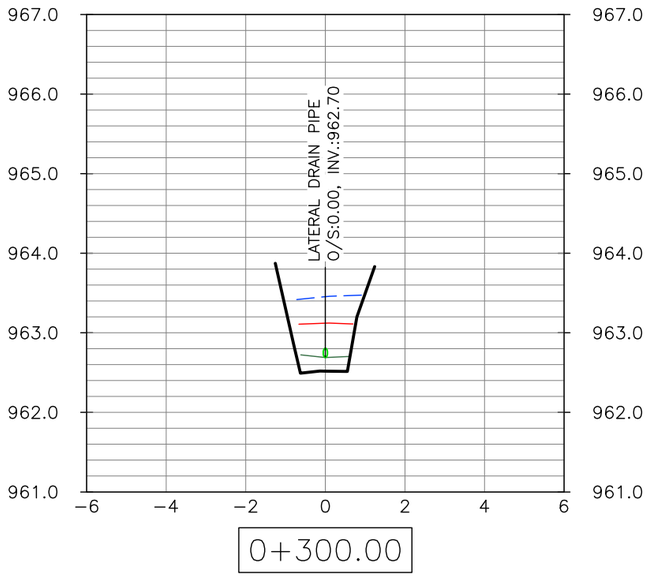
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SURVEYED:	TEAM	**CHECKED:**	
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DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

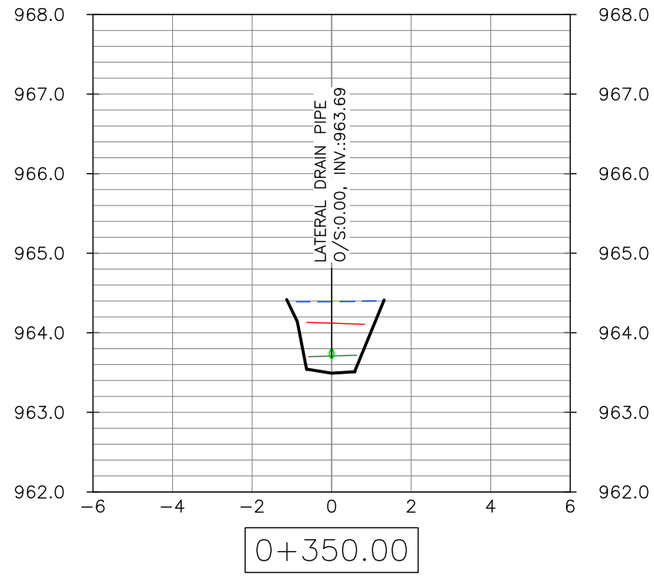
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

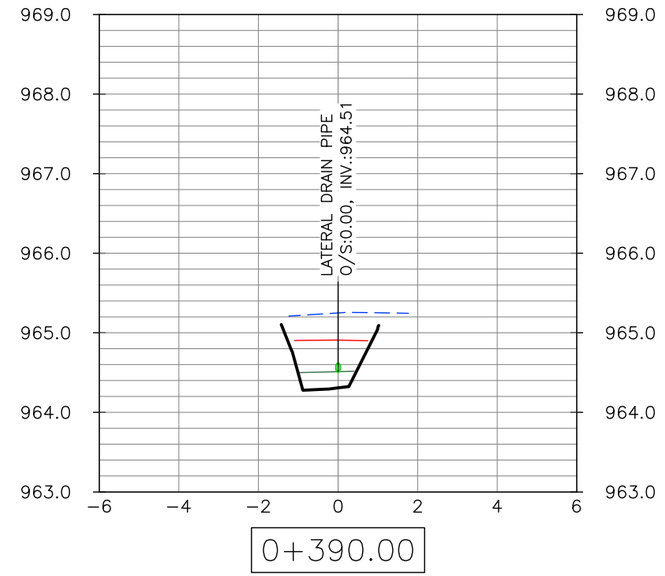
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0+300.00



0+350.00



0+390.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+600 WEST: 399.06m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+600 WEST
LATERAL DRAIN
INSTALLATION
SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

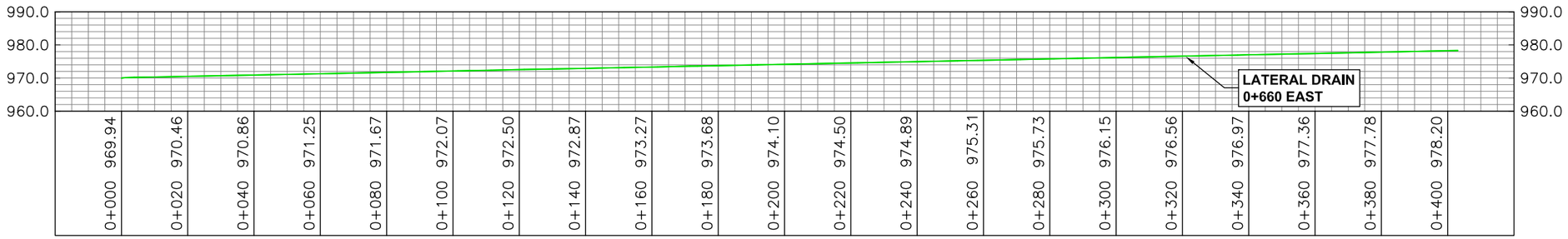
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 020



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 EAST: 403.19m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+660 EAST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

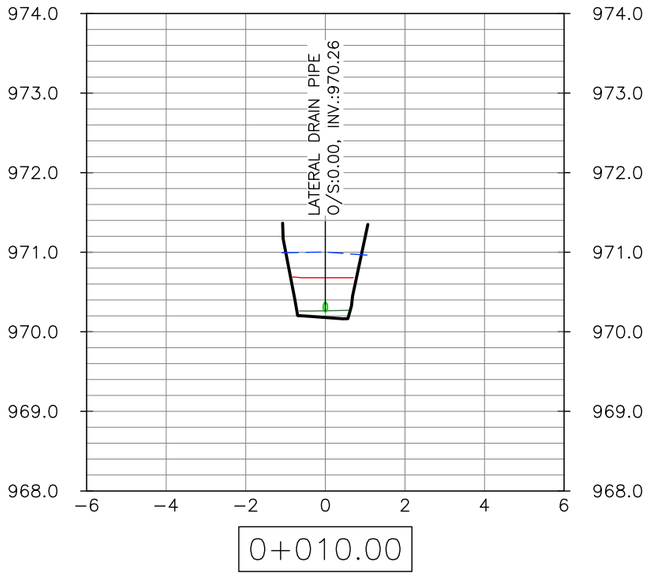
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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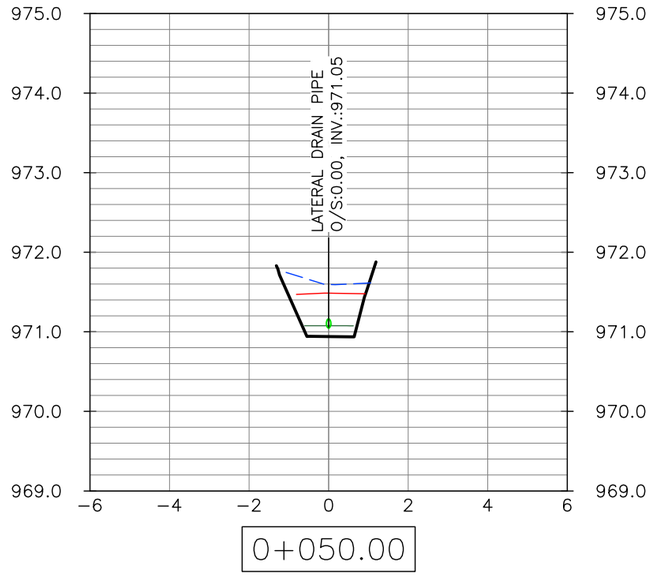
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

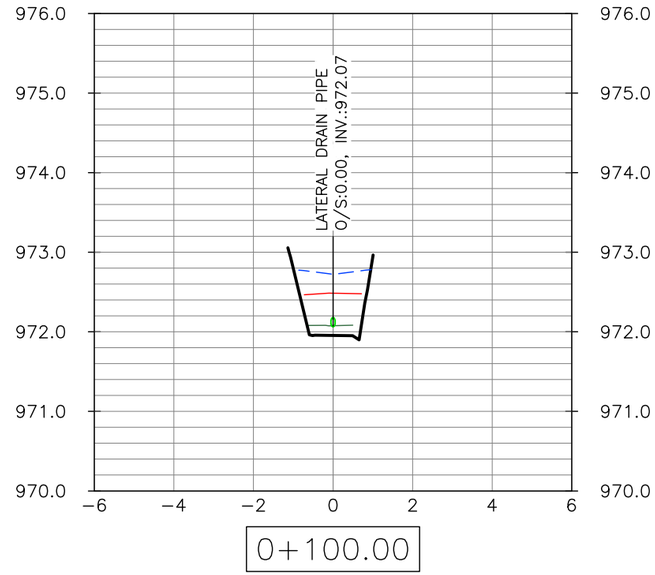
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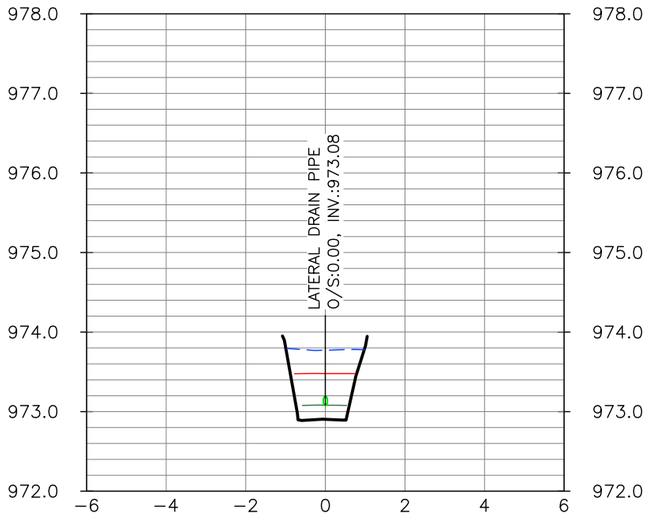
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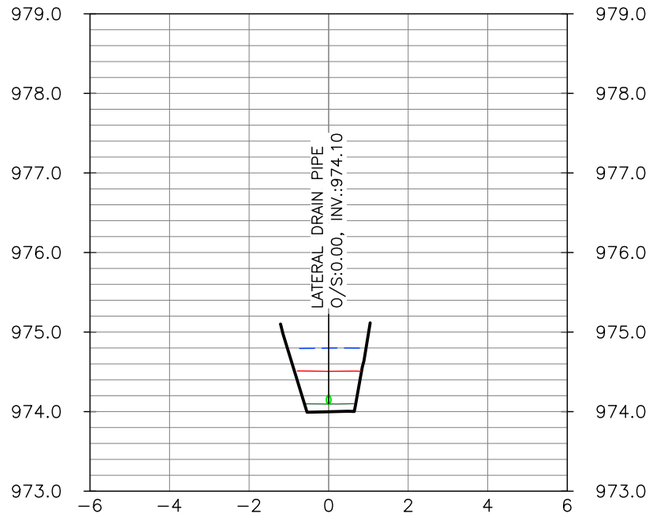
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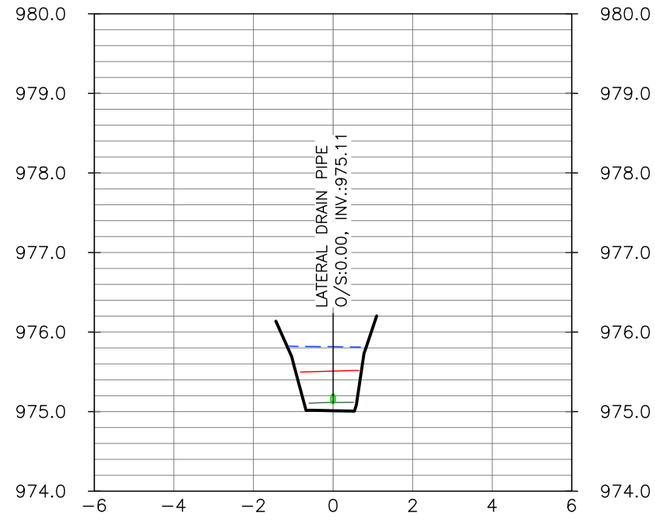
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0+150.00



0+200.00



0+250.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 EAST: 403.19m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+660 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

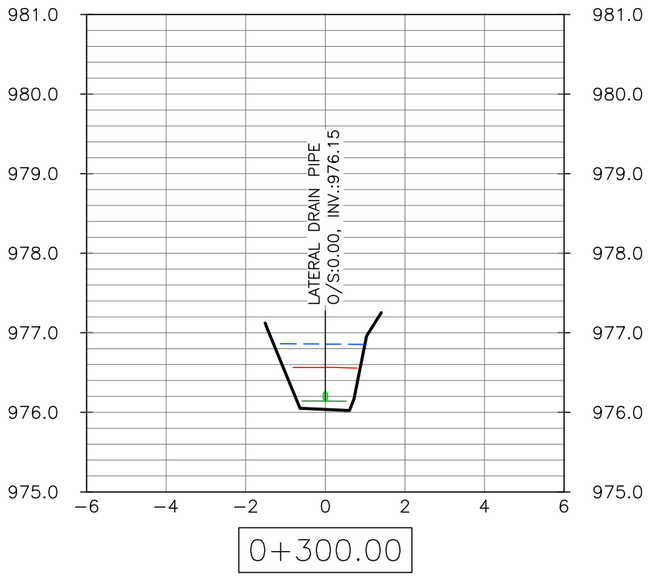
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DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

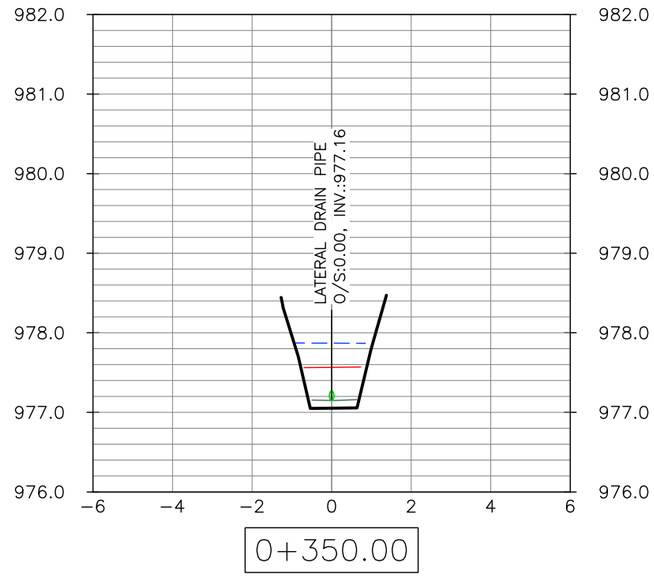
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

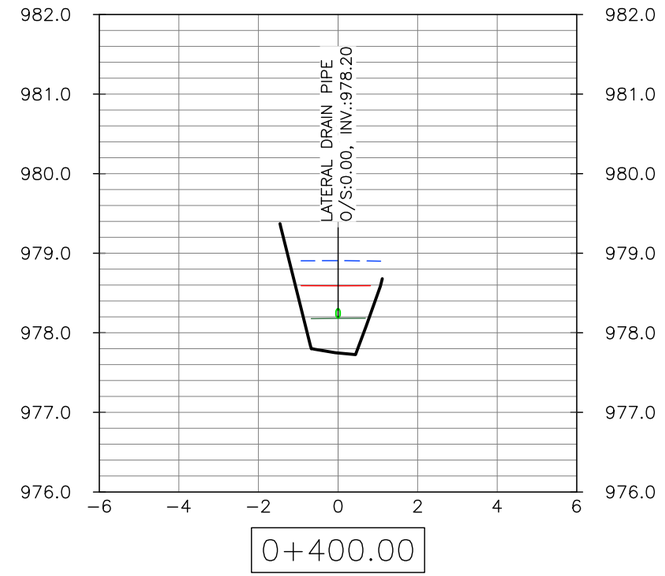
SHEET: 022



0+300.00



0+350.00



0+400.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 EAST: 403.19m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+660 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

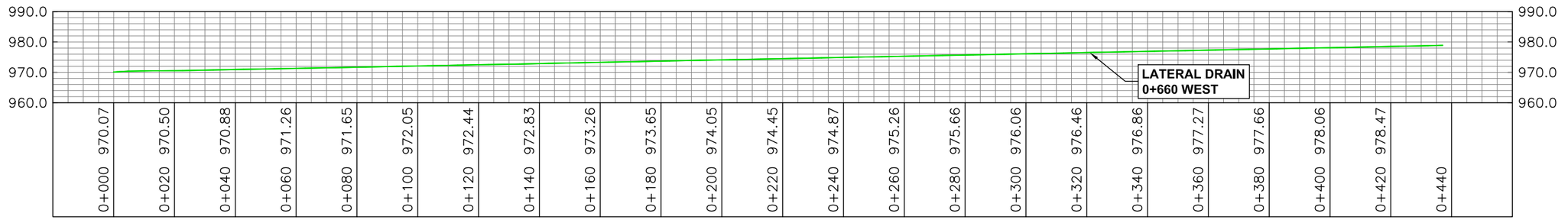
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 023



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 WEST: 437.15m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+660 WEST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

H 1:1500, V 1:1500

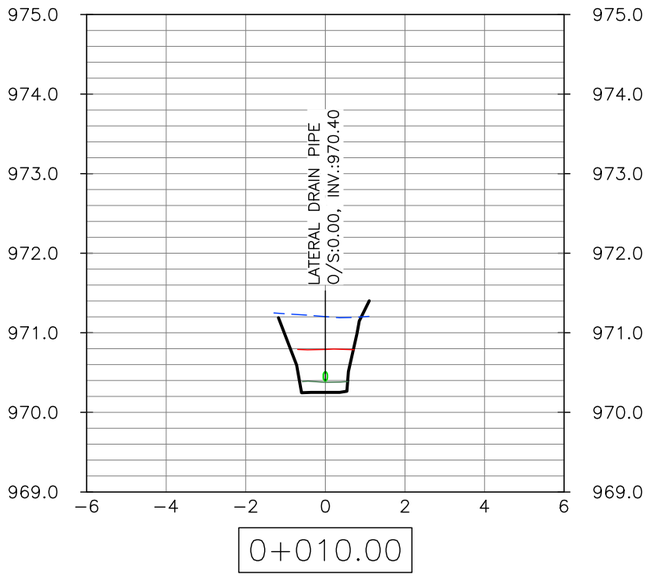
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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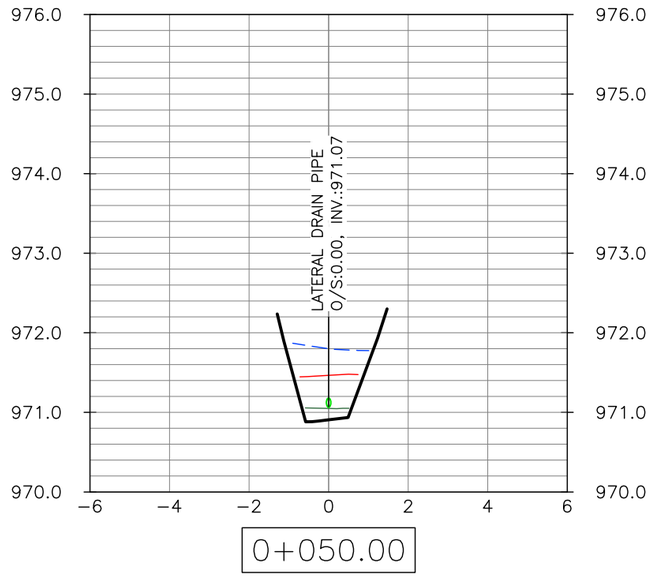
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

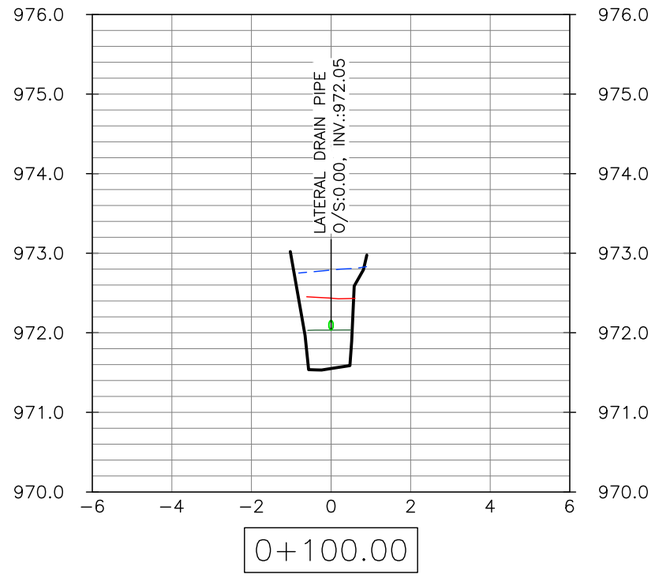
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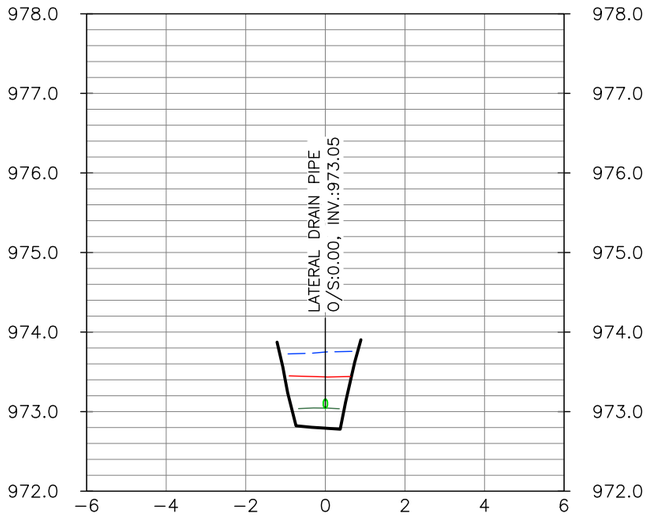
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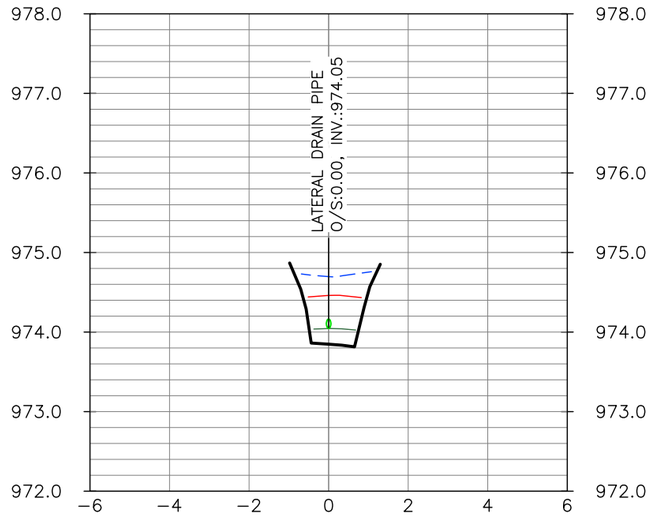
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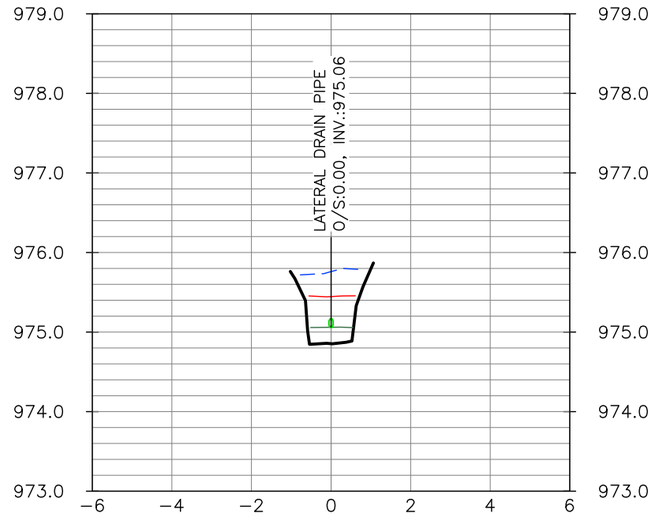
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0+200.00



0+250.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 WEST: 437.15m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+660 WEST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

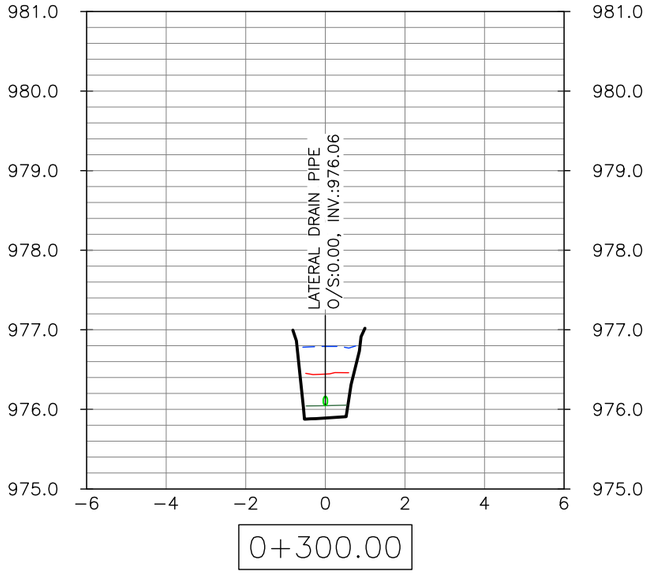
DATE:	19/05/14	**DWG No:**	184010-038
SURVEYED:	TEAM	**CHECKED:**	
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DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

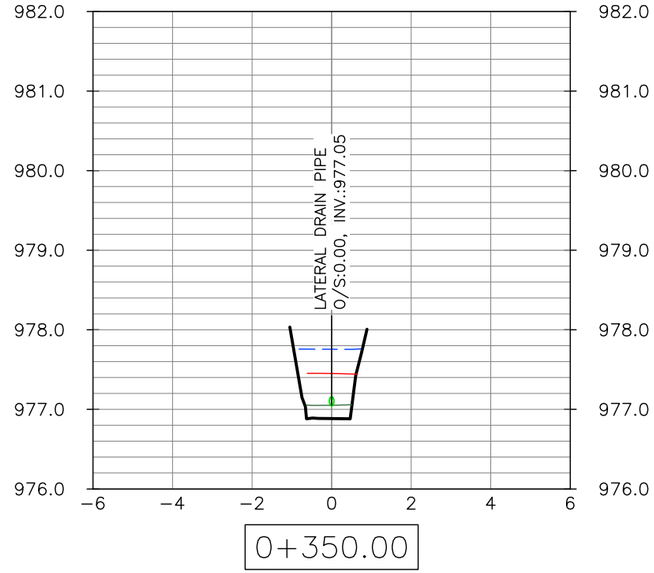
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

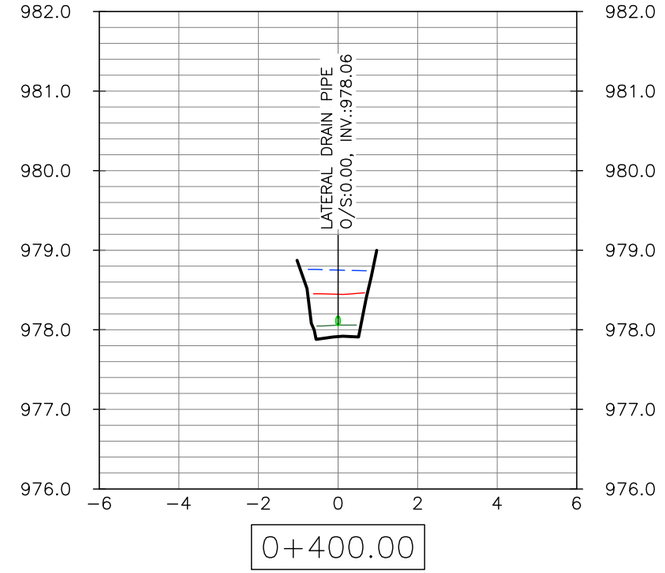
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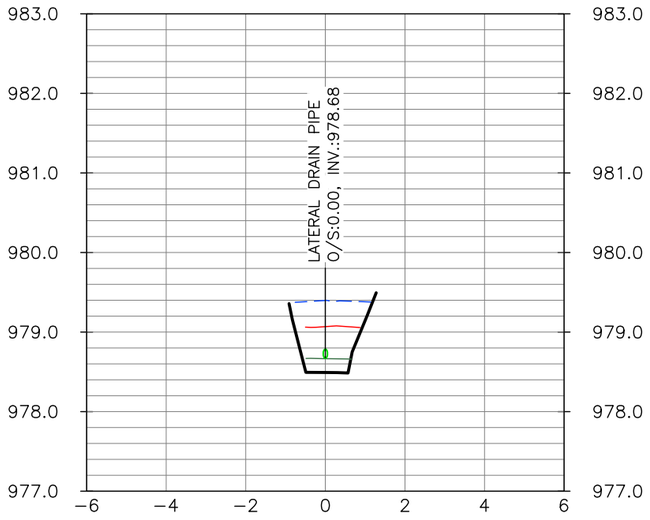
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0+350.00



0+400.00



0+430.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+660 WEST: 437.15m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+660 WEST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

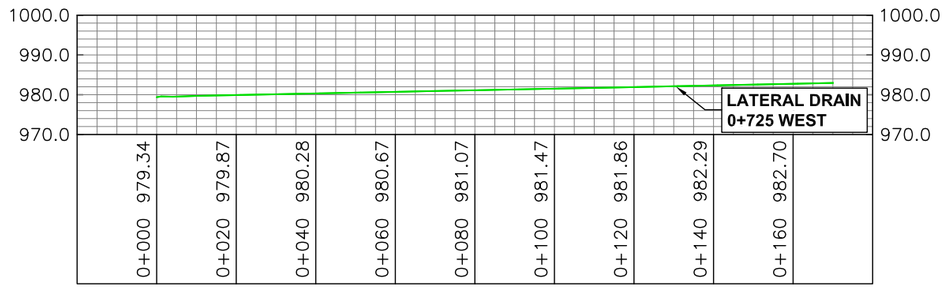
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SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 026



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+725 WEST: 170.15m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+725 WEST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

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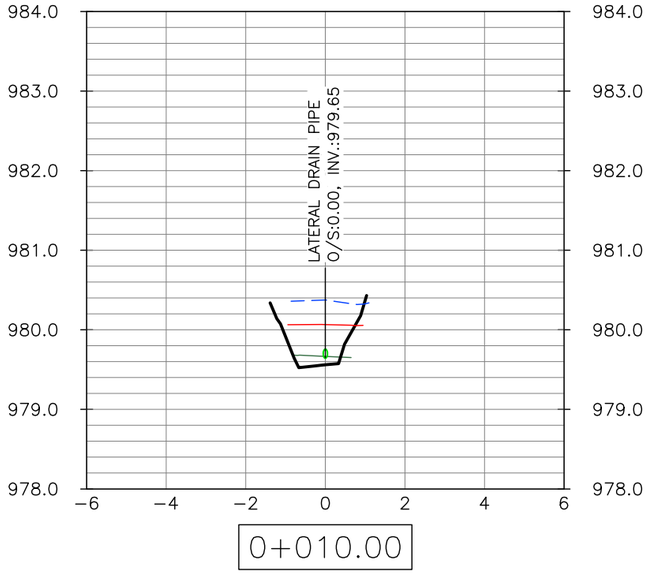
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

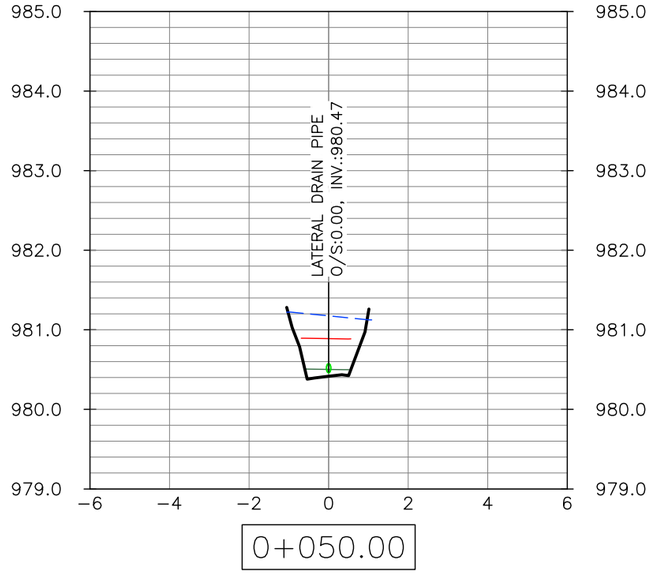
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

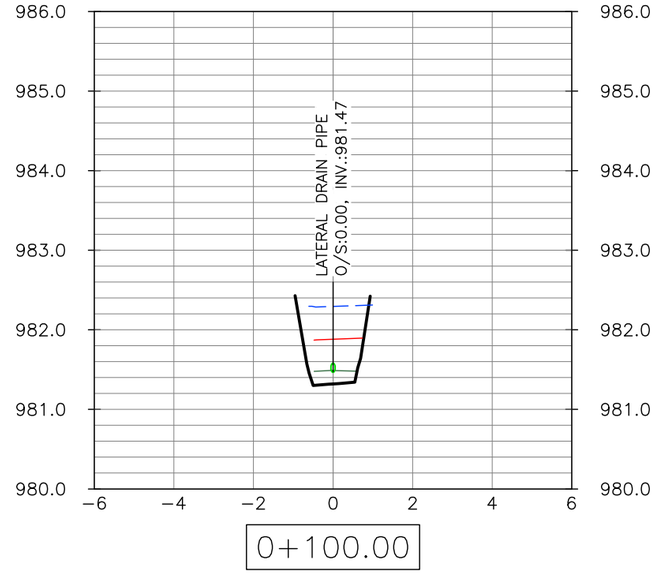
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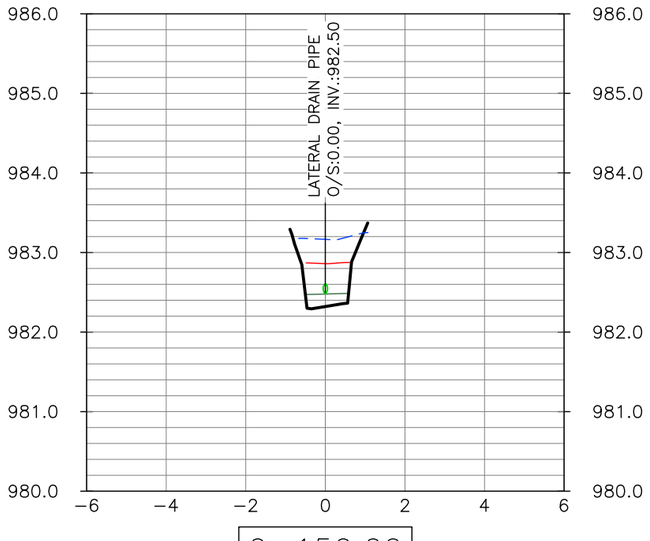
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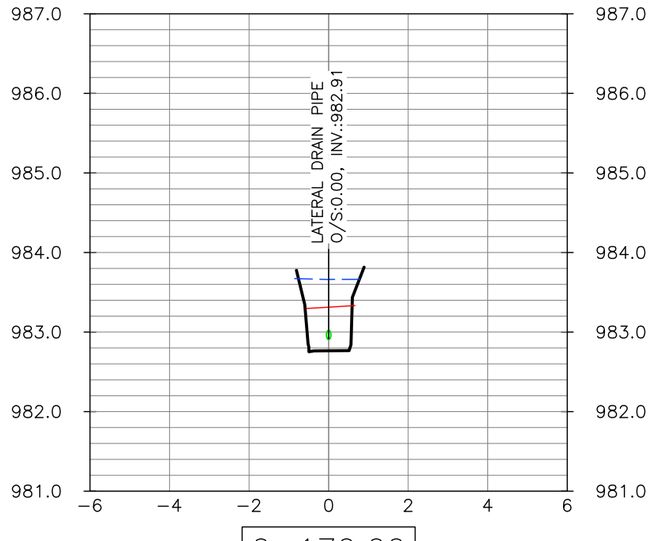
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NO.	DRAWING FILE:
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DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+725 WEST: 170.15m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT: EAGLE GOLD MINE CONSTRUCTION

TITLE: 0+725 WEST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

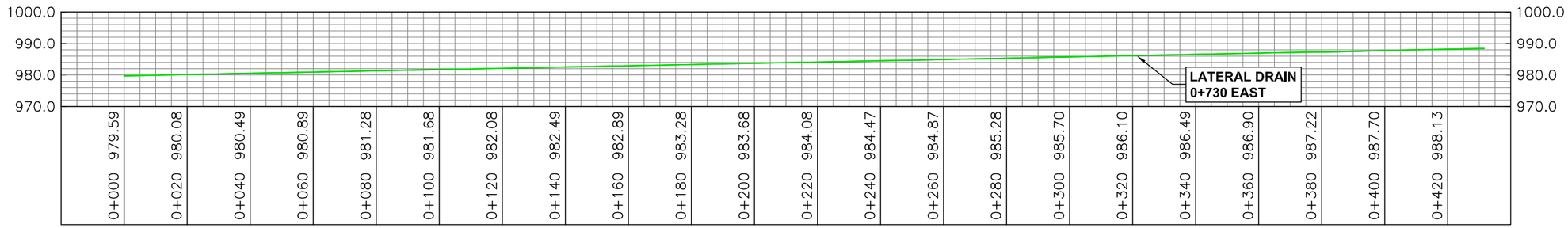
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SURVEYED: TEAM	CHECKED:
DRAWN: CM CB FvD	APPROVED:

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 028



REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+730 EAST: 431.66m INSTALLED

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT:

Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE
CONSTRUCTION

TITLE:

0+730 EAST
LATERAL DRAIN
INSTALLATION
PROFILE (ASBUILT)

DRAWING SCALE:

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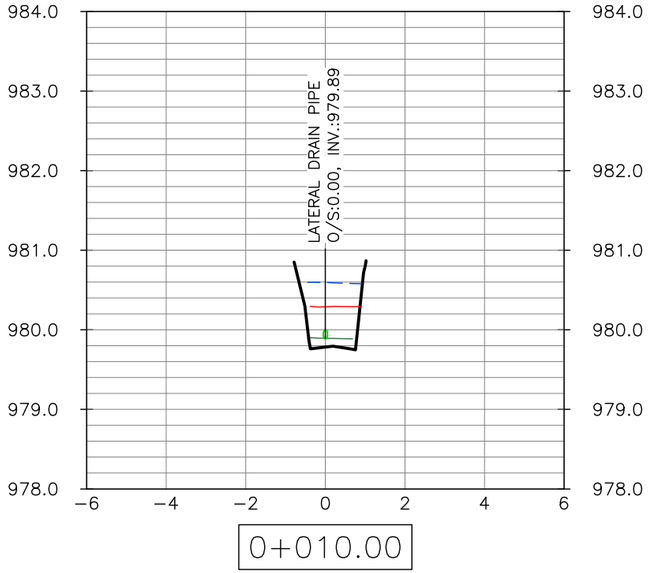
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SURVEYED: TEAM	**CHECKED:**
DRAWN: CM CB FvD	**APPROVED:**

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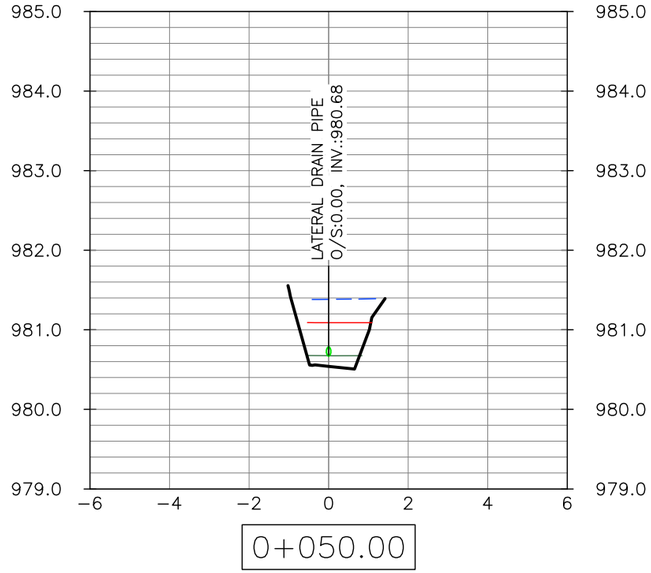
DRAWING VIEW:
11x17 Landscape

PROJECT NO.:
17003

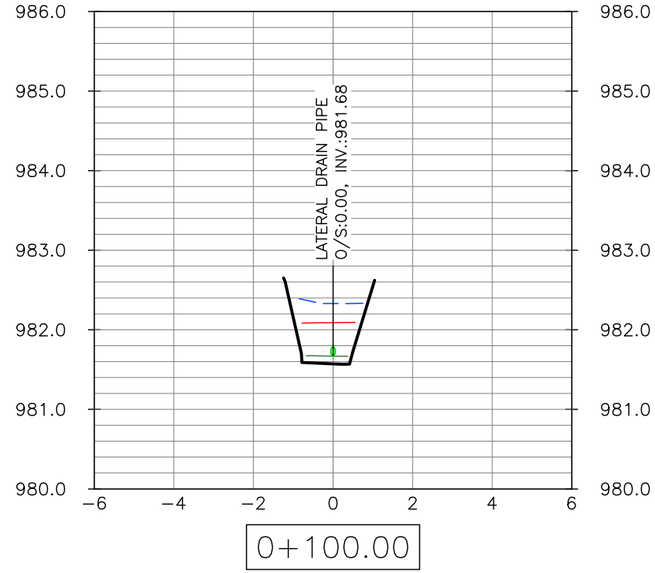
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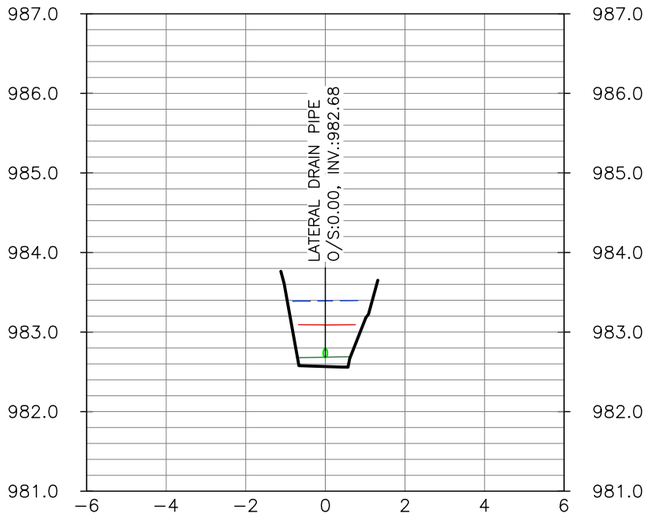
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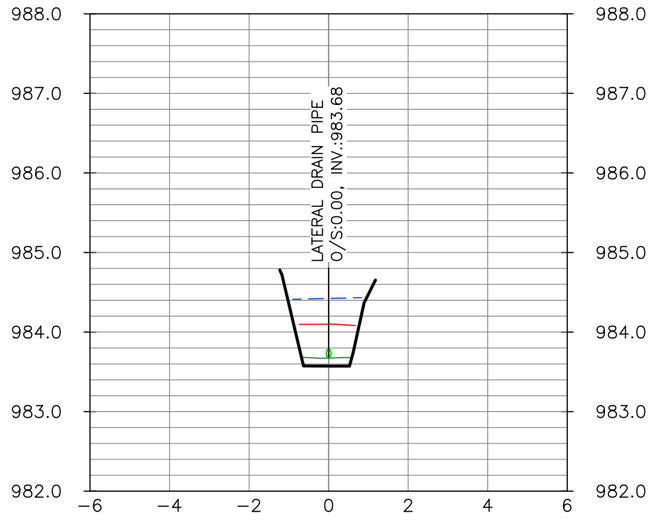
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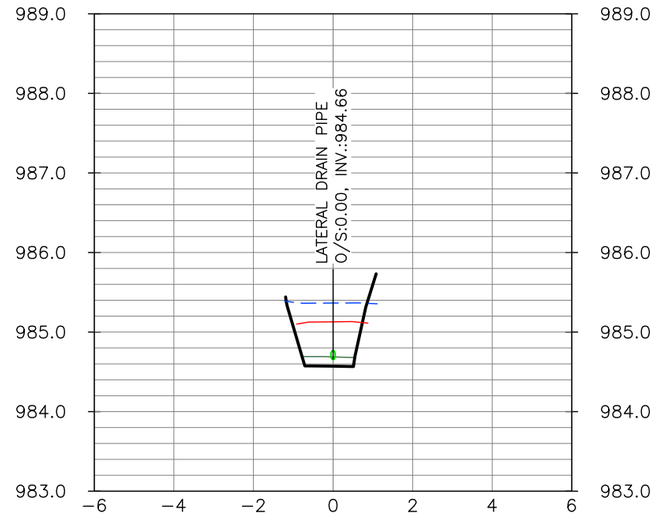
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NO.	DRAWING FILE:
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DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+730 EAST: 431.66m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+730 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

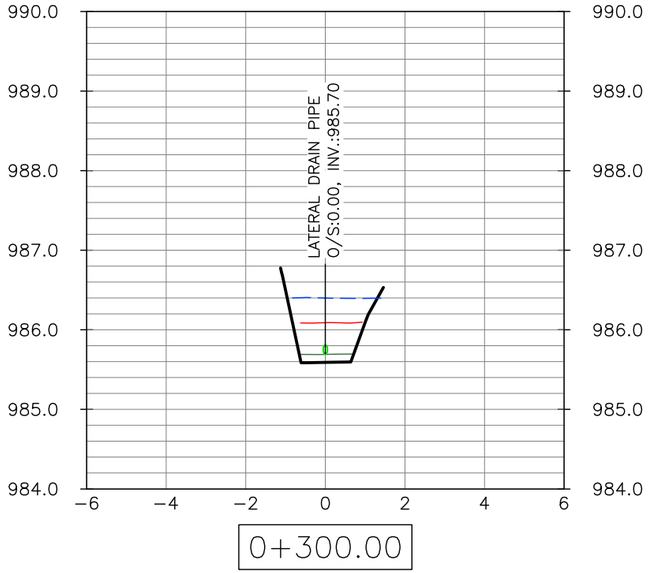
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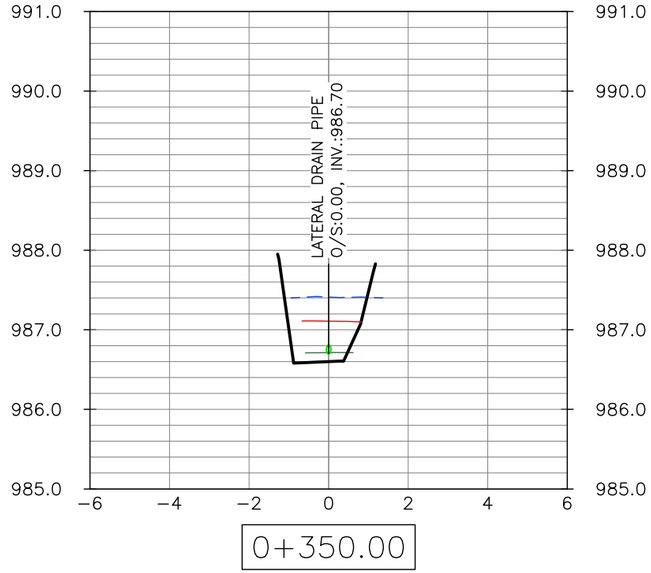
DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

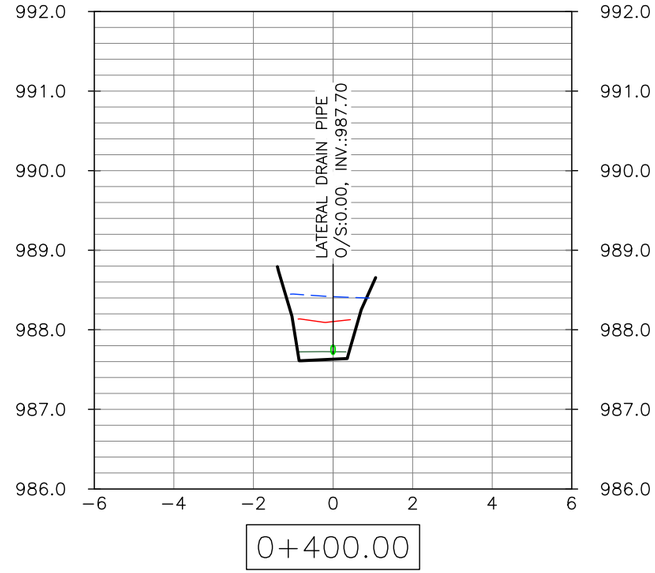
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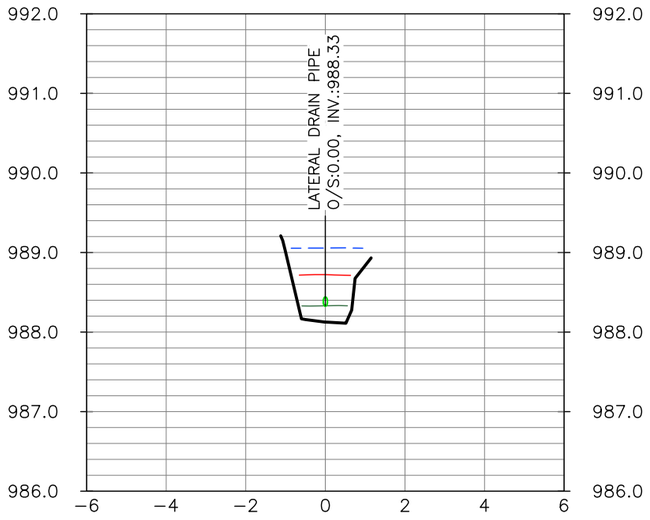
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0+400.00



0+430.00

REFERENCE DRAWINGS:

NO.	DRAWING FILE:
01	

DRAWING NOTES:

2019 PHASE 1A LATERAL DRAIN INSTALLATION

DRAIN PIPE ID - 0+730 EAST: 431.66m INSTALLED

LEGEND

- TOP OF SAND
- TOP OF CRUSH
- TOP OF BEDDING
- BOTTOM OF EXCAVATION

ISSUES:

REV.	YY/MM/DD	INIT.	DESCRIPTION
0.0	19/05/14	CB	ASBUILT ISSUE

CLIENT: Pelly Construction Ltd.

eshemuta Construction Surveyors

PROJECT:

EAGLE GOLD MINE CONSTRUCTION

TITLE:

0+730 EAST LATERAL DRAIN INSTALLATION SECTIONS (ASBUILT)

DRAWING SCALE: H 1:150, V 1:75

DATE:	19/05/14	**DWG No:**	184010-038
SURVEYED:	TEAM	**CHECKED:**	
DRAWN:	CM CB FvD	**APPROVED:**	

DRAWING FILE: 190414 HLF LATERALS & UNDERDRAIN ASBUILT.DWG

DRAWING VIEW: 11x17 Landscape

PROJECT NO.: 17003

SHEET: 031

APPENDIX 10
CONSTRUCTION QUANTITIES

Eagle Gold HLF
Phase 1A - As-Built Volumes
Prepared by JDS

Locations	Excavation	Wasted	Used	Common Used in other locations	Imported Fill Materials	Structure Composition						
						Material 2 – Select Fill (Reject Sand) (m3)	Material 3/Material 7 – Structural Fill/Rockfill	Material 4 – ODF (m3)	Material 5 – Select Drain Fill (or other material approved to fill the drains)	Material 8 – Anchor trench backfill	Material 10 – Rip Rap	Topsoil
Underdrains & Laterals	1,227	1,227	-	-	5,869	1,278	503	553	3,378	-	157	-
Embankment	193,637	169,407	15,358	7,958	842,594	4,068	824,523	374	1,653	-	334	27,000
In-heap Pond & Phase 1A (Sump-990)	580,602	512,562	2,840	68,000	194,304	5,925	78,770	107,500	4,399	-	550	-
Main spillway	10,500	6,340	-	3,000	9,753	450	7,900	570	600	-	233	-
Event Pond	863,000	432,600	261,000	169,500	276,150	2,800	533,000	90	960	-	300	-
Interceptor Ditch	-	-	-	-	2,349	-	-	-	-	-	2,349	-